Programme for Cycle 4

The following texts implement the spelling reforms proposed by the *Conseil supérieur de la langue française*, approved by the *Académie française* and published in the *Journal officiel de la République française* on 6th December 1990.

Phase 1: specifics of enrichment cycle (Cycle 4)

The Cycle 3 teaching programme ended with the first year of *collège*. Pupils have gradually become familiar with a new teaching structure and a new pace of teaching, and life in a new environment which they have learned to decipher and understand. They continue to develop competencies in the various disciplines and cross-subject courses. These competencies, which are assessed regularly and examined at the end of the cycle, will enable them to flourish personally, continue their studies and remain active learners throughout their lives, and to find their place in society and, as citizens of it, play a part in its development. The entire teaching and education staff contribute to the development of these competencies.

To demonstrate the main themes which characterise Cycle 4, there may be a focus on a number of aspects which, although featured in previous years, had not been presented in such a clear and systematic way.

- During the three years of *collège* in Cycle 4, pupils (who are now teenagers experiencing a variety of physical and psychological changes) will discover a **new relationship with themselves,** and their own bodies in particular, and new relationships with others. These young people will be helped to develop in a well-balanced way through physical and sporting activities and by taking on roles in the creation of cultural events, giving them pleasure in practical involvement and enabling them to acquire new powers of action in respect of themselves, others and the world in general. Pupils gain the ability to develop their own competencies as they face increasingly complex tasks which require more thought about the resources (knowledge, skills or attitudes) they are making use of. They find themselves making choices and using procedures for solving a problem or running a project in new and sometimes unexpected situations. This growing appropriation of the complexity of the (natural and human) world takes the form of **subject-based and cross-subject activities** through which they experience different perspectives on everyday objects. All teachers play an active role in this learning, and take responsibility for its successful delivery. To ensure that pupils are prepared to try out strategies which involve using trial and error, taking initiatives, making mistakes and starting again, teachers need to create **a climate of confidence** in which questions are welcomed and pupils need not be overly afraid of making mistakes.
- For the same reason, pupils will find themselves **switching from one language to another** and then choosing the appropriate type of language for the relevant situation, using natural languages, physical or artistic expression, scientific language and various social resources for communication and learning (images, sounds, digital media, etc.). Many of the texts and documents they need to understand or create will require a combination of different languages. Here again, an interdisciplinary approach will assist in creating the necessary flexibility and adaptability, provided that rather than causing confusion, it instead encourages dialogue and the sharing of different points of view.
- In a society characterised by **an abundance of information**, pupils learn to become media and Internet users who have an awareness of their rights and responsibilities and control over their digital identities, and gain the ability to exercise their critical faculties to identify and evaluate information sources using a richer knowledge of a constantly-changing world of media and documents. They use resources which enable them to search efficiently. To gain a better understanding of the society in which they live, pupils also need to understand that they play a part in the "big picture" of history. In this way, they are increasingly faced with **the historical dimension of knowledge** as well as the technological, social and environmental issues faced in today's world. Their goal is to make sense of this world so that they can make responsible, critical decisions and act accordingly in everyday situations, and – later on – in a wider context as citizens.
- **Abstraction and modelling** skills are now much more apparent, although not to the detriment of practical approaches to obtain these skills. All disciplines work together in the goal of educating pupils who are able to look beyond individual cases and use – and understand the limits of – effective modelling resources which can be applied to multiple situations.
- Pupils' **creativity**, which also crosses all academic cycles, further develops in Cycle 4 through a wide range of media (particularly technological and digital) and devices or activities such as group work, project-based approaches, problem-solving, creating personal works, etc. All pupils will be required to offer original solutions and employ their own personal resources to produce valuable, motivational creations. This encouragement of creativity, which is also based on the appropriation of major human achievements, is at the heart of the **artistic and cultural education strategy**.
- Life within the school, and its continuation outside, provides the opportunity to develop **a sense of responsibility and commitment** in all pupils, and an ability to **work together and co-operate with others**. A supportive school situation provides pupils with the best environment in which to develop their own independence and ability to start thinking for themselves. As pupils follow the moral and civic education programme and participate in the life of the *collège*, they are required to think more deeply about questions which often have complex answers, as well as the essential values on which our democratic society is founded.
- Indeed, throughout Cycle 4, pupils learn to balance **a respect for the rules which apply to a shared culture** with **a burgeoning capacity for personal thought** and the development of their own talents and aspirations, while at the same time becoming more aware of others, diversity issues and exploration, etc.
- The **Future strategy** enables pupils to apply the knowledge and competencies they have acquired to preparing their vocational project. This is introduced through a series of gradual choices.

By the end of *collège*, the competencies developed during this time are tested in the five main areas of the common

foundation of knowledge, competencies and culture, without allowing any one area to compensate for another.

Phase 2 – Essential contributions of different teaching and educational areas to the common foundation

This second phase of the Cycle 4 programme, rather than presenting all of the possible benefits for each disciplinary or educational area, instead shows its **essential, specific contribution** to the acquisition of each of the five domains of the common foundation of knowledge, competencies and culture.

Domain 1 Languages of thought and communication

This domain focuses less on the actual use of languages, and more on the means by which they are acquired. It requires pupils to adopt procedures for memorising, practising, reflexively learning and gaining an awareness of the topics being studied, including the French language in particular. In Cycle 4, the acquisition of these four mental operations continues, but the relative importance of awareness increases. Pupils must appropriate and master complex codes to enable them to conduct science work and understand and communicate via the written and spoken word and through the creation of images, sounds or actions.
Domain 1 is characterised by precise self-expression and an ability to demonstrate this through discussions and adapt to a variety of situations in order to perform an action or resolve a problem.
Pupils gradually progress from intuition and spontaneous actions to planned work which requires a more structured, formalised approach to production in accordance with rules and standards for understanding and sharing information. Cycle 4 is the point at which pupils examine codes for themselves and realise that they relate to infinitely powerful systems which promote freedom of thought and action.

Understanding and communicating using spoken and written French
The main targets of French teaching in Cycle 4 are: the comprehension of a variety of texts, dealing in particular with the perception of implication in them; the production of a range of written work covering specific intentions and contexts; clear verbal expression appropriate for the relevant communication situation. French teaching also encourages pupils to acquire an awareness of the language, helping them to reformulate, transpose, interpret, create and communicate.
All disciplines play their part in helping pupils to master the language. History and geography, science and technology provide training in specific language acquisition which promotes an understanding of the world. Study of the arts increases pupils' understanding of artistic language and their ability to communicate their appreciation of art. Moral and civic education leads pupils to express moral feelings and enter into reasoned debates. Media and information education helps them to master information and communication systems, developing relationships with others and personal autonomy.

Understanding and self-expression using a foreign or regional language
The teaching of foreign and regional languages helps pupils to extend and diversify their written and oral comprehension and expression skills in a range of languages; to switch from one communication method to another; to make use of a variety of language methods for interaction and learning purposes; and to consider how languages work, their internal variations, their similarities and differences.
All these disciplines help pupils with their document reading, comprehension and writing skills in the foreign or regional language, facilitating access to other cultural contexts.

Understanding and self-expression using mathematical, scientific and computing language
Mathematics, science and technology provide training in reading, understanding and producing various scientific and technical documents. They assist pupils' ability to switch from colloquial language to scientific or technical language, and vice versa.
Mathematics teaches pupils how to use numbers for expressing quantities and measurements, navigating and solving problems; quantities for modelling; and the properties of common shapes for solving problems and dealing with real-world complexities.
Scientific and technological disciplines all require skills in reading and using tables of data, processing coded information, and using algebraic language to generalise properties and solve problems. They also teach pupils how to communicate their strategies, results and choices, and to express themselves in scientific and technical debates. The act of reading and interpreting tables, graphics and diagrams also enriches other areas of knowledge.

Understanding and self-expression using artistic and body language

The visual arts and music play a particularly strong role in this area. Pupils learn to manipulate the components of visual languages for artistic purposes; to gain control over their spoken and singing voices, to modulate their expression, to perform

a repertoire and play a part within a group; to provide detail about their perceptions, feelings and understanding of artistic processes, and to take part in discussions on the appreciation of artistic works.
Physical and sporting education teaches pupils to develop communications systems within and through physical activity, and to acquire shared language so that they can implement effective techniques, take decisions and understand the activities of others within the context of individual/group sporting or artistic endeavours.

Domain 2 Learning methods and tools
Children learn what it means to be a pupil by following the example of adults, but also by adopting the rules and codes required by this domain. This process is crucially important to success, and applies to all areas of knowledge. It covers class work and private study as pupils gradually progress through the cycle. Such work develops the independence pupils require to pursue their studies. The issue in question is neither the specific teaching of a method nor a prerequisite to the acquisition of knowledge: it is during the day-to-day work of teaching the disciplines and at various points and places in school life that an emphasis is placed on which methods are specific to each discipline and which are of use to all. Modern-day life has provided schools with digital tools which provide access to a plethora of information, and the ability to process this information constitutes a key competency. Domain 2 covers the informed use of these resources for the purposes of acquiring knowledge (and not merely information) for the education of users who are aware not only of their potential but also of the risks they may entail and the responsibilities incumbent upon those users. The specialist rooms, the CDI and the digital work environments are intended specifically for this purpose. This domain covers all forms of learning through co-operative and collaborative work: in class, in practical interdisciplinary teaching sessions, in projects run by the pupils within the school in association with the values promoted in Domain 3, and through moral and civic education. All disciplines play a part in teaching pupils how to learn at school. They impart a familiarity with academic language, understanding instructions, appropriate vocabulary, handling everyday situations and taking notes. They help pupils to acquire strategies for listening, reading and self-expression. Structure and practice are key requirements for success, and they are acquired not only through lessons and exercises in the classroom, but also outside it, through day-to-day school life and the CDI. Each discipline makes its own contribution to this process. For example, sciences such as mathematics and technology present pupils with drills, memorisation exercises and complex tasks; physical and sporting education requires training, repetition, task complexity reduction or augmentation, concentration and analysis of mistakes made. The information technology teaching provided in mathematics and technology offers more in-depth use of digital resources and teaches pupils to make progress using trial-and-error methods. The volume of information to which pupils are exposed requires them to use appropriate methods for searching and making efficient use of it. All disciplines provide resources for this purpose, and media and information studies also teaches pupils how to master digital work environments. A range of diverse resources is required when working on single and multi-subject projects through practical inter-disciplinary teaching or the artistic and cultural education strategy. In particular, art projects require the use of practical, musical, documentary and cultural resources for expression. Languages can make a methodical, planned contribution to projects and discussions which combine skills in writing, reading, searching and communicating with people from other countries or regions. These projects develop co-operative competencies; e.g. working jointly with others for physical exercise or to develop motor skills, designing a multimedia activity for a particular user or contributing within the school to publications which comply with information technology rules and ethics. The media and information studies programme is delivered mainly by enabling pupils to acquire an information research and exploitation method which is used for the various disciplines. It seeks to pose questions about the reliability and relevance of any given information, and to identify sources according to media type. It helps pupils to use information structuring resources and methods and the available resource centres. Science and technology play a major role in helping pupils to master digital tools. They provide instruction in working with databases, organising and handling measurements and combining digital and graphical resources. More specifically, they let pupils analyse or simulate a natural phenomenon, test out their conjectures, gather and share field or laboratory data and analyse the technical characteristics of technical objects and systems and their technological environments. Other disciplines play a role in this learning process; e.g. French is based on processing different information sources (digital or otherwise), visual arts require pupils to identify the nature of different artistic digital productions and examine the effects of shape on design, while history and geography involve processing sources and presenting, disseminating and creating map-based representations.

Domain 3 Personal and civic development
Personal and civic development draws on all other teaching and the moral and civic education programme. This teaching requires a general level of cultivation which provides the necessary knowledge to illuminate personal choices and ethical engagement. It promotes a critical approach, an openness to others and a sense of individual and shared responsibility by presenting the fundamental values enshrined in the French Republic and the various declarations of human rights through debate, commitment and action. This in turn informs all other areas of the common foundation: pupils' ability to express their feelings and thoughts, to explain their choices, to contribute to controversial issues while respecting others; their ability to live and work in a group and within society as a whole; the scientific and technical knowledge which provides access to truth and proof and the distinction between these concepts and mere opinions, an understanding of the ethical issues of science and technology applications; compliance with rules and the ability to change them; the literary and historical knowledge required for an understanding of the meaning of citizenship, the place of the individual in society and the duty to protect it. The artistic disciplines offer an excellent way of developing sensitivity, as well as instilling in pupils the habit of respecting others' tastes and looking beyond fashion and assumptions to discover their own positions. Subjects such as French, history of art, history and geography, by the very nature of the reasoned debate with other points of view which they inspire, develop the vocabulary of feelings and judgement, sensitivity and thought, particularly with regard to current social issues and topical news. All disciplines, including the life and Earth sciences, moral and civic education and various occasions in day-to-day school life, contribute to pupils' respect for others, their awareness of how they use language to this end, and the fight against all forms of discrimination. Modern foreign and regional languages promote respect for different cultures and dialogue with them, preparing pupils for future mobility. Personal and civic training assumes an awareness and understanding of the rules of law prevalent in society. Geography and moral and civic education, through their use of real-life case studies, make pupils comfortable with appropriating the guiding principles of justice and the rules of how society works, and distinguishing the objective from the subjective. Media and information studies provides an introduction to concepts such as digital identity and traceability, which form the cornerstone of responsible information and communications practices. Moral and civic education introduces the basic principles of democracy and the values enshrined in human rights declarations. These rules also relate to everyday practices and life at school, as found in areas such as physical, sporting and artistic activities: once pupils have appreciated that they are a source of technical inventions, freedom and safety, they can establish positive relationships with others, and fellow pupils of the opposite sex in particular. School life also offers pupils a special opportunity to learn how to respect the rules of communal life and understand their own rights and duties. One of the key aims of Cycle 4 is to nurture this type of judgement. Each discipline plays its own part in this process by promoting the critical evaluation of the information found in media items and the sources thereof, teaching pupils to devise codes for evaluating physical activity and analysing encoded information, and also training them in matters related to judgements of taste. All disciplines are intended to support and expand methods of reasoning and establishing proof. For example, modern foreign and regional languages introduce pupils to alternative points of view and understandings, and help them to develop an overview of the issues at stake and look critically at their own habits and beliefs. Moral and civic education teaching provides an understanding of the range of different understandings of what it means to belong, and how a secular society protects the freedom of conscience and equality of its citizens. Literary culture provides resources for debates on the "big questions" of life. Mathematics and scientific/technical culture help to develop a critical approach and a taste for truth; this in turn enables pupils to assess the impact of discoveries and innovations on our lives, world views and relationships with the environment. Media and information studies require pupils to question the democratic issues associated with journalistic information and social networks. Cross-disciplinary projects provide an ideal opportunity for making use of the competencies acquired in this way. They need to be energised and driven forward by acts of initiative. Science and technology disciplines have a particular ability to engage pupils in design work, prototype creation, manual, individual and group activities, projects and entrepreneurial initiatives. These initiatives and examples of involvement, along with participation in joint activities, school bodies and shared class experiences, all require pupils to exercise citizenship in an explicit way.

Domain 4 Natural systems and technical systems
Domain 4 provides a key (but not exclusive) opportunity for examining the history of science in conjunction with the history of human societies. It offers an introduction to the basic principles of scientific modelling and an understanding of the power of mathematics, the need to be aware of orders of magnitude from an infinitely large universe to the infinitesimally small scale (from cells to atoms). It constantly requires pupils to use different scales and proportionality. It lends a perspective to factors which may seem self-evident, such as the measurement of time and space. In Cycle 4, pupils start to appreciate risks, whether natural or related to human activities, and analyse their natural and human causes and consequences. They are made aware of public health issues related to behaviour and nutrition, and find examples of practical preventive strategies in physical education. They explore the world of objects, their production, design and life cycles; they measure their uses in everyday life. The aim of science, including mathematics, is to describe and explain natural phenomena by performing and using measurements, making use of knowledge in the domains of matter, life, energy and the environment and examining causes and models to predict effects in order to establish a sense of universal perspective, with an awareness of scale and orders of magnitude. The technology describes and explains technical objects and systems which fulfil requirements by analysing existing uses, modelling their functional structures and behaviour, and describing the data and energy flows exchanged. Physical and sporting education facilitates an understanding of the phenomena governing movement and exertion and helps to identify the effect of emotions and exercise on thought patterns and agility of movement. Media and information studies introduces pupils to recent technological developments in media products and teaches them how to master them. Science subjects help pupils to imagine, model and appreciate the complexity of the world in the numerical, geometric, graphical and statistical forms which symbolise mathematical language. These help them to make inferences and deductions using problem solving, trial and error, conjecture and validation strategies. They help in the teaching of logical reasoning using numeric or literal arithmetic, geometry and algorithms. They show pupils how to interpret data and take decisions by structuring and analysing that data using visualisation tools. They learn how to conduct experiments in compliance with safety regulations. Media and information studies is a precious resource to support these investigative strategies. It helps pupils to distinguish popularised scientific information from pseudo-scientific information by identifying relevant cues and checking sources. History and geography also contribute to the investigative approach by requiring pupils to devise strategies for selecting information received in class, combining them with their ideas for explaining an event, a concept or the structure of an area. Technology subjects link technological applications to knowledge, and link technological progress to the advances made in scientific knowledge. They enable pupils to design and produce a complete or partial technical object or system, studying its creation process, designing the prototype for a hardware or software solution and seeking to improve its performance. Arts subjects help pupils to interpret the world, act within society and change their environments using sensitive yet rational questioning approaches designed to respond to complex issues with actual practical creations or experiment with content and techniques to produce a musical project conveying a feeling, a point of view, a particular meaning or a narration. Science subjects, including mathematics and technology, in conjunction with moral and civic education, put pupils' basic knowledge to use in understanding and adopting responsible patterns of behaviour towards the environment and the planet's resources, health and the applications generated by technical progress. They help to differentiate between individual and shared responsibilities in these areas. Physical and sporting education contributes to an understanding of health issues through physical exercise.

Domain 5. Representations of the world and human activity
In Cycle 4, pupils start to develop the critical mentality and taste for controversy which will later characterise *lycée* teaching. They develop an awareness of history by examining evidence of the past, shared and individual recollections and works inspired by them. They start to place them in the context of the society in which they live, as it gradually expands to encompass far-off worlds and a diverse range of cultures and beliefs. They start to enrich their own work with quotations which they appropriate or rework to produce new meanings. This expansion of their experience of time and space allows them to work on developing information and media in human societies, separating the visible from the invisible, the explicit from the implicit and reality from fiction. The study of the countryside and urban areas in which most humans live opens a number of perspectives to provide an understanding of the complex systems which underpin the societies created by modern man. This is also the domain which develops creativity and imagination, and qualities of questioning and interpretation which call for personal commitment and judgement in conjunction with Domain 3. History and geography are model examples of disciplines which make use of temporal reference points to connect people, events, locations, works of art and human achievements with spatial references ranging from everyday living spaces to the way the world is structured. However, other disciplinary and educational fields also make a contribution to this area, such as media and information studies, which provides information about the history of writing and the media it has used. The essential goal is to help pupils to develop their own culture. This is true of French, where pupils acquire their own living, structured literary culture, and in the areas of art history and art, which examine the relationship between the work and space and time as part of a creation process linked to human history, ideas and societies, in which knowledge is acquired through significant experiences and an objective study of a number of great legacy works. Science and technology subjects also make their contribution by developing an historical awareness of their development, showing the ways in which they have changed, and the resulting effects on society. As they encounter the various educational disciplines and fields, pupils also learn to establish their own place within a social context. History and geography provide them with access to the political, geographical and cultural structure of the world. Through moral and civic education, they start to appreciate their responsibilities as human beings and citizens. They also learn to use communications tools, making a crucial distinction between private and public spaces, understanding that the media portrays views of the world which need to be understood and recognised for what they are. As they develop their scientific and technological culture, they come to understand the existence of close links between science, technology and societies and learn to appreciate and evaluate the effects and durability of innovations, particularly in the digital world. The Future strategy helps them to find their own place within a context of restrictions which should be understood when producing academic and professional projects. Understanding how societies work and are structured is also a question of being familiar with the processes via which they are constructed. These various disciplines give pupils an awareness that they stem from a wide range of human experiences. French contributes to this by teaching pupils to recognise the symbolic aspects of texts, to understand their historical contexts and the ways in which they have been appreciated, and to interpret them and form a reasoned personal opinion of them. Modern languages extend pupils' understanding of linguistic and cultural diversity, and of the range of issues associated with this variety. Art teaching and the artistic and cultural education strategy help pupils to experience and understand the specific characteristics of artistic productions which are considered to be portrayals of the world, examinations of human existence, interpretations and suggestions. Pupils obtain an insight into the complexity of the world and its various processes by working on projects. These can arise from practical interdisciplinary teaching areas, with each discipline lending its own individual character. The goal of actual production is ever-present, whether the set task is to depict the complexity of the world by producing mental maps, schemas and sketches, exercising creativity through individual or group work on exhibitions, theatre, fiction or poetry writing, or creating a media production. These initiatives promote creativity at their points of intersection. Technology, for example, trains pupils in the compromises required to make improvements to existing technical objects and systems; physical and sporting education, through the challenges, tests and encounters it generates, teaches pupils to combine the resources needed for each set activity and use them to become increasingly independent; modern foreign and regional languages, by enabling participation in projects in multilingual and multicultural contexts, increase potential mobility.

Phase 3: teaching areas

French

In Cycle 4, as in previous cycles, the teaching of French plays a key role in academic success; not only does it develop the reading and expression skills used in all fields of knowledge and social life, but it also aids the acquisition of literary and artistic culture.
In Cycle 3, pupils developed the ability to read, write and interpret documents of various kinds, particularly literary texts. They enriched their written and verbal communication and expression skills in increasingly complex situations, structuring their knowledge and developing their own methods of thinking. They started to undertake an explicit, conscious language study process designed to assist comprehension and expression.
The teaching of French in Cycle 4 constitutes an important additional stage in nurturing independent thought, supported by the correct, precise use of the French language, the development of a critical mentality and judgement skills which will be required at *lycée* level.
This teaching is structured around skills and knowledge which can be grouped into three key themes:

- the development of active and passive oral and written language skills ;
- the enhancement of linguistic competencies which provide a synthetic understanding of the system underlying the language, including spelling, grammatical and lexical systems, along with elements of the history of the language (in association with ancient languages and modern foreign and regional languages);
- the establishment of a shared literary and artistic culture, establishing a dialogue between literary works of historic national significance, contemporary works, French-language literature and literature in ancient languages and foreign/regional languages, and other artistic works, including still and moving images in particular.

French teachers will work to combine these various teaching strands, structuring activities and teaching in a coherent way around converging goals, divided into periods, and creating a teaching progression over the academic year which is tailored to the needs of their pupils. In this way, work on developing oral and written language competencies is closely linked to the exploration and study of literary texts and works of art chosen freely by the teacher in response to the topics providing the structure for pupils' literary and artistic culture in Cycle 4.
Work in French, in each of the various possible methods of delivery (French lessons, one-to-one support, practical cross-disciplinary teaching, etc.), provides a rich variety of interconnections between each of the disciplines. Both in cultural and linguistic terms, French teachers pay particular attention to developing links with the languages and cultures of Antiquity. They also draw freely upon themes from art history in devising projects and creating links between the linguistic arts, other art forms and history. Furthermore, the teaching of French plays a key role in media and information studies: digital resources find a natural place in French classes and are integrated into everyday classwork, as is an awareness of their uses and the issues they involve. Lastly, French teaching contributes strongly to pupils' moral and civic development; firstly, in that it enhances their abilities to present a reasoned argument; and secondly, in its exploration and critical examination of the key anthropological, moral and philosophical questions raised by works of literature.

Practised competencies	Foundation areas
Oral comprehension and expression • Understanding and interpreting complex spoken messages and speech. • Controlled self-expression when speaking to an audience. • Participating constructively in verbal exchanges. • Exploiting the expressive and creative resources of the spoken and written word.	1, 2, 3
Reading • Reading images, composite (including digital) documents and non-literary texts. • Reading literary works, exposure to works of art. • Producing interpretations of literary works.	1, 5
Writing • Using the written word to assist thought and learning. • Adopting effective writing strategies and procedures. • Using reading to enrich personal writing.	1
Understanding how the language works • Understanding the basic aspects of how syntax works. • Understanding the differences between verbal and written expression. • Mastering word forms in association with syntax. • Understanding how verbs work and are spelled. • Mastering the structure, meaning and spelling of words. • Building concepts for analysing and producing formal written and spoken work. • Using points of reference in etymology and language history.	1, 2
Acquiring the basics of literary and artistic culture • Making use of cultural references to interpret artistic and literary texts and productions to enrich one's own personal expression. • Establishing links between literary and artistic productions from a variety of different cultures and periods.	1, 5

Language, oral and written competencies

ORAL LANGUAGE

Oral language teaching in Cycle 4 gives pupils greater access to the codified genres of the spoken language as they use it and identify its characteristics. Specific formal oral teaching is delivered in conjunction with reading and writing activities. Pupils learn to take advantage of listening to structured spoken presentations: they learn to produce them for themselves, make efficient use of prepared notes, control their own expression and make contributions to discussions.

Expectations at end of cycle

- Understanding structured spoken presentations (narratives, lectures, broadcast documentaries, news bulletins).
- Producing a continuous oral presentation of five to ten minutes in length (introduction to a literary or artistic work, presentation of research results, supported defence of a point of view).
- Interacting constructively in a debate, respecting others' right to speak.
- Reading a text aloud in a clear, intelligible way; reciting a literary text from memory; taking part in a dramatic presentation.

Knowledge and associated competencies	Sample situations, activities and resources for pupils
Understanding and interpreting complex spoken messages and speech – Identifying the main themes of a spoken presentation, sorting the information it contains, memorising key information. – Separating the explicit from the implied in a statement.	Listening carefully and actively, quoting, summarising and reformulating the words of others.
Controlled self-expression when speaking to an audience ➢ **Presenting a report** • Familiarity with the functions of a report and the forms it can take. • Efficient use of documents used in support of the presentation. ➢ **Telling a story** • Familiarity with oral narrative techniques. ➢ **Expressing sensations and feelings, formulating a personal opinion on a work or situation with the intention of sharing that point of view** • Using a precise, extensive vocabulary.	Introducing a work or an author. Formulating a response after reading a work; presenting a point of view. Detailing a personal strategy. Work on personal achievement records. Producing supporting documents for the presentation.
Participating constructively in verbal exchanges ➢ **Interacting with others through exchanges, conversations and research situations** • Familiarity with conversational codes in public situations, conventions of politeness. ➢ **Participating in a debate, putting forward a reasoned argument and responding appropriately to other speakers** • Familiarity with debating techniques. ➢ **Chairing and moderating a debate**	Classroom interactions in a variety of situations. Discussion and debate activities, including interpretation debates, literary debates and reading circles.
Appreciating and exploiting the expressive and creative resources of the spoken and written word. – Resources regarding voice, breathing, facial expression and gestures. – Multi-modal techniques (text, sound and images).	Reading aloud and memorising passages. Spoken and dramatic adaptations. Use of digital technologies to record the voice and add sound, text and images.

Progress benchmarks

Pupils must continue to develop codified social verbal techniques in contrast to the spontaneity of everyday conversation. However, they are not expected to achieve absolute technical accuracy or full mastery of presentation and debating techniques. At the start of the cycle, the emphasis is placed on reports, verbal narratives and spoken and dramatic adaptations of passages. Throughout the cycle, work is conducted on expressing feelings, sensations and reasoned judgements, participating in organised debates and rehearsing talks; this process gradually becomes more structured and demanding. It is reasonable to expect pupils to be able to deliver a continuous speech lasting for ten minutes by the end of the cycle. A portion of the support sessions is devoted to oral training.

WRITING

In Cycle 4, pupils explore the different functions of writing and learn how to enrich their own writing strategies. Through a diverse range of frequent writing activities, they learn to use linguistic resources and the knowledge acquired from their own reading to assist them in their own writing tasks. Their written work shows increasing awareness, giving them the ability to improve their own writing. They are able to use writing for working and learning purposes. They understand that no first draft of a written work is ever perfect, and that it must be reworked to find the best phrasing and refine the intentions and thoughts it expresses.

Expectations at end of cycle

- Communicating a feeling, point of view or reasoned judgement in writing and using a range of media (paper, digital), taking account of the intended audience and following the main conventions of written language.
- Stating their appreciation of a literary or artistic work in writing.
- In response to a set writing task, producing a piece of creative writing in a literary genre covered by the programme, ensuring that it is coherent and follows the main conventions of written language.
- Using writing to aid thought and develop work resources.

Knowledge and associated competencies	Sample situations, activities and resources for pupils
Making use of the key functions of writing ➢ **Understanding the role of writing** • Knowledge of the history and uses of writing. • Knowledge of the functions and forms of writing in social and cultural life and school contexts. • Knowledge of the functions and existing/potential uses of new print media. ➢ **Using the written word to assist thought and learning** • Producing preparatory written notes. • Note-taking using a variety of media. • Knowledge of note-taking techniques and uses.	Examination of the uses of writing (social, personal, literary, etc.). Production of lists, mental maps, attempted phrasings, schemas, drawings. Production of individual or shared written records. Comparison of notes taken. Observation of differences in phrasing according to message type (email / paper letter, etc.).
Adopting effective writing strategies and procedures – Considering the intended audience, the aims of the writing and the characteristics of its genre and written medium, from initial notes through to final proofreading. – Strategies intended to produce ideas or information for the intended written work. – Structuring the written work according to the applicable rules for the relevant written genre and its medium. – Use of linguistic conventions. – Checking and improving the quality of the text while writing, during proofreading and in hindsight.	Regularly practising a wide range of writing types, particularly in digital form. Explicitly stating authorial intention. Rewriting passages in accordance with a change of audience, purpose, tone, etc. Supplying varied texts or text fragments. Altering, imitating and reappropriating texts. Group research into phrasing to improve, enrich and transform a written text. Using dictionaries, checking tools and word processing software. Enhancing written work: reading out loud, publishing according to typographical rules.
Practising creative writing – Using a knowledge of the characteristic features of literary genres to produce creative writing, incorporating various media where applicable. **Using reading knowledge to enhance personal writing** – Being familiar with the main literary genres. – Using text analysis tools.	Imitation, transposition and substitution games. Poetic games. Varied forms of writing activities involving the imagination or reasoned argument. Writing appreciations of works which pupils have read. Using textual resources (reference texts, trigger texts, lexical treasuries) to solve a writing problem.
Progressing from intuitive use of arguments to a more controlled use – Being familiar with the main functions and characteristics of reasoned argument: using explanations to help others to understand a phenomenon, giving demonstrations to share a problem-solving strategy, producing supporting evidence to justify the reasons for one's actions, debating to win others over to a point of view.	Rewriting passages taken from literature or journalism to alter the thrust of their argument. Producing written work which defends an opinion in response to a written piece supporting a different point of view.

– Locating and identifying procedures intended to support a line of reasoning (structuring of statements, choice of examples, rhetorical forms).	

Progress benchmarks

Writing activities are a constant part of the curriculum, and are offered in conjunction with reading and oral expression activities. From the start of the cycle onwards, pupils are encouraged to keep personal written documents (notebooks, skim-reading and creative writing books, glossaries, various intermediate written work, etc.). The school's digital gateway allows pupils to take advantage of and share individual and group writing. They become used to switching between short written pieces and longer-form work which may ultimately be published and publicised within the class or school. A 5ème pupil should be capable of producing a correct piece of written work of 500-1000 characters in length after proofreading and correction. In the 4ème and 3ème, a goal of 2000-3000 characters is set, depending on the type of writing. Long-form group writing can extend to even greater lengths.

There are improvements in phrase complexity, vocabulary precision and textual coherence throughout the cycle.

READING AND COMPREHENSION OF WRITEN MATERIALS AND IMAGES

Cycle 4 sees the continuation of the work started in the previous cycle: the creation of meaning through the formulation of reading hypotheses based on textual indicators, which are defended and debated in class. This approach is cemented through written and oral work. However, in Cycle 4, the written works for reading are more varied and complex, and require a more subtle approach to the characteristics of the genres and registers used to create an impression on the part of the reader. The process of interpreting the work and presenting a reasoned opinion on it is developed throughout the year, and becomes a central task. Pupils encounter more difficult texts and documents in which the implicit meaning, intended goals, inter-textual references and cultural contexts of the work must be identified and understood.

Still and moving images constitute an important resource in Cycle 4: they present pupils with depictions of the world and thus aid their perception of literary texts; they also provide an opportunity to introduce pupils to semantic procedures similar to those used for the texts and to develop specific methods of analysis for each of them; they grant pupils access to a complementary culture which opens a dialogue with literary culture and enriches it.

Expectations at end of cycle

- Independently reading and understanding varied texts and composite images and documents on a variety of media (paper, digital).
- Reading, understanding and interpreting literary texts, basing an interpretation of them on a few simple analysis tools.
- Locating literary texts in their historical and cultural context.
- Reading a work in full and giving an oral report of the reading process.

Knowledge and associated competencies	Sample situations, activities and resources for pupils
Reading a variety of texts with various goals ➢ **Adjusting reading in accordance with the goal in question** ➢ **Adjusting reading to suit the media and methods of expression** ➢ **Recognising the implicit meanings in a text and making the necessary inferences and reading hypotheses** ➢ **Making use of a range of reading strategies** • Factors promoting textual coherence. • Cultural references in the texts. • Nature of the documents. • Identifying the linguistic codes of the relevant school.	Reformulating, putting mental images into words. Vocabulary comprehension strategies. Controlling and monitoring reading.
Reading composite images and documents (including digital) and non-literary texts – Characteristics of various set documents (scientific, media, composite, etc.). ➢ **Reading and understanding various still and moving images drawing on painting, visual arts, photography, advertising and cinema, basing one's reading on a few simple analysis tools** ➢ **Locating the works in their historical and cultural context** • Image analysis information. • Associations between literary works, illustrative images and cinematographic adaptations.	Readings and analyses of various texts and documents Information processing. Interpreting press cartoons or caricatures Giving descriptions in simple terms but using appropriate vocabulary for the work in connection with the literary programme or the history of art programme. Orally presenting a work or a short corpus. Museum visits, viewing a number of landmark works from cinema history: identifying processes and searching for meaning.

<table>
<tr><td></td><td>Formulating value judgements of taste, which can be revised during discussions with peers or the teacher.</td></tr>
<tr><td>Reading literary works and viewing works of art
– Various literary genres.
– Characteristics and issues associated with the media and digital environment.
– Major works since the time of Antiquity, their context and inter-arts dialogue.</td><td>Activities combining reading / writing / speaking.</td></tr>
<tr><td>Producing an interpretation of literary texts
➢ Formulating reading impressions
➢ Observing an aesthetic effect and analysing its sources
➢ Locating a work in its context to illuminate or enhance its reading and establishing relationships between literary and artistic works
• Concepts of literary analysis.
• Stylistic procedures.
• Fundamentals of history and literary history.
• Basic principles for analysing theatrical, cinematographic, pictorial and musical works.</td><td>Formulating value judgements of taste, which can be revised during discussions with peers or the teacher.
Work on information sources.
Spoken and dramatic adaptations.
Comparing divergent interpretations of a single text or passage, and defending interpretations using textual information.</td></tr>
<tr><td colspan="2">Progress benchmarks:
Every year, teachers cover topics from the programme using resources drawn from: literary classics (with an effort to cover all eras from the Middle Ages to the twentieth century); contemporary literature; classical and foreign literature; Francophone literature; children's literature; non-literary texts of various kinds and purposes (social and documentary works). They also use works from a wide range of artistic domains. The main purpose of this approach is to transcend artificial boundaries to establish continuous links between the past, the present and issues from the world of tomorrow in an open, rich cultural environment.
In every year of the cycle, pupils read:
• at least three complete works in unabridged form;
• at least three complete works in skim-read form;
• at least three groups of texts (analytical and skim-reading).</td></tr>
</table>

Linguistic competencies: language study (grammar, spelling, vocabulary)

Cycle 3 placed an emphasis on concepts to assist the acquisition of spelling, and provided a study of the language in the context of its use for reading and writing purposes.
Cycle 4 continues this learning pattern, expands the concepts and rules already studied and introduces new concepts and other practical aspects of how the language works. It is also intended to enable pupils to understand the overall workings of the language and how it is structured. To this end, it has been decided to base the programme on central concepts which will be studied in increasing depth throughout the cycle. Exercises and drills in spelling, grammar and vocabulary, which call for both memory learning and conscious understanding, provide a basis for specific sessions, without losing sight of text production activities, oral presentations and structured reading around issues from "literary and artistic culture." A surfeit of terminology should be avoided: Cycle 4 is less about developing exhaustive knowledge of all aspects of the sentence and the text, and more about appreciating that language is a system and that it is put to use in speech. The structure of this teaching is based on the following concepts:

* **Grammar as a tool for acquiring the necessary linguistic skills of reading and writing to acquire the meaning of texts and conduct supported literary analyses. These competencies are also used in the production of written work.** Concepts regarding textual consistency and cohesion are studied in context as part of reading and writing activities. Progress is supported by pupils' written work.
* **Grammar as a tool to assist spelling**. The work started in Cycle 3 continues with the aim of building a more informed relationship with spelling norms, while still setting key priorities regarding regular spelling structures which must be learned and absorbed instinctively. The teaching of spelling makes reference to the spelling reforms published in the *Journal officiel de la République française* on 6th December 1990.
* **Grammar as a tool to assist linguistic awareness**. The aim is not for pupils to memorise rules or grammatical labels as an end in itself, but rather that they should develop intellectually and acquire an enquiring attitude. The goal is to help them appreciate that language is a structured system, and to prompt them to consider the norms, appropriateness and acceptability of a given form. This approach, which takes a wider view of language in order to examine its structure and the way in which it works, was first used in Cycle 3, with a special emphasis on concepts and mechanisms relating to spelling. In Cycle 4, syntax is now the subject of more systematic study, and classes of words and their relationships are studied from the point of view of their syntactical function. In order to develop an understanding and overall view of the way the language works, specific sessions need to be devoted to structuring the knowledge acquired through oral, reading and writing activities. In this way, language study develops and nurtures alertness with regard to grammar and spelling, and this ability to take a critical view when observing language has knock-on benefits for oral, reading and writing activities, enabling the conscious use of linguistic resources.

The terminology used in the continuation of the programme must be acquired by the pupils.

Expectations at the end of cycle 4

- Analysing the properties of a linguistic item.
- Being aware of the level of acceptability of a statement.
- Using spelling, syntactical and vocabulary knowledge to produce texts in a variety of contexts
- Proofreading one's own written work using the appropriate tools.
- Being able to make a contextual analysis of how lexical units are used; identifying a lexical network in a text and appreciating its effect.
- Using linguistic knowledge when reading/writing texts in order to construct the meaning of the text and its relationship to a literary genre or to a form of discourse.

Knowledge and associated competencies	Sample situations, activities and resources for pupils
Familiarity with the basic aspects of syntactical function ➢ **How a simple sentence works** • Distinction between non-verb sentence / simple sentence / complex sentence. • Breaking the components of a simple sentence down into compulsory (subject, predicate) and optional (complement of sentence) components. • Identifying syntactical groups: their components and functions. • Identifying classes of words and demonstrating their properties. • In-depth study of the properties of the grammatical concepts required for correcting spelling and producing written work which complies with standards; in particular, extending classes of	Work based on: pupils' own writings (whether of a suitable standard or not), sentence corpora and/or texts produced by pupils, literary (or otherwise) texts, as an invitation to a problem-solving approach (problem situation). Manipulation activities to mark characteristics and ascertain levels of dependency: – removing; – repositioning; – replacing;

determiners (possessives, demonstratives, interrogatives, exclamations) and pronouns, and linking these two classes together. • Observing word order and its effect on the meaning of a sentence. • Identifying sentence types and forms. • Concept of detached construction (or apposition). ➢ **How a complex sentence works** • Identifying the components of a complex sentence (by analogy with the components of a simple sentence). • Concepts of juxtaposition, coordination and subordination. ➢ **Role of punctuation** • Analysing the syntactical role of punctuation marks and the correct use of these marks.	– expanding/reducing; – modifying (changing the form and type of the sentence: bookending with *c'est… que/qui* or with *ne… pas*, nominalisation, pronominalisation, reformulation). Combining activities involving reasoning and activities to encourage the automatic acquisition of procedures. Using an interactive whiteboard or word processor to perform syntactical manipulations. Observing the effects created by changes in punctuation; identifying possible choices and restrictions regarding punctuation.
Understanding the differences between spoken and written language ➢ **Syntactical aspects** • Introduction to a comparative approach to oral and written syntax: unit breakdown, unit order (words and groups). ➢ **Oral and written forms** • Effects of writing upon speaking (liaison) and of speaking upon writing (elision). • Comparing oral and written morphological markers. ➢ **Prosodic aspects** • Observing oral and written textual prosody and structure (segmentation, punctuation, paragraphs, verses, etc.). • Prosodic, semantic and syntactical functions of punctuation. • Concepts of textual diction.	Compiling and transcribing oral corpora, comparing against written corpora. Transposing from oral to written, e.g. when creating a written record of orally collected statements; comparing the choices made in transposing the initial statement; analysing the changes made. Listening to oral statements to identify liaisons and elisions and transcription exercises; reading statements aloud while identifying occurrences of liaisons and observing their production. Distinguishing verbs ending in /e/: replacement procedure in all contexts to assist with writing the infinitive, imperfect and past participle; distinguishing the other forms of verbal homophony (especially verbs ending in /i/); distinction of noun/verb homophony (e.g. *le travail/il travaille*). Identifying word stress locations using texts read aloud or oral corpora; identifying syntactical groups with the assistance of prosodic phenomena. Preparing for reading aloud by identifying syntactical groups; distinguishing punctuation marks according to their function Compiling oral corpora by verbal action (requesting, refusing, apologising, etc.), comparing different ways of speaking, comparing against written corpora.
Mastering the form of words in association with syntax ➢ **Understanding the way chains of meaning work** • Agreement in complex noun phrases (with several nouns, several adjectives, a relative clause, determiners such as *tout*, *chaque, leur*, etc.) • Agreement of the past participle with *être* (to be associated with the adjective) and with *avoir* (preceding direct object) - simple cases. • Agreement of the adjective and past participle in a separated position. • Verb agreement in complex cases (source of agreement separated from the verb, with several nouns, with several persons, relative, collective or distributive pronoun, indicating a quantity, presence of	Discussions on grammatical markers following dictations, in a whole-class or group context; rewriting work; tests of spelling judgement and any exercise intended to examine possible mistakes and their nature. Creating chains of agreement. Defending choices made (oral or written). Analysing pupils' work, corpora of mistakes or any exercise which enables pupils to identify

a pronoun or of another syntactical group between the source of agreement and the verb, etc.). ➢ **Knowing how to proofread a written text** • Knowing how to check markers in chains of agreement (knowing how to query spelling, knowing how to assess the relevance of a written choice). • Identifying errors (knowing how to analyse the error type and source, possible alternatives).	danger areas. Producing grids of common mistakes Collectively devising correction strategies. Using resources (grammatical, tools produced by the class, digital resources) to correct one's own work.
Mastering how verbs work and how they are spelled ➢ **Demonstrating the link between meaning and syntax** • Identifying verbs with direct and indirect constructions, verbs with multiple objects; demonstrating constructions using pronominalisation; analysing the meaning of verbs based on their construction. • Identifying reflexive verbs. ➢ **Mastering written verbal morphology** with the support of regular structures and verb decomposition (radical, mood/tense markers, person markers for personal moods) • Identifying the main tenses and moods. • Forming simple tenses: systematically adopting generative rules for verb forms in a variety of simple tenses (indicative, imperative, present subjunctive, imperfect subjunctive tenses in the 3rd persons) starting from the radical of the present participle and/or a knowledge of verb basics. • Constructing compound tenses; knowledge of the past participles of verbs (*é*, *i*, *u* and forms with a final consonant). • Constructing the passive. ➢ **Demonstrating the link between tense and meaning (aspect).** • In-depth study of aspect in tenses using observations and comparisons: contrast between simple and compound tenses (complete/incomplete); contrast between tenses which do/do not cover the entirety of the action (limited/unlimited: *elle lut une page/elle lisait une page*). • Observing the effect of aspect in tenses on their uses (foreground/background). • Main uses of the various modes. ➢ **Memorising verb forms:** simple past and subjunctive forms of common verbs (*être, avoir, aller, faire, dire, prendre, pouvoir, voir, devoir, vouloir, savoir, falloir, valoir; verbs whose infinitives take -er*); present, imperfect, future, present tense of conditional mood, imperative forms of less common verbs	Syntactical manipulations to demonstrate verb constructions. Using articles from dictionaries to link meaning and construction and study the semantic fields of verbs. Re-using verbs in written work (writing with restrictions). Observing and sorting verb forms. Mood/tense formation exercises Identifying and categorising past participle forms. Passive construction exercises; active/passive sentence conversions and analysing the effects of the meanings of these conversions. In (reading or writing) context, demonstrating tense and verb aspect and increasing awareness of effects achieved (pupils do not have to learn aspect-related terminology) . Rewriting passages or statements using different tenses, discussions to establish what is acceptable or not, and to appreciate the effects achieved Comparing statements to consider mood values (*je promets qu'il ne viendra pas / je préfère qu'il ne vienne pas / je promets de venir*). Training in memorising verb forms.
Mastering the structure, meaning and spelling of words ➢ **Morphological observations:** deriving and composing, etymology and neology, word spellings, particularly those from Latin/Greek roots or borrowed from foreign languages; demonstrating changes of syntactical category induced by derivation (*déménager/déménagement ; beau/beauté*, etc.) and their effects on spelling ➢ **Networking words** (forming groups by lexical field and semantic field) and gaining an increasing ability to rank them by degree of intensity and generality ➢ **Analysing word meanings:** polysemy and synonymy, categorisations (generic/specific terms), nuances and shifts in meaning, set expressions, verb construction and variations in meaning ➢ **Using different types of dictionary**	Words are studied **in context** (comprehension and production) and **out of context** (specific activities on vocabulary and morphology). Observing and manipulating forms, categorising, organising lexical knowledge (creating collections, etc.) and recontextualising. Forming word families from common Latin roots; a few examples of Greek etymons from educated and scientific vocabularies, in association with the various disciplines. Multiple-choice texts; explicit commented justifications. Training in identifying writing probabilities. Using dictionaries in paper and electronic formats.

Constructing concepts needed for analysing and producing text and speeches ➢ **Observing the variety of possibilities offered by the language** • Identifying factors which establish register (communication situation, issue at stake, etc.), and those which characterise it (structure of statement, vocabulary, syntax) using a number of contrasted examples. • Introduction to variation using the identification of various means of expressing the same idea or a new idea: changes in the meanings of words over time, neologisms, borrowing; variations according to place, context, method of communication. ➢ **Considering the characteristics of texts read or produced by pupils** • Identifying and interpreting aspects of the context of the statement: who is speaking to whom? where? when? (person, place and tense markers); considering the context of the statement when producing written work; agreement phenomena linked to the articulated statement (*je, tu*). • Observing, recognising and using reported speech, directly or indirectly; identifying cues which express doubt or certainty in the reported speech itself or on the part of the person reporting the speech. • Identifying and interpreting modal markers (modal use of the conditional, modal verbs: *devoir, pouvoir*, etc., modalising adverbs). • Identifying and using linguistic aspects of textual cohesion: noun substitutes and resumptive pronouns; naming and description systems, role of indefinite and definite determiners; indicators of time and place, and of logical relationships; tense system. • Identifying spelling phenomena which are not restricted to the sentence, including in particular orthographic effects on subject and complement resumptive pronouns (*il, elle, leur*). • Identifying and using text structuring markers (page layout, typography, punctuation, connectors). • Observing the thematic progression of the text. • Recognising active/passive forms and their semantic values; permutations to express insistence or emphasis; presentatives; semantic value of impersonal sentences.	Work on corpora: statements created by the teacher, pupils' own work, literary extracts, documents. Work comparing these corpora. Producing texts for a varied range of recipients. Work on (literary or non-literary) texts containing gaps, creating an opportunity for pupils to study the linguistic aspect in question. Work on pupils' oral and written submissions: delivery of texts and group proofreading and correction; use of digital tools. Written long-form work involving a number of narrative voices or multiple nested enunciative contexts. Identification of reported speech in a passage; rewriting exercises which vary the means of reporting speech and analysis of the effects created in context. Rewriting texts with the aim of introducing certain persuasive effects: expressions of doubt, certainty, etc. Identification of elements of repetition in a text; exercises to vary and substitute these elements Putting inferences into words using chronological, spatial and logical information. Spotting verb tenses and identifying the tense system used; rewriting passages using different tenses. Schematic depiction of the progression of the text (subject-plot); writing using an imposed form of progression

Terminology used

Grammatical classes: noun / verb / determiner: definite, indefinite and partitive articles, demonstrative, possessive, indefinite and interrogative determiners, numeral / adjective / pronoun: personal, possessive, demonstrative, relative, interrogative, indefinite. Adverb / preposition / conjunction: coordinating, subordinating / interjecting Grammatical groups (demonstrated through manipulations)
Grammatical functions
Functions in the sentence: sentence subject, sentence predicate (what is being said about the subject), complement of sentence or circumstantial complement
The functions of grammatical groups: noun complement, verb complement, adjective complement Verb: radical – tense marker – person marker Tense / mood / aspect / auxiliary / active - passive
Non-verb sentence / simple sentence / complex sentence
Juxtaposition / coordination / subordination
Subordinate / relative subordinate, conjunctive, indirect interrogative clause
Sentence types: declarative, interrogative, injunctive, exclamative
Sentence forms: passive, emphatic, impersonal
Radical / prefix / suffix / composition
Homonymy / polysemy / synonymy

Progress benchmarks

The essential principle of this progression is the concept of acceptability (according to genres, enunciative contexts, intended and actual effects), which forges links with both the common foundation and the communication-based approach promoted in modern languages.
The progressive approach used in Cycle 4 adds depth to each concept, choosing the most relevant attributes for each. The aim is also gradually to equip pupils with an attitude of awareness which will enable them to manipulate, describe and comment on language.
There are three key levels: the word (lexical choice, morphological markers, role in syntactical construction), the sentence (construction and semantic coherence) and the text (enunciation, cohesion, coherence). These three levels are developed throughout the cycle, but an emphasis is placed on the textual level in the 4ème and 3ème.
From the 5ème to the 3ème, pupils explore the studied concepts, initially looking at very clear examples before refining their knowledge and competencies by moving on to examples which lend themselves more to discussion, giving them a better insight into what is covered by rules and what is at the discretion of the writer or speaker.
Their gradual memorisation of verb forms and growing familiarity with procedures enabling them to interpret and spell new words introduce them to habits which enable them to concentrate more on the actual content of the texts they produce or read, and thus to tackle increasingly demanding texts.
From the 5ème to the 3ème, pupils gradually discover the increasingly refined nuances that the language enables them to express, in terms not only of words and expressions but also of constructions.
From the 5ème to the 3ème, the enunciative structure of the texts pupils must read and produce becomes increasingly complex, thus requiring more and more precise knowledge; pupils start by learning to define a generic enunciative context, then a more complex context. They find themselves managing written agreements requiring the consideration of an increasing number of factors.
The textual concepts to be developed in pupils' written production are as follows: textual coherence (mastery of the anaphoric chain and noun and pronoun substitutes, mastery of verb tenses and moods), clause linking (logical links), and mastery of the subject and the statement with an appropriate use of punctuation. These concepts are approached through successive enrichments throughout the year and the cycle, drawing on pupils' language production work.

Literary and artistic culture

The acquisition of literary and artistic culture is one of the key objectives of French teaching. It assumes that pupils are acquiring a taste for reading and can make a personal commitment to doing so; that, to this end, they are being encouraged to read a large number of books; and that they can acquire the knowledge which will enable them to appropriate and structure this culture, refine their understanding of works and texts, and interpret them in increasing depth.
In Cycle 4, the study of French in all its various constituent parts is structured around four key themes - "Finding and making yourself", "Living and participating in society", "Looking at the world and inventing worlds" and "Taking action in the world" - each of which is covered in a specific topic every year. Work based around these themes is supported by a corpus, as indicated here, but is not limited merely to the study of written works; it also includes the activities of writing, oral work and language study. All component parts of French are covered These compulsory topics are accompanied by additional topics chosen at the teacher's discretion. These themes and topics cast light on the ultimate goals of the teaching programme; they present reading and literature as doorways into the world around us, suggested responses to the questions asked by human beings, and also specifically literary issues related directly to the French language. As they cover these topics, pupils are led to appropriate the texts for themselves and view them not as an end in themselves, but rather as an invitation to further thought. They are accompanied by additional information regarding literary issues and personal education, and corpus guidelines giving compulsory and (non-exhaustive) optional works for study. These guidelines provide a structure to teachers' annual schedules and offer a balance between literary genres and forms; they specify compulsory topics needed to build a common culture and offer gateways to media education and other forms of artistic expression (especially pictorial works and films); they constitute an invitation to explore a particular genre, literary and artistic movement or concept, and establish links with the history syllabus: some topics are indeed ripe for joint work between different disciplines, especially in the context of Practical Interdisciplinary Teaching.
Every year, topics are addressed in the order chosen by the teacher; each issue can be addressed several times, at different points in the academic year, as a function of differing issues and priorities; the teacher may also combine two topics at the same time during the year.

	Finding and making yourself	Living and participating in society	Looking at the world and inventing worlds	Taking action in the world	Additional topics (at least one per year, selected by teacher)
5ème	**Travel and adventure: why journey into the unknown?** ***Literary and personal development issues:*** *– discovering various forms of adventure stories (fictional and factual), and written works celebrating journeys;* *– understanding the motives for the quest for other places and experiences and considering the values this reveals;* *– considering the meaning of the depictions given of travels and the discoveries made during them.* ***Corpus guidelines:*** *Study areas:* *– in association with the annual history timetable (Theme 3: Europe and the World in the 16th and 17th Centuries), extracts from works relating to Great Discoveries (works of fiction or fact from this period or later)* *It is also possible to study poems of adventure and the lure of other places, or an adventure story, as a collection of texts.*	**With others: families, friends, networks** ***Literary and personal development issues:*** *– exploring various different dramatic and narrative forms portraying relationships with others;* *– understanding the complexity of the relationships, attachments and tensions which are depicted in these works and assessing the issues at stake;* *– examining the meaning and problems of the conquest of autonomy within or against a group.* ***Corpus guidelines:*** *Study areas:* *– a 17th-century comedy (unabridged).* *It is also possible to study extracts from fictional or factual stories about childhood and adolescence as a collection of texts.* *This topic may also present an opportunity to make use of written work from the media and social networks.*	**Imagining new universes** ***Literary and personal development issues:*** *– exploring text and images from different genres, portraying imaginary, utopian or fantasy worlds;* *– being able to perceive the coherence of these imaginary universes;* *– appreciating the power of reshaping the imagination and considering what these texts and images lend to our perception of reality.* ***Corpus guidelines:*** *Study areas:* *– a fantasy tale (in unabridged form).* *Pupils may also study extracts from utopian fiction or science fiction works, or even a group of poems or stories which poetically reshape reality.* *Still images or extracts from films creating imaginary universes may be used.*	**Heroes/heroines and heroic deeds** **Literary and personal development issues:** *– exploring works and texts which cover epics and romances, offering a portrayal of the hero/heroine and his/her actions;* *– understanding the exemplary significance of the hero/heroine's actions and the relationship between the singularity of the character and the collective dimension of the values portrayed;* *– examining the diversity of depictions of heroes/heroines and the sense of interest they evoke.* **Corpus guidelines:** *Study areas:* *– in association with the annual history timetable (Theme 2: Society, Church and political power in the feudal western world, 6th-15th centuries), extracts from mediaeval epics, chansons de geste and chivalric tales* ***and*** *– extracts from epic works from the time of Antiquity to the 21st century* *Use may also be made of extracts from comic strips and films (or film extracts) depicting hero/heroine figures.*	– **Are humans masters of Nature?** **Literary and personal development issues:** *– Considering the relationship between human beings and Nature using texts and images taken from depictions of nature in various different eras, in relation to art history, and assessing reversals in these depictions starting in the 19th century and continuing into modern times;* *– understanding and anticipating human responsibilities today.* **Corpus guidelines:** *It is possible to study and make use of:* *– (in association with the annual history and geography syllabi): realistic or poetic descriptions, illuminations and engravings/paintings depicting ways of disciplining Nature from the Middle Ages to classical times, or romanticised portrayals of the actual or imaginary beauty of Nature;* *– futuristic stories, photographic records of changing landscapes and ways of life.* – **Free topic**

4ème	**Portrayals of love** ***Literary and personal development issues:*** *– discovering lyric poems from different eras expressing a diverse range of lovers' discourses;* *– understanding the nuances of amorous feeling and a few of the reasons why it has been a major theme for literary and artistic expression;* *– examining the role of images and references in amorous lyricism.* ***Corpus guidelines:*** *Study areas:* *– a collection of love poems from the time of Antiquity through to the modern day.* *Other possible study works may include a 17th-century tragedy, an 18th-century comedy or a 19th-century drama, or extracts from short stories, novels and films offering an analysis of amorous feeling.*	**The individual and society: a conflict of values?** ***Literary and personal development issues:*** *– exploring, via texts from dramatic and romantic genres, conflicts in the values embodied by characters;* *– understanding that the structure and dynamism of dramatic or romantic action are bound up with conflict, and grasping the interests and values they portray;* *– examining the possible reconciliations (or otherwise) between the depicted value systems.* ***Corpus guidelines:*** *Study areas:* *– a 17th-century tragedy or tragicomedy (in unabridged form) or an 18th-century comedy (in unabridged form).* *Pupils may also study extracts from novels or short stories from the 18th, 19th, 20th and 21st centuries as a collection of texts.*	**Examining reality through fiction** ***Literary and personal development issues:*** *– exploring narrative works and texts which deal with realistic or naturalistic aesthetics;* *– understanding the ambitions of the 19th-century realistic or naturalistic novel in terms of its portrayal of society;* *– understanding how fantasy stories, while forming part of this aesthetic, examine the nature and limitations of reality;* *– considering the manner in which characters are presented and their role in the depiction of reality.* ***Corpus guidelines:*** *Study areas:* *– in conjunction with the annual history syllabus (Themes 2 and 3: "Europe and the 19th-century world" and "Society, culture and politics in 19th-century France"), a realistic or naturalistic novel or short story collection (unabridged); use can also be made of a cinema or television adaptation of a realistic or naturalistic novel or short story (study in unabridged form or collection of extracts)* ***and*** *a short fantasy story (unabridged).*	**Information, informing and misinforming?** ***Literary and personal development issues:*** *– exploring articles, reports and news images drawn from a variety of media and formats, all relating to a single event, society issue or common topic;* *– understanding the importance of verifying and matching up sources, the difference between raw facts and information, and the effects of compiling and editing;* *– examining editorial changes made to information.* ***Corpus guidelines:*** *Study areas:* *– passages and documents taken from the press and media (newspapers, magazines, radio or television recordings, digital media). This work can be carried out in conjunction with the Semaine de la presse et des médias (Press and Media week), as a preparation for (or continuation of) this event.* *Use can also be made of texts and documents produced for propaganda purposes or demonstrating how information can be manipulated.* *Pupils may also study extracts from novels, short stories or films from the 19th, 20th and 21st centuries depicting the world of the press and journalism.*		– **The city: a place where anything is possible?** **Literary and personal development issues:** *– showing how the city inspires writers - poets, authors of crime novels, the famous romantics of the 19th and 20th centuries, etc. – and artists who depict all of the diversity, complexity and contradictions of the city;* *– considering the ambivalence of depictions of the urban environment: a place of escape, freedom, encounters and discoveries, but also a place of "damnation", solitude, disillusionment, fear and utopias;* *– examining the consequences of future development of mega-cities.* **Corpus guidelines:** *It is possible to study and make use of:* *– descriptions and narratives taken from great novels dating from the 19th century to the present day, presenting contrasting portrayals of the urban environment;* *– poems which frame the city as a poetic object.* *It is also possible to study the importance of the city in crime novels and science fiction works. Other possible sources are extracts from films, comic strips, photographic portfolios, etc.* – **Free topic**

3ème	**Self-description and self-depiction** ***Literary and personal development issues:*** *– exploring different forms of autobiography and self-portrait;* *– understanding the reasons and purpose of tasks which involve describing or depicting oneself;* *– appreciating the effort to capture oneself and search for the truth, examining the reasons for, and effects of, the composition of the autobiography or self-portrait.* ***Corpus guidelines:*** *Study areas:* *– a book of an autobiographical nature or an autobiographical novel (unabridged)* ***or*** *– extracts of works from different centuries and genres, covering various forms of autobiography and self-portrait: essays, memoirs, autobiography, autobiographical novel, personal diaries and correspondence, etc. The collection may include major examples of self-portraiture or autobiography in other art forms (painting, photography or the moving image - video or cinema).*	**Exposing the shortcomings of society** ***Literary and personal development issues:*** *– exploring satirical works, passages and images representing a range of genres and forms, and from different art forms;* *– understanding the reasons, goals and methods of satire, the effects of irony, exaggeration, belittlement or displacement which it uses, being able to enjoy its wit and appreciate its scope and limitations;* *– examining the moral and social dimension of satirical humour.* ***Corpus guidelines:*** *Study areas:* *– works or texts from the time of Antiquity to the present day, covering a variety of literary genres and forms (including satirical poetry, novels, fables, philosophical or comical tales, pamphlets)* ***and*** *– newspaper drawings or posters, caricatures and comic strip albums.* *It is also possible to use extracts from shows, radio and television broadcasts, or satirical online digital productions.*	**Poetic visions of the world** ***Literary and personal development issues:*** *– exploring works and texts mainly covering modern romantic lyrical poetry;* *– understanding that poetry draws upon all of a language's resources to celebrate and intensify our presence in the world, and consider its meaning;* *– cultivating a sensitivity to the beauty of poetic texts and examining the relationship with the world which they invite the reader to experience through reading them.* ***Corpus guidelines:*** *Study areas:* *– poems or passages in poetic prose from the Romantic period to the modern day, to demonstrate the diversity of visions of the world representing a range of different aesthetics; the collection may include key examples of paintings of landscapes.*	**Taking action in the city: power and the individual** ***Literary and personal development issues:*** *– exploring 20th-century works and texts from a range of genres and covering the major historical upheavals which characterised the period;* *– understanding how literary texts go beyond the status of historical documents and offer not merely testimony, but also simple rhetorical efficiency;* *– considering concepts of commitment and resistance and the relationship with history which characterises the set works and texts.* ***Corpus guidelines:*** *Study areas:* *– in association with the annual history syllabus (study of 20th century, Theme 1: "Europe, a major theatre for total wars"), a work or significant portion of a work dealing with the history of the century – world wars, inter-war society, fascist and totalitarian regimes (unabridged).* *It is also possible to study extracts from other works from a range of literary genres, as well as pictorial works or extracts from works of cinema.*		– **Scientific progress and dreams** **Literary and personal development issues:** *– examining the concept of scientific progress cherished by the 19th century, extolled and mythologised, yet also the source of repulsion and disillusionment;* *– investigating the relationships between science and literature, particularly through works which portray learned men: the creators of tomorrow's happiness or evil, diabolical figures;* *– examining art's role in considering, imagining and even anticipating scientific and technological progress.* **Corpus guidelines:** *Science fiction short stories and novels and futuristic stories can be studied. It may also be possible to use passages and documents taken from the press and the media (newspaper or magazine articles, radio or television recordings, digital media).* – **Free topic**

Intersections between teaching areas

These concern efforts to improve the coherence of pupils' education, a joined-up interdisciplinary approach, a moral and civic education aspect to all disciplines, work on practical interdisciplinary teaching and the long-term implementation of the artistic and cultural education strategy and the Future strategy. The following proposals are not intended to be exhaustive, but offer potential ways in which to assist the work of teaching staff.

FRENCH AND CLASSICAL LANGUAGES

French teaching constantly brings pupils into contact with classical languages. These languages allow them to explore different writing systems and syntaxes; they provide insights into the history of the language, the production of the vocabulary and the meaning of the words; and they open up horizons and unlock the cultural references which have always informed literary, artistic and scientific creation. They are therefore positioned at the intersection between French and Romance language teaching, history and art history programmes (painting, sculpture, architecture, lyrical arts, theatre, etc.) and artistic teaching. They offer reading resources in the study area of myths, beliefs and heroes. They enable pupils to build collections of works and draw inspiration from them for their own personal rewritings or studies of modern transpositions of old myths (theatre, cinema, novels, poetry); they can also lead to the exploration of local architectural heritage.

Possible practical interdisciplinary teaching, "Languages and cultures of Antiquity" and "Artistic culture and creation" themes - in association with classical languages and history

- 5ème : Investigations into the use of Latin in the Middle Ages. Changes in the French language over time.
- 5ème, 4ème : Decryption of Latin texts from the Middle Ages to the 18th century (religion, science and philosophy).
- 5ème, 4ème : Searching for Latin or Greek expressions still used today; creating an illustrated glossary.
- 3ème : Work on the theme of myths and their role in literature from 16th-21st centuries (rewritings of Greek tragedies, lyrical poetry, novels).

FRENCH AND MODERN FOREIGN OR REGIONAL LANGUAGES

There is much to be gained from drawing comparisons between French and the various other languages which pupils learn. This approach encourages an examination of the coherence of different linguistic systems and the areas where they link, diverge or overlap.

Such comparisons may cover syntactical and lexical similarities and differences; they help pupils to identify common sources for different families of languages, explore relationships to enrich the meaning of words and appreciate that each language has its own unique view of the world. By studying a number of cases where modern or ancient vocabulary has been borrowed or exported, pupils learn that languages are living organisms in a state of constant change. There is also a benefit to be derived from shared work to consider how each language constructs its own verb and tense system and expresses logical relationships. This also provides an opportunity to harmonise the use of grammatical terminology, where possible.

In terms of culture, reading French-language versions of regional, European and world classic literature – and in particular works which have had a strong influence on French literature – may inspire group work, the reading of extracts in their original language, and an understanding of the cultural contexts in which these works were created. Such work, which also encompasses Francophone literature, shows that the French language offers multiple forms of expression which enrich the use of French through creative work.

Possible practical interdisciplinary teaching (all levels of the cycle) – in association with foreign and regional languages and arts subjects Theme: "Foreign and regional languages and cultures"

- Comparative grammatical studies between languages.
- Work on texts in foreign or regional languages: translation problems, comparison of translations.
- Preparing a bilingual exposé or video sequence which compares the diversity of everyday habits and customs.

Theme: "Artistic culture and creation"

- Project based on a foreign country or region with a different language, informed by translated works from this country / region, artistic works, etc.
- Courtly romances and poetry from the Occitan tradition or the Arthurian cycle.

FRENCH, HISTORY AND MORAL & CIVIC EDUCATION

The table of annual topics, while not restricted to the chronological pairing of the texts and historical periods being studied, enables joint or coordinated work between French and history. Over and above the compulsory sections of the programme, French teachers make an essential contribution to teaching competencies covered in the history programme, particularly with regard to identifying and reading historical documents and using different languages. Either through practical interdisciplinary teaching or as part of the artistic and cultural education strategy, a variety of work can lend a practical meaning to the travelogues of explorers from all eras, Oriental tales and their orientalist avatars by testifying to links to other

cultures, the portrayal of the societies of the Middle Ages, royal entertainments in Versailles, the heroic models glorified by the French Revolution, or patriotically engaged poetry from the Second World War. Issues from the moral and civic education programme are suitable topics for research and discussions in order to provide effective training in debating skills.

Possible practical interdisciplinary teaching, "Artistic culture and creation" and "Information, communication and citizenship" themes - linked to history, geography, moral and civic education, art history, visual arts and music

- 5ème : Work on the theme of the Great Discoveries: justification for voyages drawn from the accounts of explorers (from Christopher Columbus to James Cook), their descriptions of new lands, where reality meets fantasy.
- 5ème : Writing real-life or fictitious "travel notebooks/travelogues", possibly in the form of a blog, using historical information. Oral presentations or dramatisation work.
- 5ème : Study of oriental tales (*One Thousand and One Nights*) in conjunction with the study of Islamic civilisation. The boundaries of realism and fantasy in fiction. Use of historical information and art history themes.
- 5ème : The "smuggling" role played by texts of Antiquity from Arab civilisation to the Middle Ages.
- 5ème, 4ème : Society under Louis XIV, as seen through Molière. Projects based on topics such as the châteaux of Vaux-le-Vicomte and Versailles: tales, skits, poetry, documentary texts (reading and writing), research (media and information studies). The constant presence of Antiquity (operas, paintings, sculptures) in the arts from the 17th century up to the Revolution and Empire.
- 4ème : Work based on the French Revolution. Project to create characters, with their points of view expressed in a variety of forms (correspondence, first-person writings, public speaking, etc.). Potential reference to the heroes of Antiquity.
- 4ème : Research into the Republican motto and the origins of the *Déclaration des droits* document as a contribution to an exhibition.
- 4ème : French society in the 19th century as seen through literature (bourgeoisie, peasantry, townsfolk, etc.): Hugo, Zola, Maupassant, etc.; writing articles for imaginary newspapers, fictitious interviews with writers, etc.; imaginary trials.
- 3ème : Literature and totalitarian regimes (where realism meets metaphor).
- 3ème : The two World Wars and literature: patriotic poetry, resistance (with links to the present), compilation of a poetry anthology, spoken and dramatic adaptations, etc.

FRENCH AND THE ARTS

The art history programme offers a number of connections to literature, visual arts, music, architecture, live entertainment and the cinema. Pupils are made aware of continuities and disruptions, the means by which artists appropriate, rework or alter earlier works and visions of the world, thus creating movements and schools which bear witness to their own times. It is also possible to work on citation methods and the fused, hybrid forms found in today's world and contemporary art. It is also possible to make links with geography working on architecture, town planning and changes to landscapes (actual and imaginary) or spatial utopias.

The specific field of image analysis is shared between several disciplines, each of which benefits from coordinated corpora and the appropriation of investigative vocabulary.

Possible practical interdisciplinary teaching, "Artistic culture and creation" and "Information, communication and citizenship" themes - linked to visual arts, music, art history and art

- 5ème, 4ème : Preparing an exhibition on changes in garden arts from the Middle Ages to classical times.
- 4ème : Visions of the city at the end of the century, in the form of maps, sketches, photo-montages and narratives.
- 3ème : Portraits and self-portraits: why do women and men portray themselves in paintings, photography, sculpture or literature? Pupils produce commentated collections.
- 3ème : Are caricatures insults or exposés? Pupils examine press cartoons; satirical drawings by pupils based on news items or school life.
- 3ème : Images in propaganda between 1914 and 1945; research, analysis of posters, photos and films.
- 3ème : Hybridisation, fusion and globalisation in art.

FRENCH AND OTHER FIELDS OF KNOWLEDGE

French can also be used to support the development of expressive abilities in all disciplines, including scientific. In conjunction with the CDI and the transliteracy teacher, there is an effort to develop the essential and now-ubiquitous competences required at all education levels regarding information processing and familiarity and use of the media.

Possible practical interdisciplinary teaching, "Information, communication and citizenship", "Science, technology and society" themes - in combination with physics/chemistry, life and Earth sciences, media and information studies

- All levels of cycle: Introducing, portraying and appropriating space: enhancing and explaining one's own work, presenting it to an audience in verbal, written, digital and dramatised form, etc.
- All levels of cycle: Helping pupils to read/write scientific texts (experiment reports, formulated hypotheses, etc.).
- All levels of cycle: Work on scientific vocabulary, but also games with words from scientific domains (e.g. expressions from astronomy, water, bodily organs, in association with ancient languages, etc.).
- All levels of cycle: Comparing mythical and scientific portrayals of different phenomena studied in life and Earth sciences, examining: cultural acquisitions regarding the myths and big questions which they attempt to answer; identifying evidence of these myths which persists in contemporary culture (e.g. astrology; the distinction between what is the preserve of belief and what has been constructed using scientific progress).
- 3ème : Combining fiction and scientific explanations with reference to reading: Jules Verne and the science and technology of his era: dream or reality? Science fiction works from the 20th and 21st centuries.
- 3ème : Conducting a documentary research programme on themes such as "Water in all its states" and "Are we alone in the universe? ", "The Internet of today and tomorrow" and "The future of the planet", using literary texts and various writings, creating a story or poems, and contributing to the school website.

Foreign and regional modern languages

In Cycle 4, pupils learn two modern foreign or regional languages in parallel. They acquire verbal and written skills which enable them to understand, express themselves, interact, communicate and create. For each studied language and in the interaction between them, cultural exploration and inter-cultural relationships are key objectives of the cycle, and are closely linked to language activities.

Language teaching from Cycle 2 to Cycle 4 is designed to provide continuity of learning, consolidating existing learning and continuing the construction of communications skills supported by linguistic and cultural content and intended to encourage (particularly in LV1) a greater level of autonomy and increased ability to handle a diverse (and often unpredictable) range of communication situations. From the start of Cycle 4, the task of learning a second modern language can draw upon the knowledge and skills already being used to learn another modern foreign or regional language, and those used for French in Cycles 2 and 3. Comparisons of the set languages come in a variety of forms: comparing function, convergence or divergence of approach, transfer of strategies and cultural examination, both for foreign/regional languages and for French.

In all disciplines, Cycle 4 is marked by greater linguistic complexity in the documents and activities presented to pupils. Modern foreign/regional languages need to take account of this fact with regard to comprehension and reformulating exercises (reports, summaries, note-taking, etc., switching from written to oral work, and vice versa). The diverse range of benefits offered by digital technologies makes it possible to select documentary sources and process the collected information. Pupils have to deal with several different types of languages, and learn to choose the most appropriate of them. In a wider sense, they train to take advantage of the resources offered to them by digital media and equipment in accessing the wide range of languages and their diverse cultures. In their language lessons, they start to work with knowledge applicable to other disciplines. Furthermore, the resources available to pupils and teachers are not limited to the languages being taught: languages of pupils' homes, their families, their immediate surroundings or regional neighbourhood all still have their place as in previous cycles, but now the approach is a much more intentional one.

The aim of the learning strategies is to encourage pupils to participate in constructing knowledge and competencies: project-based learning puts pupils in a situation where they make use of linguistic and cross-disciplinary skills to deal with new situations, and to involve them in productive and creative work.

In so-called "non-linguistic" disciplines (NLDs), using the modern language when studying that discipline makes it easier for pupils to construct knowledge and skills in the foreign language by offering an indirect approach. The ability to approach other disciplines via a modern language also contributes to a better perception not only of the way in which the specifics of that discipline are implemented in other educational systems, but also of the knowledge related to that discipline.

Practised competencies	Foundation areas
Listening and understanding • Understanding verbal messages and audio documents of varying types and complexities. • Becoming familiar with the sonic realities of the language, and practising memorising them. • Identifying relevant (linguistic or extralinguistic) cues to identify the enunciative context and deduce the meaning of a message. • Being able to read video documents and relate images and audio documents.	1, 2
Reading • Understanding written documents of varying type and difficulty, derived from a variety of sources. • Developing reader strategies through regular reading. • Appropriating documents by using references of different kinds: linguistic and extra-linguistic cues, reconstitution of meaning, comparison of key information.	1, 2
Speaking continuously • Making good use of personal vocabulary and cultural/grammar skills to produce an oral text on a variety of subjects. • Developing strategies to overcome a lack of vocabulary when speaking, self-correcting and reformulating to make oneself understood. • Using the appropriate register and language level. • Efficiently voicing thoughts using appropriate pronunciation, intonation and gestures. • Using speech to tell stories, describe, explain and persuade.	1, 2, 3
Writing • Using existing verbal strategies to learn to structure personal writing. • Using resources to write, correct and modify written work. • Reformulating a message, reporting, telling a story, describing, explaining, persuading.	1, 2, 5
Responding and discussing • Developing oral comprehension strategies using linguistic or extra-linguistic cues and producing shared dialogue. • Reacting spontaneously to verbal communications, using appropriate speech for the context, in a succession of exchanges which add to the message or contradict it.	1, 2
Discovering the cultural aspects of a foreign/regional modern language • Identifying the national and regional cultural specifics of the language being studied, moving beyond a fixed, schematic view of stereotypes and clichés. • Using cultural references to interpret information in a message, a text or an audio document. • Using personal cultural knowledge to describe and talk about real or imaginary characters.	1, 2, 3, 5

Language activities

The targeted goals and suggested experience relate to the end of the cycle:

- For **LV1, at the end of Cycle 4, all pupils must have achieved at least level A2 in the five language activities. The proposed activities enable pupils to achieve level B1 in several language activities**.
- For **LV2, level A2** of the CEFRL **in at least two language activities**.

To maintain consistency with the CEFRL proposals, the development of a single competency can be demonstrated and assessed (and even validated) through similar language performance which meets progress criteria in the transition from A1 to B1. The CEFRL consists of multiple levels which, for each language activity, specify which areas fall within level A2 or level B1, thus creating **a reasonably personalised profile rather than a uniform cross-disciplinary level**. In this way, linguistic correction, sociolinguistic appropriateness, freedom of oral expression and breadth of vocabulary are all factors which can be introduced in order to differentiate knowledge within the A1, A2 or B2 "zones", or to determine levels of progress and thus introduce flexibility into the use of CEFRL levels. For example,one pupil can achieve B1 in "**reading**" and "**responding and dialoguing**" and A2 in the other skills areas, another pupil may target B1 in "**listening and understanding**", "**reading**" and "**talking continuously**" and remain at A2 level for other activities, and a third pupil may target A2 in "**listening and understanding**" and "**talking continuously**" and remain at A1 for other activities.
Pupils have acquired level A1 / A2 in LV1 and are just starting LV2 while still teenagers, and their experiences are becoming more diverse and complex. Teachers take this gap between maturity and linguistic competence into consideration, particularly in LV2, as pupils prepare for their initial steps in the language, using the same template as with LV1, adapting it to suit the pupils' age and exploring common cultural themes across the languages being learned, taking account of the competencies acquired. Particularly in LVER 2, the key is to stimulate the interest of these young people and encourage them to "have a go" and take risks, making use of the language resources they possess, in order to enrich them through contact with new contributions.
Guidelines and illustrations of possible implementations of the presented ideas appear in the sample activities shown in the following tables. In weightings which vary according to context and the choices made by teaching staff, these ideas can be used not only in class with a specific language, but also as part of a coordinated division between languages. They also acquire a meaningful form through practical interdisciplinary teaching.

Listening and understanding

Expectations at end of cycle	
Level A1 Can understand familiar words and expressions relating to self, family and environment. **Level A2** Can understand a short statement if it is clear and simple. **Level B1** Can understand factual information on simple subjects, identifying the general idea and more detailed information, provided it is clearly articulated in a standard accent.	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Understanding spoken texts from different genres: – continuous passage covering a point of personal interest; – main themes of an argument-style discussion; – progress and plot of a simple fiction story. Following a conversation of a certain length on a familiar or news-related subject. Managing a variety of oral resources in order to construct meaning, form an interpretation and understand the relevant issues.	Identifying extra-linguistic cues, recognising, detecting and identifying words, expressions and prosodic structures conveying meaning. Using a range of methods for accessing meaning: making hypotheses using a range of cues, identifying the underlying context. Working from a short, radio and/or video and/or paper news item on a current news topic common to a variety of countries or regions.
PROGRESS BENCHMARKS **Level A1** Identifying simple sound cues. Isolating very simple information in a message. Understanding the key points of a simple spoken message. Understanding a spoken message in order to respond to practical requirements or perform a task. **Level A2** Identifying the subject of a conversation. Understanding a spoken message in order to perform a task or enrich a point of view. Understanding familiar everyday expressions in order to respond to requirements. Understanding the key points of a short spoken message or conversation. **Level B1** Understanding a continuous spoken message on a point of personal interest. Following the main points of a discussion of a certain length on a familiar or news-related subject. Understanding the main themes of a debate featuring opposing points of view. Following the overall thrust of short talks on familiar subjects.	

Reading

<table>
<tr><th colspan="2">Expectations at end of cycle</th></tr>
<tr><td colspan="2"><u>Level A1</u>
Can understand very short, very simple texts, phrase by phrase, identifying names, familiar words and very basic expressions, re-reading where necessary.
<u>Level A2</u>
Can understand short, simple texts on practical everyday subjects containing a high proportion of everyday language.
<u>Level B1</u>
Can read direct factual texts on subjects within his/her own experience and areas of interest with a satisfactory level of comprehension.</td></tr>
<tr><th>Knowledge and associated competencies</th><th>Sample situations, activities and resources for pupils</th></tr>
<tr><td>Understanding written texts from different genres.

Grasping the main narrative thrust of a clearly structured narrative.

Finding information in a passage about a known theme.

Managing a variety of written resources in order to construct meaning, form an interpretation and understand the relevant issues.

Processing and comparing information in preparation for an investigation.</td><td>Reading a page from a school textbook (e.g. geography, history) from a country or region of the target language.
Memorising a poem or song.
Memorising a glossary of terms and structures for recognition and use in other contexts:
– informative texts for practical purposes;
– literary texts with a simple vocabulary;
– information for use in written arguments.
Acquiring and choosing the most efficient methods and resources, particularly digital, to keep a record of the process followed and preparing to reformulate and reconstruct.

Compiling a dossier on a cultural theme and presenting it to the class using digital media.</td></tr>
<tr><td colspan="2">Progress benchmarks

Level A1
Identifying basic textual information.
Isolating simple information in a short narrative text or a simple informative statement.
Understanding short, simple message on a post card.
Obtaining an idea of the content of a fairly simple passage of informative text, especially when accompanied by a visual document.
Following short, simple instructions.
Level A2
Understanding written instructions (to achieve a task).
Being able to identify targeted information in information documents.
Understanding a short, simple personal letter.
Identifying the relevant information in most short, simple factual written pieces.
Finding a specific, predictable piece of information in simple documents such as prospectuses, menus, adverts and timetables.
Understanding everyday signs and notices in public places and in school, for guidance, instructions and safety.
Grasping the narrative thrust of a story if it is clearly structured.
Level B1
Understanding a factual narrative, and feelings and wishes expressed in correspondence with a peer.</td></tr>
</table>

Responding and discussing

Expectations at end of cycle	
Level A1 Can briefly interact in familiar situations using simple words and expressions delivered at a slow pace. **Level A2** Can interact with relative ease in well-structured situations and short conversations, provided the other party provides assistance where necessary. **Level B1** Can express an opinion, communicate a feeling and give a number of simple pieces of contextual information on an abstract or cultural subject.	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Sharing information. Expressing personal feelings and reacting to feelings expressed by others. Rewording a statement for a listener who has not understood. Summarising the key information in a document for someone who has not read it.	Taking risks when formulating spoken and written messages, and reworking formulations to improve them. Assessing one's own formulations and those of others following jointly devised criteria which are understood by all. Making spoken recordings of written records and saving them to the school's digital gateway where they are available to everyone. Writings in a variety of textual genres (news bulletin, anecdote, song, scene from a dramatic work, short story, "how-to" instruction, tutorial, etc.)
Progress benchmarks **Level A1** Managing basic non-verbal information. Spelling familiar words. Establishing social contact. Requesting and giving information on familiar subjects and immediate needs, asking and answering questions about physical location, expression of taste, needs, possessions, the time, prices, and the weather. **Level A2** Establishing social contact, being able to manage very short social exchanges. Asking for and supplying information. Discussing and sharing on known and familiar subjects and everyday situations. Responding to suggestions and situations. **Level B1** Sharing information. Reacting spontaneously. Expressing personal feelings and reacting to feelings expressed by others. Rewording information from a conversation for a listener who has not understood. Summarising the key information in a document. Flexibly using a wide repertoire of simple language to deal with most situations likely to occur during a journey.	

Speaking continuously

<table>
<tr><th colspan="2">Expectations at end of cycle</th></tr>
<tr><td colspan="2"><u>Level A1</u>
Can produce simple, isolated expressions about people and things.
<u>Level A2</u>
Can simply describe or introduce people, living conditions, everyday activities, likes/dislikes, using short series of expressions or phrases.
<u>Level B1</u>
Can fairly easily give a direct, uncomplicated description of various subjects within their own area of familiarity, presenting it as a linear succession of points.</td></tr>
<tr><th>Knowledge and associated competencies</th><th>Sample situations, activities and resources for pupils</th></tr>
<tr><td>Introducing and describing: events, past activities, personal experiences.

Talking about oneself: origins, family, travel, imagination, plans. Explaining a cultural fact to others.

Expressing a personal opinion on a work or a social fact, and presenting a case for it.

Formulating hypotheses about a future occurrence, event or experience.</td><td>Sharing resources, managing discussions, substantiating arguments and working together to create a shared production.
Debating using a collection of points of view and arguments.
Adapting, performing, singing or speaking a dramatic scene to develop self-confidence and comfort in speaking.
Producing mental maps to memorise, structure, summarise and report.</td></tr>
<tr><td colspan="2">Progress benchmarks

Level A1
Expressively reading a short text aloud after practising (a short dialogue, a brief welcome speech, a short fictional or informative passage).
Copying a spoken model.
Introducing or describing: introducing and describing oneself, talking about one's intentions, describing people, objects or animals, describing one's favourite events.
Story-telling: combining simple sentences to tell a short story with the aid of pictures.
• The learner's pronunciation of a very limited repertoire of memorised expressions and words is comprehensible to a native speaker who is used to listening to speakers from the learner's linguistic group.
Level A2
Giving a presentation or a description.
Introducing a project.
Story-telling.
Explaining.
• Pronunciation is generally clear enough to be understood despite a clear foreign accent, but the speaker must occasionally repeat him/herself.
Level B1
Reformulating, introducing, describing.
Story-telling.
Expressing personal opinions.
Presenting arguments.
Formulating hypotheses.
Explaining.
• Pronunciation is clearly intelligible, although a foreign or regional accent is sometimes noticeable and there are still some pronunciation errors.</td></tr>
</table>

Writing and responding to writing

Expectations at end of cycle	
Level A1 Can write isolated simple expressions and sentences. **Level A2** Can write a series of simple expressions and sentences linked by simple connectors such as "and", "but" and "because". **Level B1** Can write a simple, short statement on familiar or already known subjects.	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Taking notes / structuring them and reformulating in an ordered way. Summarising. Reporting. Writing in response to a real-life message or situation. Writing a story, article or advertisement. Writing in the style of...	Overcoming formal difficulties (grammatical, lexical) encountered, drawing upon a variety of internal or external resources (teacher, peers, digital resources, metalinguistic tools). Keeping records of methodological linguistic resources worked on in class. Working as a group to produce an audio guide introducing an exhibition of pupils' work and selected works for art history.
Progress benchmarks **Level A1** Copying and taking dictation. Writing a simple message, producing a text focused on oneself or imaginary people; where they live and what they do. Independently producing a few sentences. Supplying some personal information in response to a simple questionnaire. **Level A2** Filling in an information sheet. Writing a simple message. Writing a short story, imaginary biographies and short, simple poems. Writing a short description of an event, past activities and personal experiences. Writing short, simple notes related to immediate needs. **Level B1** Reformulating. Taking notes / structuring them. Writing in response to a real-life message or situation. Writing a story. Reporting. Summarising. Writing personal notes and letters to request or supply information of immediate interest and explaining points which are considered to be important.	

Cultural and linguistic knowledge

As a continuation of the cultural guidelines from Cycles 2 and 3, four cultural themes are featured, enabling pupils to face varied communication genres and situations:

- **languages,**
- **school and society,**
- **journeys and migrations,**
- **encounters with other cultures.**

They are common to LV1 and LV2; firstly, to facilitate inter-language and inter-disciplinary projects as part of the practical interdisciplinary teaching programme; and secondly, to work on the cultural aspects of the common foundation of knowledge, competencies and culture. The studies covered by these various themes must take into account pupils' linguistic level and the knowledge which has/has not been imparted by Cycles 2 and 3, depending on whether the the pupils are at LV1 or LV2. Teachers therefore select the most appropriate order and method for addressing these four themes, depending on the level of the class.

The acquisition of language skills is linked to the gradual acquisition of cultural competencies through the exploration of these themes with the aim of increasing pupils' awareness and exposing them to the culture of others, teaching them how to decode and contextualise reciprocal cultural aspects in a gradual move towards a mindset of mobility. This teaching is consistent not only with the Future strategy but also in preparing pupils for exercising citizenship in a way that is open to cultural diversity and targets the following key objectives:

- Forming a relationship between the classroom and the world outside the classroom, developing observation methods to understand the various points of view and visions concerning the world: ways of life, traditions and history, artistic expressions, presence of languages in pupils' everyday environments and family life.
- Changing one's perspective to learn about oneself and others, stepping back from one's own points of reference, going beyond stereotypes.
- Discovering the imaginary aspects of other cultures: detailing the characteristics of one's own culture and those of the target language, appreciating the diversity and variation within every culture, describing an experience while making allowances for the culture of the other speaker, identifying sources of misunderstanding and cultural conflicts, seeking to resolve them by providing information and knowledge, being aware of the importance of linguistic and cultural diversity for the future (one's own and that of others).
- Managing the mobility experience: moving from directed group mobility to individual mobility, becoming familiar with virtual mobility, preparing for physical mobility, communicating in a balanced way with a partner, seeking points of interest and curiosity for sharing information, drawing on personal linguistic and cultural resources and enriching skills by experiencing cultural interaction and accepting differences and the richness and purpose of such interaction.
- Reporting and interpreting, including in cases of failure.

VOCABULARY COVERING CULTURAL CONCEPTS

Languages

Socio-cultural codes and geographical/historical aspects. Graphics, schemas, maps, logos, tables.

Media, methods of communication, social networks, advertising. Extracts from school textbooks from the country or region of the target language.

Artistic languages: painting, music and songs, poetry, cinema and theatre, literature, comic strips, science fiction.

Portrayals of sculptures, paintings, architectural works, monuments.

School and society

Comparison of school systems. School and extra-school activities. Exploring the world of work. Job descriptions.

Journeys and migrations

School trips and tourism. Exile, migration and emigration. Imagination, dream and fantasy.

Encounters with other cultures

Historical and geographical points of reference. Historical and architectural heritage. Inclusion and exclusion.

GRAMMAR

Noun and noun phrase:

Gender, object pronouns and reflexive pronouns.

Determiners: articles, quantifiers.

Verb phrase :

Expressing present, past, future. Modals. Passive. Verb constructions.

Simple and complex statements:

Coordination. Subordination. Relatives. Indirect speech. Indirect interrogation. Connectors.

PHONOLOGY
Being aware of the regular structures of the spoken language.
Being aware of phonic and phonological variations in the uses of a single language.
Aiming for fluidity, intelligibility and personal linguistic security in oral production: not aiming for a "native accent".

ESTABLISHING CONTACTS BETWEEN LANGUAGES

In accordance with Domain 1 of the foundation, the aim is to work towards a comprehensive language education. The act of practising and studying languages side by side, including French and ancient languages, must help pupils to establish and transfer diversified, considered learning and communication strategies recruited directly by language, vocabulary and cultural competencies and knowledge. In this way, as pupils learn the second foreign or regional language, they can use the competencies developed in their first studied language and the other languages in their repertoires, including French, to learn more quickly and develop a certain level of autonomy. The tasks of comparing various aspects of how the target or acquired languages work, including French (emphasising similarities and differences), making use of linguistic competencies and knowledge acquired in other languages (school, family, regional) to progress in new languages by making use of the adopted strategies, developing strategies for switching and transferring from one language to others, comply with training goals to be implemented in Cycle 4 to recruit, link and use acquired language skills.

INTERSECTIONS BETWEEN TEACHING AREAS

Interdisciplinary work introduces a diverse range of speech forms (descriptions, narrations, explanations, persuasive arguments, speeches, narratives, etc.), media used, activity types (exhibitions, slide shows saved to the school's digital gateway, web diaries, archived videos for the following year's cohort, feedback on group/individual, physical/virtual linguistic and cultural visits, etc.). This provides an opportunity to develop conscious working practices with the aid of the teacher on the use of resources of different kinds (school and extra-school) for language learning (e.g. use of digital translation software).

This work may take place through language teaching experiences, using resources such as "Content and Language Integrated Learning" (CLIL), and may be supported by digital teaching resources available in several languages (e.g.: Météo France, British Council, Edumedia, Science Kids, art history, etc.). Virtual exchanges (using the eTwinning platform) or exchanges with schools in other countries are possible.

A few examples of interdisciplinary work are shown below. For each practical interdisciplinary teaching area, and for ***"Sciences, technology and society" and "Body, health, well-being and safety"*** in particular, projects and activities can be partially conducted in the target language.
These examples are not intended to be exhaustive; they give possible guidelines and are not compulsory.

Languages and cultures of Antiquity and **Foreign and regional languages and cultures**

- In conjunction with the languages and cultures of Antiquity, French, and another modern foreign or regional language.
  Languages: what are the differences and similarities?, comparing linguistic systems of languages including French and ancient languages, considering the production of vocabulary and the meanings of words, examining the history of languages. Building shared learning strategies for the various target languages.

- In conjunction with the languages and culture of Antiquity, French, history and geography, art history.
  Myths, beliefs, heroes, etc. Exploring stories, artistic works and archaeological heritage. Drawing upon the cultural themes common to all the languages to help develop an understanding of the world.

Information, communication, citizenship

- In conjunction with moral and civic education, French, history and geography, in moral and civic education.
  Observing, comparing and debating, with reference to school systems, the school environment, well-being at school, anti-bullying measures, stereotypes.

Ecological transition and sustainable development

- In conjunction with geography, visual arts, mathematics, life and Earth sciences and French.
  Landscapes and town planning, the human impact on the environment: protection, prevention, adaptation here and elsewhere.

Artistic culture and creation

- In conjunction with visual arts, French, history and geography.
  Inter-cultural currents and influences, artistic languages, classic heritage and contemporary works.

- In conjunction with French, music
  Accents, intonation patterns, expressive aspects of speech, rhythm, articulation.

Economic and professional world

- In conjunction with French, technology
  Exploration of the world of work: comparison of working environments from one country or region to another, recounting experiences.

Visual arts

Visual arts teaching is based on practical work with a link to artistic creation. It provides pupils with the resources they need to cast an informed, critical eye over art and the visual worlds (artistic and non-artistic) to which it relates.
With an emphasis on the exploratory approach, visual arts teaching offers a constant interaction of action and thinking with regard to the questions raised by creative processes, thus linking artistic production and sensitive perception, explanation and acquisition of knowledge and references with the goal of building a shared culture. It is supported by concepts which are ubiquitous in visual arts creation: form, space, light, colour, material, technique, medium, tool, time. It covers all artistic domains related to forms: painting, sculpture, drawing, photography, video, new methods of image production, etc. Pupils explore the wide range of different strategies and the diversity of the works using four main areas of technique: two-dimensional techniques, three-dimensional techniques, artistic techniques for the still and moving image, artistic digital creation practices. These practices interact with the diversity of the arts and artistic languages; for example, in the domains of architecture, design and cinema, particularly in the case of integrated teaching projects or interdisciplinary approaches. At least once a year, teachers incorporate one of the art history themes into their teaching.
Cycle 4 continues to investigate the basic questions considered in earlier cycles (portrayal, manufacture, materiality, presentation) while introducing three new topics: "Portrayal: images, reality and fiction"; "Materiality of a work: the object and the work"; "The work, the space, the creator and the viewer". These questions are revisited every year for a more in-depth treatment of the topics. In the previous cycles, pupils were provided with an awareness of the creative process using simple digital devices and tools, particularly in support of image production and manipulation. Cycle 4 introduces a more specific approach to modern developments in the visual arts in the digital era. However, learning is not to be confused at college level with the teaching of a digital art form in isolation. Teachers create the physical and teaching environment in which pupils can work digitally using a variety of available tools, resources, applications and practices. The aim is to make pupils aware of digital methods as techniques, instruments and resources which can be manipulated and interrogated to serve artistic goals, rather than merely coaching them in more advanced uses of image editing software.
The concept of a project is established and gradually developed throughout the cycle in everyday lesson situations, in the new spaces created for practical interdisciplinary teaching, and in more infrequent situations making use of more substantial resources. It is understood and developed along four axes, all of which are interlinked to serve teaching purposes:

- the teacher's responsibility is to devise a proposed training plan for pupils at overall cycle level;
- in learning situations, by promoting a project-based approach which encourages motivation, intentions and
- initiatives;
- occasionally resulting in exhibition-style projects to consider issues of spatial installation and to make use of pupils' artistic productions;
- through encounters with works of art and artists, by contributing to the project approach within the artistic and cultural education strategy for the pupil.

Pupils' artistic productions, or hosted works of art, are exhibited in areas of the school specially prepared for that purpose (mini-galleries). Other spaces outside the school may infrequently be used too.

Practised competencies	Foundation areas
Experimenting, producing and creating • Choosing, using and adapting varied artistic languages and methods based on their intended effects in the context of artistic work, while remaining prepared for the unexpected. • Appropriating artistic questions, supported by informed artistic work. • Using digital capture and production tools for the purposes of artistic creation. • Exploring all fields of artistic creation and their hybrid forms, particularly in the case of digital work. • Considering issues pertaining to the way in which work is received as part of the creative process, paying attention to presentation methods, including digital. • Making use of information and documentation, particularly in visual form, to be used in a creative project.	1, 2, 4, 5
Setting up a project • Designing, implementing and presenting individual or group artistic projects. • Successfully completing an individual piece of work as part of a project with the assistance of the teacher. • Learning about the various stages of production of a work of art, and anticipating any possible difficulties. • Showing independence, initiative, responsibility, commitment and a critical mindset when running an art project.	2, 3, 4, 5

• Combining intention and production when running a project in order to modify and reshape it and provide it with an artistic dimension.	
Self-expression, analysing one's own working practices and those of peers; establishing a link to the working practices of artists, becoming aware of other realities • Using an appropriate vocabulary to explain what one is doing, feeling, imagining, observing and analysing; expressing oneself to justify artistic intentions or an interpretation of a work. • Establishing links between personal work, other artistic works encountered or other approaches observed. • Providing details of individual or collective practice, listening to and accepting various conflicting opinions. • Casting a curious, informed eye over one's own artistic and cultural environment, near and far, particularly through the diverse range of still and moving analogue and digital images.	1, 3, 5
Making sense of areas associated with visual arts, being sensitive to artistic questions • Recognising and being familiar with works from various areas and eras belonging to national and world heritage, and appreciating their meaning and value. • Identifying characteristics (practical, cultural, semantic, symbolic) which place a work within a geographical or cultural area or in a historical time. • Creating and defending an analysis and interpretation of a work. • Examining and positioning artistic works and strategies from the point of view of the author and of the viewer. • Taking part in debates provoked by artistic facts.	1, 3, 5

Questioning	Sample situations, activities and resources for pupils
Portrayal: images, reality and fiction.	
– **Resemblance:** relationship with reality and the expressive value of disconnects in art; artistic images and their relationship to fiction, particularly the difference between resemblance and verisimilitude. – **The method of portrayal:** space in two dimensions (literal and implied), the difference between structure and composition; space in three dimensions (difference between structure, construction and installation), on-site work, the installation. – **Visual narrative:** suggested and actual motion and time frame, sequential device and temporal dimension, duration, speed, pace, montage, division, ellipse, etc. – **The autonomy of a work of art and methods of self-reference:** the autonomy of the work in comparison to the visible world; inclusion or *mise en abyme* of its own components; abstract / informal / practical art, etc. – **Image creation, materiality, status and meaning:** appreciating and understanding the diversity of the images: their practical, iconic, semantic and symbolic properties; the differences in intention between artistic expression and visual communication, between a work and an image of that work. – **Designing, producing and distributing artistic works in a digital era:** the impact of digital considerations on the creation of still and moving images, on two-dimensional and three dimensional artistic practices; the relationships between artistic intentions, artistic media, rules and digital tools.	➢ Artistic work drawing on the interrelations between media, techniques and varied processes for expressive purposes ➢ Inventing and using artistic devices to tell a story (visual narration anchored in reality or production of a work of fiction) ➢ Discovering and using the various methods of portraying space and time to understand their uses and origins (two-dimensional and three-dimensional work, still and moving images, digital creations). ➢ Producing, using and analysing images of various kinds and states, fixed and mobile (practical operations, composition, framing, editing, viewpoint, etc.). ➢ Use of digital tools to produce images and shapes (captures, inclusions, coding, modification of code, memory and use of different states of the image or work, etc.). ➢ Introduction to how digital resources are used to broadcast and analyse works. ➢ Observing and analysing works or images; comparing different works dealing with the same issue, or from different arts; exploring and observing creations or situations in the general environment associated with the portrayal and the devices it uses.

Materiality of the work; the object and the work	
– **Transformation of the material**: relationships between materials, tools and techniques; the actual reality of a work or a physical production; the power of representation or meaning of an overall physical reality in the work. – **Physical properties of the materials**: materials and their potential meanings in artistic intention, concepts of completeness and incompleteness; the arrangement of materials and substances with different characteristics (physical, technical, semantic, symbolic). – **Materiality and the property of colour**: relationships between perceived colour and the physical properties of the colour medium; relationships between colour quantity and quality. – **The object as a resource in art**: transformation and reappropriation of objects for artistic purposes; sublimation, citation, effects of decontextualising and recontextualising objects for artistic purposes. – **Representations and states of objects in art**: the place of the non-artistic object in art; the work as a material object, art object and subject for study. – **Digital technology as an artistic process and resource (languages, tools, media)**: the appropriation of digital tools and languages for artistic purposes; the dialogue between traditional and digital workflows; the way in which artistic technique asks questions of and manipulates digital media.	➢ How the creative artistic process exploits the dialogue between instruments and media, drawing on the physical qualities of the materials, making materiality a question to be explored, an issue in how the work is perceived and interpreted. ➢ Investigating the relationships between colour quantity and quality (interactions between format, surface, scope, environment, etc., and shading, brightness, nuances, light, etc., and the sensory aspects of colour). ➢ Artistic interventions on objects (forms, textures, size, etc.) to modify their status and meaning, integrating objects (including non-artistic objects) as part of the content of the work (transformation, sublimation, citation, reappropriation), interaction between form and function. ➢ Staging and presentation of objects for expressive or symbolic purposes. ➢ Artistic creations implementing hybrid techniques or materials; effects of the dialogue between traditional practices and digital resources (their contribution to the artistic dimension, effects on the design and production of artistic works, tension or complementarity between the physical and virtual presence of the work, etc.). ➢ Observing and analysing works, comparing different works to give an understanding of: representations and states (including non-artistic) of the object, in art, the work as a material object and the physical presence of the actual work, the work as displayed and the appreciation of the work.
The work, the space, the creator and the viewer	
– **Relationship of the body to artistic production:** Involvement of the author's body: effects of technique and instruments, artistic qualities and the visual effects obtained; the explicitness of the production process and its practical implementation in time and space: tracks, performance, dramatisation, events, ephemeral works, recordings, etc. – **The material presence of the work in space, the presentation of the work:** scale ratio, the *in situ* approach, presentation devices, ephemeral aspects, public space; exploration of presentations of artistic productions and works; architecture. – **Significant experience of the work's space:** relationships between the perceived space as experienced and the portrayed or constructed space; space and time as materials in the work itself, the recruitment of the senses; the point of view of the creator and the viewer in their relationships with space and time in the work, the involvement of the body in the relationship with the work or in the completed work. – **Fusion between visual arts and digital technologies:** identifiable changes over time in the concepts of work, artist, creator, viewer and audience; intersections between visual arts and science, technologies and digital environments.	➢ Experimentation and observation of the artistic and semantic effects of the involvement of the author's body in the work (emphasis or minimisation of techniques, tracks, motion, movements, etc.), and the incorporation of aspects from the author's actual or fictional life. ➢ Recruitment of the viewer's senses (temporal and spatial experience, use of the work or participation in its production). ➢ Artistic appropriation of a location or environment by artistic creations (how they are integrated with or disrupt the characteristics of the location, affirmation of the work, transcending the boundaries of the frame/plinth/installation/stage/journey, etc.), playing with the work's scale and function and how it is perceived and received. ➢ Designing and implementing a space or architecture based on its purpose, its use, its relationship to the location or site and the various methods by which it is integrated (osmosis, domination, dilution, labelling, etc.). ➢ Fusion of artistic creations with technologies (especially digital), scientific processes, effects of dialogue between traditional practices and digital resources, interplay of the tension/complementarity between the work's physical and virtual presence, etc. ➢ Observation and analysis of works, comparison of different works to understand the effect of how they are exhibited/broadcast/received on the meanings of the work, in order to identify the point of view of the creator or viewer

	in relation to the work, its space and temporality, and the involvement of the body in relation to the work.

Intersections between teaching areas

Visual arts provide a new opportunity in practical interdisciplinary teaching to further the programme's aims and content, and extend them through fruitful partnerships with other artistic domains or disciplines. The variety of experiences of this kind add richness to the artistic and cultural education strategy.
The "Artistic culture and creation" theme may provide an opportunity to work on all components of visual arts teaching: competencies and content, approaches and projects, artistic practice and culture. Teachers also explore the other themes, to which visual arts teaching can make a relevant and motivational contribution for pupils, reinforcing or nuancing other approaches, contributing specific methods through its construction of knowledge via pupils' artistic work. Possible areas to explore:

"Artistic culture and creation"

In conjunction with physical and sporting education, French and music.

- Presentation, staging, appropriation of the space: how to enhance a production, explain the artist's work, communicate with an audience, etc.

"Artistic culture and creation", "Information, communication and citizenship"

In conjunction with French, technology.

- Design, production and distribution of the work of art in the digital era.

"Artistic culture and creation", "Ecological transition and sustainable development", "Languages and cultures of Antiquity", "Foreign and regional languages and cultures", "Economic and professional world"

In conjunction with technology, history and geography, mathematics, French, modern languages, languages and cultures of Antiquity, life sciences and Earth sciences; contributing to the Future strategy where relevant.

- Architecture, art, technology and society: the development of architectural creation; architecture as a symbol of power; architecture and technical progress; major constructions of the past and today, etc.
- Material presence of the work in space.
- Cities undergoing change: constructing, hearing, observing, portraying, etc. : new towns; eco-districts, architectural distinctiveness, etc.

"Artistic culture and creation", "Science, technology and society"

In conjunction with technology and physics/chemistry.

- Forms and functions, the question of the object: development of the object, states of the object, design and decorative arts, etc.
- Fusion between visual arts and digital technologies.

"Artistic culture and creation", "Foreign and regional languages and cultures"

In conjunction with French, modern languages, history and geography.

- Portrayal and narration (changes, disruptions, forms/media, etc.); realistic/symbolic/metaphorical portrayal, etc.

"Artistic culture and creation", "Body, health, well-being and safety"

In conjunction with life and Earth sciences, physical and sporting education, music, French

- The body and space: the relationship of the body to artistic production: live show, dance, circus, theatre, performance, etc.
- The transformation of materials, especially the relationships between materials, tools and techniques.

Music

Studying music leads pupils towards an autonomous, critical approach to the contemporary world of sound and music. It also seeks at the same time to incorporate the musical pieces studied into a historical and geographical heritage studded with cultural reference points. By taking into account a sensitivity towards music and the pleasure of making and listening to it, music offers pupils the cultural knowledge and techniques they need to develop their own abilities to listen and express themselves. By making use of the body in musical expression, it contributes to physical and psychological balance. As it informs pupils' perceptions and critical abilities relating to sound and music environments, it plays a part in preventing auditory risks and promoting the correct use of the vocal apparatus. Cycle 4 completes the compulsory study programme in music which began back in Cycle 2 while at the same time preparing pupils to continue to study a musical training at *lycée* level for those who desire to do so.

As in previous cycles, two areas of competence provide the structure for the programme in Cycle 4: production and perception. The first of these informs ever-diversifying repertoires and promotes involvement in more complex musical projects using the techniques developed. The second continues the discovery of the musical creation of yesterday and today, recruits a specific vocabulary which is more precise and better developed, and strives to construct, by means of comparison, points of reference which structure the knowledge of aesthetic musical considerations in time and space. These two areas of competence are constantly developed during each activity, and continually inform one another. In Cycle 4, the variety of activities offered provides a structure to the acquisition of knowledge across six complementary domains: timbre and space; dynamics; time and rhythm; form; successive and simultaneous; styles. Learning situations continue to exercise pupils' own distinctive sensibilities, as well as their ability to take positive action to enrich group work. The voice – and its many varied registers of expression – remains the favoured instrument for musical work, whether in staging musical projects or as an accompaniment to listening work. At least once a year, teachers incorporate one of the art history themes into their teaching. At the end of the cycle, having benefited from a series of mutually nourishing experiences, pupils have constructed an artistic culture informed by skills in making music and discovering the diversity of musical creation.

In addition, tuition in choral singing is offered in each school establishment to pupils who wish to expand their vocal abilities and make music in a group context working towards a project based on concert or show. This teaching is inter-year and inter-cycle in nature; it is open to anyone who wishes to participate, without any entry requirement. The choir frequently takes part in communal projects which bring together several *collèges*, *lycées* or *écoles*. It provides an opportunity to work with professional musicians (soloist singers, instrumentalists) and to perform on live concert stages. It also takes full advantage of the partnership with artists, cultural organisations and local authorities. Through their frequent involvement with other forms of artistic expression (dance, theatre, cinema, etc.), freely combining a number of different taught disciplines, such projects open up new, original and highly motivational educational possibilities which contribute to pupils' success.

Practised competencies	Foundation areas
Musical performance or composition projects • Defining the musical characteristics of a project, then executing the project with the use of appropriate resources. • Performing a project in front of other pupils and introducing the artistic choices involved.	1, 3, 5
Listening, comparing and constructing a shared musical culture • Analysing musical works using a precise vocabulary. • Comparing music in similar or different styles and placing it in space and/or time in order to construct technical and cultural points of reference. • Using comparison to identify the differences and similarities in the performance of a given work.	1, 2, 5
Exploring, visualising, creating and producing • Reusing certain characteristics (style, technique, etc.) of a shared work to inform one's own work. • Designing, producing, arranging and pastiching a short pre-existing piece, e.g. using digital tools. • Drawing upon personal experiences of musical creation when listening to, understanding and commenting on the works of others.	1, 2, 5
Discussing, sharing, reasoning and debating • Taking a critical view of one's own personal production. • Developing a constructive critical view of a group production. • Producing a reasoned critique in conjunction with an objective analysis. • Distinguishing the different roles of creator, performer and listener. • Respecting sources and author's rights and using rights-free sound.	1, 3, 5

In the table below, the main competencies of "Exploring, visualising, creating and producing" and "Discussing, sharing, reasoning and debating" are necessarily exercised and developed by making use of all knowledge related to production and perception and by taking advantage of situations and activities which are provided as examples for the key competencies of "Musical performance or composition projects" and "Listening, comparing and constructing a musical and artistic culture".

Expectations at end of cycle

- Recruiting vocal and body techniques for use in a creative or performance project.
- Identifying, describing and commenting on a complex musical structure and locating it in a network of diverse musical and artistic references.
- Designing, creating and producing musical pieces which take account of performance/broadcast styles, works and constraints.
- Presenting and explaining performance or creative choices, giving a justified opinion on a work and giving a reasoned defence of a point of view.

Knowledge and associated competencies	Sample situations, activities and resources for pupils
Musical performance or composition projects	
– Defining the musical characteristics of a project, then executing the project with the use of appropriate resources. – Defining the expressive characteristics of a project, then executing it. – Producing musical projects in a group (class) setting, in a small group or individually. – Performing a project in front of other pupils and introducing the artistic choices involved. – Performing a part in a polyphonic work. ➢ Repertoire of projects representing a diverse range of aesthetics (a modern song from a non-Western tradition; an air from an opera or a musical comedy, melody, etc.). ➢ Musical performance and expression vocabulary and techniques (domains of dynamics, phrasing, timbre, rhythm, pitch, form, etc.). ➢ Simple digital tools for capturing (recording) sound, manipulating them (pitch) and arranging them temporally (sequence). ➢ Creative strategies: creating a song from pre-existing lyrics or music; concepts of prosody.	Performing musical projects: experimenting with parody, pastiche and transformation, playing with the various parameters of the music. Prosodic research involving creating lyrics for a pre-existing song. Researching and comparing different performances of a song examined in class using recordings available on the Internet. Producing short creations (voice, diverse acoustic and electronic sound sources) in the style of a piece studied elsewhere. Producing digital creations in small groups from a written specification and comparing performances produced.
Listening, comparing and constructing a musical and artistic culture	
– Memory work on long, complex musical pieces. – Comparing music from similar or different styles and placing it in space and/or time in order to construct technical and cultural points of reference. – Making links between musical characteristics/aesthetic markers and historical, sociological, technical and cultural contexts. – Using points of reference to identify the main musical styles. – Linking the musical works studied to references to other artistic domains. – Using comparison to identify the differences and similarities in the performance of a given work. – Perceiving and describing the artistic and technical qualities of a recording. – Manipulating several graphical forms of representing music using digital tools. Vocabularies of musical language (timbre and space, dynamics, time and rhythm, form, successive and simultaneous, styles), performance and recording to describe and comment on music. Major music categories: vocal, instrumental, electro-acoustic, mixed, etc. A number of major musical works representing French, European, Western and non-Western traditions; set of stylistic markers. Set of benchmarks for the history of music and art. Awareness of the diversity of cultures, aesthetics and sensibilities in space and	Comparative commentary covering several extracts: – from a single work; – from different works exhibiting aesthetic similarities or differences; – from several interpretations of a single piece; – from a concert and studio version of a single piece; – from several different digital recording and broadcast standards (MP3, WAV). Targeted research - on the Internet - into a type of musical training, a category, a style or a culture, and a justified presentation of the choices made. Searching for works and producing a playlist which meets a set

time. Diversity of roles played by the music lover and the musician: sharing, listening, playing, creating. Functions of music in society; interactions with other artistic domains. Contributions of digital technology to music creation and distribution. Points of reference in the professional world of music and live entertainment. Physiology and function of hearing; awareness of risks. Sound environment and development. Concepts of acoustics and sound physics; concept of decibels (dB), sound compression.	of criteria. Digital montage of brief audio extracts covering a variety of works and aesthetics with creative intent; presentation, comparison to other choices, reasoning. Searching for original associations between music and the moving image: searching, experimenting, choosing, montage, presenting, comparing, reasoning. Research into the physiology of hearing and the physics of sound; consideration of the impact of social situations (urban sound environment, headphone listening, concerts, etc.) on hearing.
Exploring, visualising, creating and producing	
In the domain of production: – Reusing certain characteristics (style, technique, etc.) of a shared work to inform one's own work. – Designing, producing, arranging and pastiching a short pre-existing piece, e.g. using digital tools. – Identifying resources which can improve and/or modify creative work in progress. – Making appropriate use of a coding system to structure a work. – Assessing one's own performance at every stage of the work. In terms of perception: – Identifying, researching and appropriately using the documentary resources (especially written and recorded) required to produce a project. – Making use of personal experiences of musical creation when listening to, understanding and commenting on the works of others. – Designing playlists of musical works which correspond to artistic goals. – Assessing one's own performance at every stage of the work.	
Discussing, sharing, reasoning and debating	
In terms of production: – Developing a constructive critical view of group work. – Taking a critical view of one's own personal work. – Contributing to a shared list of performance or creative choices. – Transferring the conclusions from an earlier discussion about a work or an aesthetic to a current or future musical project. In terms of perception: – Identifying issues related to listening to one or more works. – Distinguishing between a subjective appreciation and an objective description. – Producing a reasoned critique in combination with an objective analysis: o Respecting the individual sensibilities of others. o Being enriched by the diversity of personal tastes and aesthetics. o Distinguishing between the different roles of the creator, the performer and the listener.	

Intersections between teaching areas

In Cycle 4, practical interdisciplinary teaching (EPI) opens up new opportunities for achieving the music teaching objectives set by the programme. Although it may be easy to identify areas of study which will enable several disciplinary approaches to be combined, many different skills developed in music can be applied to less obviously connected areas of study. The "Artistic culture and creation" theme has a particular status in this respect: being at the heart of the music discipline, it can accommodate multiple interdisciplinary encounters which can contribute to many of the competencies in the programme, such as constructing knowledge associated with it. Music teachers work to explore all of the other themes. The wide range of experiences encountered through the EPI enrich the artistic and cultural education strategy. Possible areas for exploration:

"Artistic culture and creation"

In conjunction with visual arts, French, history and geography and modern languages.

- Hybridisation, fusion and globalisation in art.
- Musical arts and the growth of royal power in 16th and 17th-century France and Europe (how they testify to these events and are inspired by them).

"Artistic culture and creation", "Science, technology and society"

In conjunction with life and Earth sciences, physics and chemistry.

- Senses and perceptions (functioning of sensory organs and the brain, relativity of perceptions).

"Culture and artistic creation", "Science, technology and society", "Information, communication, citizenship"

In conjunction with technology, physics/chemistry, mathematics, French, visual arts.

- The impact of technology and the digital world on our relationship with art, with sound and music, and with information.

"Body, health, well-being and safety"

In conjunction with life and Earth sciences, physics/chemistry and technology.

- Exposure to sound and music in social practices.

"Artistic culture and creation", "Economic and professional world"

In conjunction with visual arts, French, geography; contribution to Future strategy.

- Exploration of the economic and professional chain which links the artist/creator to the viewer/listener.

Art history

The cross-disciplinary, co-disciplinary teaching of artistic culture and art history in Cycle 4 plays a part in providing all pupils with a sense of community and of belonging to a history of cultures and civilisations which is recorded in the works of art created by humanity. The aim of art history teaching is to reveal the beauty, diversity and universality of these works. Art history is taught as part of:

- visual arts and music teaching;
- history and geography, not as an illustration or documentation of historical facts, but as cultural aspects of history and geography, through the period-by-period study of interdisciplinary dialogue, techniques, sensibilities and ways of life;
- French, supported in particular by the study of major literary, poetic, critical and dramatic works from the time of Antiquity to the modern day, with their cinematic or dramatic transpositions;
- modern languages, where art history serves to enrich their cultural dimension and vocabulary to describe colours, shapes, techniques and feelings.

Where possible, a role is also played by scientific disciplines (mathematics, physics/chemistry, life and Earth sciences) and technology, as well as physical and sporting education. The contribution made by the transliteracy teacher is of key importance in encouraging and supporting a project dynamic.

Art history contributes to the artistic and cultural education strategy for the pupils and plays a part in delivering the teaching objectives set by the benchmark for this strategy. Partnerships, especially with museum and heritage organisations, give pupils the chance to meet art and culture professionals and visit locations of cultural importance (conservation, production, dissemination). These partnerships assist in the production of projects which form part of the artistic and cultural education strategy for the pupils.

Practical interdisciplinary teaching provides a particularly fruitful setting for group work based on everyday objects in conjunction with art history themes.

The general educational goals of this teaching can be grouped into three main categories:

- aesthetic goals, constituting an education in sensitivity:
  - gaining familiarity with artistic and heritage sites by visiting them as often as possible and acquiring the associated codes;
  - developing attitudes which increase pupils' sensitivity to works of art; developing links between rationality and emotion;
- methodological goals related to an understanding of the work of art:
  - being aware of the interactions between the work's artistic form and its other dimensions (its format, content, function, symbolic significance);
  - distinguishing types of artistic expression, with their particular material and formal characteristics, their relationship with time and space; in this way establishing similarities and differences between diverse works from one era or from different eras, from one shared cultural area or from different areas;
  - understanding the difference between the presence of a work, contact with it, and the image of it presented by a reproduction, capture or recording.
- knowledge-based goals aimed at providing pupils with the points of reference which will enable them to become independent, informed lovers of art:
  - becoming familiar with a selection of landmark works of worldwide culture, from the time of Antiquity to the present day, understanding their genesis, the codes they adopt, how they have been received, and why they continue to speak to us;
  - possessing cultural reference points from the history and geography of civilisations, providing an awareness of disruptions, continuities and transferral;
  - mastering a vocabulary which enables pupils to express themselves spontaneously and personally using reasoned logic.

The teaching of art history, which helps to give pupils a wider perspective of the world, is not limited to the Western tradition, and is involved in all artistic fields:

- the traditional "Fine Arts" sector: architecture, painting, sculpture, drawing, engraving;
- music, theatre, opera and dance, circus and puppetry;
- photography and cinema;
- decorative and applied arts, clothing, artistic design and professions, posters, advertising, caricature, etc.;
- poetry, oratory, literature;
- hybrid or ephemeral genres appearing and developed in the 20th and 21st centuries: comic strips, performance, video, installations, street arts, etc.

In Cycle 3, pupils learned to observe and describe these objects of study in terms which were consistent with their artistic field and formal language; they have become able to associate them with uses and derive the basics of meaning from them by observing and experiencing them. In Cycle 4, pupils start to become genuinely aware that artistic forms are not merely

intended to be beautiful, but also that they have meanings. They understand that these forms contribute to the tastes and thought processes associated with a cultural area; i.e. that they are born of a time and place located at the crossroads of various transferrals, traditions and discontinuities in space and time, that they express a vision of the world as seen by each time and place, and that they can in turn influence this vision, i.e. affect their own time.
By the end of Cycle 4, pupils have become aware of artistic currents and cultural movements, enabling them to make reasoned connections between contemporary works from a variety of different artistic domains. The goal of this knowledge is not learning for its own sake; it is intended to give pupils a taste for contemplating works of art through the appropriation of cultural and artistic concepts which span different disciplines, historical periods and geographical areas. The appropriation of these concepts will illuminate their relationship with the various forms of artistic expression which coincide with and express their own questions, and those of the society in which they live, regarding their existence in the world.
Aesthetic experience and study of the set works are the foundation of the teaching strategy, which is based on eight cross-disciplinary themes arranged in periods in which the artistic domains and disciplinary content of the cycle programme overlap and further one another. Although presented in chronological order and aimed at providing clear historical reference points, these themes can (depending on teaching requirements) be covered during the cycle in a different order specified by the teaching staff, taking account of the pupils' journeys throughout the whole cycle.
Teachers choose their corpora of artistic works and texts based on the suggested themes and objects, as well as the disciplines involved. Projects developed in a multi-disciplinary team, particularly under the auspices of practical interdisciplinary teaching, invariably ground the study of these themes in pupils' own actual encounters and work.

Practised competencies	**Foundation areas**
• Describing a work of art, using a simple, appropriate vocabulary. • Using information obtained from observation to associate a work with an era and a civilisation.	1, 5
• Presenting a simple critical analysis and an interpretation of a work.	1, 3, 5
• Creating a presentation several minutes in length about a small set of works or an artistic issue.	1, 2, 5
• Giving a report about a visit to an artistic conservation or presentation site or an encounter with a cultural heritage profession.	1, 2, 5

<table>
<tr><th colspan="3">Expectations at end of cycle</th></tr>
<tr><td colspan="3">
– Recalling and naming a number of major works which pupils are able to associate with a specific production date and location, and whose key components they can state in terms of content, form, meaning and function.
– Comparing works of art with one another, using justified reasoning to demonstrate family links between two works from different periods or relationships between two contemporaneous works of different types.
– Giving a personal account of a first-hand artistic experience, either as the artist or as a viewer.
</td></tr>
<tr><th colspan="2">Knowledge and associated competencies</th><th>Sample situations, activities and resources for pupils</th></tr>
<tr><td colspan="2">
• Using a vocabulary which is simple but appropriate to the artistic domain in question, its form and content, to provide a general description of a work.
• Associating a work with an era and a civilisation based on aspects of artistic language.
• Using this information to initiate a critical discussion.
• Creating a presentation several minutes in length about a small corpus of works or an artistic issue.
• Using a variety of media to give a personalised account of a visit to an artistic conservation or presentation site, or an encounter with a profession related to the conservation, restoration or promotion of cultural heritage.
</td><td rowspan="4">
1. Comparative strategies:
• comparing and contrasting works from the same period or adjacent periods, from different or identical artistic fields, based on pairs (linear / pictorial, shot / depth, open / closed form , singularity / multiplicity, light / dark, static / movement, production / reception, form / function, science / creation, legacy / innovation, body / machine etc.).
• comparing techniques and materials observed in ancient works or buildings with the buildings and décor of the collège and its environment and everyday classroom objects;
• using reasoned argument to link works studied in class with other works seen or heard outside the classroom during trips, projects or travel;
• listening to and comparing ancient literary writings or musical works, whether in manuscript form or not, with their modern retranscriptions.

2. Description, representation, transposition:
• analysing a work of art through its material and formal dimensions, and the dimensions of meaning and usage;
• understanding an architectural space through its representations: mockup, plan, elevation, drawing or schema, axonometric projection, photograph;
• working (possibly in partnership with a library or an archiving service) on the text-image relationship found in illuminated/musical manuscripts, as well as periodicals and books with engravings, in digital form;
• using a table and a piece of music to devise a narration – possibly a parody – in the form of an invented text, a dramatic or puppet scene, a short filmed sequence or a choreography, a cartoon strip or an animation;
• using a dramatic, oratory or poetic text, practising reading aloud, diction, declamation and setting to music/images and in space;
</td></tr>
<tr><th>Themes</th><th>Possible objects for study</th></tr>
<tr><td>1. Arts and society in Antiquity and the early Middle Ages</td><td>
– Cities from Antiquity to the Middle Ages.
– Forms and décor in antique architecture.
– Creation myths and how they are illustrated.
– Representation of human beings.
</td></tr>
<tr><td>2. Artistic forms and transferrals (9th-15th century.)</td><td>
– Differing approaches to images in the West and
– the East: image-based iconoclasm and discourse.
– Civil, urban, military and religious architecture and décor in the Middle Ages.
– Transferrals of artistic forms around the mediaeval Mediterranean.
– Music and words in the Middle Ages.
– The mediaeval manuscript: materials, calligraphy, development of musical writing and illumination.
</td></tr>
<tr><td>3. The elevation of the artist (14th-early 17th century)</td><td>
– Artists, their inspirations and patrons in the Italian city-states: paintings, sculptures and architecture from the Trecento to the Cinquecento.
– Flanders, France and Italy: transferrals of forms, styles and schools. - Birth of duplication: engraving and the printing press.
– New relationships between poetry and music: motets, songs and madrigals.
– Development of theatrical arts: tragic, sacred, comedy and festive.
</td></tr>
</table>

4. State, society and ways of life (13th-18th century)	– Definition and hierarchy of artistic genres. – Changes in habitat, décor and furnishings. – Popular dance, court dance, stylised dance. – Advances in science and technology, advances in the arts.	• using different grids for analysing, reading or interpreting a table and presenting the resulting description to other pupils (possible in the context of joint group work). 3.The pupil as intermediary and knowledge broker: • taking part in a debate on works of art and heritage objects; • working as a team to produce exhibition materials: posters/flyers, stage design ideas, catalogue notice or label for a work; • during a visit, briefly presenting a work, a monument, a building, an object, etc, to the class or to another class; • working in small groups to prepare a visit to an exhibition or another event in the *collège* for other groups, parents or groups of pupils from previous cycles; • individually or collectively creating short digital forms which present an event, an artistic experience or the meeting of a work of art and a heritage space in an imaginative way: flash fiction, graphical staging of digital documents, notices which can be called up via QR codes, etc.
5. Art in the time of the Enlightenment and revolutions (1750-1850)	– Emergence of audiences and criticism, birth of media. – Sensation and sensibility. – Art as an expression of political thought. – Faith as a part of progress, and reference to the past.	
6. From the *Belle Époque* to the *années folles*: the avant-garde period (1870-1930)	– True-life landscapes, interior landscapes. - Photography, cinema and phonographic recording: a new relationship with reality. - The search for roots in an expanding world: primitivism, national schools and regionalism. – The metropolis and new shows: jazz, circus and music hall.	
7. The arts, liberty and propaganda (1910-1945)	– From the autonomy of forms and colours to the birth of abstraction. – Art and power: questioning, denouncing and propaganda. – The emancipation of the woman as artist. – *La Fée électricité* in the arts.	
8. The arts in the era of mass consumption (from 1945 to the present day)	– Realism and abstractions: the arts in confrontation with contemporary reality. – Architecture and design: where new technologies meet new ways of living. - Arts, energy forms, climatology and sustainable development. – An open world? Artistic fusion in the era of globalisation.	

Intersections between teaching areas

With its cross-disciplinary teaching of artistic culture, art history is by definition made up of inter-disciplinary intersections. They are assigned a special importance in association with practical interdisciplinary teaching (EPI). In conjunction with artistic practice, particularly of the kind developed as part of visual arts and music teaching, art history has an intrinsic role to play in the vast subject area of "Artistic creation and culture". In a wider sense, the themes and subjects for study presented in art history can enrich each of the themes of this teaching by providing a set of artistic reference points from the past and present.

- The "Body, health, well-being and safety" theme is echoed by all study subjects related to changes in habitat, clothing, design and portrayals of the body;
- The "Ecological transition and sustainable development" theme, themes linked to the portrayal of nature and the relationships between arts and energies (even from a more recent time, between the arts and environmental issues);
- the "Information, communication and citizenship" theme: the numerous study subjects created by the links between art history and political/social history, but also by distribution);
- the "Languages and cultures of Antiquity" theme is linked to all of theme 1 but also to subjects for study relating to the reuse of subjects or forms from the time of Antiquity;
- the "Economic and professional world" theme will be enriched by the study of subjects associated with artistic transferral, the art market and the status of the artist;
- the "Science, technology and society" theme, by demonstrating the various points of intersection between art history and science and technology history, is an ideal place for artistic culture and scientific and technical culture to meet.

Possible themes and subjects for study	Link to other teachings
Body, health, well-being and safety	
Th. 1: Portrayal of human beings. Th. 4: Changes in habitat, décor and furnishings. Th. 5: Sensation and sensibility. Th. 7: Art and power: questioning, denouncing and propaganda. Th. 8: Architecture et design: where new technologies meet new ways of living.	History Life and Earth sciences Visual arts Physical and sporting education Technology
Ecological transition and sustainable development	
Th. 5: Faith in progress and reference to the past. Th. 6: True-life landscapes, interior landscapes. Th. 8: Arts, energies, climatology and sustainable development.	Life and Earth sciences Physics Technology French Geography Visual arts Music
Information, communication, citizenship	
Th. 1: Creation myths and how they are illustrated. Th. 2: Differing approaches to images in the West and the East: image-based iconoclasm and discourse. Th. 3: Birth of duplication: engraving and the printing press. Th. 5: Emergence of audiences and criticism, birth of media; art, the expression of political thought. Th. 6: The arts and the challenge of photography, cinema and recordings. Th. 7: The emancipation of the woman as artist. Th. 8: An open world? Artistic fusions in the era of globalisation.	French History Geography Media and information studies Visual arts Music
Languages and cultures of Antiquity	
Th. 1 in its entirety. Th. 3: Development of theatrical arts: tragic, sacred, comedy and festive.	LCA French Visual arts
Foreign or (where applicable) regional languages and cultures	
Th. 2: The transferral of artistic forms around the mediaeval Mediterranean; music and writing(s) of the Middle Ages. Th. 3: Artists, their inspirations and patrons in the Italian city-states: paintings, sculptures and architecture from the *Trecento* to the *Cinquecento*; Flanders, France and Italy: transferrals between forms, styles and schools. Th. 6: The search for roots in an expanding world: primitivism, national schools and regionalism. Th. 8: An open world? Artistic fusion in the era of globalisation.	Modern and regional languages History Geography Visual arts Music
Economic and professional world	
Th. 2: Civil, urban, military and religious architecture and décor in the Middle Ages. Th. 3: Artists, their inspirations and patrons in the Italian city-states. Th. 4: Advances in science and technology, advances in the arts. Th. 7: The emancipation of the woman as artist. Th. 8: Realism and abstractions: the arts in confrontation with contemporary reality.	History Geography Technology Visual arts Music
Science, technology and society	
Th. 1: Cities from Antiquity to the Middle Ages. Th. 3: Birth of duplication: engraving and the printing press. Th. 4: Changes in habitat, décor and furnishings; advances in science and technology, advances in the arts. Th. 5: Faith as part of progress and reference to the past. Th. 6: The arts and the challenge of photography, cinema and recordings; the metropolis and new shows: jazz, circus and music hall. Th. 7: *La Fée électricité* in the arts.	Mathematics Physics Technology History French Visual arts Music Physical and sporting

Th. 8: Architecture et design: where new technologies meet new ways of living.	education Media and information studies

Physical and sporting education

Physical and sporting education provides access to a rich source of activities offering strong cultural and social involvement, which are important in the development of the personal and communal life of the individual. Throughout a pupil's academic career, the goal of physical and sporting education is to create a lucid, independent, physically and socially educated citizen with an ability to live communally. It encourages children and teenagers to strive for well-being and take care of their own health. It provides for the academic inclusion of children with specific educational needs or handicaps. Physical and sporting education offers an initiation into the pleasure of sporting activity.

Physical and sporting education meets the criteria of common-foundation training by enabling all pupils, girls and boys alike to work together continuously and on an equal footing – especially those with the least involvement in physical and sporting activities – to build five practised competencies throughout the different cycles:

- Developing motor skills and learning to use the body for self-expression
- Acquiring methods and resources through physical and sporting activity
- Sharing rules, assuming roles and responsibilities
- Learning to maintain personal health through regular physical activity
- Acquiring a sporting and artistic physical culture

To develop these general competencies, physical and sporting education offers all pupils from *école* to *collège* level a teaching journey which comprises four complementary learning areas:

- Producing optimal performance levels which are measurable at a specified time
- Adapting physical movements to a range of varied environments
- Self-expression in front of others through an artistic and/or acrobatic activity
- Successfully participating in a contest between teams or individuals

Each learning area enables pupils to construct competencies which incorporate various different dimensions (motor, methodological and social skills), supported by a diverse range of physical, sports and artistic activities (PSAA).

At *école* and *collège* level, a teaching project defines a balanced, progressive learning journey suited to the characteristics of the pupils, the opportunities afforded by the school's materials and equipment, and the available human resources.

During Cycle 4, pupils move from pre-adolescence to adolescence and undergo significant physical and psychological transformations which change them and alter their social lives. In this regard, physical and sporting education helps all *collège* students to acquire new points of reference about themselves, others and their environments in order to build a positive self-image which respects individual differences. The act of investing in individual and group projects provides an outlet for new-found powers of observation, analysis, memorisation and reasoned argument. In Cycle 4, emotions play a key role in maintaining engagement in learning. It is important to take account of them to avoid losing the pleasure of participating and learning, which is a spur to regular physical activity.

In addition to physical and sporting education, the *collège*'s sports association offers an opportunity, for all pupils who so desire, to extend their physical activities in a club-like setting, encounter new experiences and assume new responsibilities.

Upon completion of Cycle 4, examination of the competencies targeted during the cycle in each of these learning areas helps to demonstrate pupils' acquisition of the common foundation of knowledge, competencies and culture.

Practised competencies	Foundation areas
Developing motor skills and learning to use the body for self-expression • Acquiring specific techniques to improve efficiency. • Using one's body to communicate intentions and feelings in front of a group. • Verbalising experienced feelings and sensations. • Using appropriate vocabulary to describe one's own motor skills and those of others.	1
Using physical activity to acquire learning methods and resources, individually or as a group • Preparing-planning-visualising an action before performing it. • Repeating a sporting or artistic action to cement its acquisition and make it more efficient. • Devising and running individual or group learning projects. • Using digital resources to analyse and assess one's own actions or those of others.	2
Sharing rules, assuming roles and responsibilities • Complying with, creating and enforcing rules and regulations. • Accepting defeat and victory in a modest, understated way. • Assuming and handling responsibilities as part of a group in order to complete a project or fulfil a contract. • Acting with and for others, taking differences into account.	3
Learning to maintain personal health through regular, sustainable and reasonable physical activity • Being aware of the effects of regular physical activity on one's personal well-being and health. • Understanding and using objective indicators to measure physical activity. • Assessing the quantity and quality of daily personal physical activity in and out of school. • Matching the intensity of individual physical activity to actual ability in order to avoid endangering oneself.	4
Acquiring a sporting and artistic physical culture for the gradual construction of a clear view of the contemporary world • Appropriating, using and being able to explain the principles governing the efficiency of a technical action. • Acquiring a basic attitude of awareness and critical examination regarding sports events. • Discovering the impact of new technologies applied to physical and sporting activity. • Being familiar with the key details of the history of physical activity providing an insight into modern-day physical activity.	5

Producing optimal performance levels which are measurable at a specified time

Expectations at end of cycle	
– Managing physical efforts and making choices to achieve optimal performance in at least two athletic families and/or at least two swimming styles. – Being involved in an individual or group preparation programme. – Planning and undertaking a group challenge. – Warming up before physical activity. – Helping team mates and taking on different social roles (appeals judge, referee, timer, measurer, organiser, results compiler, etc.)	
Competencies targeted over the cycle	**Sample situations, activities and resources for pupils**
Making optimal use of personal resources to achieve the best possible performance within a given timescale. Preparing for physical activity and training to make progress and better oneself. Using external physical benchmarks and indicators to assess personal movement and performance figures. Mastering the roles of observer, referee and organiser. Taking account of personal performance measurements or those of others to adjust a planned programme.	– Athletic activities (running, jumping, throwing). – Sports swimming activities. Where possible, pupils themselves should choose the activities in which they wish to achieve their optimal performance. The required physical commitment is still significant if all personal resources are to be employed in a concerted manner. Pupils are responsible (individually or collectively) for some of the scheduling of their work.

Adapting physical movements to a range of varied environments

Expectations at end of cycle	
– Undertaking a planned journey in a more or less well-known artificially recreated or adapted natural setting. – Managing personal resources to make an entire journey in safety. – Considering the safety of fellow pupils. – Complying with and enforcing safety rules.	
Competencies targeted over the cycle	**Sample situations, activities and resources for pupils**
Selecting and following an appropriate route through a variety of environments (land, water or air). Planning and managing an outward journey and return to the starting point. Complying with, and enforcing, safety and environment-specific rules. Retrospectively analysing and defending choices made. Looking after and assisting others to ensure joint success. Assessing risks and learning when not to continue.	Physical activities in the open air or in simulated open-air conditions: orienteering, climbing, walking, kayaking, rescuing, mountain biking, skiing, etc. Researching situations which involve an increasing degree of uncertainty and require an increasing level of commitment while still managing risk.

Self-expression in front of others through an artistic and/or acrobatic activity

Expectations at end of cycle	
− Making use of the expressive abilities of one's body to devise, compose and perform an artistic or acrobatic routine. − Actively participate as part of a group in the process of devising and implementing an artistic project. − Assessing implemented strategies using various observation and analysis resources.	
Competencies targeted over the cycle	**Sample situations, activities and resources for pupils**
Working alone or with others to devise and implement an artistic and/or acrobatic project to elicit a response from an audience. Using simple composition and performance procedures. Taking action: managing risks and overcoming fears. Using digital resources to develop a critical approach to one's own actions and those of others.	Artistic physical activities: dance, circus arts. Gymnastic activities: acrobatic sport, sporting gymnastics. Seeking out situations which require an increasing level of commitment by pupils in creative processes, either individually or as a group.

Successfully participating in a contest between teams or individuals

Expectations at end of cycle	
In a situation involving real-life, well-matched opponents − Acting decisively in unfavourable situations in order to tip the balance of power in the favour of oneself or one's team. − Adjusting physical commitment according to one's personal physical state and the balance of power − Supporting one's partners and showing respect to one's opponent(s) and the referee. − Observing and sharing in refereeing responsibilities. − Accepting the outcome of the encounter and being able to analyse it objectively.	
Competencies targeted over the cycle	**Sample situations, activities and resources for pupils**
Seeking to gain the advantage from the encounter by implementing a plan which considers the nature of the balance of power. Optimally using one's own physical resources and strengths to improve efficiency against given opposition and addressing the restrictions of the encounter. Being able to switch quickly between defence / attack situations. Co-refereeing a (fighting) match sequence. Planning information gathering and processing in advance to link actions. Working for others to enable them to make progress.	Cooperative and competitive activities: group ball games and sports (handball, basketball, football, volleyball, ultimate frisbee, rugby, etc.). Two-player competitive sports: racket games and sports (badminton, table tennis). Physical combat activities: wrestling, judo, boxing, etc. Pupil awareness of similarities and differences between all these competitive activities, as well as the specific characteristics of each of them. Situations in which the balance of power is equal, requiring more complex individual and collective organisation.

Progress benchmarks

With regard to progression in physical and sporting education, all competencies and learning areas are covered during the cycle. It is the responsibility of the teaching staff to plan how these are selected and developed and provide the appropriate physical, sports and artistic activities, establishing the order in which they will be explored in and the areas which need extra work.

Intersections between teaching areas

Along with all other academic disciplines, physical and sporting education contributes to a mastery of the French language. In this way, participation in physical activities provides many opportunities for the development of language skills; for example, by expanding pupils' vocabularies through the promotion of opportunities for communication.
By combining the concrete and the abstract, they provide meaning to mathematical concepts (scale, distance, speed, proportionality, etc.). Similarly, orienteering activities offer a practical opportunity to make use of the concepts of navigation and movement on a map which have been studied in mathematics and geography.
Physical and sporting education provides an appreciation of the role of techniques, their development and their interactions with the sciences in conjunction with the life and Earth sciences or physics programmes (concept of centre of gravity, etc.), and thus an understanding of how technique shapes the body and increasingly influences sporting performance. The combined contribution made by theoretical knowledge and actual practice enables pupils to understand how the human body operates on a mechanical and physiological level in order to manage physical exertion.
Physical and sporting education contributes to the development of pupils' citizenship education, in conjunction with moral and civic education.

Physical and sporting education is a discipline which lends itself particularly well to the use of a foreign or regional modern language. Sporting activities provide an opportunity to reuse the language structures worked on in class in a real-life communication situation.

A few examples of themes which can be developed jointly with various other disciplines are listed below.

Body, health, well-being and safety

- Sport and sciences: diet and training; physiology of exertion and measurement of performance; statistics; performance and doping.

In conjunction with the life and Earth sciences, chemistry, technology and mathematics.

Artistic culture and creation

- Body and movement: live entertainment arts (street art, dance, development of the circus from the traditional to the contemporary).

In conjunction with history, the visual arts, technology, music, French and modern languages.

Ecological transition and sustainable development

- Sport and space: orienteering and cartography.

In conjunction with mathematics, life and Earth sciences, physics and geography.

Information, communication, citizenship

- Sport and images: refereeing and video; replay broadcasts and image rights.

In conjunction with technology, media and information studies and moral and civic education.

- Sport and digital technologies: sports simulation in video games and applications; from actual practice to virtual simulation.

In conjunction with technology, mathematics, media and information studies and moral and civic education.

Languages and cultures of Antiquity

- Sport and Antiquity: Olympianism – From the Olympic Games to modern-day practice

In conjunction with history and the languages of Antiquity

Foreign or (where applicable) regional languages and cultures

- Anglo-Saxon sports and their origins.

In conjunction with modern languages and history.

Science, technology and society

- Sports and sciences: sporting performance and technological developments (clothing, equipment, etc.); technological developments in disability sport; energy; study of movement (animal and human).

In conjunction with science (life and Earth sciences, physics/chemistry), technology.

Moral and civic education

See the programme specified by the decree of 12-6-2015 - *Journal Officiel* dated 21-6-2015, BOEN (special education bulletin) no.6 of 25 June 2015

History and geography

In Cycle 3, history and geography teaching provided pupils with a basic mastery of historical and geographical knowledge, languages and methods. In Cycle 4, the skills developed in the previous cycle are expanded: making sense of time, making sense of space, reasoning, being informed in a digital world, understanding and analysing a document, using different types of language in history and geography, cooperating and working together.

During Cycle 4, pupils gradually come to understand how the scientific disciplines of history and geography enable them to think in precise terms about the times and spaces inhabited by human societies, and to appreciate a wide diversity of social phenomena. The set teaching themes ensure that pupils discover the complexity of the historical development and geographical structure of human groups.

History and geography teaching must be viewed in light of the complementary nature of the two disciplines: teaching staff use the set questions in both subjects in a balanced way, **in equal shares**, always being ready to point out the contributions history makes to geography, and vice versa. Teachers establish what portion of the timetable will be devoted to each theme or sub-theme according to the teaching strategies they intend to employ. The themes, tools and methods examined offer a variety of opportunities to work with other disciplines, particularly the life and Earth sciences, mathematics, French and even modern languages, which provide access to the history of foreign and regional cultures. Particular attention is paid to the links to be made with moral and civic education, to which the teaching of history and geography in Cycle 4 is closely linked, with the objective that by the end of the cycle, pupils will have achieved the goals set in Domain 3 of the common foundation, "Personal and civic development". The history and geography teaching staff also draw upon themes from art history to contribute to their teaching; the connection can be made from all themes in the history programme, as well as from the geography programme. This work helps to increase pupils' sensitivity to the particular status of the work of art. Linked to specifics as well as to generalities, artistic production provides them with access to the facts and, furthermore, the cultures of the past; this discovery helps them to link artistic production of the past to its modern-day counterpart. To link this cultural heritage to their own culture, pupils learn to identify artistic forms, material and expressions, and to associate them with usages to give them a meaning. A large number of history and geography themes and methodologies also contribute to media and information studies.

Practised competencies ***(in italics: competencies already covered in Cycle 3 and expanded in Cycle 4)***	**Foundation areas**
Making sense of time: constructing historical points of reference • *Locating a fact in a given historical era or period.* • *Arranging facts in relation to one another.* • Linking facts from one given era or period. • Identifying chronological continuities and disruptions to acquire the concept of history as a series of periods, and making conscious journeys backwards and forwards through this chronology.	1, 2, 5
Making sense of space: constructing geographical points of reference • *Naming and placing major geographical points of reference.* • *Naming, locating and describing a place in a geographical space.* • Naming, locating and describing more complex spaces. • Locating places and areas in relation to one another. • Using analogue and digital representations of spaces on a variety of levels, as well as a variety of map projections.	1, 2, 5
Reasoning and justifying an approach and the choices made • *Asking questions of others and oneself regarding historical and/or geographical situations.* • *Constructing hypotheses* for interpreting historical or geographical phenomena. • *Verifying* data and sources. • *Justifying* a strategy or an interpretation.	1.2
Obtaining information in the digital world • *Understanding and using different information systems.* • *Finding, selecting and using information.* • Using search engines and online dictionaries and encyclopaedias, documentary resource sites and networks, digital manuals and geographical information systems. • Checking the source/origin and relevance of information. • Taking a critical approach to digital data, learning to compare it to data which can be extracted from documents of various kinds.	1, 2, 3

Analysing and understanding a document • Understanding the general meaning of a document. • Identifying the document and its particular point of view. • *Extracting relevant information to answer a question regarding a document or several documents*, sorting and ranking the information. • Comparing a document to other information which may be known about the subject in question. • Using personal knowledge to clarify and explain the document and exercising one's critical faculties.	1, 2
Using different types of language in history and geography • *Writing to structure thoughts and knowledge, to make persuasive arguments and to communicate and discuss.* • Oral self-expression to assist with thinking, communicating and discussing. Understanding the characteristics of the historical stories and descriptions used in history and geography, and producing similar accounts. • *Producing graphical and cartographic works*. • Creating an audio-visual production or slide show. • Acquiring and using a specific vocabulary in context. • Learning basic debating techniques.	1, 2, 5
Co-operating and working together • *Being able to work within a group to achieve a shared task and/or group production and making one's own competencies and knowledge available to others.* • Adjusting one's own working pace to that of the group. • Discussing, explaining and defending one's own point of view, using argument to support decisions made. • Negotiating a joint solution if group work is required. • *Learning how to use digital resources for producing group creations.*	2, 3

History

History teaching in Cycle 3 has enabled pupils to understand that the past is a source of knowledge and questions. They have seen its value and attraction via physical evidence and documents. Following on from this learning, Cycle 4 offers an approach to historical narrative which enables pupils **to enrich and clarify their understanding of the past** via a chronological, thematic progression. In this way, using these guides, they can discover the aspects which give the key periods of human history their specific characteristics. They come to understand major changes as watersheds and disruptions in a history which is both national and global in scope. They thus acquire information which clarifies the contemporary world in which they live, and learn to place the history of France in a wider context.
Linking this information with the themes covered in geography gives them a better appreciation of the similarities between the past and the present, but also of the distance between the two, and this helps them to locate the information more accurately in time and better understand what characterises their own present times. In this process, they learn to make use of social and family knowledge, in addition to what they find in academic books and documents.

The programme follows **a chronological progression** for which pupils have been prepared in Cycle 3. Following on from what has already been taught in the *sixième*, the history syllabus in Cycle 4 enables pupils to cover all the main periods of history by the end of their compulsory schooling. For this reason, the programme benchmarks provide theme-based guidance, sub-divided into sub-themes, which **teachers cover using whatever historical methodology strategies and approaches they deem to be relevant**. They place the emphasis on the main characteristics and high points of the societies of the past, the transitions between eras and relevant questions in citizenship training.

In Cycle 4, following on from Cycle 3, pupils intensively cover the history of France, which they now encounter in greater length, richness and complexity. The programme invites pupils to explore the history of the links between Europeans and the rest of the world, the connections between economies, societies and cultures, and the history of international relations. Religious history, covered during the *sixième* year, is expanded and covered in more depth; it enables pupils to understand current issues better and see them in perspective. Lastly, an overall approach to historical facts should shed light equally on the human situation, condition and events for any given historical period covered by the syllabus: the aim is therefore to teach a combined history.

The goal of the programme is to give all *collège* students a **wide perspective of history**. Teachers adopt teaching strategies suited to the age of the pupils, seeking the **right balance between skills and knowledge, without taking an overly academic approach**, and emphasising content which is of key importance to any understanding of the past. They offer a variety of learning situations, particularly via interdisciplinary approaches, for optimum acquisition of the knowledge and competencies defined in the common foundation.

In this way, from one class to another in Cycle 4, pupils increase their mastery of the intellectual strategies which enable them to construct and make use of historical knowledge. They continue their initiation in historical reasoning and give meaning to the historical situations they explore. They increase the depth and breadth of the sources they examine, and learn to view them critically by associating them with a context. The competencies associated with document analysis and the mastery of written and spoken language remain at the heart of everyday class practices. These competencies, which are used in examining documents from the past, provide a rigorous and meaningful initiation into an engagement with history; the act is also intended to introduce pupils to the pleasure that stems from the discovery of what has been achieved by the men and women of the past.

5ème class	
Annual planning benchmarks	**Teaching strategies and content**
Theme 1 **Christianity and Islam (6th-13th centuries): worlds in contact** • Byzantium and Carolingian Europe. • From the birth of Islam to the seizure of Baghdad by the Mongols: powers, societies and cultures.	As a continuation of work in the 6ème class, which addresses the period from prehistory to the time of Antiquity, the 5ème class covers a vast period from the Middle Ages to the Renaissance. It introduces pupils to societies marked by religion, which see the imposition of new ways of considering, viewing and travelling the world and envisaging the exercise and structure of secular power. The period covering the 6th to the 13th centuries, from Justinian to the seizure of Baghdad by the Mongols (1258), provides an opportunity to show how empires are born and develop and to emphasise factors which promote either unity or division. Religion is a key explanatory component among these unifying or dividing factors. The relationships between political, military and religious powers also offer an opportunity to define the functions of Caliph, Basileus and Emperor. Studying the contacts between these powers within the Mediterranean region illustrates the means by which they have opened to external influence. The Mediterranean, criss-crossed by sailors, warriors and merchants, is also a place of scientific, cultural and artistic exchange.
Theme 2 **Society, Church and political power in the feudal West (11th-15th centuries)** • Manorialism: the shaping and domination of the countryside. • The emergence of a new urban society. • The assertion of the monarchic state in the kingdom of the Capetians and the Valois.	Feudal society, imbued with the religious values of Christianity, is built through the combined domination of manorial, lay and ecclesiastical powers. The main source of these powers derived from the countryside and its exploitation. As they cover the conquest of lands, pupils once again (following the study of the Neolithic period in the 6ème) consider the link between humans and their environments. However, the urban movement which begins primarily in the 12th century introduces new ways of life and stimulates the merchant economy. Royal government, for its own part, establishes the basis of a modern State, gradually gaining power against feudal power, extending its dominion and developing more efficient administrative apparatus to control it.
Theme 3 **Transformations in Europe and an increasingly world-oriented view in the 16th and 17th centuries** • The world at the time of Charles V and Suleiman the Magnificent. • Humanism, reforms and religious conflicts. • From Renaissance Prince to absolute King. (Francis I, Henri IV, Louis XIV).	Globalisation first appeared in the 15th and 16th centuries: pupils will consider European expansion in the context of the major discoveries and rearrangements of the Mediterranean region, taking account of the role played by the Ottomans and Iberians in these two historical processes. The scientific, technical, cultural and religious upheavals experienced by Renaissance Europe call for a re-examination of the relationships between political powers and religion. Using the French example, the evolution of the royal figure from the 16th to the 17th centuries (as already studied in Cycle 3) will be examined in more detail.

4ème class	
Annual planning benchmarks	**Teaching strategies and content**
Theme 1: The 18th century. Expansion, Enlightenment and revolution • Merchant bourgeoisie, international trade, Negro trading and slavery in the 18th century. • Europe of the Enlightenment: transferral of ideas, enlightened despotism and questioning of absolutism. • The French Revolution and the Empire: new political order and revolutionary society in France and in Europe.	– The 4ème class is intended to provide pupils with the basic knowledge required to understand the major political, socioeconomic and cultural changes experienced in Europe and France from the death of Louis XIV up to the establishment of the Third Republic. Specifically, pupils will need to identify the main forces behind these changes, without merely reducing this analysis to individual political figures. A study of the interactions associated with the development of the plantation economy in the colonies prompts an examination of the enrichment of the Atlantic seaboard and the development of transatlantic trade in conjunction with the Negro trade in Africa and the rise of slavery in the colonies. – A developed scientific approach and increased openness to more distant horizons prompt arts and science students to question the political, social and religious foundations of the world in which they live. It is possible to study the means by which new ideas are spread, the way in which different social groups acquire them and the importance now assigned to public opinion in a radically reshaped political environment. – The contributions of the French Revolution to the political, economic and social order – not just in France but in Europe – are described in the context of republican and imperial wars. This may provide an opportunity to reconsider the distinctive characteristics of the French Revolution in the context of transatlantic revolutions. Pupils are reminded of the importance of the major administrative and social reforms introduced by the Revolution, then the Empire.
Theme 2 **Europe and the world of the 19th century:** • Europe and the "Industrial Revolution". • Colonial conquests and societies.	– New structure of production, new production locations, new methods of trade: Europe undergoes a process of industrialisation which transforms landscapes, towns and the countryside, overturns society and cultures and gives birth to brand-new political ideologies. At the same time, a demographically expanding Europe becomes a place of emigration, and pupils are provided with an example of the scale of this phenomenon (Irish/Italian emigrations, etc.). Lastly, there is a presentation of the broad outlines of the growth of employment, the condition of workers, periodic crises and their effects on work, prompting a "social question" and new forms of political protest. The revolution of 1848, whose effects were felt across Europe, changed the concept not only of nationality but also of the right to work. – New colonial conquests strengthened Europe's domination of the world. The philosophy of colonisation can be observed using the example of the French colonial empire. Pupils will discover how a colonial society works. They will also be introduced to the final outcome of the long process of the abolition of slavery. This theme also provides an opportunity to present the increase in knowledge of the world and how scientific thought continued to move away from a religious view of the world.
Theme 3 **Society, culture and politics in 19th-century France** • A hard-won victory: voting from 1815 to 1870. • The Third Republic. • Conditions for women in a changing society.	– Voting and the French from 1815 to 1870: who voted? who was elected? how did voting work? The issue of voting – a subject of much political debate – presents the topic of the century's political upheavals and a view of how French people prototyped "universal suffrage" from 1848 onwards. – Following the events of 1870 and 1871, the aim was to build national unity around the Republic: schools, municipal authorities and army barracks became places where a progressive lay republican culture was formed. But from the time of its foundation up to the law disestablishing the Church from the State, the Republic continued to be discussed and opposed. – What was to be the status, position and role of women in a society marked by their political exclusion? Active women and housewives, the bourgeoisie, peasants and workers; what were their living conditions and grievances?

3ème class	
Annual planning benchmarks	**Teaching strategies and content**
Theme 1 **Europe, a major theatre for total wars (1914-1945)** • Civilians and the military in the First World War. • Weakened democracies and totalitarian experiments in inter-war Europe. • The Second World War: a war of annihilation. • Defeated and occupied France. The Vichy régime, collaboration and the Resistance.	– The 3ème class provides pupils with the keys to understanding today's world. It demonstrates the scale of the crises which French, European and world societies have experienced, but also the social and political changes which this has produced. – By mobilising civilians as well as the military, the Great War tested the cohesion of societies and weakened existing systems in a lasting way. Soldiers and civilians alike were subjected to extreme violence, as events such as the Armenian genocide of 1915 demonstrated particularly clearly. In Russia, total war created the conditions for the Bolshevik revolution, with Stalinist Soviet communism taking hold in the 1920s. Following the peace of Versailles and then the Great Depression, the Nazi regime came to power and cemented a series of alliances. The French *Front Populaire* political experiment was conducted in an environment marked by rising threat levels. – Mass violence and annihilation characterised the Second World War, a planet-wide conflict. Pupils will study the genocides of the Jewish and Gypsy peoples, as well as the persecution of other minorities. – At both European and French level, resistance movements opposed the Nazi occupation and collaboration. Following the shock of the defeat of 1940, the military and civilian Resistance fought against the Vichy régime which stood against Republican values.
Theme 2 **The world since 1945** • Independence and construction of new States. • A bipolar world in the Cold War era. • Assertion and implementation of the plan for Europe. • Issues and conflicts in the post-1989 world.	– The rapid collapse of the colonial empires is a major fact of the late 20th century. Pupils will study routes to independence using a selected example. – The Cold War, another key reality of this period, played out against a background of East-West confrontation which created antagonistic models and produced crises at local and worldwide level. The United States and the USSR fought an ideological and cultural war using information to influence opinions and assert their own power. Bipolar views of the world were called into question by the independence of new states and the emergence of the Third World. – Seen in these terms, the stages and issues in the construction of Europe need to be located within their international context and approached from a firm practical starting point. – What is the nature of the rivalries and conflicts in today's world, and in which geographical areas are they taking place? Pupils will attempt to find some outline answers to these questions using a case study (this can be conducted jointly with the geography programme).
Theme 3 **The French in a reinvented Republic** • 1944-1947: rebuilding the Republic, redefining democracy. • The 5th Republic, from Gaullist Republic to political succession and coalition. • Women and men in the society of the 1950s to the 1980s: new social and cultural issues and political responses.	– In France, the Liberation enabled the reintroduction of Republican law systems as part of a philosophy of rebuilding. The Republic provided for the political inclusion of women. The large-scale reform programme undertaken by the *Conseil national de la Résistance* extended and complemented the programme implemented by the *Front Populaire*, expanding democracy in a social sense. – The return to power of General de Gaulle in 1958 resulted in the 5th Republic, marked by a strengthening of executive power and majoritarian representation. Here, history provides a context for studying republican institutions and political principles and practices, which is also delivered under the aegis of moral and civic education. – In the second half of the 20th century, French society underwent decisive transformations: the place of women, new aspirations of youth, the rise in immigration, an ageing population and the increase in unemployment. These changes brought about a shift in the Republican model of society. Studying a number of examples of how legislation has adapted to changes in society provides an opportunity to understand a number of issues in the political debate and the means by which citizenship is exercised in French-style democracy.

Geography

The teaching of geography in Cycle 3, based on the concept of "Habitation", introduced geographical concepts and started approaches which are enriched and expanded in Cycle 4. The ways in which areas and territories are developed by companies are examined with regard to the sustainability of their development work and the geographical effects of modern globalisation. In this regard, it is important to give pupils an awareness of the issue of development, which, although still an essential topic, has been fundamentally altered in nature by the increasing significance of the problems associated with global change and the overexploitation of certain resources. Teaching staff are free to arrange topic order as they wish, although it is preferable to deal with the themes numbered 1 within each part of the programme at the start of the year.
Considering the size of the themes covered, teachers must make the necessary choices to ensure that pupils are able to access the issues being covered. In particular, this means focusing on aspects which enable pupils to gradually master the basics of a geographical analysis of spaces constructed by human societies on various scales ranging from their current location to the entire world.
An approach based on a practical case study of geographical areas, presented in context at a variety of scales, is particularly important: it enables pupils to employ geographical reasoning and use various particularly important resources and documents (planispheres, maps, landscapes, photographs, GIS, statistical data, written sources, qualitative data, etc.). It is also helpful to use pupils' own geographical ideas and experience to consolidate learning.
This teaching should also provide an opportunity to familiarise pupils with the basic concepts used in geography to describe and analyse geographical entities of various scales constructed by societies. Some study subjects may lead to the production of sketches and schemas which introduce pupils to cartographic language. As well as teaching the key principles of "traditional" cartography, care is taken to initiate pupils in the principles of cartography and digital geographical imagery.
During their learning journey, it is important for pupils to be presented with examples and cases belonging to the various different large territorial entities of the modern world. Forward-looking resources may be used; for all of the themes in question, such resources make it possible to ask relevant questions about the geographical resources and restrictions with which societies are presented and the potential development options open to them, and to conduct a number of project-type activities with the pupils.

5ème class	
Annual planning benchmarks	**Teaching strategies and content**
Theme 1 **The demographic question and unequal development** • Demographic growth and its effects. • Distribution of wealth and poverty around the world.	The aim of this first part of the cycle is to increase pupils' awareness of the threat to human spaces posed by global change and the tension regarding essential resources (energy, water, food). This is achieved by helping pupils to understand the need to take into account the vulnerability of human spaces, but avoiding doomsday predictions and emphasising societies' ability to find solutions which promote sustainable and equitable development. For this first theme, the programme starts from the knowledge acquired in the last theme of the 6ème and tackles the issue of demographic growth, particularly in developing and emerging countries, where it compromises sustainable and equitable development and access to all basic goods and services. The first sub-theme will be dealt with using two case studies: an emerging power (China or India) and a selected African country. These cases will be compared and contrasted with the United States and Europe, where the demographic question assumes a very different form. However, common issues (such as ageing) will also be shown. Next, a general perspective on the geography of worldwide wealth and poverty will be given. The aim is to make pupils aware of the unequal distribution of wealth. They also discover that different levels of wealth and poverty, and thus social inequalities, can be observed in all countries. Map resources are important for dealing with questions associated with this theme, which is very clearly linked to the following theme.
Theme 2 **Limited resources to be managed and renewed** • Energy and water: resources to be rationed and used better. • Food: how can we feed a	The question of resources is now one of life's most important issues, which geography deals with efficiently. This emphasises the importance of rural and agricultural areas and their contribution to the supply of essential resources (especially food), while a portion of the human race is permanently underfed or badly fed. Pupils are shown the issues associated with the search for new forms of economic development which can provide a decent material standard of living for the greatest number of people without compromising the oecumene and over-

demographically growing world population with greater food needs?	exploiting resources. This theme also permits the use of a geohistorical-style presentation, which lends depth to the analysis and provides a strong connection between the history and geography components of the C4 programme. Each sub-theme is covered using a case study chosen by the teacher and placed in a worldwide context.
Theme 3 **Predicting risks, adapting to global change** • Global change and its main regional geographical effects. • Predicting industrial and technological risks.	This theme is designed to enable pupils to tackle the question of global change (climate change, widespread urbanisation, deforestation, etc.). It gives an insight into a number of basic questions associated with the vulnerability and resilience of societies in the face of risk, whether of an industrial/technological nature or associated with this global change. This theme is studied by reusing the knowledge and skills acquired by pupils during the Cycle 3 geography programme. It is particularly well suited to the forward-looking approach. Sub-theme 1 is covered using a simple case study, selected by the teacher, examining the potential effects of a change in climate and a local, regional or national policy to avoid, moderate or adapt to such a situation. Sub-theme 2 is covered using a case study examining an industrial and technical threat. This approach to the theme, based on forecast geographical upheavals and attempts to anticipate them, creates links with the life and Earth sciences and technology programmes and offers a new way of considering the question of sustainable development.

4ème class	
Annual planning benchmarks	**Teaching strategies and content**
Theme 1 **World urbanisation.** • Urbanisation spaces and landscapes: geography of the centre and the edges. • Cities with unequal connections to the networks of globalisation.	In the 4ème class, building on the knowledge gained in the 5ème, pupils consider a number of key geographical characteristics of the modern-day globalisation process. This educates pupils about the differences between this process and the "first globalisation" (15th-16th centuries) studied in history. The aim is to increase pupils' awareness of the new ways of structuring areas and territories created by this globalisation and to consider with them some of the problems it poses. The world has been rapidly urbanising since 1945. By 2007, more than half its population were living in towns and cities – a figure which will probably rise to $^{2}/_{3}$ by 2050. This is a key fact which characterises globalisation. In the 6ème, pupils examined the urban question using an analysis of "habitation". In the 4ème, they are made aware of the main types of areas and landscapes created by urbanisation, which provides an opportunity to introduce them to the basic vocabulary of urban geography. Pupils then consider the connection of cities to the major globalisation networks and the differences this creates between connected towns which are well integrated into the globalisation they drive and towns which are further removed from it, or are even classed as "shrinking cities", such as Detroit. Two city case studies, chosen by the teacher, provide a practical way of accessing the various aspects of this theme. These contextualised case studies offer a basic introduction to the globalised environment.
Theme 2 **Transnational human mobility** • A world of migrants. • Tourism and its spaces.	It is essential to show pupils the importance of the major transnational population movements the world is experiencing, which are of considerable magnitude. Transnational migrations, the reasons for which can be extremely varied (Erasmus, the consequences of conflicts, climate crisis, economic reasons, etc.), are often major news items and it is important for pupils to understand that this geography of migration is not focused on Europe alone, nor characterised solely by movements from the "South" to the "North", but also includes pockets of south-south intracontinental migration. International tourism, meanwhile, now constitutes the largest population movement the world has ever known; it brings with it very significant economic, social and territorial effects. Each sub-theme is approached using a local or regional case study chosen by the

	teacher and given a world perspective to provide a more generally applicable model. This theme links into the 4ème history programme.
Theme 3 **Spaces transformed by globalisation** • Seas and Oceans: an increasingly maritime world. • How the United States has adapted to the new conditions of globalisation. • The dynamics of a large African geographical area (chosen from: western Africa, eastern Africa, southern Africa).	The goal is to give pupils an awareness of the specific insight geography can offer, which is to demonstrate the spatial issues associated with globalisation. The seas and oceans are zones which symbolise these issues. Criss-crossed repeatedly by the maritime transportation routes on which the world's economy depends, and bounded by coastal regions which are home to human populations and business activity, the seas and oceans are also agents of climate regulation and places exploited for fishing and other resources; they lie at the heart of many conflicts of interest. They are fragile environments whose conservation constitutes a major problem for societies. The second and third sub-themes provide a general introduction to the spatial dynamics driven by globalisation in two major geographical regions, which are studied separately, yet linked where necessary. The United States is a useful example of how a major attractive force (i.e. one which receives large incoming migratory flows) adapts to the new economic and social conditions resulting from globalisation. On the other hand, Africa is the continent in which globalisation generates the most significant effects, exhibiting manifest development potential as well as fragilities. These three highly involved sub-themes can only be skimmed lightly with the pupils, focusing on the basics of geographical knowledge which outline the main issues. There may be a particular emphasis on cartographical analysis.

3ème class	
Annual planning benchmarks	**Teaching strategies and content**
Theme 1 **Territorial dynamics of contemporary France** • Urban areas: a new geography for a globalised France. • Economically productive areas and how they are changing. • Low-density areas (rural areas, mountains, underdeveloped tourist areas) and their assets.	The strategy for the 3ème class is to provide pupils with a basic knowledge of the geography of France and the European Union. This is a particularly important stage in their compulsory education. This approach may be usefully linked to the study of the last theme of the history programme for the 3ème year. The geography of France has profoundly changed over the last 50 years as a result of urbanisation, which has changed ways of life and redistributed populations and economic activities. The intention is to introduce pupils to these main upheavals. The geography of urban areas provides a way of increasing pupils' awareness of the diversity of the spaces (central, pericentral, peri-urban, suburban) affected by urbanisation and the relationships between areas of urban influence. The transformation of predominantly industrial, agricultural, tourist or business-oriented economically productive areas is covered in association with the issues of urbanisation and globalisation which are redefining their geography. Low-density areas (rural areas, mountains, underdeveloped tourist areas) are considered in terms of the diversity of their dynamics and assets. They are not merely neglected fringe areas and places deprived of productive resources, most prominently because of agricultural or tourist activities or the influx of new inhabitant categories. The three sub-themes may be approached using case studies and practical examples, as chosen by the teacher, and maps of various scales. This theme lends itself to the production of sketches or schemas.
Theme 2 **Why and how are regions developed?** • Development as a response to the growing inequalities between French regions on all scales. • French overseas territories: a specific problem.	The purpose is to introduce pupils to territorial development initiatives as attempts by governments to compensate for the inequalities between different territories, whether they be economic, social or regarding access to public resources. This theme provides pupils with the basic concepts associated with the study of geographic development. Among other advantages, it gives them a familiarity with the resources and agents of French and European planning. Sub-theme 1 is implemented using a case study of local and/or regional planning. Territorial forecasting approaches are particularly useful in educating pupils about

	the scope of planning and the debates it generates. The case study is put into national and European perspective. This approach lends itself to the production of sketches of how national territory is structured. Sub-theme 2 is studied using maps of different scales and practical examples.
Theme 3 **France and the European Union** • The European Union: a new administrative territory and a new source of identity. • France and Europe in the world.	Geographical analysis provides an examination of the European Union in the context of territorial construction and policy. This topic complements the topic examined in theme 2 of the history programme by this same 3ème class. There is an introduction to the characteristics of the EU territorial area, with a focus on the position of French territory within this European geography and the potential which the EU offers to France. This topic includes an examination of a trans-border region. This approach invites questions about the cultural, geopolitical and economic role and influence of France and Europe in the world, which are examined using practical examples.

Intersections between teaching areas

In addition to staff from the relevant disciplines in the examples shown below, the transliteracy teacher (who plays a key role in this area) is to be involved wherever the relevant interdisciplinary approach permits, working from themes in the history and geography programmes.

History

Languages and cultures of Antiquity

- *Importance of Latin and Greek documents from the Middle Ages: study of chronicles*. Understanding why Latin and Greek are linked to European identity.
  Theme 1 of the 5ème class, "Christianity and Islam (6th-13th centuries): worlds in contact: Byzantium and Carolingian Europe:.
  In association with ancient languages; contribution to the artistic and cultural education strategy.

Science, technology and societies or **Artistic culture and creation**

- Possible practical interdisciplinary teaching on themes associated *with the relationships between arts and sciences in mediaeval Muslim civilisation.*
  Theme 2 of the 5ème class, "Christianity and Islam (6th-13th centuries): worlds in contact: Islam: powers, societies and cultures (from the birth of Islam to the seizure of Baghdad by the Mongols)".
  In conjunction with mathematics, science (life and Earth sciences, physics/chemistry), visual arts; contribution to artistic and cultural education strategy.

Science, technology and societies or **Body, health, well-being and safety** or **Foreign (or, where applicable, Regional) languages and cultures**

- *Major scientific figures of the 16th century: Copernicus, Galileo, etc.* Understanding the scientific approach and the relationships between science and society.
  Theme 3 of the 5ème class, "Transformations in Europe and an increasingly world-oriented view in the 16th and 17th centuries:
  Humanism, reforms and religious conflicts.:
  In conjunction with mathematics, science, technology, French and modern languages.

Foreign (or, where applicable, Regional) languages and cultures or **Artistic culture and creation**

- Possible practical interdisciplinary teaching around the theme of *How the arts portray the growth of royal power and are inspired by it.*
  Theme 3 of the 5ème class, "Transformations in Europe and an increasingly world-oriented view in the 16th and 17th centuries: From Renaissance Prince to absolute King (Francis I, Henri IV, Louis XIV)".
  In conjunction with French, modern languages, visual arts, music; contribution to the artistic and cultural education strategy.

Information, communication and citizenship or **Artistic culture and creation**

- *Slavery and its evidence in history*. The debates it has prompted; a history of commitments; how collective experience affects a culture.
  Theme 1 of the 4ème class, "The 18th century. Enlightenment and revolutions: Merchant bourgeoisie, international trade, Negro trading and slavery in the 18th century."
  In conjunction with French, modern languages, visual arts, music; contribution to the artistic and cultural education strategy.

Science, technology and society or **Economic and professional world**

- *New scientific theories which change how the world is viewed: their function and impact* (e.g. Darwin and evolution).
  Theme 2 of the 4ème class, "Europe and the world of the 19th century: The Europe of the industrial revolution".
  In conjunction with the sciences: physics/chemistry, life and Earth sciences, mathematics and technology.

Information, communication and citizenship or **Artistic culture and creation**

- *In the 19th century, politics "comes down to the masses"*: examining the forms taken by these new methods of structuring political life, via an analysis of the press, posters and artistic/dramatic productions.
  Theme 3 of the 4ème class, "Society, culture and politics in 19th-century France: a hard-won victory: voting from 1815 to 1870"
  In conjunction with French, modern languages, visual arts, music; contribution to the artistic and cultural education strategy.
- *Propaganda: an extreme form of political communication*. The decoding of propaganda by pupils is a key learning target (e.g. the use of images to serve war culture and totalitarian propaganda).
  Theme 1 of the 3ème class, "Europe, a major theatre for total wars (1914-1945)".
  In conjunction with French, modern foreign/regional languages, visual arts, music; contribution to the artistic and cultural education strategy.

Information, communication, citizenship or **Foreign or regional languages and cultures** or **Economic and professional world**

- *Possible practical interdisciplinary teaching on e.g. European construction,* through comparative analysis, examining how it is seen in one or more European countries.
  Theme 2 of the 3ème class, "The post-1945 world: Independence and construction of new States, asserting and implementing the plan for Europe".
  In conjunction with modern languages.

Information, communication, citizenship

- *Male-female equality in Europe*. If desired, an emphasis may be placed on women's rights, political life or professional life.
  Theme 3 of the 3ème class, "The French in a reinvented Republic: women and men in the society of the 1950s to the 1980s: new social and cultural issues and political responses."
  In conjunction with modern languages and French.

Geography

Throughout Cycle 4, geography lends itself in particular to interdisciplinary work on cartography, via the use of geolocation tools and representations of the spatial objects offered by digital cartography. This work provides multiple opportunities for delivering practical interdisciplinary teaching in association with scientific disciplines, such as in the *Science, technology and societies* theme.

Body, health, well-being and safety or **Ecological transition and sustainable development** or **Economic and professional world** or **Science, technology and society**

- *Possible practical interdisciplinary teaching on resources*: energy, food production, water management and consumption.
  Theme 2 of the 5ème class, "Limited resources to be managed and renewed".
  In conjunction with the life and Earth sciences, physics/chemistry and technology.
- *Global climate threats and change.*
  Theme 3 of the 5ème class, "How can we adapt to global change? ".
  In conjunction with the life and Earth sciences, physics/chemistry and technology.

Artistic culture and creation

- *Possible practical interdisciplinary teaching on landscape and heritage.*

Theme 1 of the 4ème class, "World urbanisation", and theme 1 in the 3ème class, "Territorial dynamics in contemporary France".
In conjunction with arts subjects and French; contribution to the artistic and cultural education strategy.

Information, communication, citizenship

- *Transnational migrations.*
  Theme 2 of the 4ème class, "Transnational human mobility".
  In conjunction with French teaching; contribution to the Citizenship strategy.

Ecological transition and sustainable development

- *Possible practical interdisciplinary teaching on cities* (habitat, architecture, town planning or urban transportation).
  Theme 1 of the 4ème class, "World urbanisation".
  In conjunction with technology, life and Earth sciences.
- *Tourism* (environment of tourist areas, major sites, development work, transportation, ethical concerns in tourist areas, transformation of places and societies by tourism, etc.).
  Theme 2 of the 4ème class, "Transnational human mobility".
  In conjunction with technology, life and Earth sciences.
- *Possible practical interdisciplinary teaching on seas and oceans* (questions relating to the environment or resources for fishing, preservation and conservation, etc.).
  Theme 3 of the 4ème class, "Spaces at issue".
  In conjunction with life and Earth sciences.
- *Possible practical interdisciplinary teaching on the study of urban areas and low-density spaces* (urban development, peri-urban transportation and mobility, urban spread, eco-districts, nature in the city, etc.).
  Theme 1 of the 3ème class, "Territorial dynamics in contemporary France".
  In conjunction with science or technology subjects.
- *Possible practical interdisciplinary teaching on the study of low-density spaces* (transformations of landscapes, buffer spaces between exploitation and conservation in the context of regional or national natural parks); or under the theme of *Artistic culture and creation* in conjunction with the arts (landscape).
  Theme 1 of the 3ème class, "Territorial dynamics in contemporary France".
  In association with the sciences; contribution to the artistic and cultural education strategy.
- *Possible practical interdisciplinary teaching on territorial development* (transportation, economic or cultural infrastructure, new districts, etc.).
  Theme 2 of the 3*ème* class, "Why and how are regions developed? ".
  In conjunction with technology, life and Earth sciences and mathematics; contribution to the Citizenship strategy.

Economic and professional world

- *Tourism as an economic activity* (depending on the area where the school is based).
  Theme 2 of the 4ème class, "Transnational human mobility".
  Contribution to the Future strategy.
- *Possible practical interdisciplinary teaching on seas and oceans* (sea-related activities, depending on the area where the school is based).
  Theme 3 of the 4ème class, "Spaces at issue".
  Contribution to the Future strategy.
- *Possible practical interdisciplinary teaching on economically productive areas.*
  Theme 1 of the 3ème class, "Territorial dynamics in contemporary France".
  Contribution to the Future strategy.

Foreign or regional languages and cultures

- *Study of a city located in a different cultural area.*
  Theme 1 of the 4ème class, "World urbanisation".
  In conjunction with modern foreign languages.
- *Dynamics of the United States area.*
  Theme 3 of the 4ème class, "Spaces at issue".
  In conjunction with modern foreign languages.
- *Possible practical interdisciplinary teaching on overseas issues.*
  Theme 2 of the 3ème class, "Why and how are regions developed? ".
  In conjunction with modern regional languages; contribution to the Citizenship strategy.
- *Possible practical interdisciplinary teaching on regional development.*
  Theme 3 of the 3ème class, "France and the European Union".

In conjunction with modern regional languages.

Physics/Chemistry

The experimental and observational sciences, which include physics and chemistry, explore nature to discover and formalise its laws, thus acquiring power over the real world. Teaching of these subjects in Cycle 4 is intended to enable pupils:

- to access the scientific knowledge of the past as well as of the future, to understand and use them to develop effective reasoning techniques:
- to appreciate the complexity of real life through practical experience by experimenting, measuring and modelling;
- to use facts to construct concepts about the world which become gradually more abstract and powerful;
- to understand the role of engineering techniques and sciences, how they emerged and how they interact with the sciences;
- to perceive links between human beings and nature;
- to explain the impacts of the pace and diversity of human activity on nature;
- to act on the basis of informed decisions, including their career choices;
- to live and act as responsible citizens, particularly in the areas of health and the environment;
  - by forging their own relationships with the world, with others, and with their own bodies,
  - by taking economic and technological changes in their stride in order to assume the resulting social and ethical responsibilities as committed citizens.

During Cycle 4, studying sciences – physics, chemistry, life and Earth sciences – provides young people with the ability to distance themselves from an anthropocentric view of the world and their own beliefs and enter into **a scientific relationship with natural phenomena, the living world and technology**. This scientific approach is built on **attitude** (curiosity, an open mind, self-critical skills, willingness to learn from mistakes, etc.) and **ability** (observing, experimenting, measuring, reasoning, modelling, etc.). In this way, pupils learn that the **knowledge** they acquire and memorise, and which is already of use to them, must be deepened, reassessed and possibly called into question throughout their academic careers and the rest of their lives.

Physics and chemistry teaching goals in Cycle 4 are divided into **four themes:**

- Structure and transformations of matter
- Motion and interactions
- Energy and its conversions
- Signals for observation and communication

These themes form the backbone of a scientific examination of the natural world; they are rooted in scientific and technical culture, and enable pupils to appreciate the breadth and progress reflected in these subjects and teaching areas, as well as the economic issues which accompany science, and physics and chemistry in particular. The diverse range of talent and intelligence represented among the pupils is taken into consideration when choosing activities and striking a balance between the practical and the abstract. This provides an opportunity to give pupils judicious guidance within the context of the Future strategy and the artistic and cultural education strategy.
Knowledge and practical experience of these themes help to nurture the autonomy required by citizens of the future by developing their critical judgement and instilling in them the values of respect for the truth, responsibility and cooperation which are critically important in science.
These four themes will be covered throughout Cycle 4. They are interdependent, and will be dealt with using regular, complementary interlinked approaches which revisit and expand the concepts throughout the cycle. It is possible to achieve the end-of-cycle goals through different programmes over the three years of the cycle, starting with observations of objects or phenomena and moving towards more elaborate models, taking account of progress made when presenting concepts covered in other disciplines, including mathematics, life and Earth sciences and technology.

Practised competencies	Foundation areas
Adopting scientific approaches • Identifying questions of a scientific nature. • Advancing one or more hypotheses in response to a scientific question. Designing an experiment to test it/them. • Measuring physical quantities directly or indirectly. • Interpreting experimental results, drawing conclusions from them and presenting them with a considered explanation. • Developing simple models to explain observation facts and implementing science-specific strategies.	4
Designing, creating, producing • Designing and producing a measurement or observation device.	4, 5
Acquiring tools and methods • Carrying out bibliographical research. • Using digital tools to pool shared information on a scientific subject. • Planning an experimental task, organising a work area, keeping records of steps taken and results obtained.	2
Using appropriate language • Reading and understanding scientific documents. • Using the French language and cultivating precision and a rich vocabulary and syntax to report on observations, experiments, hypotheses and conclusions. • Speaking in a scientific debate. • Switching from one type of scientific language to another.	1
Using digital resources • Using tools for generating and processing data, simulations and digital models. • Producing scientific documents using digital tools, adopting the specific reasoning and vocabulary used in physics and chemistry.	2
Behaving in an ethical, responsible way • Explaining basic safety rules in chemistry, electricity and acoustics. Putting this knowledge, and knowledge relating to resources and energy, to use in a way that promotes responsible actions. • Participating in a project which involves an element of citizenship.	3, 5
The individual in the context of space and time • Using the history of science and technology to explain how sciences have changed and affect society. • Identifying the different levels on which the Universe is structured.	5

Structure and transformations of matter.

<table>
<tr><th colspan="2">Expectations at end of cycle</th></tr>
<tr><td colspan="2">• Describing the constitution and states of matter
• Describing and explaining chemical transformations
• Describing the structure of matter in the Universe</td></tr>
<tr><th>Knowledge and associated competencies</th><th>Sample situations, activities and resources for the pupil</th></tr>
<tr><th colspan="2">Describing the constitution and states of matter</th></tr>
<tr><td>Describing the various states of matter (solid, liquid and gas).
Suggesting and implementing an experimental protocol for studying the properties of changes in state.
Describing the various changes in state of a pure substance.
Interpreting changes in state at the microscopic level. Suggesting and implementing an experimental protocol to establish the volumetric mass density of a liquid or solid. Using density measurements to differentiate between different types of chemical.

➢ Chemical type and mixture.
➢ Concept of a pure substance.
➢ Changes in state of matter.
➢ Conservation of mass, variation in volume, temperature at which states change.
➢ Density: Relationship $m = \rho.V.$</td><td>Following on from Cycle 2, in which pupils learned the basics of the various states of matter, the purpose of this theme is to introduce them to the microscopic nature of matter and the transition from the physical state to chemical components.
Performing simple experiments which show the conservation of mass (but not the conservation of volume) of a substance during a change in state.
Although water may be the main medium for experimentation when studying changes in state – while others are not excluded – data may be used to discover the state of a body in a fixed context and use the temperature at which it changes state to identify pure substances.
The experimental study will provide an opportunity to focus on energy transfers during changes in state.
The use of density is shown when measuring either a volume or a mass when the other quantity is known, but also as a way of distinguishing between various materials. A mathematical examination of the relationships of proportionality and quotient measures can be made.</td></tr>
<tr><td>Designing and performing experiments to describe mixtures.
Using experiments to estimate a value for solubility in water.
➢ Solubility.
➢ Miscibility.
➢ Composition of air.</td><td>These studies provide an opportunity to consider the dissolution of gas in water in the context of health and environmental problems.
These studies can draw upon or illustrate the various methods of water treatment (purification, desalination, etc.).</td></tr>
<tr><th colspan="2">Describing and explaining chemical transformations</th></tr>
<tr><th>Knowledge and associated competencies</th><th>Sample situations, activities and resources for the pupil</th></tr>
<tr><td>Performing characteristic tests for chemical types using a supplied test bank.
Using an experiment to identify a chemical transformation.
Distinguishing between a chemical transformation and a mixture, and between a chemical transformation and a physical transformation.
Interpreting a chemical transformation as a redistribution of atoms.
Using a chemical reaction equation to describe an observed chemical transformation.
➢ Concepts of molecules, atoms and ions.
➢ Conservation of mass during a chemical transformation.

Linking elements and their symbols using the periodic table.
Interpreting a chemical formula in atomic terms.</td><td>This section will be based on experimental activities using different types of chemical transformations: combustion, acid-base reactions, acid-metal reactions.

Using the periodic table to obtain symbols and atomic numbers from element names, and vice versa.</td></tr>
</table>

➢ Dioxygen, dihydrogen, dinitrogen, water, carbon dioxide.	
Properties of acids and bases Identifying whether a solution is an acid or base by measuring its pH. Linking acidity and alkalinity to the presence of H^+ and OH^- ions. ➢ H^+ and OH^- ions. ➢ Measuring pH. ➢ Reactions between acid and base solutions. ➢ Reactions between acid solutions and metals.	These various chemical transformations can provide a means of introducing or exploiting the concept of chemical transformation in a variety of contexts (everyday life, living beings, industry, health, environment). Experimentation and covered examples of transformations provide an opportunity to consider issues relating to safety and the environment.
Describing the structure of matter in the Universe	
Describing the structure of the Universe and the Solar System. Dealing with the various units of distance and being able to convert them: from the kilometre to the light-year. ➢ Galaxies, evolution of the Universe, formation of the Solar System, geological ages. ➢ Orders of magnitude in astronomical distances. Knowing and understanding the origins of matter. Understanding that observable matter is of the same kind everywhere, and obeys the same laws. ➢ The matter which forms the Earth and the stars. ➢ Elements on Earth and in the Universe (hydrogen, helium and heavy elements: oxygen, carbon, iron, silicon, etc.) ➢ Constituents of the atom, internal structure of an atomic nucleus (nucleons: protons, neutrons), electrons.	This theme shows students that the Universe was different in the past, that its composition, scales and structure are all changing, and that the Solar System and the Earth are involved in this change. Pupils learn that there is a continuum between the infinitesimally small and the infinitely large, and that the scale humans occupy is located between these two extremes. Pupils take advantage of a useful education opportunity as they work with online resources and identify reliable sources of information. This theme can also provide exposure to research, observatories and work conducted using satellites and space probes.

Motion and interactions

Expectations at end of cycle	
• Describing motion. • Modelling an interaction by a force described as a point of application, a direction, a vector and a magnitude.	
Knowledge and associated competencies	**Sample situations, activities and resources for the pupil**
Describing motion	
Describing the motion of an object. Using the relationship which links speed, distance and duration in uniform motion. • Speed: direction, vector and magnitude. • Rectilinear and circular motion. • Uniform motion and motion whose speed varies in either direction or value over time. • Relativity of motion in simple cases.	All of the concepts in this section can be covered using simple experiments (taken from everyday life or digital documents) which can be conducted in class. Using animations of planetary trajectories, which can be considered as being circular and followed at a constant speed in a basic simplified model. Understanding the relativity of motion in simple cases (a train pulling away from a platform) and coming to terms with the concept of a still or moving observer.
Modelling an interaction by a force characterised by a point of application, a direction, a vector and a magnitude	
Identifying the interactions involved (through contact or at a distance) and modelling them through forces. Combining the concept of interaction with the concept of force. Using the literal scalar expression of the law of universal gravitation,	Studying the mechanics of a system can provide an opportunity to use object-interaction diagrams. Experimenting with static equilibrium situations (balance, spring, muscular force).

the law itself having been given. • Contact force and action at a distance. • Force : point of application, direction, vector and magnitude. • Weight and its expression W=mg.	Experimenting with the persistence of uniform rectilinear motion in the absence of interaction (friction). Experimenting with actions which produce motion (rocket, jet engine). Weight on Earth and on the Moon, difference between weight and mass (units). Weightlessness is covered only in qualitative terms.

Energy and its conversions

Expectations at end of cycle	
• Identifying energy sources, transfers, conversions and forms. • Using the conservation of energy. • Making simple electrical circuits and using the laws of electricity.	
Knowledge and associated competencies	**Sample situations, activities and resources for the pupil**
Identifying energy sources, transfers, conversions and forms Using the conservation of energy	
Identifying the different forms of energy. • Kinetic (relationship K.E. = ½ mv^2), potential (dependent on position), thermal, electrical, chemical, nuclear, light. Identifying energy sources, transfers and conversions. Drawing up an energy balance sheet for a simple system. • Sources. • Transfers. • Converting one type of energy into another. • Conserving energy. • Energy units. Using the relationship which links power, energy and duration. • Concept of power	Teaching resources benefit from being related to everyday systems or situations. The proposed activities show that not all forms of energy are equivalent, or equally usable. This theme introduces a scientific vocabulary which clarifies terms often found in everyday life: heat, production, loss, consumption, wastage, energy saving, renewable energies.
Producing simple electrical circuits and using the laws of electricity	
Devising and implementing a simple experimental protocol designed to produce an electrical circuit which meets a simple specification or proves an electrical law. Using the laws of electricity. • Dipoles in series, dipoles in parallel. • Electrical current is the same at all points on a circuit which contains only dipoles in series. • Law of additive voltages (series circuit) • Law of additive current (parallel circuit). • Voltage-current relationship: Ohm's law. • Law of equality of voltages. Link to be made between the laws of electricity and safety rules in this area. Perform an electrical energy conservation calculation as applied to a real-life situation. • Electrical power P=V.I • Relationship between energy, electric power and time	The examples of electrical circuits used are drawn where possible from everyday devices: cars, portable devices, domestic installations and appliances. The presented activities give the pupils an awareness of energy saving in order to develop responsible, citizen-like behaviour.

Signals for observation and communication

Expectations at end of cycle	
• Describing different types of signal (light, sound, radio, etc.). • Using the properties of these signals.	
Knowledge and associated competencies	**Sample situations, activities and resources for the pupil**
Light signals Distinguishing a primary source (light-creating object) from a light-diffusing object. Making experimental use of the rectilinear propagation of light in a vacuum and the model of a light ray. Using the "light-year" unit as a unit of distance. • Light: sources, propagation, speed of propagation, light-year. • Model of light ray.	Using the rectilinear propagation of light in a vacuum and the model of a light ray may lead to work on shadows, reflection and measurements of distance. The presented activities give pupils an awareness of the risks of working with light sources (e.g. lasers). Pupils discover different types of rays (visible light, radio waves, X rays, etc.).
Sound signals Describing how a sound signal is propagated. Linking the distance travelled by a sound to the propagation time. • Speed of propagation. • Concept of frequency: audible sound, infrasound and ultrasound.	The examples covered focus on natural phenomena and practical equipment: thunder, sonar, etc. The presented activities give pupils an awareness of risks to hearing.
Signal and information Understanding that the use of sound and light means sending and transporting a signal, i.e. information.	

Intersections between teaching areas

A few examples of themes which may be investigated with several other disciplines are listed below. This list is not intended to be exhaustive, and is not compulsory. Within the scope of practical interdisciplinary teaching (EPI), the wide range of science subjects may be explored.

Body, health, well-being and safety

- In conjunction with life sciences, Earth sciences and technology.
  Safety, from the home to public places: appropriate use of chemical products, safety icons, managing and storing chemical waste in the laboratory, domestic electrical risks.
  Safety for oneself and others: risk and risk management.
- In conjunction with physical and sporting education, life sciences and Earth sciences, mathematics and technology.
  Chemistry and health: manufacture of medicines, prevention.

Artistic culture and creation

- In conjunction with visual arts, music, life sciences and Earth sciences.
  Sound and light: sources, propagation, speed.
- In conjunction with visual arts, life sciences, Earth sciences and mathematics.
  Light and arts: optical illusions, trompe-l'œil, camera obscura, stained glass (from white light to coloured light).
- In conjunction with visual arts, art history, French.
  Chemistry and arts: colour and pigments, oils and varnish, restoration of art works.
- In conjunction with visual arts, technology, history, French and mathematics.
  Architecture and mechanical actions: metallic architecture (Eiffel Tower, etc.).

Ecological transition and sustainable development

- In conjunction with the life and Earth sciences, technology, mathematics, history, geography and French.
  Chemistry and the environment: chemical transformations: sources of pollution, biochemical cleanup, green chemistry.
  Recycling of materials: waste sorting, environmental protection.
  Water quality and treatment (purification, desalination, etc.): drinkability of water, analysis techniques, water protection and management, purification stations.
  Water: resource; life; exoplanets; life forms; water vapour and natural greenhouse effect; natural threats (hail, floods, etc.); hydroelectric dams and energy.
  Management of natural resources: water and energy management and consumption, etc., exploitation of resources by humans (water, materials, energy resources, etc.); discovery and use; relationships to water and to mining wealth.
  Energy: production, consumption, losses, wastage, economics, renewable energies.

Information, communication, citizenship

- In conjunction with technology, media and information studies.
  Information and communication: sound signals (sound producers and receivers: microphone, etc.), light signals, electrical signals.
- In conjunction with media and information studies, life and Earth sciences, mathematics, French, work can be conducted on the difference between knowledge and beliefs, personal safety and the safety of others.

Languages and cultures of Antiquity

- In conjunction with the languages of Antiquity, history, mathematics and technology.
  History of conceptions of the Universe: scholars of the Alexandria school (Eratosthenes and the measurement of the circumference of the Earth, Hipparchus and the theory of the movements of the Moon and Sun, Ptolemy and geocentric theory, Aristotle and the rotundity of the Earth, etc.); measuring instruments (astrolabe, armillary sphere, etc.).
- In conjunction with the languages of Antiquity, history, mathematics and technology.
  Science and Antiquity: the legacy of Ancient Greece in the construction of science.

Foreign or (where applicable) regional languages and cultures

- In conjunction with modern languages, it is possible to examine themes based on the question of the universality of science.

Economic and professional world

- In conjunction with technology, life and Earth sciences, it is possible to work on applications of physics and chemistry research with an impact on the world of economics: chemical industry (medicines, water purification, innovative materials, biocompatible materials, etc.), energy production and distribution chains, metrology, etc.

Science, technology and society.

- In conjunction with history, mathematics, life and Earth sciences, technology
  History of the world: from Antiquity to Kepler
- In conjunction with mathematics, history, geography and technology, possible projects may examine scientific and navigation instruments.

Life and Earth sciences

Teachers aim to provide a progression and continuity in their teaching of notions and concepts, throughout the cycle, to provide pupils with the necessary time to assimilate this information. In continuation of the approaches of Cycle 2 (questioning the world) and Cycle 3 (science and technology), the teaching of life and Earth sciences in Cycle 4 is intended to enable the pupils to:

- access up-to-date scientific knowledge, understand it and use it to engage in appropriate reasoning, by linking data together, and imagining and identifying cause and effect;
- understand the complexity of reality by using practical examples, making observations, experimenting and modelling;
- separating facts from ideas;
- appreciate the place of technologies, their emergence and their interactions with the sciences;
- explain the links between human beings and nature;
- explain the impacts of the pace, nature (benefits/damage) and variability of the actions of human beings on nature;
- act on the basis of informed decisions, including their career choices;
- behave as responsible citizens, particularly in the areas of health and the environment, in order to:
    - forge their own relationships with the world, with others, and with their own bodies,
    - take account of developments in economic and technological spheres, and assume the resulting social and ethical responsibilities.

During Cycle 4, the aim for life and Earth sciences is to enable pupils to distance themselves from an anthropocentric vision of the world and separate scientific facts and beliefs, letting them enter into **a scientific relationship with natural or technical phenomena, and the living world**. This scientific posture is constructed from **attitudes** (curiosity, an open mind, a critical attitude, learning from mistakes, etc.) and **abilities** (observing, experimenting, modelling, etc.).

Training objectives for life and Earth sciences in Cycle 4 are structured around **three key themes:** the Earth, the environment and human action; life and its evolution; the human body and health. The life and Earth sciences programme, following on from Cycle 3, thus echoes the Cycle 4 physics/chemistry and technology programmes, and combines with other disciplines to give a scientific view of reality. These programmes provide a unique perspective, alongside and as a complement to other perspectives, to enrich ethical approaches to the key questions asked by society.

Practised competencies	Foundation area
Adopting scientific approaches • Formulating a scientific question or problem. • Putting forward one or more hypotheses to solve a problem or answer a question. Devising experiments to test it/them. • Using observation and measurement instruments and preparation/collection techniques. • Interpreting results and drawing conclusions from them. • Informing others of one's strategies, results and choices, supported by reasoning. • Identifying and choosing concepts, tools and techniques, or simple models to implement a scientific strategy.	4, 2, 1
Designing, creating, producing • Designing and implementing an experimental protocol.	4
Using tools and implementing methods to promote learning • Learning to organise one's work (e.g. for implementing an experimental protocol). • Identifying and choosing tools and techniques to keep (oral and written) records of one's research.	2
Using appropriate language • Reading and exploiting data presented in a variety of forms: tables, graphics, diagrams, drawings, research conclusions, mind maps, etc. • Presenting data in a variety of forms, switching from one presentation to another and choosing the one best suited to the work situation.	1, 4
Using digital resources • Conducting an information search on the internet to answer a scientific question or problem, choosing relevant keywords, and assessing the reliability of sources and the validity of results.	2

• Using data acquisition, simulation and database software.	
Behaving in an ethical, responsible way • Identifying the impacts (benefits and damages) of human activities on the environment at various different levels. • Basing responsible behaviour decisions in terms of health or the environment on scientific arguments. • Understanding individual and collective responsibilities with regard to conserving the planet's resources (biodiversity, mineral and energy resources) and preserving health. • Participating in the creation of safety rules and applying them in the laboratory and in the field. • Distinguishing between what counts as a belief or an idea and what constitutes scientific knowledge.	3, 4, 5
The individual in the context of space and time • Identifying the human race's position in the evolution of species. • Appreciating different scales of geological and biological time (e.g. history of the Earth; appearance of life; evolution and extinction of living species, etc.). • Appreciating different spatial scales of a single phenomenon/function (e.g. nutrition: organism level, organ level, cellular level). • Using science and technology history to identify how scientific knowledge is constructed.	5, 4

These stated competencies are not practised on their own, but used in the three themes listed above.

The Earth, the environment and human actions

Expectations at end of cycle	
• Exploring and explaining certain geological phenomena linked to the functioning of the Earth. • Exploring and explaining certain aspects of meteorology and climatology. • Identifying the main impacts of human action (benefits and risks) on the surface of the Earth. • Devising or justifying responsible behaviour with regard to the environment and the preservation of the planet's limited resources.	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
The Earth in the solar system. Explaining a number of geological phenomena from the perspective of the overall geodynamic context. ➢ The Solar System, telluric planets and gaseous planets. ➢ The terrestrial sphere (form, rotation, internal and tectonic plate dynamics; earthquakes, volcanic eruptions). ➢ Geological eras. Explaining a number of meteorological and climatic phenomena. ➢ Meteorology; dynamics of air and water masses; winds and ocean currents. ➢ Difference between weather and climate; the major climatic zones of the Earth. • Climate changes of the past (geological periods) and the present (influence of human activities on the climate). Linking scientific knowledge of natural threats (e.g. earthquakes, cyclones, floods) and threats from human activities (air and water pollution, climate warning, etc.) to measures for prevention (where possible), protection, adaptation or attenuation. • Natural phenomena: threats and issues for human beings. • Concepts of randomness, vulnerability and risk in association with natural phenomena; forecasts.	There will be an emphasis on local or regional examples and current news, and on the use of data banks, measurements, experimentation and modelling. This theme lends itself to the history of science, when pupils place the development of ideas (e.g. on the shape of the Earth, its position relative to the Sun, continental drift, etc.) in its historical context. In covering climate change, examples over a human-related timescale will be chosen, but a number of examples from climates of the past may be mentioned (e.g. Quaternary ice ages). All concepts related to uncertainty and risk can be tackled from the starting point of phenomena associated with external geodynamics, then reused in the area of internal geodynamics, or vice versa (e.g. meteorological or climate variability, earthquakes, volcanic eruptions, pollution and other technological risks, etc.). These activities increase pupils' awareness of the social issues and impact of public policies and individual behaviour. A few examples (using biotechnologies in particular)
Explaining a number of the main issues in humankind's exploitation	

of a natural resource, in conjunction with a number of big questions of society. • The exploitation of a number of natural resources by humans (water, soil, oil, coal, wood, mineral resources, fish stocks, etc.) for their food needs and daily activities. Understanding and explaining choices with regard to the management of natural resources at a variety of levels. Explaining how a human activity can change the structure and operation of ecosystems, in association with a number of global environmental questions. Presenting arguments on the impacts created by the pace, nature (benefits/damage), scale and variability of the actions of human beings on nature. • A few examples of interactions between human activities and the environment, including human/biodiversity interaction (on the scale of a local ecosystem and its dynamics up to global level).	will help pupils to identify environmental conservation and restoration solutions compatible with ways of life which seek a closer harmony with natural equilibrium. This theme provides an opportunity to make pupils aware of the consequences of certain behaviours and ways of life (e.g.: water pollution, scarcity of water resources in some regions, combustion of fossil fuels and global warming, soil erosion, deforestation, disappearance of animal and plant species, etc.). Some carefully-chosen examples enable students to identify solutions for conserving or restoring the environment compatible with lifestyles that seek to live in closer harmony with the balance of nature (renewable energy, water treatment, non-polluting transport, waste management, urban development, energy optimization. This theme contributes in particular to moral and civic education teaching.

Life and its evolution

Expectations at end of cycle
• Explaining how the living world is organised; its structure and dynamism at various different levels of space and time. • Linking various facts and establishing causal relationships to explain: – the nutrition of organisms, – population dynamics, – the classification of life, – biodiversity (diversity of species), – the genetic diversity of individuals, – the evolution of living beings.

Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Linking the needs of animal cells and the role of transport systems in the organism. • Nutrition and functional structure at the scale of the whole organism, its organs, tissues and cells. • Nutrition and interactions with micro-organisms. Linking the needs of cells in a chlorophyll plant, matter production/removal and storage areas, and transport systems within the plant.	This theme lends itself particularly well to: – the history of science, where pupils place the development of knowledge about reproduction, genetics and evolution in its historical and technical context; – observations on various scales into the constitution of the studied organisms and the diversity of life (including bacteria and fungi). There is an emphasis on in-the-field observations for collecting data, structuring them and processing them at a basic level, and also implementing experimental strategies. This theme provides an opportunity for using identification and classification tools. This theme also lends itself to biotechnology applications, where pupils cultivate cells or study protocols for obtaining genetically modified organisms, cell lines (sources of parent cells, growth,
Linking biological aspects of sexual and asexual reproduction in living beings and the influence of environment on the survival of individuals to population dynamics. • Sexual and asexual reproduction, fusing of gametes, reproduction environments and methods. • Gametes and genetic heritage in vertebrates and flowering plants.	
Linking the study of family relationships between living creatures, and evolution. • Shared characteristics and classification. • The major groups of living beings (including *Homo sapiens*), their ancestry and evolution.	

Explaining the source of genetic diversity and stability in individuals. Explaining how phenotypes are determined by genotype and by environmental effects. Linking genetic diversity and biodiversity as dynamic processes. • Diversity and dynamism of the living world at different structural levels; diversity of inter-species relationships. • Genetic diversity within a population; heritability, stability of groups. • DNA, mutations, intermixing, genes, meiosis and fertilisation.	conservation, ethical standards) or cloning. Using knowledge to evaluate and argue for the possibility of life and its potential forms on other planets.
Providing evolutionary facts for species and presenting arguments in favour of certain evolutionary mechanisms. • Appearance and disappearance of species over time (including the first living organisms on Earth). • Retention of suitable forms for reproduction, chance, natural selection.	

The human body and health

Expectations at end of cycle	
• Explaining certain biological processes involved in the functioning of the human organism, down to the molecular level: muscular, nervous and cardiovascular activity, cerebral activity, feeding and digestion, relationships with the microbial world, reproduction and sexuality. • Linking the knowledge of these biological process to the issues related to responsible individual and collective behaviour in terms of health.	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Explaining how the nervous system and the cardiovascular system are involved in muscular exertion, identifying the organism's abilities and limitations. • Cardiac and respiratory rhythms, and physical exertion Demonstrating the role of the brain in receiving and processing multiple sources of information. • Nerve messages, nerve centres, nerves, nerve cells. Linking different behaviours to their effects on the operation of the nervous system. • Brain activity; lifestyle: conditions for effective operation of the nervous system, disturbances by certain situations or consumption, thresholds, excess, doping, limits and effects of training.	This theme lends itself to: – the history of science, where pupils place the development of knowledge about vaccination and antibiotics in its historical and technical context; – the evolutionary interpretation of adaptations concerning human function; – the prevention of addictive behaviour patterns; – biotechnology applications, where pupils use knowledge they have already acquired to explain the procedures and stages for manufacturing vaccines and medically assisted procreation techniques. Pupils build their competencies through collaborative work with partners in the health sector (doctors, sportsmen/women, etc.). The examples and strategies adopted enable pupils to consider factors in physical, social and mental well-being, and to discover the benefits and rationales involved in public health policies. This theme makes a particularly significant contribution to moral and civic education.
Explaining what happens to foodstuffs in the digestive tract. • Digestive system, digestion, absorption; nutrients. Linking the nature of foodstuffs and their qualitative and quantitative contributions to understand the importance of food for the organism (nutritional needs). • Food groups, dietary needs, nutritional needs and dietary diversity.	
Linking the microbial world found inside our own organisms and how it works. • Ubiquity, diversity and evolution of the bacterial world. Explaining the reactions which enable the organism to protect itself against pathogenic micro-organisms. • Immune reactions. Discussing the merits of policies to prevent and fight contamination and/or infection. • Health measures, vaccination, effect of antiseptics and	

antibiotics.	
Linking the operation of reproductive organs from puberty to contraception principles. • Puberty: reproductive organs, production of reproductive cells, hormonal monitoring. Explaining the foundations of responsible behaviour in sexual terms: fertility, pregnancy, respect for others, informed consent to procreation, contraception, prevention of sexually transmitted diseases.	

Intersections between teaching areas

Through the variety of the teaching themes they cover, life and Earth sciences lend themselves to a variety of links and overlaps with other disciplines: from climatology or the management of natural threats, with history/geography, to Earth sciences with physics/chemistry, including health of the organism, which is linked to physical education, and even biotechnologies, which make use of knowledge from the technology discipline.
Life and Earth sciences can also forge links with the artistic and linguistic disciplines: for example, by identifying links between how to resolve scientific questions and a country's culture; making use of a work to construct scientific knowledge, or even performing some aspects of a work using personal scientific culture.
Mathematics and French tools are used constantly in life and Earth sciences. The transliteracy teacher provides assistance with information searches.
Listed below, for each of the main themes in life and Earth sciences or in conjunction for the three themes, are a few non-exhaustive **examples** of themes which can be explored with several other disciplines. Teaching staff are free to make use of these themes, or to think up others. These sample themes provide an opportunity both to work on skills from several foundation areas and to construct or (re)use knowledge in different disciplines. They may contain content for practical interdisciplinary teaching (EPI) and for the *parcours* strategies (the Future strategy and the artistic and cultural education strategy).

Body, health, well-being and safety

- In conjunction with geography, physical and sporting education, chemistry, mathematics, technology, modern languages and media and information studies.
  Foodstuffs, nutrition, worldwide management of food resources (production, transport, storage); food chains including humans; concentration of contaminants; pesticides, GMOs; role of micro-organisms in food production; crops and food; the obesity epidemic in wealthy countries; food safety.
- In conjunction with physical and sporting education, mathematics, chemistry and technology.
  Sport and sciences, food and training; breathing; exercise physiology and doping; exertion and reward system; medicine, sport and biotechnology; medical imaging.

Science, technology and society / Information, communication, citizenship

- In conjunction with geography, physical and sporting education, technology, French, mathematics, modern languages and media and information studies.
  Health of societies, epidemics, pandemics over time; emerging diseases; management of public health, national and global issues; prevention (vaccinations, water treatment, etc.); campaigns for protection (e.g. hearing) or prevention (e.g. tobacco use, air quality); science and transmission of life; comparisons of contraception in different countries; statistics, risk and risk management; road safety.

Ecological transition and sustainable development / Science, technology and society

- In conjunction with physics/chemistry, history and geography, mathematics, French, modern foreign/regional languages, media and information studies.
  ***Meteorology and climatology*;** measures for protection, prevention and adaptation; management of climate threats to human health; debate on climate change (from controversy to consensus); concept of forecasting; how to produce preventative maps and specific flood risk plans for local municipalities.
- In conjunction with history and geography, technology, physics/chemistry, French, modern foreign/regional languages, visual arts.

***Landscapes around me*,** geological and biological components of a landscape / natural and artificial components; resource exploitation by humans (water, materials, energy resources, soil and crop biodiversity) landscape modelling; landscaping and urban planning (rehabilitation of industrial sites, waste land and gardens in the city, etc.); relationships with water in different cultures; history of water supply techniques.

- In conjunction with physics/chemistry, modern languages, mathematics, media and information studies.
  ***Energy, energies*,** energy flows on Earth and their exploitation by humans (wind, currents, seismic waves, geothermic flows, etc.); the transfer of energy in the biosphere; relationships with energy in different cultures, etc.
- In conjunction with geography, modern languages, French, etc.
  Biodiversity, conservation and use of biodiversity; citizen science; local biodiversity, global biodiversity; relationships with biodiversity in different cultures; traceability of fisheries, of wood; impacts of climate change; globalisation and invasive species.
- In conjunction with technology, chemistry and mathematics.
  Biotechnologies, biomimicry and technological innovations; repair of living organisms, human enhancement; disability; pharmaceutical industry; food industry ; biotechnologies for the environment (water, waste, fuels).

Science, technology and societies

- In conjunction with history, physics/chemistry, mathematics.
  Scientific theories and change in world view, Wegener and continental drift; Darwin and evolution; reproduction, etc.

Artistic cultures

- In conjunction with visual arts, geography, French.
  Arts and landscapes: the reconstitution of landscapes of the past in art and literature. Artistic creation in landscapes: land art, etc.
- In conjunction with visual arts, music, physics/chemistry.
  Senses and perceptions, functioning of sensory organs and the brain, relativity of perception; garden of the five senses; propagation of light and of colours; vision defects and artistic creation.

Technology

Continuing on from science and technology education in the previous cycles, technology in Cycle 4 is intended to help all pupils to acquire a culture which makes them into informed, responsible participants in the use of technology and the issues associated with it. Technology consolidates and extends the competencies introduced in previous cycles, while providing points of entry into various other studies.

Technology enables human beings to create objects to meet their needs. The purpose of technology teaching during the compulsory schooling stage is to provide all pupils with keys to understanding the modern technical environment and skills to enable action. Technology is fed by the complex relationships between scientific results, environmental, social and economic limitations and technical structures.

Technology is a general teaching discipline which encourages the individual success of all pupils through the investigation, design, modelling and production activities it incorporates and the strategies which enable their use in individual, group and collaborative projects. With its objective critical analyses aimed at capturing the partnership between technology, science and society, it forms a part of citizenship training.

In Cycle 4, technology teaching focuses on the study of technical objects anchored in their own social realities, and is developed along three axes:

- an engineering axis - design for understanding, envisaging and producing objects in a collaborative way. The project-based approach enables objects to be created in response to identified issues, needs and problems, stated specifications and known conditions and constraints.
- a socio-cultural axis which facilitates discussion of the requirements, conditions and implications involved in the transformation of the environment by means of the technical objects and systems. Activities are based on the study of the change in objects and systems and the terms of their existence in various contexts (especially cultural, legal and societal).
- a scientific axis, which draws upon the laws of chemistry/physics and mathematical resources to solve technical problems, analyse and investigate technical solutions, and model and simulate the operation and behaviour of technical objects and systems.

These three axes are practically implemented via convergent learning methods aimed at introducing pupils to the basic concepts of systems engineering. The objects and services studied are drawn from a variety of domains, such as "modes of transport", "habitat and structures", "comfort and automation", "sport and leisure", etc.

The technology training objectives in Cycle 4 are structured around **three main themes** from the three aforementioned axes: **design, innovation, creativity; technical objects, services and the resulting changes in society; modelling and simulation of technical objects**. These three themes must be covered in every year of Cycle 4, as they are inseparable from one another. In this way, the technology programme, following on from Cycle 3, echoes the physics/chemistry and life/Earth sciences programmes, and combines with other disciplines to enable pupils to access an expanded vision of reality.

In addition, training in information technology is supplied at the same time in the context of mathematics and technology. . The aim of this training is not to produce expert pupils, but rather to provide them with the keys for unlocking a digital world in constant change. It enables pupils to acquire methods which constitute algorithmic thinking, and builds competencies in presenting and processing information, solving problems and checking results. It also provides an opportunity to introduce learning methods based on active, collaborative, project-based teaching. To give meaning to learning and add value to pupils' work, this teaching must translate practically into the creation of group work (programme, application, animation, sites, etc.) as digital creation activities, during which pupils increase their own self-sufficiency, but also develop their sense of collaborative work.

Practised competencies	Foundation areas
Implementing scientific and technological strategies ➢ Devising, summarising, formalising and following a procedure or protocol. ➢ Measuring quantities directly or indirectly. ➢ Looking for technical solutions to a stated problem, explaining personal choices made and presenting them with justification. ➢ Taking part in organising and running projects.	4
Designing, creating, producing ➢ Identifying a need and stating a technical problem, identifying the applicable terms, constraints (standards and regulations) and resources. ➢ Identifying materials and energy/information flows in a technical production for an object, and describing the transformations that take place. Acquiring a set of specifications. ➢ ➢ Linking technical solutions to functions. ➢ Devising solutions in response to the requirement. ➢ Collaboratively producing the prototype of all or part of an object to validate a solution. ➢ Devising, designing and programming mobile information technology applications.	4
Acquiring tools and methods ➢ Expressing personal thoughts using appropriate descriptive tools: sketches, schemas, graphs, diagrams, tables (non-standardised depictions). ➢ Using digital presentation resources to present chosen solutions in the form of sketches, diagrams or schemas. ➢ Making oral presentations using digital multimedia resources to present technical solutions for project reviews.	2
Using appropriate language ➢ Using appropriate descriptive resources and language to describe the structure and behaviour of the objects. ➢ Applying the basic principles of algorithms and coding to solve a simple problem.	1
Using digital resources ➢ Digitally simulating the structure and/or behaviour of an object. ➢ Organising, structuring and storing digital resources. ➢ Reading, using and producing digital representations of objects. ➢ Controlling a locally or remotely connected system. ➢ Modifying or configuring the operation of a smart object.	2
Behaving in an ethical, responsible way ➢ Developing best practices for using smart objects Analysing the environmental impact of an object and its component parts. ➢ Analysing the life cycle of an object	3 – 5
The individual in the context of space and time ➢ Sorting objects into families and lines. ➢ Linking technological developments to the inventions and innovations which represent disruptions in technical solutions.	5

Design, innovation and creativity

Pupils participate actively in creative, considered work processes to conduct technical projects, incorporating a design dimension, the aim of which is to improve technological solutions which perform a function or to search for solutions to a new function.

In this theme, the project approach is favoured and particular attention is paid to developing competencies associated with prototype development.

<table>
<tr><th colspan="2">Expectations at end of cycle</th></tr>
<tr><td colspan="2">• Devising solutions in response to requirements, turning ideas into reality with the incorporation of a design dimension.
• Collaboratively producing a prototype of a smart object.</td></tr>
<tr><th>Knowledge and associated competencies</th><th>Sample situations, activities and resources for pupils</th></tr>
<tr><td colspan="2">Devising solutions in response to requirements, turning an idea into reality with the incorporation of a design dimension</td></tr>
<tr><td>Identifying a need (material goods or services) and stating a technical problem; identifying the applicable terms, constraints (standards and regulations) and resources, qualifying and quantifying the performance of an existing or proposed technical object in simple terms.
➢ Requirement, constraints, normalisation.
➢ Main information contained in a specification.</td><td rowspan="6">Presentation of technical objects in their environment and of the requirement they address.

Formal statement or analysis of a specification to improve a technical object or devise a new technical object which addresses a new or changed requirement.

Organising a project group: allocation of roles, project review, presentation of results.

Digital gateways specialising in production (CAD, Web, knowledge bases, etc.).
Digital project management applications (scheduling, task management, etc.).
Presentation software.</td></tr>
<tr><td>Devising, summarising and formalising a procedure or protocol.
➢ Digital presentation resources.
➢ Brand identity.</td></tr>
<tr><td>Participating in organising projects, specifying roles, scheduling (projecting and anticipating) and project reviews.
➢ Organising a project group, role of participants, scheduling, project review.</td></tr>
<tr><td>Devising solutions for producing software objects and components in response to a requirement.
➢ Design.
➢ Innovation and creativity.
➢ Monitoring.
➢ Presentation of solutions (sketches, schemas, algorithms).
➢ Augmented reality.
➢ Connected objects.</td></tr>
<tr><td>Organising, structuring and storing digital resources.
➢ Tree structures.</td></tr>
<tr><td>Making oral presentations using digital multimedia resources to present technical solutions for project reviews.
➢ Digital presentation resources.
➢ Brand identity.</td></tr>
<tr><td colspan="2">Collaboratively producing a prototype of a smart object.</td></tr>
<tr><td>Collaboratively producing the prototype of an object to validate a solution
➢ Rapid prototyping of control structures and circuits using standard cards.</td><td>Organising a project group: allocating roles, project review, presenting results.

FabLab: 3D printing and rapid prototyping.
Microcontrollers and rapid prototyping of the information chain.</td></tr>
</table>

Progress benchmarks
With regard to project activities, design needs to be introduced from the 5ème class, but in a progressive, uncomplicated way on simple projects. Complete projects (design, production, validation) are expected in the 3ème class. Multi-technology projects will be conducted mainly in the 3ème.

Technical objects, services and the resulting changes in society

The study of the terms of use of objects and services which are anchored in their own social realities enables the technical science/society-based approach to develop skills associated with a critical comprehension of technical objects and systems. This is a contribution to an understanding of the world which is inhabited and shaped by humans at the same time. In this theme, the investigative approach is favoured and particular attention is paid to developing communication skills.

Expectations at end of cycle	
• Comparing and commenting on the development of different objects and systems. • Expressing personal thought using appropriate descriptive tools. • Developing best practices for using smart objects.	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Comparing and commenting on the development of different objects and systems	
Sorting objects into families and lines. ➢ How objects have evolved. ➢ Impacts of objects on society and the environment. ➢ Life cycle. ➢ Rules for the sustainable use of smart objects which comply with intellectual property laws and the integrity of others. Linking technological developments to inventions and innovations which represent disruptions in technical solutions. Comparing and commenting on the development of objects, linking different points of view: functional, structural, environmental, technical, scientific, social, historic, economic. Producing a document which summarises these comparisons and commentaries. ➢ Digital presentation resources. ➢ Brand identity.	The analysis of how a technical object works and its behaviour, performance and environmental impact must be placed in context. Consideration must be made of how it evolves over time. Collection of objects which satisfy the same requirement. RFID, GPS, WiFi.

Expressing personal thought using appropriate descriptive tools	
Expressing personal thoughts using appropriate descriptive tools: sketches, schemas, graphs, diagrams, tables. ➢ Freehand sketches. ➢ Various diagrams. ➢ Mind map. ➢ Concept of an algorithm. Reading, using and producing chosen solutions in the form of sketches, diagrams or schemas with the aid of digital presentation resources. ➢ Digital tools for describing technical objects.	Digital work environments. Presentation software. Mind mapping software. Sketches, schemas, graphs, diagrams, tables. CAD software packages.
Progress benchmarks The purpose of this theme is to prompt pupils to compare and analyse technical objects and systems. Given that technology does not exist in isolation from society, links need to be formed with the social world. By forming cross-disciplinary links and dealing with current issues, this theme becomes "material" to be joined together and put into context. The concept of respect for the uses of smart objects includes a respect for intellectual property when creating original personal works. It forces pupils to consider the respect to which each individual is entitled inside and outside the classroom.	

Modelling and simulating technical objects and systems

In scientific and technological activities, there is an indissociable, omnipresent link between the theoretical description of an object and how it is modelled, simulated and experimented upon. In technology, digital models and computer simulations provide an opportunity to compare a virtual reality to the possibility of its practical implementation and to study the process which leads from a technical decision to how that decision is made a reality. Modelling and simulation activities make major contributions in giving pupils the basics of a scientific and technological culture.
In this theme, the investigative approach is favoured and particular attention is paid to developing competencies associated with experimentation.

Expectations at end of cycle	
• Analysing the function and structure of an object. • Using a model and simulating the behaviour of an object.	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Analysing the function and structure of an object	
Following a working procedure which ensures a result, complying with rules for safety and the use of the provided tools. ➢ Procedures and protocols. ➢ User friendliness.	The purpose of experimental activities is to verify the performance of a technical object and check that it meets the specification. Assembly and disassembly activities provide an understanding of how a technical object is constructed and how it works. Pupils justify the materials they have used, and energy and information flows are identified and analysed. Diagrams, graphs. CAD software packages.
Linking technical solutions to functions. ➢ Functional systems analysis.	
Analysing the operation and structure of an object, identifying inputs and outputs. ➢ Functional representation of systems. ➢ Structure of systems. ➢ Energy chain. ➢ Information chain.	

<table>
<tr><td>Identifying the material(s) and energy/information flows for an object and describing the transformations which take place.
➢ Families of materials with their main characteristics.
➢ Energy sources.
➢ Energy chain.
➢ Information chain.</td><td rowspan="4">There needs to be a comparative study of the measurement results and the context in which they were obtained.

Pupils require an awareness of the need to use measuring instruments which are appropriate for the quantities being measured.</td></tr>
<tr><td>Using appropriate descriptive resources and language to describe the operation, structure and behaviour of the objects.
➢ Tools for describing function, structure and behaviour.</td></tr>
<tr><td>Measuring quantities directly or indirectly.
➢ Everyday measuring instruments.
➢ How a sensor, an encoder and a detector work.
➢ Nature of a signal: analogue or digital.
➢ Nature of an information flow: logical or analogue.</td></tr>
<tr><td>Interpreting experimental results, drawing conclusions from them and communicating them using reasoned argument.
➢ Concepts of discrepancies between the requirements set down in the specification and the experiment results.</td></tr>
<tr><td colspan="2">Using modelling and simulating the behaviour of an object</td></tr>
<tr><td>Using modelling to understand, formally record, share, construct, investigate and prove.
➢ Tools for describing function, structure and behaviour.
Digitally simulating the structure and/or behaviour of an object. Interpreting the behaviour of a technical object and presenting it with reasoned argument.
➢ Concepts of discrepancies between the requirements set down in the specification and the simulation results.</td><td>Volume modelling for simple technical objects may be required. On the other hand, modelling to examine the behaviour of a technical object must not be compulsory.

Diagrams, graphs.
CAD software packages.</td></tr>
<tr><td colspan="2">Progress benchmarks
A digital model is a virtual representation of a technical object, produced with the intention of validating aspects of previously conceived solutions or studying certain aspects of them. The aim is not to "learn how to model" but to learn how to use models, or even create a geometric model.
Modelling activities will initially focus on technical objects known to the pupils. There will at first be an emphasis on models with an explanatory function, followed by models for building.
At the end of the cycle, there will be a focus on the assumptions made in using a supplied behaviour model and on the need to consider these assumptions when interpreting the results of the simulation. It will be useful to show the influence of one or more factors on the results obtained in order to start a discussion on the validity of the results.</td></tr>
</table>

Information technology and programming

Technology in Cycle 4 aims to consolidate the mastery of uses of computer technology and digital architectures available to students for building, searching, storing and sharing all of the digital resources and data used continuously in learning activities.
The aim of this teaching is to give an understanding of the digital solutions driving the development of technical objects in pupils' everyday environments. Algorithmic concepts are covered jointly in mathematics and technology.
As part of projects, pupils use appropriate digital tools (organising, searching, designing, producing, planning, simulating) and design all or part of a program, compile it and execute it to satisfy the requirements of the system and functions to be produced. They may be prompted to use a programming solution using a programming language in conjunction with a graphical interface to make it easier to read. Programming design, reading and editing are performed using application software using simplified graphical representation of programming building blocks.

<table>
<tr><th colspan="2">Expectations at end of cycle</th></tr>
<tr><td colspan="2">Understanding how a computer network functions.
Writing, debugging and running a program.</td></tr>
<tr><th>Knowledge and associated competencies</th><th>Sample situations, activities and resources for pupils</th></tr>
<tr><th colspan="2">Understanding how a computer network functions</th></tr>
<tr><td>➢ Components of a network, architecture of a local network, methods of connecting a computing resource.
➢ Concept of a protocol, layer structure of protocols, routing algorithms, the Internet.</td><td>Observing and briefly describing the structure of a school IT network, finding one's way around such a network. Making use of a diverse computing resource at different points in the school.
Simulating a routing protocol in an offline activity.</td></tr>
<tr><th colspan="2">Writing, debugging and running a program</th></tr>
<tr><td>Analysing the behaviour expected of a real-life system and breaking the stated problem down into sub-problems in order to structure a control program.

Writing, debugging (testing, correcting) and running a program which controls a real system and checking the expected behaviour.

Writing a program whose actions are triggered by external events.

➢ Concepts of an algorithm and a program.
➢ Concept of a program variable.
➢ Triggering an action via an event, sequences of instructions, loops, conditional instructions.
➢ Embedded systems.
➢ Signal form and transmission.
➢ Sensor, actuator, interface.</td><td>Designing, configuring and programming computer applications for mobile devices.

Observing and describing the behaviour of a robot or an embedded system. Describing the aspects of its programming.

Configuring a robot (sensors, actuators) to respond to a given activity and program.

Using a specification to write a program to control a system or a real-life programmable system, identifying input and output variables.

Modifying an existing program in a technical system in order to improve its behaviour and performance to address a given issue better.

The methods employed are real-life multi-technology systems, whether academically oriented or not, whose programming is controlled by a computer or electronic tablet. They may be complemented by the use of digital modelling to provide simulations and behavioural modifications.</td></tr>
<tr><td colspan="2">Progress benchmarks:
In the 5ème: processing, debugging and executing a simple program with a limited number of input and output variables, developing programs with iterative loops.
In the 4ème: processing, debugging and running a program with the introduction of multiple input and output variables
In the 3ème: introduction of counters and multiple nested conditional loops, breaking problems down into multiple sub-problems</td></tr>
</table>

Intersections between teaching areas

A few examples of themes which can be worked on with several other disciplines are listed below. This list is not intended to be exhaustive, and is not compulsory.

Body, health, well-being and safety

- In conjunction with life and Earth sciences, geography, physical and sporting education, chemistry, modern languages, media and information studies.
  Food**,** technological developments in the production, transportation and storage of foodstuffs at local, European and world level; cultures and food; technical methods for ensuring food safety. Biotechnology in food production.

- In conjunction with French, modern languages, moral and civic education, geography, physical and sporting education, mathematics, media and information studies.
  Sport, science and technology; medicine, sport and biotechnologies; medical biotechnologies, medical imaging, medicines, prostheses, etc. Sporting performances and technological developments (clothing, equipment, etc.). Technological evolutions in disability sport.

Science, technology and society

- In conjunction with science, chemistry, physical and sporting education, moral and civic education.
  Biotechnologies: technological innovations; repair of living organisms, human enhancement; disability; pharmaceutical industry; food industry; biotechnologies for the environment (water, waste, fuels).
- In conjunction with physics, mathematics, history.
  Development of objects over time: associating technological developments with the inventions and innovations which have represented disruptions in technical solutions; comparing and commenting on the development of objects according to different points of view: functional, structural, environmental, technical, scientific, social, historical, economic, etc.; objects for measuring and dating.
- In conjunction with physics/chemistry, modern languages, mathematics, media and information studies.
  Energy, energies: energy flows on Earth and their technological exploitation by human beings (winds, currents, seismic waves, geothermal flows, etc.); energy transfer within the biosphere; the relationship between various cultures, the exploitation of resources by human beings (water, materials, energy resources).
- In conjunction with French, media and information studies, modern languages.
  Real and virtual: from science fiction to reality: programming a robot, designing a game.

Information, communication, citizenship

- In conjunction with physical and sporting education, sciences, moral and civic education, computing.
  Society and technological developments: measuring the impact on society of technical objects and systems

Economic and professional world

- In conjunction with history, physics/chemistry, life and Earth sciences and mathematics, it is possible to work on the themes of the Europe of the Industrial Revolution; New scientific and technological theories which change our view of the world; knowledge of the economic world and technological innovations in the chemical industry (medicines, water purification, innovative materials, biocompatible materials, etc.), energy production and distribution chains, metrology, etc.
- ***Technical professions and how they are changing:*** new professions, changes in practice and outlook.

Artistic culture and creation

- In conjunction with visual arts, music, French and mathematics.
  Architecture, art, technology and society: the impact of technologies and digital resources on our relationship with art, sounds, music and information: comparison of artistic culture with scientific/technical culture, especially with regard to design and ergonomics issues.

Ecological transition and sustainable development

- With history and geography, physical sciences and mathematics, work can be conducted on the following themes: habitat, architecture, town planning or city transports; limited resources to be managed and renewed; the manufacture of renewable energy systems; materials recycling.

Mathematics

The mathematics programme is devised in such a way as to cover the entire cycle. The targeted knowledge and competencies are end-of-cycle goals. If they are to be achieved, they must be worked on gradually and returned to throughout the entire cycle. Progress benchmarks specifically state which concepts must not be introduced at the very start of the cycle, but must instead be left until other concepts have been encountered and then consolidated.

This programme is anchored in the five areas of the common foundation and structured according to the four traditional themes: numbers and arithmetic; data structure and management; functions; quantities and measurements; space and geometry. In addition, information technology teaching is provided jointly in mathematics and technology lessons. Clearly, there is a certain amount of overlap between these core foundation areas and programme themes.

The delivery of the programme should enable pupils to develop the six key competencies of mathematical activity: **researching, modelling, depicting, reasoning, calculating and communicating**, which are detailed in the table below.

To do this, there must be a special emphasis on problem solving, whether on a pure mathematical basis or in association with situations from everyday life or other disciplines. The programme supplies tools which enable pupils to model a variety of situations as problems converted to mathematical form.

Problem solving requires pupils to draw upon a corpus of knowledge and methods. Pupils must have developed automatic reflexes and instinctive abilities such as mental arithmetic which, by freeing up the memory, enables it to focus on developing strategies.

Training in reasoning and an introduction to **proof** are key objectives in Cycle 4. Reasoning, which is at the heart of mathematical work, must be supported by various situations (e.g. arithmetical or geometrical problems, but also debugging a program to run on a computer, or a game in which a winning individual or group strategy must be developed or chances of winning must be maximised). Investigative techniques (trial and error, conjecture-proof, etc.) are essential and can be based not only on physical manipulation and paper/pencil work, but also on the use of digital tools (spreadsheets, geometry software, etc.). It is important to maintain a progression when teaching proof and not be overly demanding in terms of formalism.

Explaining the strategy employed and producing a solution are a part of the development of oral and written communication skills.

The programme assigns great importance to the use of numbers. The introduction of new numbers (rational numbers, square roots) can usefully be supported by work on quantities and measurements or geometry. The extension of arithmetical procedures (addition, subtraction, multiplication, division) to rational numbers and the introduction of literal arithmetic must be based on situations which allow pupils to construct the meaning of numbers and operations.

In Cycle 3, pupils started to move from a geometry in which objects and their properties are inspected by observation and instruments to a geometry where confirmation of correctness is based on reasoning and logical argument. These new forms of confirmation are a key objective of Cycle 4. At the end of the cycle, new geometric transformations are studied via description and construction activities, which may be based on the use of software.

In Cycle 4, pupils develop their intuition as they move from one mode of representation to another: numerical, graphical, algebraic, geometric, etc. These changes in register are encouraged through the use of multi-purpose software such as spreadsheets or dynamic geometry software. Pupils need to use spreadsheets and calculators to manage real-life data; this incorporates mathematical work into Domains 3, 4 and 5 of the foundation.

Information technology in Cycle 4 is not intended to produce expert pupils, but rather to provide them with the keys for unlocking a digital world in constant change. It enables pupils to acquire methods which constitute algorithmic thinking, and builds competencies in presenting and processing information, solving problems and checking results. It also provides an opportunity to introduce learning methods based on active, collaborative, project-based teaching. To give meaning to learning and add value to pupils' work, this teaching must translate practically into the creation of group work (programme, application, animation, sites, etc.) as digital creation activities, during which pupils increase their own self-sufficiency, but also develop their sense of collaborative work.

Work in mathematics, and in research activities in particular, leads pupils to work on mathematical concepts or objects which they are not required to master by the end of the 3ème (for example, irrationality of certain numbers, dispersion characteristics for a statistical series other than a range, modelling of random phenomena, calculations of astronomical distances, important lines in a triangle, work on powers and storage capacity); this also provides an opportunity to enrich their scientific culture.

Practised competencies	Foundation areas
Researching • Extracting useful information from a document, reformulating and structuring it, comparing it to existing knowledge. • Undertaking a scientific approach, observing, questioning, manipulating, experimenting (on a sheet of paper, with objects, using software), creating hypotheses, looking for examples or counter-examples, simplifying a situation or making it more specific, producing a conjecture. • Testing and trying out several resolution strategies. • Breaking a problem down into sub-problems.	2, 4
Modelling • Recognising situations of proportionality and solving related problems. • Translating a real-life situation into mathematical language (e.g. using equations, functions, geometrical configurations, statistical tools, etc.). • Understanding and using a digital or geometrical simulation. • Confirming or rejecting a model, comparing a situation to a known model (e.g. a random model).	1, 2, 4
Representing • Choosing and linking suitable frameworks (digital, algebraic, geometric) for tackling a problem or studying a mathematical object. • Producing and using a number of representations of numbers. • Representing data as a statistical series. • Using, producing and linking representations of solids (e.g. perspective or top/bottom view) and spatial situations (schemas, sketches, mockups, nets, geometric figures, photographs, plans, maps, contours).	1, 5
Reasoning • Solving problems involving varied quantities (geometric, physical, economic): • making use of the necessary knowledge, analysing and learning from mistakes, testing several solutions. • Jointly conducting an investigation, with an ability to consider the points of view of others. • Proving: using logical reasoning and established rules (properties, theorems, formulae) to reach a conclusion. • Justifying and defending personal judgements with reference to established results and one's own mastery of persuasive argument.	2, 3, 4
Calculating • Calculating with rational numbers in an exact or estimated way, appropriately combining mental arithmetic, written operations and calculator (or computer) arithmetic. • Sense-checking calculation results, particularly by estimating orders of magnitude or using bookending. • Calculating using algebraic language (letters, symbols, etc.).	4
Communicating • Making a link between natural language and algebraic language. Distinguishing the specific characteristics of mathematical language compared to the French language. • Giving a spoken or written explanation (of a personal strategy, a line of reasoning, a calculation, a geometric construction protocol, an algorithm), understanding the explanations of others and arguing persuasively in discussions. • Checking the validity of a piece of information and distinguishing between the objective and the subjective; reading, interpreting, commenting, producing tables, graphics and diagrams.	1, 3

Theme A – Numbers and calculations

In Cycle 4, pupils consolidate their sense of numbers and reinforce their ability to perform calculation procedures. The various components of this theme are interlinked. Pupils manipulate rational numbers of both positive and negative signs. They become aware of the fact that a single number can be written in various ways (particularly fractional and decimal notation). Pupils start to learn the basics of literal calculation, which they put to use in solving problems which use first-degree equations or inequations. When conducting research activities, they may encounter the concept of irrational numbers; e.g. when working on square roots.

<table>
<tr><th colspan="2">Expectations at end of cycle</th></tr>
<tr><td colspan="2">• Using numbers to compare, calculate and solve problems.
• Understanding and using concepts of divisibility and prime numbers
• Using literal calculation</td></tr>
<tr><th>Knowledge and associated competencies</th><th>Sample situations, activities and resources for pupils</th></tr>
<tr><th colspan="2">Using numbers to compare, calculate and solve problems</th></tr>
<tr><td>Using various different representations of a single number (decimal or fractional notation, scientific notation, position on a number line); moving from one representation to another.
➢ Decimal numbers.
➢ Rational numbers (positive and negative), concept of opposites.
➢ Fractions, irreducible fractions, particular case of decimal fractions.
➢ Definition of a square root; perfect squares between 1 and 144.
➢ Prefixes from nano to giga.</td><td>Encountering various notations in various situations (e.g. decimals in real-world situations, scientific notation in physics, relative numbers for measuring temperatures or altitudes).
Linking fractions, proportions and percentages. Associating orders of magnitude with objects (e.g. the size of an atom, of a bacterium, of a lung alveolus, the length of an intestine, the storage capacity of a hard drive, the speeds of sound and light, the population of France and the world, the distance from the Earth to the Moon and the Sun, the distance from the Sun to the nearest star).
Being aware that some numbers are irrational.</td></tr>
<tr><td>Comparing, ordering and bookending rational numbers.
Locating and positioning a rational number on a number line.
➢ Order of rational numbers in decimal or fractional notation.
➢ Equality of fractions.</td><td>Showing that unlike whole numbers, it is always possible to place another rational number between any two given rational numbers.</td></tr>
<tr><td>Performing exact or estimated calculations mentally, by hand or using instruments.
Calculating with relative numbers, fractions or decimal numbers (sum, difference, product, quotient). Checking the sense of a result, e.g. by estimating its order of magnitude.
Performing simple numeric calculations involving powers, particularly via the use of scientific notation.
➢ Definition of powers of a number (whole, positive or negative indices).</td><td>Regularly performing mental or hand calculation, and using a calculator or calculation software in an appropriate way.

Performing calculations and comparisons to address problems (e.g. comparing water or electricity consumption, calculating a body mass index to assess a potential health risk, determining the number of images that can be stored on a USB key, calculating and comparing population growth rates).</td></tr>
<tr><th colspan="2">Understanding and using concepts of divisibility and prime numbers</th></tr>
<tr><td>Determining whether or not a whole number is a multiple or a factor of another whole number.
Simplifying a given fraction to make it irreducible.
➢ Euclidian division (quotient, remainder).
➢ Multiples and factors.
➢ Concept of prime numbers.</td><td>Breaking a number down into its prime factors in simple cases.
Using spreadsheets, calculators and software, e.g. to find the factors of a number or to establish whether the number is prime.
Demonstrating divisibility criteria (e.g. by 2, 3, 5 or 10) or proof by 9.
Studying gearing problems (for example gears of a bicycle, transmission ratios in a gearbox, a clock), problems involving the conjunction of periodic phenomena (e.g. eclipses or planetary alignments).</td></tr>
</table>

Using literal calculation	
Restating a problem as an equation in order to solve it. Developing and factorising algebraic expressions in very simple cases. Solving first-degree equations and inequations. ➢ Concepts of variables and unknowns. Using literal calculation to prove a general result, to confirm or refute a conjecture.	Understanding the value of literal notation, producing and using formulae associated with measurable quantities (in mathematics or in other disciplines). Testing a literal equality on numeric values in order to understand the concept of an equation. Studying problems which can be reduced to first-degree equations (e.g. by factorising simple product equations using remarkable identities). Showing general results, e.g. that the sum of three consecutive numbers is divisible by 3.
Progress benchmarks: The mastery of arithmetic techniques and the acquisition of a feel for numbers and operations as learned in Cycle 3 are consolidated throughout Cycle 4. From the start of Cycle 4, pupils encounter relative numbers, making all subtractions possible. Their use of addition and subtraction in this new concept becomes widespread, and they encounter the concept of negation. They then move on to products and quotients and, once these concepts have been fully absorbed, they link them to literal calculation. In Cycle 3, pupils encountered simple fractions without assigning them the status of numbers. From the start of Cycle 4, pupils build and use fractions as numbers, making all divisions possible. In the 5ème, pupils calculate and compare proportions and frequencies, demonstrate the equality of two quotients using reasoning, and recognise a rational number. Starting from the 4ème, they are required to add, subtract, multiply and divide quotients, to move from one representation of a number to another and to demonstrate whether a not a number is the inverse of another. They are not introduced to the concept of an irreducible fraction until the 3ème. The concept of a square root is introduced in conjunction with Pythagoras' theorem or increasing surface areas. Pupils know a number of perfect squares, use them to bookend square roots between whole numbers and use a calculator to give an exact or estimated value of the square root of a positive number. Powers of 10 of whole positive indices are used from the 4ème onwards, in conjunction with scientific or technical problems. Negative indices are gradually introduced. Positive powers of arbitrary bases are viewed as a shortcut to a product. From the start of Cycle 4, pupils understand the value of using literal notation. They learn how to test equality by assigning numeric values to the number designated by a letter which appears there. From the 4ème, they encounter concepts of variables and unknowns, factorisation, and the expansion and simplification of algebraic expressions. They begin to find exact or approximate solutions to first-degree problems for an unknown and learn how to model a situation using a formula, an equation or an inequation. In the 3ème, they find algebraic solutions to first-degree equations and inequations and use literal arithmetic for proof. They make the link between algebraic form and graphical representation.	

Theme B – Structure and management of data and functions

Most concepts covered in this theme have already been covered in previous cycles. In Cycle 4, pupils learn to use an appropriate data representation to make a critical interpretation of it. They examine concepts of uncertainty and chance, enabling them to form a critical, rational approach to everyday life. They learn how to choose an appropriate method for the proportion problem they are presented with. They gradually discover the concept of a function, enabling them to access new problem categories.

Expectations at end of cycle	
• Interpreting, representing and processing data. • Understanding and using basic probability concepts • Solving proportionality problems • Understanding and using the concept of a function	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Interpreting, representing and processing data	
Collecting and structuring data. Reading data in the form of raw data, tables and graphs. Calculating headcounts and frequencies. ➢ Tables, graphical representations (bar charts, pie charts,	Using a spreadsheet or graphing tool to calculate indicators and graphically represent data. Critically examining encoded collected information, e.g. in newspaper articles or on websites.

histograms). Calculating and interpreting position or dispersion characteristics for a statistical series. ➢ Indicators: mean, median, range.	Structuring and processing results from measurements or calculations (e.g. data added to the school's digital gateway by pupils in other disciplines); questioning the methods by which the data is collected. Reading, interpreting or constructing a diagram in an economic, social or political context: election results, health monitoring data (e.g. consultations, hospitalisations, mortality rates for influenza), financial household data (e.g. taxes, wages and revenue), data from studying a game, a work of art, etc.
Understanding and using basic probability concepts	
Considering questions relating to chance, starting with simple problems. Calculating probabilities in simple cases. ➢ Concept of probability. ➢ A few properties: the probability of an event is between 0 and 1; probability of certain/impossible/incompatible/exclusive events.	Making the link between frequency and probability, practically observing the phenomenon of frequency stabilisation or using a spreadsheet to simulate a random experience (with one or two tests). Expressing probabilities in various forms (decimal, fraction, percentage). Calculating probabilities in a simple context (e.g. assessing chances of winning a game and selecting a strategy).
Solving proportionality problems	
Recognising a proportional/non-proportional situation.	Studying relationships between two measurable quantities to identify whether or not they are proportional; these relationships can be expressed by: – formulae (e.g. the length of a circle or the area of a disc as a function of the radius, Ohm's law expressing voltage as a function of current); – graphical representations (e.g. clouds of points or curves); – a table (whose lines or columns may or may not be proportional).
Solving problems involving the "Rule of Three". Solving percentage problems. ➢ Coefficient of proportionality.	Completing a proportionality table, e.g. by cross-multiplying. Calculating and interpreting proportions (particularly in the form of percentages) for economic or social data; applying percentages (e.g. rates of growth, discount, sale, interest rate) to such data. Establishing the fact that, for example, increasing by 5% means multiplying by 1.05 and that reducing by 5% means multiplying by 0.95; offering a number of applications (e.g. that discounts are not added).
Understanding and using the concept of a function	
Modelling continuous phenomena using a function. Solving modelled problems using functions (equations, inequations). ➢ Dependency of one measurable quantity on another. ➢ Concept of a mathematical variable. ➢ Concept of a function, a fiber and an image. ➢ f(x) and x ↦ f(x) notations. ➢ Particular case of a linear function, with a zero intercept.	Using different methods of representation and switching from one to another, e.g. using a spreadsheet or graphing tool. Reading and graphically interpreting the coefficients of a linear function represented by a straight line. Studying and commenting on examples (function linking voltage and current in an electrical circuit, function linking power and energy, growth curves in a health record, exertion tests, fuel consumption of a vehicle based on speed, production of cereals based on sown area, links between Imperial and French units, tax and piecewise functions, etc. Establishing the link between a linear function and proportionality.
Progress benchmarks: Positional characteristics of a statistical series are introduced from the start of the cycle. Pupils encounter dispersion characteristics from the 4ème.	

Proportionality-related activities are a continuation of the activities in Cycle 3. As the cycle progresses, pupils diversify their points of view, using graphical representations and literal arithmetic. In the 3ème, pupils are able to establish the link between proportionality, linear functions, Thales' theorem and homothetic transformations and can choose the most suitable representation method for solving a problem.
In the 5ème, pupils encounter relationships of dependency between measurable quantities, as well as their graphical representations, which provides an introduction to the concept of a function which was consolidated in the 3ème, with the corresponding vocabulary and notations. From the start of Cycle 4 and throughout it, questions relating to chance are raised in order to question pupils' initial perspectives, starting with situations drawn from everyday life (games, purchases, family structures, information provided by the media, etc.), encouraging discussions. In this way, the vocabulary associated with basic probability concepts is gradually introduced and consolidated (random experiment, outcome, probability). Pupils calculate probabilities by referring to conditions of symmetry or regularity on which the equiprobable model is based. Once this vocabulary has been consolidated, the link to statistics is used by simulating a random experiment, e.g. on a spreadsheet. From the 4ème onwards, the frequency probability interpretation takes pupils closer to an unknown probability, thus going beyond the equiprobability model used in the 5ème.

Theme C – Quantities and measurements

As a continuation of the work started in Cycle 3, this theme lends itself particularly well to connections with the other themes in the programme, and provides many links to physics/chemistry or life and Earth sciences. It also provides an opportunity for research activities (e.g. to determine the formula which gives the volume of certain solids). Pupils must have practical reference points (e.g. knowing that the circumference of the Earth is approximately 40,000km) and be able to estimate the order of magnitude of a measurement. Furthermore, the work on formulae fits perfectly into the introduction to literal calculation.

Expectations at end of cycle	
• Calculating with measurable quantities; expressing the results in the appropriate units • Understanding the effect of a number of transformations on geometric quantities	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Calculating with measurable quantities; expressing the results in the appropriate units	
Performing calculations which involve measurable quantities, particularly compound quantities, while retaining the units. Verifying the consistency of the results from a units point of view. ➢ Concept of multiplied and divided compound quantities. ➢ Formula giving the volume of a pyramid, a cylinder, a cone or a ball.	Identifying compound quantities encountered in mathematics or in other disciplines (e.g. area, volume, speed, velocity, flow, density, concentration, quantity of information, population density, yield of an area of land). Commenting on real-life documents (e.g. water or electricity bills, blood test).
Understanding the effect of a number of transformations on geometric quantities	
Understanding the effect of a movement, an increase or a reduction on lengths, areas, volumes or angles. ➢ Concept of dimension and relationship with measurement units (m, m^2, m^3).	Using a reduction or enlargement ratio (architecture, mockups), the scale of a map. Using a geographical information system (cadaster, geoportal, etc.) to establish a length or area measurement; comparing with a measurement made directly onscreen.
Progress benchmarks: Work on measurable quantities and measurement units, which was first introduced in Cycle 3, is continued throughout Cycle 4, drawing upon contexts taken from other disciplines or everyday life. Multiplied and divided compound quantities are introduced from the 4ème onwards. The effect of a movement, an enlargement or a reduction on geometric quantities is worked on in the 3ème, in conjunction with proportionality, linear functions and Thales' theorem.	

Theme D - Space and geometry

In Cycle 3, pupils discovered various different geometric objects, which continue to be encountered in Cycle 4. They now use reasoning and proof to validate properties which they conjecture. The definitions and properties already seen in Cycle 3,

along with the new properties introduced in Cycle 4 (relationships between angles and parallelism, sum of the angles of a triangle, triangular inequality, description of the bisector, Thales' and Pythagoras' theorems) provide a wide range of resources to assist with reasoning. There is an initial examination of transformations, consisting of observing their effect on two-dimensional configurations, particularly via the use of geometry software.

<table>
<tr><th colspan="2">Expectations at end of cycle</th></tr>
<tr><td colspan="2">• Depicting space
• Using flat geometry concepts in proofs</td></tr>
<tr><th>Knowledge and associated competencies</th><th>Sample situations, activities and resources for pupils</th></tr>
<tr><th colspan="2">Depicting space</th></tr>
<tr><td>Identifying positions on a number line, on a plane with orthogonal co-ordinates, in a cuboid or on a sphere.
➢ X axis, Y axis, altitude.
➢ Latitude, longitude.

Using, producing and linking representations of solids and spatial situations.
Developing a personal view of space.</td><td>Locating a position on a map from its geographical co-ordinates.
Linking various representations of solids (e.g. perspective view, front view, top view, section view) or spatial situations (e.g. schemas, sketches, mockups, nets, geometric shapes).
Using physical solids (e.g. made from cardboard) to illustrate certain properties.
Using geometry software to view solids and their flat sections in order to develop a spatial view. Making a connection with contours on a map.</td></tr>
<tr><th colspan="2">Using flat geometry concepts in proofs</th></tr>
<tr><td>Implementing or writing a protocol to construct a geometrical shape.
Coding a shape.
Understanding the effect of a translation, a symmetry (axial and central), a rotation or a homothetic transformation on a shape.</td><td>Constructing frieze groups, tessellations, roses.
Using a dynamic geometry application, especially to transform a shape using translation, symmetry, rotation or homothetic transformation.
Making a connection between parallelism and translation, circles and rotation.</td></tr>
<tr><td>Solving flat geometry problems, proving a general result, confirming or refuting a conjecture.
➢ Relative positions of two straight lines on the plane.
➢ Angle-based establishment of parallelism, alternate interior angles.
➢ Segment bisectors.
➢ Triangle: sum of angles, triangular inequality, case of triangle equality, similar triangles, heights, trigonometric ratios in a right-angled triangle (sine, cosine, tangent).
➢ Parallelogram: properties relating to sides and diagonals.
➢ Thales' theorem and its reciprocal.
➢ Pythagoras' theorem and its reciprocal.</td><td>Identifying a result of general applicability from a particular case observed in a shape.
Making a connection between Thales' theorem, homothetic transformation and proportionality.
Using right-angled triangle trigonometry to calculate lengths or angles.
Showing, for example, that straight lines are parallel or perpendicular, that a point is at the centre of a segment, that a straight line is the bisector of a segment, that a quadrilateral is a parallelogram, a rectangle, a rhombus or a square.
Examining how concepts of two-dimensional geometry make it possible to calculate astronomical distances (estimate of the radius of the Earth by Eratosthenes, distance from the Earth to the Moon by Lalande and La Caille, etc.).</td></tr>
<tr><td colspan="2">Progress benchmarks:
Construction problems constitute a particularly important field of geometrical activity throughout Cycle 4. These problems, which are diverse in nature and the way in which they connect to other mathematical, scientific, technological or artistic fields, are tackled using tracking and measurement instruments. Following on from Cycle 3, pupils gain familiarity with the functions of a dynamic geometry or programming application to construct shapes.
Work with common shapes and their properties, which began in Cycle 3, is continued and developed further from the start and throughout Cycle 4, enabling pupils to work on their reasoning and gradually move towards proof.
Pythagoras' theorem is introduced in the 4ème, and is revisited throughout the cycle in various situations involving flat planes and space. Thales' theorem is introduced in the 3ème, and is linked closely with proportionality and homothetic transformation, but also enlargements and reductions.</td></tr>
</table>

Axial symmetry was introduced in Cycle 3. Central symmetry is examined from the start of Cycle 4, in conjunction with the parallelogram. Translations and then rotations are introduced mid-cycle, in conjunction with analysis or the construction of frieze groups, tessellations and roses, but as occasional applications without offering a formalised definition. Once these concepts have been consolidated, homothetic transformations are continued in the 3ème, in conjunction with the intercept theorem, proportionality, linear functions and enlargement or reduction ratios of geometric quantities.

Theme E – Algorithms and programming

In Cycle 4, pupils are introduced to programming, developing a few simple programs in a project-based approach, without aiming for exhaustive expert knowledge in a particular language or software package. As they create programs, they develop programming methods, revisit concepts of variables and functions in a different form, and develop reasoning skills.

Expectations at end of cycle	
• Writing, debugging and running a simple program	
Knowledge and associated competencies	**Sample situations, activities and resources for pupils**
Breaking a problem down into sub-problems in order to structure a program; recognising schemas. Writing, debugging (testing, correcting) and running a program in response to a given problem. Writing a program whose actions are triggered by external events. Programming scripts which run in parallel. ➢ Concepts of an algorithm and a program. ➢ Concept of a program variable. ➢ Triggering an action via an event, sequences of instructions, loops, conditional instructions.	Maze game, Pong, battleships, Nim, tic-tac-toe. Producing a shape using a programming application to consolidate concepts of length and angle. Introduction to codes (Morse, Caesar cipher, ASCII code, etc.). Construction of conjugation tables, plurals, "exquisite corpse" game, etc. Simple calendar calculations. Directory-based calculations (search, reverse search, etc.). Calculations of the frequency with which each letter appears in a text to determine its language of origin: French, English, Italian, etc.
Progress benchmarks: In the 5ème, pupils are introduced to event-based programming. They gradually develop new competencies, programming actions which execute in parallel, using the concept of a program variable, discovering loops and conditional instructions which complement event-related control structures.	

Intersections between teaching areas

Mathematics occupies a key place in practical interdisciplinary teaching. It provides calculation and representation tools (using tables, schemas, graphics), methods (drawing on various types of reasoning) which allow pupils to organise, rank and interpret information from various origins. It conveys concepts and provides modelling tools.
However, pupils must also learn that mathematics is not fixed, but but develops and sometimes faces crises. It is the product of human thought, can inspire creativity and is part of the foundation of the culture of every society.
A few examples of themes which can be worked on with several other disciplines are listed below. The variety of subjects in which mathematics plays an important or essential role can be explored in the "Economic and Professional World" practical interdisciplinary teaching. The use of foreign or regional language media, in addition to providing greater exposure to the language, acts as a gateway to another approach to mathematics and integrates into the "Foreign (or regional, where applicable) languages and cultures" practical interdisciplinary teaching.

Body, health, well-being and safety

- In conjunction with physical and sporting education, life sciences and Earth sciences, chemistry and technology.
  Sport and sciences: diet and training; physiology of exertion and performance.
  Statistics, proportionality, representation of data, speed.
- In conjunction with life and Earth sciences, physical and sporting education.
  Circadian rhythms, respiratory frequency, cardiac frequency.
  Readings and interpretations of data; measurement of durations, frequencies.

➢ In conjunction with life sciences, Earth sciences and geography
  Earthquakes and tidal waves.

Proportionality, scales, speed.

Artistic culture and creation

- In conjunction with visual arts, technology, French.
  Architecture, art, technology and society.
  Proportionality, enlargement/reduction, geometry.
- In conjunction with visual arts and history.
  Representations of perspective.
  Parallel perspectives; Brunelleschi's experiment.
- In conjunction with history, science (life and Earth science, physics/chemistry), visual arts.
  Relationships between arts and sciences in mediaeval Muslim civilisation.
  Translations, symmetries, geometric shapes, frieze groups and tessellations.

Ecological transition and sustainable development

- In conjunction with geography, technology, life and Earth sciences.
  Land development.
  Maps; reduction, enlargement.
- In conjunction with physics/chemistry, life and Earth sciences, history and geography, French, modern foreign/regional languages, media and information studies.
  Meteorological and climatic phenomena.
  Different time scales; statistics.
- In conjunction with physics/chemistry, life and Earth sciences, history and geography.
  Management of natural resources.
  Calculation of water and energy consumption, etc.; extraction and production prices, market price; multiplied and divided compound quantities.

Information, communication, citizenship

- In conjunction with media and information studies, geography, life and Earth sciences.
  Encoded information and its interpretation.
  Representations, choice of scales.
- In conjunction with technology, media and information studies.
  Storage of information on digital media.
  Calculation, powers.

Languages and cultures of Antiquity

- In conjunction with ancient languages, history, sciences.
  Science questions from the time of Antiquity.
  Measurement of the circumference of the Earth by Eratosthenes; square roots; Thales, Pythagoras; Egyptian fractions; different numbering systems and forms.

Science, technology and society.

- In conjunction with history, science and technology.
  Scientific theories which changed our view of the world: Ptolemy, Copernicus, Galileo, Kepler.
  Rotation, periodicity.
- In conjunction with history, science and technology.
  Science at the time of the French Revolution.
  Metric system; meridian; triangulation; uncertainty.
- In conjunction with technology, French, media and information studies.
  Real and virtual, from science fiction to reality.
  Programming a robot, designing a game.

Media and information studies

Media and information studies, which is a component of all fields of knowledge imparted to the pupils, is covered by all teaching areas.
All teachers, including transliteracy teachers, work collectively to ensure that the teaching delivered in Cycle 4 provides all pupils with:

- a fundamental critical knowledge of the electronic and document-related world of the 21st century;
- gradual mastery of their own information and documentation journeys;
- access to the safe, legal and ethical use of publication and distribution options.

The aim is to provide pupils with access to an understanding of media, networks and electronic phenomena in all their dimensions: economical, social, technical and ethical. Providing basic information about the history of writing and the various stages in its publication and media puts its place in contemporary society into perspective.
Pupils are trained to read various media content and forms critically and objectively. They are encouraged to keep themselves well informed, particularly by regularly reading French and foreign-language press media, and also by producing and broadcasting information themselves.

The entire cycle works on the acquisition of media and information studies competencies, particularly through practical interdisciplinary teaching; each competency presented here may be reused from one year to the next, depending on the specific project.

Practised competencies	Foundation areas
Using media and information independently • Using dictionaries and encyclopaedias of all forms. • Using popular science publications. • Using the resource centre as an information search tool. • Being familiar with the library of works in foreign or regional languages available at the CDI, and using them regularly. • Becoming familiar with the various forms of media expression, using their distribution channels. • Using the appropriate available information types and resources for personal research. • Discovering how information is indexed and ranked, understanding the main associated technical terms. • Making use of ways of structuring information in a documentary corpus (documentary study notes, sections in a periodical, tree structure for a website). • Organising personal documents on a portable device, in one's personal space, in the school or at home on mobile applications or in the "cloud". Organising themed portfolios. • Acquiring an exploratory information search method and employing it in the advanced use of search engines. • Gradually adopting a discerning approach towards information searches.	2
Using information in a discerning way • Distinguishing between different sources of information, questioning the validity and reliability of information, and its relevance. • Learning how to distinguish popularised scientific information from pseudo-scientific information using textual/paratextual cues and checking sources. • Learning how to distinguish between subjectivity and objectivity when studying a media object. • Discovering the portrayals of the world presented by the media. • Examining the influence of the media on consumption and democratic life.	1, 3, 5
Using the media responsibly • Understanding what digital identity and traceability mean. • Becoming familiar with concepts of private and public spaces. • Being able to refer to basic rules regarding freedom of expression and freedom of press, particularly with regard to networks. • Examining the democratic issues associated with group production of information and journalistic information. • Introduction to journalistic ethics.	3

Producing, communicating and sharing information • Using collaborative digital platforms to work jointly with others. • Participating in a co-operative multimedia production, taking intended audience into account. • Undertaking a creative publishing project using paper or online media intended for a community of users inside or outside the school which complies with information laws and ethics. • Developing cultural practices from digital production tools. • Distinguishing between citation and plagiarism. • Distinguishing between simply collecting information and building structured knowledge.	1