THE HERMMES CURRICULUM

This curriculum is part of the HERMMES project and it is designed to support teachers in kindergartens and schools in helping children and young people become digitally resilient, media mature adults step by step.

The steps in this curriculum are divided into two areas: **learning aims** and **teaching strategies**.

The horizonal structure of the grid has six age categories from birth to adult, following developmental stages.

The vertical structure has five main competence areas aligned with the European DigComp 2.2 framework.

Co-funded by the European Union

THE HERMMES CURRICULUM IN A NUTSHELL

The following four sections give you essential information on the HERMMES curriculum:

WHY?

This section explains the added value of the HERMMES approach with its focus on well-being and prevention, analogue as well as digital ways of fostering digital skills, compared to other available frameworks. It answers questions such as: does the HERMMES approach fit together well with your pedagogical goals and ideals?

WHAT?

This section provides basic information on each of the five different competence areas of the curriculum: 1. Safety and well-being; 2. Problem solving and computational thinking; 3. (Digital) Media content creation; 4. Critical information and data literacy; 5. Communication, cooperation, and empathy.

HOW?

Do you want to go beyond raisin-picking and build a coherent media and ICT curriculum for your school or kindergarten or change an existing one? Key success factors and obstacles in this process are described. Small goals, small steps and flexibility can make it fun to become a HERMMES school or kindergarten!

WHAT ELSE?

Information on other HERMMES documents and on online and offline training offers.

No time?

If you have very little time and wish to get an overview, you can skip the rest of this introduction and go directly to the HERMMES curriculum grid below. Once you have found a suitable activity for your practice in the grid, you may want to know more about it. On our website, many activities in the curriculum grid will be linked directly to case examples. These examples give you information to put one specific activity into practice. They contain lesson plans, pictures, sources, and materials. So even with little time, you can make great impact.

P.S.
The HERMMES case examples are a continuous work in progress and will be expanded in the coming months and years.

WHY THE HERMMES CURRICULUM?

Teachers from kindergarten to upper school are actively engaged in accompanying children and young people on their way to becoming critical and knowledgeable citizens of the future, digitally influenced societies. But they often do not find both digital risks and digital chances equally well represented in policy documents on digital education. It seems that teachers and parents take more notice of the two-faced nature of digitisation, because it forms part of their daily experience.
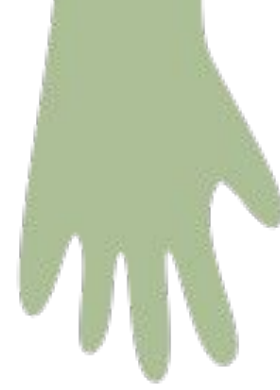
On the one hand, many children suffer from negative effects of their over-digitised everyday life: lack of concentration, poor reading skills and motivation, low frustration tolerance, physical impairments like obesity or myopia, socio-emotional problems. During the Covid-19 lockdowns, many of these problems got worse. Two examples: a dramatic increase in digital addictions in older children and pseudo-autism in young children as a result of digital overuse.

On the other hand, the potentials and benefits of creative, active, critically reflected, and balanced use of digital media are manifold. In schools, digital media can both be used as tools to support learning processes in many subjects, and can be seen as at least two subjects in themselves: firstly, computing science, that is, understanding basic principles of information-processing systems, such as computational thinking and coding; and secondly, mastering digital production, all the way from audio recording to 3D-printing.

The HERMMES curriculum offers a new framework which encompasses both sides. In doing so, it helps meet many of the challenges addressed in current documents on the international level (UN thematic report A/HRC/50/32, UNESCO report on technology in education) and on the European level (DigComp 2.2, European Parilament resolution on shaping digital education policy).

So, in the HERMMES curriculum, the prevention of digital risks is combined with the fostering of digital skills in a unique way, making up four aspects of added value.
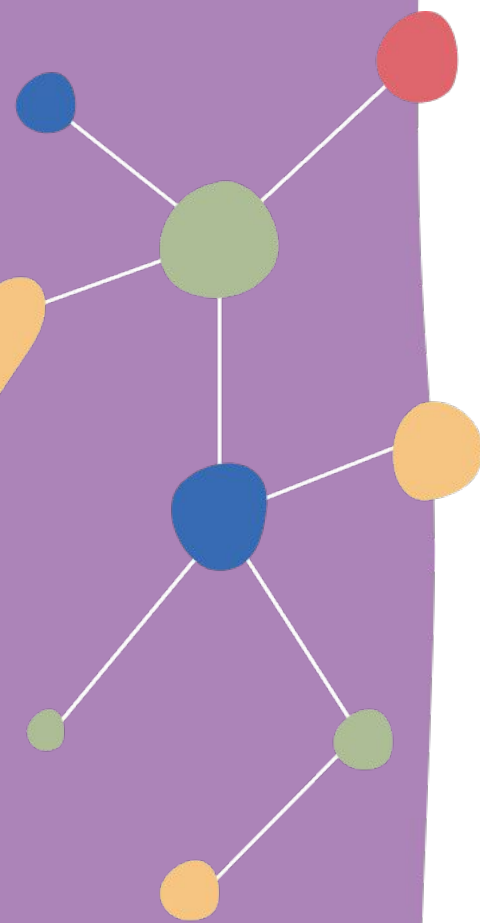
WELL-BEING/PREVENTION FOCUS

More focus on digital resilience than existing frameworks: resource-oriented and setting-based prevention of digital risks, especially for younger children as well as individual and more cognitive-based prevention for older children.

DEVELOPMENTALLY APPROPRIATE – AGE VS. STAGE

One size fits all? No! What is helpful for adolescents can be harmful for toddlers in "digital education". There is a strong focus on developmentally appropriate step-by-step action. Please note, that the grid is sorted into six age groups (0-3, 3-6, 6-9, 9-12, 12-15, 15-18 years), based on what an average child of this age would benefit from. But in reality, an "average child" does not exist. So as a teacher or parent, the developmental status in different areas will have to be taken into account. Therefore, the age categories are only important for your orientation.

ANALOGUE WAYS FOR TEACHING DIGITAL COMPETENCES

There are many traditional as well as innovative analogue ways of teaching digital competences. Engaging, interactive, experience-based ways towards media maturity offer chances for sustainable and thorough learning without increasing screen time. Understanding how ICT systems work instead of using them as a black box is a central feature of these analogue practices in the HERMMES grid.

COVERS CENTRAL COMPETENCES FROM DigComp

The HERMMES curriculum grid is matched to the European DigComp 2.2 framework and goes beyond it. Following the HERMMES curriculum ensures that educational institutions meet the requirements of most national frameworks on digital education in Europe - but at the same time, postpone and reduce the use of digital devices in order to maximise the benefits and minimise the risks of their use. Still, it can be challenging to convey just how the requirements are met in alternative ways in the HERMMES approach in the communication with national representatives on digital education frameworks. Therefore, the HERMMES courses contain modules that enable participants to fully meet this challenge.

An added fifth aspect is the focus on cooperation with and counselling for parents regarding media maturity education and building a strong school community with healthy, safe, and feasible agreements and rules for digital media use in their community. These aspects are not part of to the HERMMES curriculum but covered separately in the HERMMES guidelines and the Community and culture grid.

WHAT IS IN THE HERMMES CURRICULUM GRID?

The five areas in the HERMMES curriculum correspond directly to the five competence areas in the EU DigComp 2.2, but go beyond it as described above.
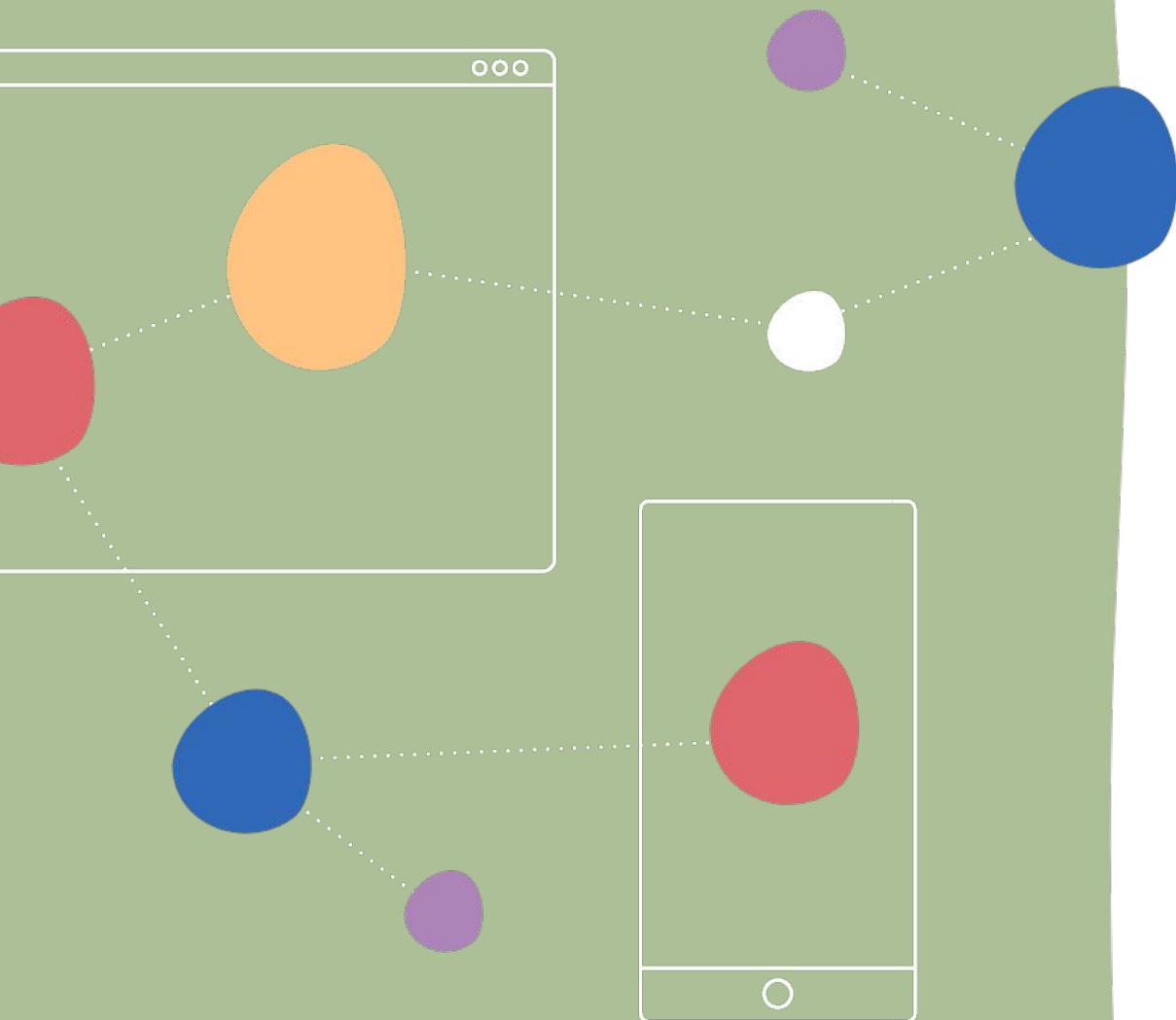
SAFETY AND WELL-BEING

The multitude of digital risks can put teachers and parents under pressure, such as gaming addiction, social media addiction, cyberbullying, sexting, fake news, filter bubbles. Where to even start with prevention efforts? Fortunately, there are many common risk and protective factors. So a promising approach to prevention, especially for younger children, is not to tackle each risk separately. Instead, we aim to support children and young people in developing a strong, resilient personality with social support and connections, by a multitude of activities in class and at home that are traditionally not considered part of a media curriculum. In other words: real-life skills training, for example role-play in kindergarten or taking responsibility for watering plants. For older children, more specific competences for prevention and safety are also addressed in this competence area: cryptography, privacy protection, all the way to advanced topics such as AI.

PROBLEM SOLVING AND COMPUTATIONAL THINKING

This area is divided into two sections in the grid: 1: ICT: computer science and problem solving. This subsection goes all the way from identifying basic ICT skills in everyday activities (such as folk dance, baking buns, playing board games) to understanding how computers work, with analogue projects on the binary system, coding, sorting, and search algorithms, all the way to programming computers and understanding AI in secondary school. 2. Operating and applying (digital technology). As before, this starts in early childhood with safely handling analogue tools and developing fine motor skills, and ends in upper school with 3D-printing and discussing LiFi and LAN as alternatives to WiFi.

(DIGITAL) MEDIA CONTENT CREATION

This largest competence area is subdivided on the basis of different media: writing, audio, and VIS (video, images, sculpture). Activities encompass many things from learning to read and write to advanced journalistic work, from tin can phone to digital audio (post-) production, from flip books and analogue solar photography to recording documentary videos and creating mixed-media digital portfolios.
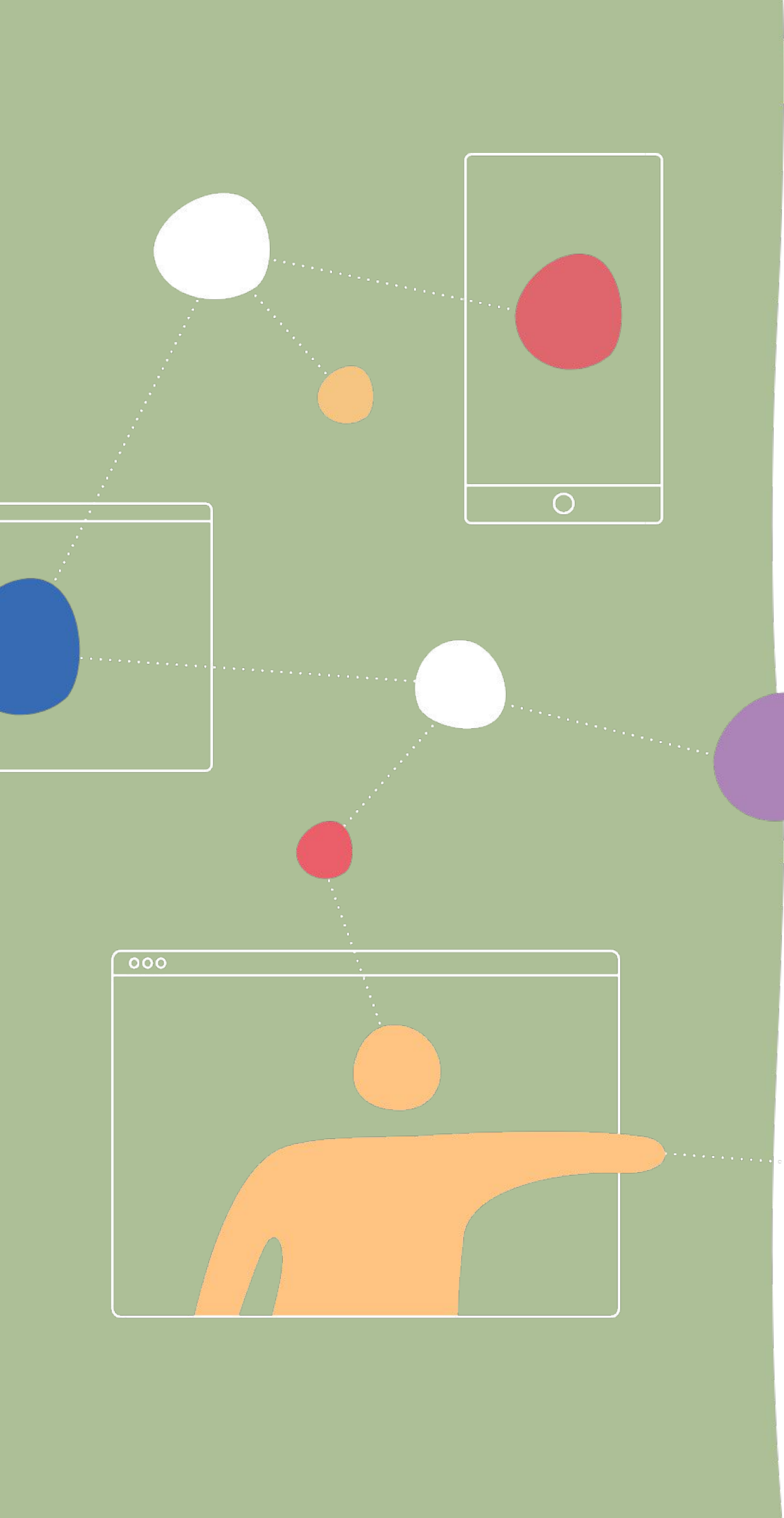
CRITICAL INFORMATION AND DATA LITERACY

This area is subdivided into two sections: 1. searching and organising information/data that includes searching for information by asking people and reading dictionaries, all the way to advanced internet search strategies, and from organising data with edge-punched cards all the way to critical big data literacy. 2. Analysing and (self)-reflection cover activities to foster self-reflection and perspective-taking in direct interactions, pros and cons of apps for regulating personal screen/online time, reflections on influences of digitisation, and the need for regulation in many areas of human life.

COMMUNICATION, COOPERATION, AND EMPATHY

This part covers communication and cooperation skills acquired in direct in-person interaction, such as role-play, tandem and group activities at school, rules for dealing with conflicts in class, experiences with a class-wide analogue social network, and also provides an error-friendly space for practicing and discussing pre-netiquette skills, leading up to discussing aspects of online communication like hate speech and online disinhibition effect, and the influence of AI, more specifically chatbots, on our perception of ourselves as humans.
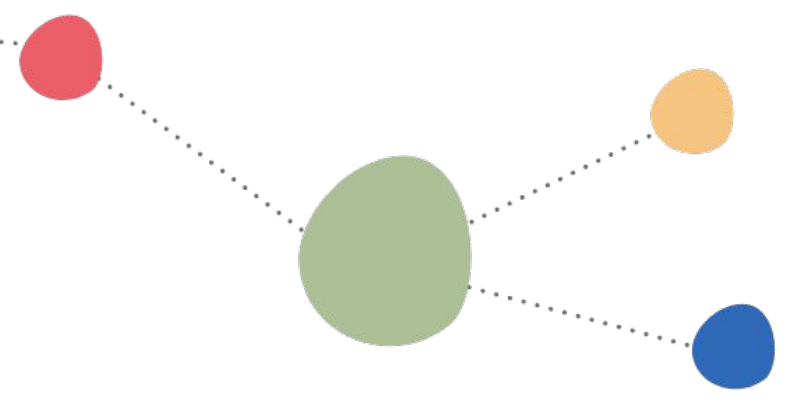
HOW TO PUT THE HERMMES CURRICULUM INTO WRITING AND PRACTICE

To support a school or kindergarten in the process of becoming a HERMMES kindergarten/school community, we summarise key success factors from the experience of institutions that have undertaken the process.
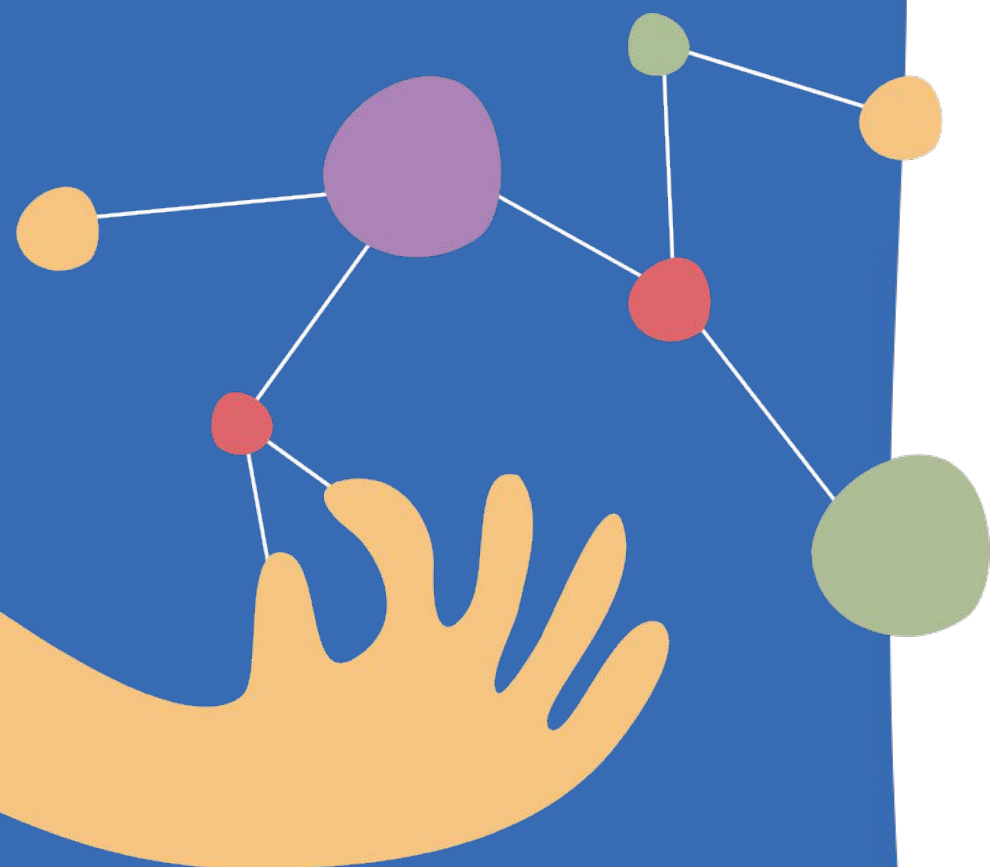
SMALL STEPS
The curriculum grid is very large. It contains more than 200 entries and can seem almost overwhelming. Follow a step-by-step approach.

BALANCE STRUCTURE AND FLEXIBILITY
If you want to do more than raisin-picking some ideas (which is also fine) and have the aim to adopt and write down an adapted version of the HERMMES curriculum for a kindergarten or school community: this needs both the flexibility to pick up impulses from the actors (being open for developing visions and goals), but also needs people and documents that structure and steer the process, keep dates, put results in written form.

RESPONSIBLE AND EMPOWERED ACTORS
"Steering" people are crucial to making the process work. A minimum is one HERMMES/media education anchor person in the institution, better are two responsible persons (teacher and parent), ideal is a delegation with representatives of all major stakeholders: primary school teacher, secondary school teacher, parent, secondary school pupil, school administrator, school leader.

PRIORITY FOR ONE OR TWO AREAS OF ACTION
Advisable first steps are to bring all colleagues together to identify existing strengths and resources (what do we do already?), then to decide what should be addressed foremost in the future (for example, two of the five competence areas as a start).

HAVE FUN TOGETHER
In a staff meeting, discover new analogue ideas for practice. Create your own secret languages or enter the analogue sorting network. Just pick one or two of the activities from the case examples system to start with. Quote from one of the HERMMES schools: "we never thought it would be this much fun to do media maturity education!"

PROVIDE RESOURCES (POWER, MONEY, TIME) FOR IMPLEMENTATION
Aim for reducing teaching hours for the core team, finding money for buying material and paying for further training.

BUILD TEACHERS' SKILLS
Visit colleagues (internal and external), attend further training courses, ask skilled parents to provide in-house training.

WHAT ELSE?

Building a HERMMES community

If you intend to make sustainable changes in your educational setting, e.g., as a member of a (digital) media delegation (be it a teacher, parent, or pupil): read the HERMMES background document. It is at the core of HERMMES and contains comprehensive background information. It supports joint action in kindergartens or schools – to make a change from fragmented (and often frustrated) lone pioneers of HERMMES ideas to building a strong community.

Also, do read the HERMMES guidelines and the Community and Culture Guide to get the full picture. While what you are reading now (the curriculum) puts a focus on activities in five competence areas for children, the HERMMES guidelines add three other areas: cooperation with parents, rules and regulations for digital media use in the kindergarten school, and ideas and advice for self-reflection of our own media use as adults.

Examples from the guidelines: mobile phone use rules on the premises, data security in digital communication, and in the centre,: good practice ideas for parent cooperation and counselling, and for self-reflection of adults' own digital media use habits. So, digging deeper may help you be more flexible and adapt the HERMMES curriculum better to the needs of your educational setting.

On the practical side: if you wish to print the curriculum grid, we recommend to chose A2 format for best readability.
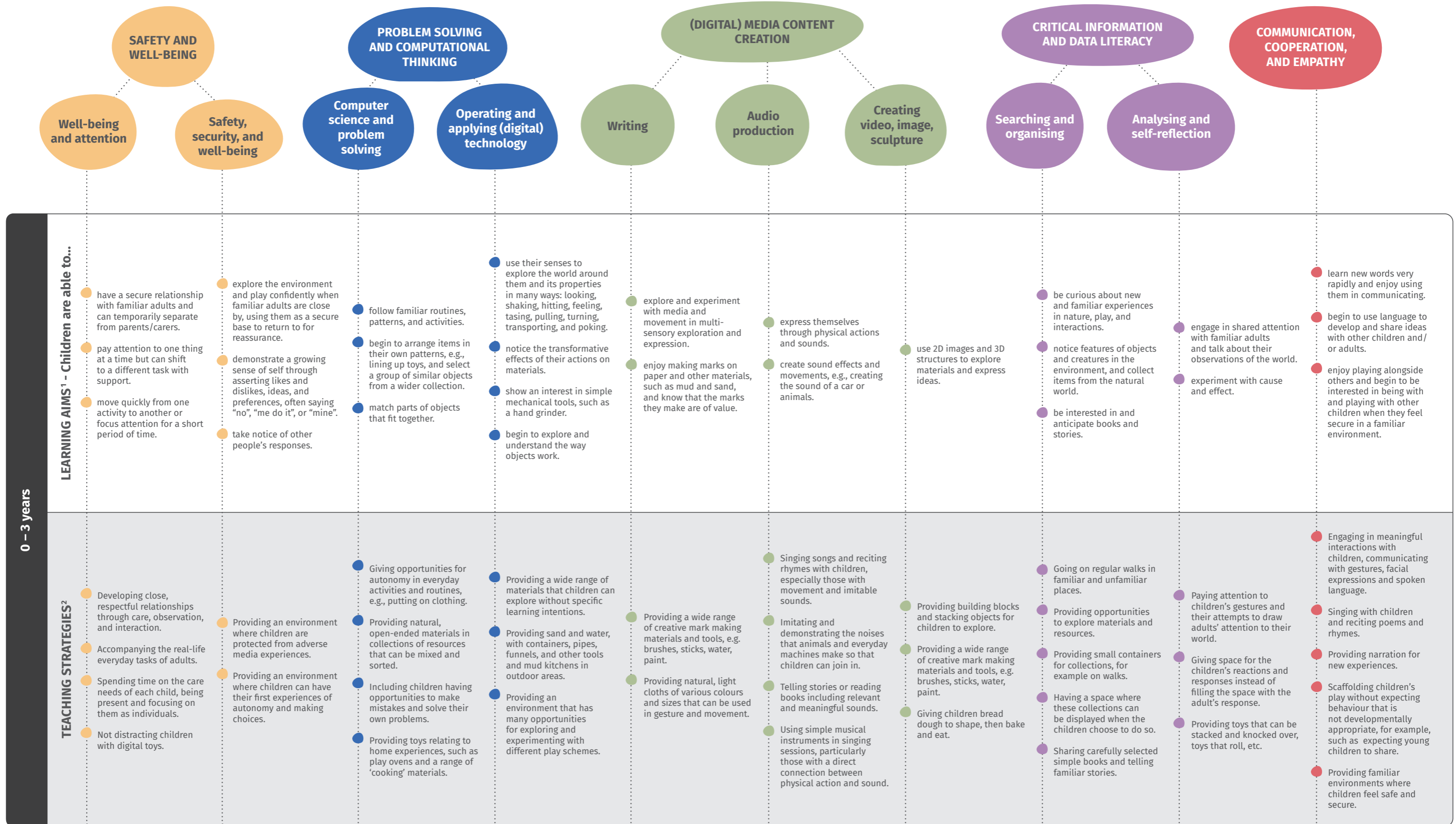
If you have any questions remaining, you can contact us on: hermmes@ecswe.eu.
We wish you good luck on your endeavour!

The HERMMES team

* All additional documents will be available on the HERMMES website from 20 February 2025

HERMMES CURRICULUM GRID

Column headings

SAFETY AND WELL-BEING
- Well-being and attention
- Safety, security, and well-being

PROBLEM SOLVING AND COMPUTATIONAL THINKING
- Computer science and problem solving
- Operating and applying (digital) technology

(DIGITAL) MEDIA CONTENT CREATION
- Writing
- Audio production
- Creating video, image, sculpture

CRITICAL INFORMATION AND DATA LITERACY
- Searching and organising
- Analysing and self-reflection

COMMUNICATION, COOPERATION, AND EMPATHY

0 – 3 years

LEARNING AIMS[1] - Children are able to...

Well-being and attention
- have a secure relationship with familiar adults and can temporarily separate from parents/carers.
- pay attention to one thing at a time but can shift to a different task with support.
- move quickly from one activity to another or focus attention for a short period of time.

Safety, security, and well-being
- explore the environment and play confidently when familiar adults are close by, using them as a secure base to return to for reassurance.
- demonstrate a growing sense of self through asserting likes and dislikes, ideas, and preferences, often saying "no", "me do it", or "mine".
- take notice of other people's responses.

Computer science and problem solving
- follow familiar routines, patterns, and activities.
- begin to arrange items in their own patterns, e.g., lining up toys, and select a group of similar objects from a wider collection.
- match parts of objects that fit together.

Operating and applying (digital) technology
- use their senses to explore the world around them and its properties in many ways: looking, shaking, hitting, feeling, tasing, pulling, turning, transporting, and poking.
- notice the transformative effects of their actions on materials.
- show an interest in simple mechanical tools, such as a hand grinder.
- begin to explore and understand the way objects work.

Writing
- explore and experiment with media and movement in multi-sensory exploration and expression.
- enjoy making marks on paper and other materials, such as mud and sand, and know that the marks they make are of value.

Audio production
- express themselves through physical actions and sounds.
- create sound effects and movements, e.g., creating the sound of a car or animals.

Creating video, image, sculpture
- use 2D images and 3D structures to explore materials and express ideas.

Searching and organising
- be curious about new and familiar experiences in nature, play, and interactions.
- notice features of objects and creatures in the environment, and collect items from the natural world.
- be interested in and anticipate books and stories.

Analysing and self-reflection
- engage in shared attention with familiar adults and talk about their observations of the world.
- experiment with cause and effect.

Communication, cooperation, and empathy
- learn new words very rapidly and enjoy using them in communicating.
- begin to use language to develop and share ideas with other children and/or adults.
- enjoy playing alongside others and begin to be interested in being with and playing with other children when they feel secure in a familiar environment.

TEACHING STRATEGIES[2]

Well-being and attention
- Developing close, respectful relationships through care, observation, and interaction.
- Accompanying the real-life everyday tasks of adults.
- Spending time on the care needs of each child, being present and focusing on them as individuals.
- Not distracting children with digital toys.

Safety, security, and well-being
- Providing an environment where children are protected from adverse media experiences.
- Providing an environment where children can have their first experiences of autonomy and making choices.

Computer science and problem solving
- Giving opportunities for autonomy in everyday activities and routines, e.g., putting on clothing.
- Providing natural, open-ended materials in collections of resources that can be mixed and sorted.
- Including children having opportunities to make mistakes and solve their own problems.
- Providing toys relating to home experiences, such as play ovens and a range of 'cooking' materials.

Operating and applying (digital) technology
- Providing a wide range of materials that children can explore without specific learning intentions.
- Providing sand and water, with containers, pipes, funnels, and other tools and mud kitchens in outdoor areas.
- Providing an environment that has many opportunities for exploring and experimenting with different play schemes.

Writing
- Providing a wide range of creative mark making materials and tools, e.g. brushes, sticks, water, paint.
- Providing natural, light cloths of various colours and sizes that can be used in gesture and movement.

Audio production
- Singing songs and reciting rhymes with children, especially those with movement and imitable sounds.
- Imitating and demonstrating the noises that animals and everyday machines make so that children can join in.
- Telling stories or reading books including relevant and meaningful sounds.
- Using simple musical instruments in singing sessions, particularly those with a direct connection between physical action and sound.

Creating video, image, sculpture
- Providing building blocks and stacking objects for children to explore.
- Providing a wide range of creative mark making materials and tools, e.g. brushes, sticks, water, paint.
- Giving children bread dough to shape, then bake and eat.

Searching and organising
- Going on regular walks in familiar and unfamiliar places.
- Providing opportunities to explore materials and resources.
- Providing small containers for collections, for example on walks.
- Having a space where these collections can be displayed when the children choose to do so.
- Sharing carefully selected simple books and telling familiar stories.

Analysing and self-reflection
- Paying attention to children's gestures and their attempts to draw adults' attention to their world.
- Giving space for the children's reactions and responses instead of filling the space with the adult's response.
- Providing toys that can be stacked and knocked over, toys that roll, etc.

Communication, cooperation, and empathy
- Engaging in meaningful interactions with children, communicating with gestures, facial expressions and spoken language.
- Singing with children and reciting poems and rhymes.
- Providing narration for new experiences.
- Scaffolding children's play without expecting behaviour that is not developmentally appropriate, for example, expecting young children to share.
- Providing familiar environments where children feel safe and secure.

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1 – "Learning aims" are a description of a typical learning journey through the curriculum. They shape and guide teachers' planning and assessment and can help to indicate where children and young people might need additional support. They should not, however, be used to create a "tick box" deficit model which narrows the curriculum and selection of instructional methods. These are aims that ideally are reached at the end of the age group, but variations may and will occur.

2 – "Teaching" is a broad term which covers all the ways in which adults in an educational setting support children's learning. It includes not just direct instruction, but the provision of learning opportunities of all kinds, the design of the learning environment, the facilitation of self-directed learning, the establishment of expectations, and the understanding of what children and young people know and can do.

	SAFETY AND WELL-BEING		PROBLEM SOLVING AND COMPUTATIONAL THINKING		(DIGITAL) MEDIA CONTENT CREATION			CRITICAL INFORMATION AND DATA LITERACY		COMMUNICATION, COOPERATION & EMPATHY
	Attention	**Safety & security**	**Computer science**	**Operating technology**	**Writing**	**Audio**	**Video, image, sculpture**	**Searching**	**Analysing**	
LEARNING AIMS[1] – Children are able to…	have a stable sense of self-likes, dislikes, and relationships. • understand themselves as competent. • describe physical changes to their body that can occur when they feel unwell, anxious, tired, angry, or sad. • become more able to simultaneously listen and do: • pay attention for increasing amounts of time. • focus for increasing periods of time whilst involved in self-directed, imaginative play, alone or in social situations.	practise increasingly some appropriate safety measures without direct supervision, considering both benefits and risk, in real-life activities and play. • know what to do if they encounter uncomfortable, incomprehensible, or distressing content in digital media.	have internalised and can reproduce familiar sequences of activities, such as making bread dough and tidying up toys. • create and recreate patterns with objects or in crafts, such as sewing, weaving, and threading. • enjoy solving problems by composing and decomposing shapes, turning and flipping objects, predicting and comparing. • join in with adult-led rhymes and games involving numbers and patterns. • use a range of materials to direct objects or people along a particular path, such as connecting pipes to transport water or creating an obstacle course.	demonstrate their understanding of materials and their properties by using them appropriately and creatively, such as in building dens. • understand simple tools like a hand mill, a saw, a cheese grater, as multipliers of human effort, use them to effect changes to materials, handling them safely and with increasing control and intention. • assimilate observed technology into their play, such as pretending to drive a bus or use a laptop.	use orality, particularly narrative, as a way of organising and relating their experiences. • understand that objects, images, and symbols can represent ideas and give meaning to the marks they make as they paint, draw, and pretend to, or begin to, write. • enjoy using mark making for a purpose, often using emergent writing to create texts, for example making greetings cards, tickets, lists, and invitations.	enjoy playing with language in different ways, such as rhyming words or using alliteration. • build collections of songs and rhymes and make music in a range of ways.	choose movements, sounds, colours, and materials for their own imaginative purposes, expressing themselves in unique and individual ways. • express and communicate working theories, feelings, and understandings through play, movement, drama, dance, puppetry, and the visual arts. • use a range of modelling and craft materials to create 3D objects and representations.	enjoy looking at books and finding information in the pictures. • ask questions from familiar adults and other children, recognising where people have particular or extensive knowledge. • look closely at similarities, differences, patterns, and changes in nature, objects, and materials.	develop through their friendships an understanding of different points of view and can challenge their own and others' thinking. • plan how to approach a task, test their ideas and check how well things are going, changing strategy as needed in their play. • show satisfaction and pride in meeting their own goals, in the end result and also in how they have accomplished something.	use conversation and discussion to organise, sequence, and clarify thinking, ideas, feelings, and events. • show awareness of the listener, responding to their actions, reactions, responses, and body language, and might modify words for their better understanding. • know that others do not always enjoy the same things as themselves, and have some understanding of others' needs, wants, and behaviours. • demonstrate a degree of flexibility and cooperation in approaching a task, negotiating, compromising, and often resolving conflicts without adult support.
TEACHING STRATEGIES[2] — **3–6 years**	Giving children opportunities to take responsibility for appropriate and meaningful tasks, such as taking care of plants and animals. • Providing examples of physical sensations associated with emotions through modelling and in stories. • Modelling and providing opportunities to talk and draw, paint, or model, as a way of processing experiences. • Providing opportunities and resources for many different kinds of play, enabling the children to safely process lived experiences.	Modelling and narrating or scripting appropriate safety measures that are comprehensible, meaningful, and replicable without support, such as 'the tower of bricks must be smaller than you are, so that they don't fall on your head'. • Using social or pedagogical stories to demonstrate what a child should do if they encounter distressing digital content. • Using social learning situations as opportunities to enable them to develop their understanding of kindness and empathy.	Providing opportunities to follow familiar recipes. • Providing fibre craft opportunities where patterns can be created with colours: sewing, embroidery, weaving, threading. • Ensuring that where there are several different processes involved in a project, the children participate in as many as possible. • Creating daily rhythms and routines that can be followed, such as tidy-up time. • Providing sorting activities, such as putting similar coloured crayons in a container. • Providing opportunities to explore shape puzzles. • Singing number songs where quantities increase or decrease. • Playing games with sequences of movement, such as simple clapping and skipping games. • Providing marble chutes or runs. • Facilitating the building of obstacle courses. • Providing chutes, funnels, pipes, guttering, elbow pieces, buckets to transport water.	Providing a wide range of materials for children to build with and explore, for example folding wooden play frames, large cloths, pegs, strings, planks, wooden boxes, large hollow blocks, plastic crates, tarpaulins. • Providing opportunities to use a wide range of simple tools for practical and meaningful activities, such as woodworking, gardening, cooking. • Providing open-ended play materials so that children can recreate their experiences of technology imaginatively.	Modelling storytelling and narrative, including props. • Listening to children when they relate their experiences. • Providing plenty of opportunities and resources for independently making marks, drawing, painting, pretend-writing.	Singing and reciting rhymes and poems with children, repeating the same songs and rhymes over and over again. • Providing opportunities for them to create their own poetry using spoken word. • Giving children the opportunity to learn different rhymes and word games through repetition, such as tongue twisters. • Providing opportunities to make and play with simple or improvised musical instruments.	Providing a wide range of open-ended resources for children to use in role play and imaginative play, such as coloured cloths and dressing-up clothes. • Performing puppet plays for children. • Providing materials for children to create their own puppets or simple standing puppets to use in creating puppet plays. • Providing a wide range of 'small world' and open ended materials and resources that children can use to play out stories and narratives, such as small animals, trees, buildings. • Providing simple woodworking opportunities and projects, for example making a toy boat. • Providing modelling materials such as beeswax, bread dough. • Providing building blocks of different sizes and shapes.	Providing a wide range of beautiful books that represent a diverse and inclusive society, with detailed pictures that children can explore. • Providing plenty of time in the natural environment, including going on nature walks. • Ensuring that teachers' knowledge of the natural environment is extensive, for example the names of birds, plants and trees.	Providing plenty of opportunity for free play, inside and outside, supporting children's interactions and understanding of the other person's point of view when necessary. • Providing descriptions rather than empty praise, for example, "I can see that you joined those two pieces carefully". • Modelling and celebrating mistakes as part of the learning process, for example, "oh dear, I brought too many plates for the number of children. Tomorrow I will count how many children before I count the plates". • Modelling thinking about a problem "I just need a minute to think about the best way of doing this. I wonder: will this work?" • Inviting children to find a solution for a given problem, such as "How can we cross this ditch?" or "I wonder where I left my …?"	Engaging in meaningful and appropriate interactions with children. • Modelling active listening when interacting with children. • Modelling how to adapt language for younger children or those communicating in a language that is not their home language. • Modelling being flexible, adaptive, and considerate in how to approach a task. • Modelling how to resolve conflicts. • Giving children the opportunity to resolve their own conflicts, especially once they are five years old. • Providing plenty of opportunities for role play, to allow children to imagine different perspectives.

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SAFETY AND WELL-BEING | PROBLEM SOLVING AND COMPUTATIONAL THINKING | (DIGITAL) MEDIA CONTENT CREATION | CRITICAL INFORMATION AND DATA LITERACY | COMMUNICATION, COOPERATION & EMPATHY

	Attention	Safety & security	Computer science	Operating technology	Writing	Audio	Video, image, sculpture	Searching	Analysing	(Communication, cooperation & empathy)

LEARNING AIMS[1] – Children are able to...

Attention
- demonstrate a sense of well-being and comfort in their bodies through moving freely and with confidence in the natural and human-made environment.
- identify and name some emotions in themselves and others, both in real life and in stories.
- take individual responsibility for assigned tasks.
- follow the teacher's direction of their attention, recognising some things that are interesting and/or relevant to them.
- focus on tasks that are intrinsically interesting.
- pay attention to images, they are able to imagine things that cannot be visually represented, such as how things smell, feel, based on a wide repertoire of previous sensory experience.
- recall and reconstruct their experiences, including imaginative experiences.

Safety & security
- talk about the concepts of truth and lies in the context of stories that they have listened to or read.
- begin distinguishing between things that are true or likely to be true, and things that are probably not true.
- describe respectful behaviour, bullying, and trust, and talk about how these things might make someone feel.
- understand what can be kept private, what should never be kept secret, and how this is different from a surprise.
- be confident to approach several adults who can help them if they encounter uncomfortable, incomprehensible, or distressing content in digital media.
- understand the difference between creating something and copying it.

Computer science
- create plans or draft versions of their work to support their final product.
- predict, continue, and create simple sequential patterns, finding mistakes or anomalies and correcting these.
- solve word and picture problems by extracting the essential information and turning this into a simple mathematical calculation.
- follow logical, sequential instructions (algorithms), such as how to make a sandwich or origami instructions.

Operating technology
- use a range of analogue tools safely and effectively, talking about risks and how to manage them.
- listen carefully to and follow instructions about how to use new tools and take part in ensuring that equipment is well cared for.
- give examples of how older children and adults use digital technology as a tool.

Writing
- read and write with some fluency.
- compose their own work, taking care and presenting it in an aesthetically pleasing way.
- talk about why they like or dislike the writing of other authors.
- use simple reproduction or printing devices.

Audio
- listen carefully and actively, asking questions about what they have heard, and explaining or describing it to another person.
- recite poetry and play language games, such as tongue twisters and auditory memory games.
- write and perform audio dramas, for example, radio plays and scripts.
- listen to music, preferably live, and can talk about how it makes them feel.
- enjoy singing together and have a wide range of songs.
- play a simple instrument, such as the recorder or tuned percussion, both individually and in a small group.

Video, image, sculpture
- take part in drama activities and role plays, taking on small individual roles.
- practise and perform simple puppet plays of familiar stories.
- draw and paint confidently from imagination and from life, using simple techniques to represent mood, elements of perspective, size, proportion, and movement.
- model with a range of materials, for example, clay or beeswax.
- create 3D fibre crafts, such as knitting, crochet, sewing, or felting.

Searching
- use books and other analogue resources, such as pictures, age-appropriate magazines or newspapers, for research, reading relevant sections.
- order and search for words alphabetically in a dictionary or index.
- ask people questions and record salient information from their answers.
- label and caption pictures and simple diagrams.
- add data in numbers, words, or pictures in tables and charts.

Analysing
- talk about the emotions and behaviours of characters in stories and begin to relate these to their own feelings and behaviours.
- outline verbally a plan for a piece of work they are about to undertake and, with prompting or supporting, can reflect on how well things are going and whether they need to adapt or change strategy.
- articulate a considered and empathic response to their own work and to the work of others in peer discussions and reflections.

Communication, cooperation & empathy
- express their ideas, thoughts, experiences, and emotions orally.
- begin to explore the power of oral language in different ways, for example, through tone, body language, and choice of words.
- understand many cultural conventions of speaking and listening, such as taking turns or responding to the speaker and can engage in dialogue that creates shared meaning.
- have a growing vocabulary in a second and even third language, being able to form simple sentences about very familiar objects and activities.
- feel part of a learning community and can work together in small groups or in a limited way as a whole class to achieve an objective.
- deal with conflicts by applying a taught framework with support, such as non-violent communication and restorative justice.
- follow the rules of group games, working together, and moving in directed ways, showing an awareness of themselves and others.

6–9 years — TEACHING STRATEGIES[2]

Attention
- Providing a wide range of opportunities for movement, both inside the classroom and in the natural environment.
- Introducing children to enjoyable, screen-free leisure activities, such as playground games, skipping games, string games.
- Talking about the emotions and behaviours of characters in stories.
- Providing pupils with opportunities for responsibility in classroom tasks, including taking care of plants, recycling.
- Giving a wide repertoire of sensory, real-life experiences.
- In real life experiences, directing pupils' attention to a range of senses, if appropriate, "what does it feel/smell/ sound/taste like?"
- Giving pupils the opportunity to recall and reconstruct their experiences a day later, hereby allowing for the unconscious sorting and assimilation that happens during sleep.
- As a teacher, developing and modelling deep interest in the subject and content that you are teaching.
- Supporting pupils to develop intrinsic motivation for attention, not through the use of rewards and punishments.
- Beginning to explore how attention is sought and retained through the pupils' own creation of media, for example how more exciting sentences, well-composed pictures, and thrilling drama hold the audience's attention.
- Modelling using digital technology in a healthy and prosaic way, for example using a laptop or tablet for a routine administrative task.

Safety & security
- Reading and telling stories which include tricks, disguises, and moral dilemmas about truth and lies.
- Discussing the motivations, behaviours, and emotions of the characters.
- Reading and telling stories where characters behave in a range of ways and discussing these with the pupils.
- Giving explicit teaching on appropriate rules for bodily privacy and on the difference between secrets and how any behaviour that makes one uncomfortable should never be kept a secret from trusted adults, and surprises, which might mean keeping a small amount of exciting, positive information secret for a short time.
- Reinforcing that pupils can discuss difficult, uncomfortable, or distressing experiences, including digital ones, with trusted adults.
- Exploring with pupils when it is appropriate to copy someone's work, such as the teacher's drawing, the beginning of a piece of shared writing, and

Computer science
- Providing opportunities to draft or plan work.
- Creating a classroom culture where drafting and improving work is valued.
- Providing opportunities to learn and design choreography for dances and movement activities such as clapping games.
- Teaching to knit and crochet, following and creating patterns in 2D and 3D, including how to look for, find, and correct mistakes in the pattern and in their own work.
- Providing a wide range of opportunities for practical and theoretical problem solving, modelling how to extract the essential information (abstraction), and how to break the problem down into steps (decomposition).
- Exploring "barefoot" or analogue approaches to communication, logic, algorithms, and systems thinking.

Operating technology
- Providing pupils with opportunities to learn how to use a wide range of tools safely, from pens and scissors to whittling knives and bow saws.
- Modelling and instructing pupils on how to care for tools well.
- Exploring processes that use simple analogue tools, for example, from raw sheep's wool to felt.

Writing
- Providing opportunities to create finished work that is presented to a high standard, for example, with a decorative frame.
- Providing plenty of opportunities for creative writing on a given theme and within given genres.
- Asking pupils to write book recommendations for their friends and for the class library.
- Giving the opportunity to use a Freinet printing press.
- Creating prints with toilet rolls or potato prints.
- Exploring methods of relief printing, for example, with cereal packets.

Audio
- Playing listening games, such as Simon says, Telephone, Listen and draw, What's in the Box?, Stand up when I say..., Fruit salad, Tomato ketchup.
- Going on a listening walk, writing down all the things that they can hear.
- Learning poems by heart, reciting first as a class, then in small groups, then individually.
- Playing auditory memory games – "I went to the shop and I bought...", "I went on holiday and I packed...", "Today is my birthday and I got...".
- Giving pupils daily opportunities to learn a wide range of simple songs from different cultures and traditions.
- Giving pupils the opportunity to learn a simple musical instrument – this will require both regular lessons and practice.

Video, image, sculpture
- Providing opportunities to practise and perform role plays and short plays, assigning individual appropriate roles to those pupils confident to take them on.
- Teaching pupils to make puppets and puppet stages in a range of styles, such as felt standing puppets, simple hand puppets, simple stick puppets.
- Providing plenty of opportunities for drawing, both freely and guided by the teacher. In guided drawing, giving explicit instruction on simple techniques.
- Providing plenty of opportunities for modelling with different materials.
- Teaching pupils some basic fibre craft techniques through completing simple projects, for example, knitting a child's ball, sewing a bag, and felting a pouch.
- Teaching children knitting without needles.
- Making cyanotype prints on paper or fabric.
- Making paper using scrap paper pulp and a screen.

Searching
- Ensuring that pupils have access to a high quality class library with a wide range of diverse and representative books in different genres, such as information books, comics, picture books, appropriate children's magazines, newspapers.
- Providing opportunities for pupils to organise and find information in dictionaries, encyclopaedias, reference books, using contents pages and indexes.
- Asking pupils to arrange themselves in alphabetical order, by first name or last name.
- Arranging visits to and from artisans and craftspeople, with opportunities for pupils to ask questions.
- Providing opportunities for pupils to record their experiences in graphical forms, for example, simple free-form labelled diagrams of a journey or a space.
- Teaching pupils to create storyboards of stories they have heard or read or for stories they are going to write.
- Creating tables and charts of practical data, such as meal choices, class birthdays, pupils' family pets.

Analysing
- Including some good quality books in the class library about dealing with worries and managing emotions.
- Teaching pupils to use talk partners to plan their work and to give constructive feedback to each other.
- Ensuring that teachers have the opportunity to give feedback during pupils' independent working time.
- Teaching pupils how to give constructive feedback.

Communication, cooperation & empathy
- Providing plenty of opportunity for talk in the classroom, including methods such as think, pair, share and group discussions.
- Providing opportunities for drama activities and role play.
- Planning, designing, modelling, and scaffolding talk in the classroom.
- Teaching a second or further language, orally for at least the first three years before moving on to literacy.
- Focusing on familiar vocabulary, but also telling simple stories and singing songs.
- Building a class learning community, for example, by greeting each child individually at the beginning of the day.
- Developing your class values instead of rules together, so pupils feel invested.
- Having a structured meeting time with the whole class where good communication practice is taught, modelled, and learned.
- Having whole-class collaborative projects, such as large art projects, class gardens, class books, celebrations, festivals.
- Establishing a classroom culture, based on a researched framework, for dealing with conflict, using methods such as non-violent communication, restorative justice, social emotional learning programmes.
- Teaching collaborative group games, both physical and academic, such as maths games.

	SAFETY AND WELL-BEING		PROBLEM SOLVING AND COMPUTATIONAL THINKING		(DIGITAL) MEDIA CONTENT CREATION			CRITICAL INFORMATION AND DATA LITERACY		COMMUNICATION, COOPERATION & EMPATHY
	Attention	**Safety & security**	**Computer science**	**Operating technology**	**Writing**	**Audio**	**Video, image, sculpture**	**Searching**	**Analysing**	
LEARNING AIMS[1] – Children are able to…	move artistically and gymnastically and talk about the benefits of being outside and moving one's body about one's physical health and mental well-being. / identify a range of emotions in themselves and others, both in real life and in stories. / carry out a range of individual tasks and responsibilities without prompting. / follow given templates for paying attention to particular aspects of something, for example being shown how to write a book report or complete a structured independent project. / note down key information or important details when listening to presentations. / explain some of the ways in which different analogue media attract and retain their attention, for example exciting story plots or language, interesting images and engaging performances. / demonstrate intrinsic motivation, being able to tackle challenging work without promise of reward or punishment.	understand that a code makes it possible to keep communication more private and can demonstrate how to use one. / talk about how characters in stories can disguise themselves and trick other characters. / describe the kinds of things, including digitally, that might make people feel sad, worried, uncomfortable, or frightened. / understand what bullying is and how it makes people feel and can identify a trusted adult who they could talk to about any bullying they have seen or experienced. / suggest some strategies to respond to peer pressure.	create and record logical patterns in different ways, such as writing simple musical notation, recording a skipping or clapping game with symbols, creating a grid pattern for cross-stitch or knitting. / create and record logical, sequential instructions (algorithms) for simple familiar activities, dividing these into sequential phases, and "debug" these through experimentation, making changes to improve the final result.	use appropriate tools to measure lengths, heights, weights, and capacities of differing scales, using a range of non-standard and standard measures, understanding the history and conventions of the metric measuring system. / use technical tools, such as the ruler or compass, to draw simple geometrical figures. / use a range of tools safely, effectively, and appropriately to create useful objects, talking about risks and how to manage them. / listen carefully to and follow instructions about how to use new tools and take part in ensuring that equipment is well cared for. / take pride in their work.	read and write with moderate fluency. / plan, structure, edit, and proof-read their writing. / write quite extensively in a range of genres, adjusting their writing to suit their intended audience and purpose and using organisational and presentational devices, for example creating a poster, information leaflet or article for the school newspaper in an analogue format.	recite poetry or other text, demonstrating their understanding of meaning through expression and punctuation. / sing in groups as part of a round or in very simple parts. / play a simple instrument as part of a group or as an accompaniment. / demonstrate some historical ways of communicating over distance, for example, semaphore, smoke signals, tin can telephone.	design, prepare, and present a simple, visually supported story for example a shadow puppet play or puppet show. / draw detailed and quite precise images and produce paintings and illustrations using their knowledge of colour and paint. / illustrate their written work in creative ways, leaving planned spaces for drawings and overlapping text and images. / produce and reproduce images to scale, such as drawing simple scale maps or copying images. / achieve a range of demonstrated and taught effects with modelling and crafting materials.	find and record useful information from real life experiences, such as a visit to a museum, a walk through the local natural environment. / find out and record information from speaking to or interviewing experts, such as a visit from a local historian, gardener, or police officer. / use reference books from a class library, including a dictionary or thesaurus when needed. / demonstrate their understanding and the importance of organising the class library by replacing books in the correct place and order. / use a public library in real life, requesting a book from a librarian, finding a fiction book by author surname, or finding books on a particular topic. / use simple coordinates to plot points on a grid and extract data from a grid. / find information from a table or chart and use this information to solve a given problem.	talk, in a limited way, about how creators of work (text, image, drama) use different techniques to engage and affect their audience and use some of these techniques in their own work. / demonstrate some awareness of their audience when recounting their experiences, expressing their ideas. such as pausing for laughter, speaking for the adequate on one subject. / create simple written or drawn plans for their work and refer to these during independent tasks. / critique their own and others' work in a considered and empathetic way, providing sensitive and constructive feedback.	express their ideas, thoughts, and emotions orally, using tone, body language, gesture, and word choice to make their meaning clearer to the listener. / abide by many cultural conventions of speaking and listening, responding appropriately to a conversation partner. / work effectively with different groups of peers and, under the direction of an adult, as a whole class. / agree and disagree with each other respectfully in classroom discussions. / apply a taught framework for conflict management with some consistency and independence, such as non-violent communication and restorative justice. / engage in movement games with quite complex rules, working as a team, and anticipating the moves and movements of other pupils. / talk confidently about a range of topics and write simple texts in at least one additional language.
TEACHING STRATEGIES[2] / **9-12 years**	Providing plenty of opportunities for different types of movement, such as gymnastics, dance, drama, strategy games, acrobatics, skipping, circus skills. / Asking pupils to reflect on how they feel after movement and outdoor activities. / Providing plenty of opportunities for practical outdoor activities, such as gardening, forest school sessions, walks in the local community or environment. / Providing a simple emotions wheel when talking or writing about characters and stories. / Telling and reading stories from a range of cultural traditions, with interesting and increasingly complex characters and moral/ethical messages. / Creating classroom tasks and rotas that pupils can carry out with independence, for example, recycling, composting, organising and caring for the classroom library. / Providing opportunities and templates for independent project work, such as a report on a chosen animal that covers where it lives, what it eats, how it moves, what kind of group it lives in, what its specialisms are. / Providing opportunities for pupils to engage in work that builds on their interests and that is intrinsically motivating. / Supporting pupils to set their own goals and targets and recognise their progress towards these. / Providing lots of opportunities for active and experiential learning: visits, visitors, artefacts, construction. / Beginning to deconstruct analogue media experiences, supporting the pupils to reflect on how something gets and retains their attention, and on author/creator intent and technique.	Teaching analogue encryption basics, such as Braille, Morse, Caesar Wheel, substitution ciphers. / Reading and telling stories that include tricks and disguises and discussing with pupils the aims and consequences of these. / Providing opportunities to discuss prejudice and discrimination and how these might affect their friends, families, and the wider community. / Providing opportunities for pupils to explore the differences between friendly joking, teasing, and bullying and how these make people feel. / Reinforcing information about trusted adults in school and their availability to pupils. / Teaching techniques of persuasion, both written and verbal and discussing with pupils strategies for identifying and resisting these.	Providing opportunities for pupils to explore the recording of skipping and/or clapping games, using symbols to represent different actions. / Providing opportunities for pupils to explore musical notation in non-standard forms. / Teaching simple folk dances and giving pupils the opportunity to record these graphically or with symbols. / Teaching pupils cross stitch and provide opportunities for them to create their own patterns on grid paper. / Teaching pupils to create grid patterns for knitting with different colours and stitches. / Exploring writing and improving instructions for another person who will follow them exactly, for example, give instructions to a peer for how to draw a house and improve the instructions based on the drawing produced. / Teaching pupils how to use coordinates on a map or plan. / Providing opportunities to navigate grids, with the help of an analogue coding carpet or making treasure maps.	Providing plenty of practical measuring opportunities in context, for example, in practical craft projects and woodwork projects. / Providing plenty of practical measuring opportunities in context, for example, in practical craft projects and woodwork projects. / Teaching pupils how to create geometrical figures using a compass or a ruler. / Exploring the history of analogue tools, tool makers, and tool users, particularly in the local area, with a focus on what tools have been created and used to shape and process local materials and resources. / Teaching pupils how to use different simple tools through practical projects, for example, whittling, green woodwork, blacksmithing. / Teaching pupils how to use different and increasingly complex techniques in knitting, crochet, and sewing, making socks or gloves. / Exploring how humans have used analogue tools to meet basic human needs of shelter, warmth and food, to build and farm locally.	Providing a wide range of regular opportunities to write for different purposes and audiences, explicitly teaching authorial, structural, and presentation techniques. / Creating a class newspaper or newsletter to distribute amongst the school community. / Creating information leaflets and advertisements, for example, for a school play or concert.	Providing opportunities for pupils to learn poems and other recitations by heart and to perform them to the class. / Discussing with pupils how to vocally portray different emotions in dramatic performance. / Practising reading aloud, focusing on how meaning is conveyed through punctuation. / Singing regularly as a class, teaching a wide range of songs from different cultures and traditions. / Teaching pupils to sing appropriate familiar songs in a round. / Teaching pupils how to sing as a group with a drone and melody. / Teaching pupils a simple instrument, such as a recorder or tuned percussion. / Offering pupils the opportunity to play other instruments, such as a classical instrument or an ukulele. / Exploring semaphore, giving pupils a semaphore alphabet to send messages across the school yard. / Making tin can telephones with string and explore how they work best. / Visiting the site of fire beacons and plotting them on maps, discussing how these were used to send simple signals over long distances.	Teaching children to design, make, and use cranky theatres to tell stories. / Teaching children to make simple moving pictures, for example, a picture with a cut out section and a piece behind that moves. / Building a Kamishibai stage and teaching pupils to make illustrated boards and giving them opportunities to prepare and perform stories. / Teaching pupils how to lay out and illustrate their written work and how to combine text and images in labelled drawings and diagrams. / Teaching pupils how to draw maps, including scale and ratio, grids and coordinates, and birds-eye view. / Teaching pupils a range of techniques for copying a drawing or diagram accurately, such as using a grid or sketching out basic shapes. / Providing plenty of opportunities for working with a range of materials in 3D, such as fibre crafts, clay modelling, and whittling and teaching pupils techniques to achieve a desired effect.	Providing regular trips and visits linked to classroom learning. / Teaching pupils how to take notes and find or ask for information. / Inviting visitors to the school linked to classroom learning. / Teaching children how to take notes when someone is speaking and use their notes for their classroom work. / Developing a class library, including different types of dictionaries, thesauruses, and other reference texts. / Developing a reference system for a class library with the pupils, including index, borrowing cards, rules and labelling shelves for fiction books alphabetically. / Providing regular visits to the local public library, developing relationships with librarians, and teaching children how the referencing system works (where this is digital, providing an analogue summary or plan of where to find different topics). / Providing practical and playful opportunities to use grids and coordinates, for example, playing battleships and making treasure maps. / Providing opportunities for problem solving from given information, for example by reading printed train or bus timetables.	Providing opportunities to discuss authorial and artistic techniques, encouraging pupils to identify why they like or dislike a text, image, or performance, and what the creator might have intended. / Providing constructive feedback for pupils on how to make their work more engaging for an audience. / Providing plenty of opportunities for pupils to speak to a group of peers and the whole class, giving positive, descriptive feedback. / Teaching pupils how to use a range of planning templates and techniques, such as storyboards and mind mapping. / Modelling and teaching phrases and techniques for giving positive, constructive feedback. / Using live marking techniques - actively giving feedback during independent working time	Providing plenty of opportunities for pupils to present their ideas and work orally and engage in class discussions. / Providing opportunities for pupils to take part in short plays and drama activities. / Teaching phrases, gestures, and techniques explicitly to support respectful discussion by listening actively, asking clarifying questions, such as "I can understand why you came to that conclusion, but…", "that's a good point, but I see it differently". / Embedding a classroom culture, based on a researched framework, for dealing with conflict, using non-violent communication, restorative justice, social emotional learning programmes. / Teaching plenty of games, both movement-based (running and chasing games, team games, clapping and skipping games) and academic-based (such as maths games) and give plenty of opportunity to repeat these so that pupils can learn the rules and play independently. / Providing teaching in at least one additional language. / Twinning with a school in another country, with each pupil having a pen pal. / Providing opportunities and support for letter writing.

	SAFETY AND WELL-BEING		PROBLEM SOLVING AND COMPUTATIONAL THINKING		(DIGITAL) MEDIA CONTENT CREATION			CRITICAL INFORMATION AND DATA LITERACY		COMMUNICATION, COOPERATION & EMPATHY
	Attention	**Safety & security**	**Computer science**	**Operating technology**	**Writing**	**Audio**	**Video, image, sculpture**	**Searching**	**Analysing**	

LEARNING AIMS[1] – Children are able to...

Attention	Safety & security	Computer science	Operating technology	Writing	Audio	Video, image, sculpture	Searching	Analysing	Communication, cooperation & empathy
relax and have fun with groups of peers and take part in a number of social activities.	log on to a desktop computer with an individual password.	have an understanding of the history of computing and social networks.	use a word processing programme, typing with all ten fingers.	create both analogue and digital texts for an audience and/or purpose, using different stylistic registers, such as text aimed at younger children, persuasive writing, creative writing, advertisements, invitations.	write, prepare, perform, and record simple audio documentaries, dramas, or podcasts, first on tape and then with digital devices.	use colour and shading in sophisticated ways, for example in chiaroscuro drawings.	use analogue archives for research purposes, in local museum archives, libraries, local church records.	talk about how to judge the validity of information.	present their original work orally individually or as part of a group.
eat and sleep well for the most part and engage in some form of regular movement and exercise that they enjoy.	know how to keep their password confidential and secure and how to adjust their privacy and security settings in a browser.	demonstrate their understanding of computational and technological thinking in both analogue and simple digital contexts, including tinkering, debugging, logic, algorithms, systems thinking, and problem finding and solving.	use technical tools, such as a ruler or compass, to create accurate geometrical figures.	produce written projects in analogue and digital formats, such as reports, short essays.	write, prepare, record, and edit an audio track for a video or drama production.	use a range of printing methods, such as linocut, etching, engraving, and can produce paper and handmade books.	demonstrate their understanding of using the internet for research, including how to find information quickly and effectively, how search engines work, refining search phrases using AND, "", using menus, breadcrumb-trails, site maps.	describe how media content can be designed to influence thoughts and beliefs, how something is or can become fake news, how algorithms affect the information that we are presented with online, and the "echo chamber" effect.	take part in structured discussions and debates, following agreed conventions and rules.
begin to express their sense of identity, for example, through preferences in clothing, music, activities.	talk about how they and other people might behave in online spaces including, for example, anonymity and disinhibition, impersonation, cyber-bullying.	understand digitalisation, including bits and bytes and image compression and the binary system.	describe and use within simple practical projects the principles of levers, pulleys, and gears.	organise space on paper or within a word processing programme, arranging text and images.		describe, explain, and demonstrate how a camera obscura functions and are beginning to understand the basics of photography, such as composition, shutter speed, aperture, and focusing.	define "copyright" and describe ways in which these laws apply to commercial and their own online content.	aware of how digital images can be manipulated or created.	apply a taught framework for conflict management and disagreements reflectively, including non-violent communication and restorative justice.
name at least one trusted adult at school who they could talk to or go to for support.	describe some behaviours that are illegal and how to report them, including the distribution of certain images of the human body and other unethical behaviours.	describe the journey of data through the internet.	describe the qualities of materials that make them suitable for a specific use within a project.			create effective flip books and/or magic lantern/zoetrope animations and can use basic techniques to edit short videos.	collect, record, understand, and represent data in a wide range of ways, for example, tables, graphs, charts, diagrams, pictograms, and spreadsheets.	reflect on their qualities and actions and demonstrate that they can use their reflections to effect a change in their behaviour, for example, by self-assessment of classroom work leading to improvement.	describe some rules of netiquette, explain what hate speech is, and recognise and/or challenge examples.
demonstrate curiosity when presented with a question and are motivated to search for answers.	identify that some advice found online might be harmful.	build, programme, and use simple robots.	build circuits and illustrate diagrammatically the nature of electrical current within them.			create 3D artefacts using a range of techniques, such as woodwork, copper beating, basket making, macrame, modelling.	demonstrate that they are able to monitor time spent online and can describe some strategies that they use to limit it.	discuss the actions that adults take to limit their time online and improve their safety and can explain why these things have been put in place, for example, parent filters, phones charged downstairs overnight, family phone-safe for mealtimes.	give some examples of the advantages and disadvantages of digital rating systems, such as likes, retweets, crowdturfing, and how they might use and/or be affected by these.
describe a number of mechanisms through which their attention is gained or directed by both analogue and digital media, including gamification and reward schedules.			describe and illustrate the nature of sound as vibration and how sound can be amplified through analogue and digital technology, for example a megaphone or a loudspeaker.				describe some of the pressures that might influence them to spend excessive amounts of time online, including peer pressure, FOMO (Fear Of Missing Out).		engage in games, sports, and other activities with complex rules and codes of conduct.
know some of the signs of internet and gaming addiction and can reflect on their own choice and use of analogue and digital media.									have a good level of fluency and literacy in an additional language and can communicate with a pen pal through a long form digital media, such as email.
know that their attention is bought by advertisers in different ways, in magazines and newspapers, advertising hoardings, on television and radio.									
know the school's regulations around phone and computer use and can explain the reasons for these.									

TEACHING STRATEGIES[2] – 12-15 years

Attention	Safety & security	Computer science	Operating technology	Writing	Audio	Video, image, sculpture	Searching	Analysing	Communication, cooperation & empathy
Ensuring that the school provides opportunities for extra-curricular, social activities, such as sports, music, and drama, plus festivals and celebrations.	Teaching pupils how to log on to a desktop computer with individual usernames and passwords.	Providing opportunities for pupils to explore "barefoot", "unplugged", or mechanical approaches to computational thinking, such as the Turing tumble, the Rube Goldberg machines, mechanical half adders.	Teaching pupils to use a word processing programme and having them use it to produce work within a range of subjects.	Providing plenty of opportunities to write across the curriculum, for example, writing up science experiments, writing articles and reports for a school or class newspaper, writing persuasive emails, writing creative poetry or prose, designing a poster for a school event.	Tasking pupils to create their own audio productions on a given topic, exploring how to communicate meaning through dialogue, make a production engaging and effective, create sound effects.	Teaching pupils a range of drawing, shading, and painting techniques and providing plenty of varied opportunities to practise.	Taking pupils on field trips and visits to different information archives, such as birth, marriage, and death records, local historical archives.	Prompting discussions of the validity of retrieved information, by posing questions such as "I don't believe that that is true", "can you prove that...", "who do you think wrote this, and why?".	Tasking pupils to create individual and group presentations of their work across the curriculum.
Ensuring that the school has a highly effective anti-bullying policy, including cyber-bullying, and a social and emotional learning curriculum.	Teaching them how to keep these details secure instead of sharing them with everyone.	Teaching pupils to use logical operators such as NOT, AND, OR, IF...THEN to create a sequence of instructions, this can be done with pencil and paper before moving to screens.	Providing pupils with a high quality "touch typing" programme and plenty of opportunity to practise their emerging skills.	Tasking pupils to write alternative texts on the same topic for different target groups.	Providing opportunities to create audio tracks for other projects, such as a class or school play.	Teaching different printing techniques and task pupils with practical projects on which to use them, for example, producing greetings cards, invitations, t-shirts.	Teaching pupils to use a number of internet search engines, discussing the pros and cons of each.	Tasking pupils to critique, for example, Wikipedia entries.	Teaching pupils structured formats for discussion, such as formal debates, Sapere (Philosophy for Children structure).
Providing plenty of opportunities for movement, not just in formal games and exercise, but also by gardening, nature walks, field trips.	Teaching pupils how to select a browser, discussing how search engine rankings can be influenced.	Teaching pupils to use a simple coding programme, for example, Scratch.	Using this as an opportunity to discuss gamification - how this can be used to make a repetitive process seem fun.	Exploring different digital platforms for organising text in different ways, for example, Padlet.		Exploring producing and binding handmade paper using traditional techniques, such as stitching and leather work.	Exploring how to refine searches using a range of techniques.	Providing plenty of opportunities for pupils to create their own content designed to influence the reader and discuss how successful this has been.	Embedding a classroom culture, based on a researched framework, for dealing with conflict, using non-violent communication, crowdturfing, restorative justice, social emotional learning programmes.
Considering regulations on school uniforms or dress codes and reflect on these with pupils.	Teaching pupils how to adjust their privacy and security settings within a browser and why this is important.	Creating a "live computer", where pupils work as a class, performing different functions, such as using logical operators, packets, to process information resulting in text or a drawing on the black/white board.	Providing opportunities to build simple machines using levers, pulleys, and gears, for example, within a Rube Goldberg machine.	Providing plenty of opportunities to explore layout, both on paper and digitally, to explore the placement of images, labels, and diagrams; how to make text readable or noticeable.		Exploring camera obscura techniques with pupils, creating pinhole cameras or projecting an image across a room.	Exploring with pupils how copyright and data laws apply to commercial content and how these laws are being broken, for example, illegal streaming, pirate sites, peer-to-peer sharing.	Tasking pupils to be "fake news detectives", explore the differences between deliberate misinformation and mistakes, how to find trusted sources of information, and how to check validity.	Tasking pupils to create netiquette guides for online and offline interactions, such as not checking your phone when in a face-to-face conversation, reading first then asking, grammar, spelling and punctuation in short text messages, use of x and emojis, trolling.
Ensuring that pupils are aware of a number of adults within the school, including teaching assistants, counsellors, pastoral care workers, etc., and how to approach them for support.	Using "barefoot" approaches to explore the impact of anonymity, for example, asking pupils to reflect on how differently they behave when anonymity is guaranteed, such as the difference between raising a hand to ask a question and an anonymous "question box".	Tasking pupils to build and programme robots that can perform a simple movement.	Teaching pupils basic concepts of electricity and providing opportunities for them to make practical objects using simple circuits, such as a doorbell, pressure sensitive alarm, or light-up greetings card.			Ensuring that pupils understand the mechanisms behind the images projected.	Exploring with pupils how their own content, uploaded to social media, websites and/or apps, might be used without permission.	Exploring the impact of algorithms and how people can create a digital echo chamber.	Exploring how digital rating systems work and can be manipulated.
Introducing teaching and learning activities with provocative questions and discussions to engage pupils' attention, such as "what would you do if...?", "I believe that...", "do you agree that I'm right?".	Exploring how people can pretend to be someone that they are not online, this can be done through "barefoot" approaches.		Providing opportunities to explore amplifying sound in different ways, by making simple megaphones and speakers.			Teaching different animation methods from simple flip books to more complex zoetropes.	Providing plenty of opportunities to interpret and record data in a wide range of ways, allowing pupils to select an appropriate method.	Providing opportunities for pupils to create and manipulate digital images and explore how to identify if an image has been manipulated.	Exploring the advantages and disadvantages of "viral" posts.
Introducing pupils to the science of attention, for example, the power of variable reward schedules.	Tasking pupils to create convincing advice leaflets that give poor or incorrect advice for non-serious problems or activities, such as writing bad recipes, going to hospital for a grazed knee, mending a broken chair.					Exploring with pupils how to plan, for example by using a storyboard, draft, refine timings.		Reflecting on ideals of beauty and how these are presented in the media and advertising.	Providing plenty of opportunities for pupils to engage in games, sports, and activities of all kinds, for example trying new activities like rock climbing or golf, and non-sport games, like dungeons and dragons.
Exploring some of the signs and symptoms of internet gaming disorder with pupils, asking them to reflect on when the use of devices becomes problematic.						Providing pupils with plenty of opportunities to engage in and develop skills in 3D crafts, preferably taught by skilled and experienced crafts people.		Providing opportunities to discuss photoshopping of images and comparing original images to published ones.	Providing sufficient teaching for pupils to develop an additional language to a good level.
Deconstructing and "pedagogising" media experiences, using media experiences as a teaching tool, including advertisements, exploring the techniques used to gain and maintain attention.								Providing plenty of opportunities for guided self-assessment and reflection and supporting pupils to create action points for further study.	Creating links with another school where pupils can have pen pals (on paper or digitally) who they write to in an additional language.
Using structures such as the school council to explore and discuss the school's regulations on mobile phones and other devices.								Introducing student-led conferences where pupils share a portfolio of their work with parents and teachers together, reflecting on their strengths and areas for development.	Organising a school exchange visit, where pupils visit and host their pen pal.
								Providing opportunities for pupils to discuss how parents should keep their teens safe and healthy, including creating a "pupil-parent charter".	
								Tasking pupils to reflect on the time they spend online or using digital tools/media and to list strategies that they can use to limit use.	

SAFETY AND WELL-BEING | PROBLEM SOLVING AND COMPUTATIONAL THINKING | (DIGITAL) MEDIA CONTENT CREATION | CRITICAL INFORMATION AND DATA LITERACY | COMMUNICATION, COOPERATION & EMPATHY

	Attention	Safety & security	Computer science	Operating technology	Writing	Audio	Video, image, sculpture	Searching	Analysing	Communication, Cooperation & Empathy
LEARNING AIMS¹ – Children are able to…	have a healthy independent social life and are able to demonstrate and discuss how they ensure their health and well-being. — have a strong sense of their own identity and can demonstrate how they have begun to build a positive online representation of themselves, considering how this might be seen and understood by others both now and in the future, for example, in job or university applications. — make positive contributions to others' online identities, avoiding negative comments. — name at least one trusted adult in school who they could talk to or go to for support. — be motivated by criticality and a sense of social justice. — have a sophisticated understanding of how attention is sought, gained, maintained, and manipulated by both analogue and digital media. — describe a range of aspects of potentially problematic media use and some of the strategies that could be used to address these. — have a critical understanding of rules, guidelines, and etiquette for mobile phone use both in school and in their wider life.	manage their privacy settings across a wide range of platforms. — assess and identify when data needs to be transferred securely and can describe a range of means by which to achieve this, such as digital encryption, secure services. — differentiate between behaviour that is ethically questionable and illegal and can describe actions they could take if they or others are targeted. — reflect on the implications and effects of artificial intelligence and the internet of things on their security and well-being.	use computational methods to design simplified models (abstractions) of real-world systems or problems; they can apply these models to understand or solve them and evaluate them, for example, improving the effectiveness of traffic flow at a junction. — demonstrate a good understanding of Boolean logic (e.g., AND, OR, IF) and the binary number system, for example, carrying out simple operations with binary numbers. — describe the hardware and software components that make up computer systems, how they communicate with one another, and how instructions are stored and executed within a system.	use a wide range of tools and machines to effect change to materials with a high degree of skill, for example woodwork, metalwork, textiles, food production. — use complex measuring and graphic representation techniques in both 2D and 3D, such as land surveying and modelling. — integrate and apply digital technologies and tools across the breadth of the curriculum with criticality and reflection, undertaking creative projects that involve selecting, using, and combining applications and devices, collecting and analysing data, and meeting the needs of the anticipated users/consumers.	create alternative texts, analogue and digital, on the same topic for different target groups. — understand and use a wide range of techniques, including journalistic writing, developing an argument, different forms of creative writing, advertising slogans and copy. — produce high quality written projects in analogue and digital formats, including portfolios of their work. — create an attractive and effective layout of work in both analogue and digital formats.	demonstrate their ability to use a range of audio recording equipment and technology. — prepare, practice, and record an oral presentation for different aims and contexts, using the recording to reflect on and improve their skills. — write, prepare, and record a range of audio projects, including sound design and music/soundtracks and then apply advanced audio editing skills on a digital platform.	demonstrate high levels of artistic and aesthetic practice in painting, drawing, and sculpture, working with a wide variety of materials and tools. — use media technology appropriately to work with photographic images, digital image creation, 3D printing. — write, prepare, and produce short films, enhancing their work in post-production. — reflect and evaluate throughout the process, adjusting their approach as needed. — design and code a simple digital game, such as "jump and run".	conduct independent research using both analogue and digital resources, catalogues, libraries, repositories, search for and organise information. — draw on and reference the work of others, demonstrating their understanding of key aspects of copyright law and plagiarism. — describe the positives and ethical challenges of the digital manipulation of images. — discuss and reflect on the pros, cons, and ethics of using AI in the production of text and images. — demonstrate a thorough understanding of critical data literacy, assessing the validity of information and the reliability of sources, verifying information, and evaluating the purpose and intent of digital content. — discuss "big data", including its definition, uses, and challenges. — carry out statistical analysis on data sets. — critically evaluate digital learning tools for their own use.	explain how and why information or disinformation intended to influence beliefs, actions, and choices might be directed at individuals. — assess how their own developing "digital personality" might affect the information presented to them from an online search or on a social media feed. — describe how to identify when online content is politically, ideologically, or commercially sponsored, for example, extremism, ideological persuasion, political agenda, educational tech giants. — describe the choices they have made to ensure their own online content is ethical, appropriate, and responsible and contributes to a positive online culture. — observe, evaluate, and reflect on their personal digital use, in terms of content, time, and attention and develop cognitive and technically supported strategies against problematic use.	communicate in an appropriate and professional way online, for example, during internships and presentations. — understand the balance between their right to freedom of expression and their legal and ethical responsibilities such as libel, slander, racism, trolling. — use their online presence and communications for positive and professional self-promotion for example, to enhance employment prospects. — describe and demonstrate how they can use the internet and social media to build positive relationships and how to contribute to positive online communities, including strategies to challenge bullying or inappropriate behaviour. — describe and reflect on the differences between online relationships and those in the real world, including romantic ones. — describe how to identify fake social contacts, such as chat bots. — critically assess the ways in which viewing sexual content can influence expectations and behaviours, reflecting on how these could damage a relationship or lead to abuse. — have a good understanding of digital anthropology: the impact of the digital world on everyday life and how digital tools, platforms, and media influence human culture, societies, and interactions.
15-18 years — TEACHING STRATEGIES²	Continuing to provide, support, and celebrate extra-curricular activities and achievements. — Providing opportunities to discuss and reflect on health and well-being. — Providing opportunities to explore online presence, reflecting on how they wish to be perceived by the wider world now and into the future, and how this can be permanently affected by their own and others' social media posts. — Supporting pupils to create a digital learner profile for job and university applications. — Ensuring that pupils develop strong relationships with a number of adults in school and that they feel confident to approach them with any issues or problems. — Introducing curriculum content through different lenses and perspectives, including discussions of power and privilege. — Exploring the science of attention with pupils in some depth and with criticality. — Asking pupils to reflect on the difference between knowledge and action, for example, how even when they know the mechanisms being used, it is still difficult to change behaviours. — Exploring internet gaming addiction, problematic social media use, and related issues, such as body image, mental health. — Providing opportunities to discuss and debate the etiquette of device use, such as age restrictions in school, use in social situations, playing sound without headphones in public places.	Providing regular teaching/updates for pupils on privacy settings, ensuring that teachers are up to date on relevant issues. — Exploring with pupils different methods of secure data transfer and supporting them to reflect on how this can be achieved. — Exploring how finances can be kept secure online, for example when online banking, using the opportunity to explore ethical banking and finances. — Exploring legal frameworks around data such as GDPR, online behaviour, copyright issues, phishing, scams. — Reflecting with pupils how to guard against these issues and what actions are possible. — Providing plenty of opportunities to discuss and debate the use and impact of AI and the internet of things, for example, by using AI to generate text for school and university work and give a critical reflection.	Providing opportunities to model, understand, and solve real life situations and problems, both individually and in small groups. — Teaching pupils key algorithms for computational thinking, such as sorting and searching. — Giving pupils a wide range of real-world opportunities, both analogue and digital, to apply Boolean logic. — Teaching the binary number system and reflecting on how it is used within computing. — Exploring computing systems with pupils, including hardware (CPU, memory, storage, input devices, output devices, motherboard), software (including system software vs. application software) and networking (including communication protocols).	Providing a wide range of opportunities for pupils to undertake practical and creative projects using different tools, machines, and materials. — Relating these projects to questions of sustainability and supporting pupils to reflect on resources, consumption, health. — Providing opportunities for pupils to learn about real-life applications of complex measuring techniques and to have practical experience of these. — Tasking pupils to use digital technologies and tools across the curriculum, particularly in independent project and portfolio work. — Exploring a range of ways of collecting and analysing data, including types and sources of data, the ethics of data collection, data storage, basic statistics, identifying trends and patterns, data analysis tools like spreadsheets. — Tasking pupils to create work for a specific purpose, user, or audience and asking them to reflect on how well this has been achieved.	Providing a wide range of opportunities and teaching for writing for different purposes and across the curriculum. — Analysing and critically reflecting on the work of others, including published work and that of peers. — Providing opportunities for writing for real life purposes, such as producing an anthology of poetry, writing letters, or creating posters for campaigning, social justice issues. — Tasking pupils to produce work in both analogue, digital, and mixed media formats. — Exploring with pupils how to combine text and images effectively, including the purpose of layout, content organisation and structure, placement and alignment, visual hierarchy, design software, accessibility, and usability.	Providing pupils with opportunities to create audio recordings within a range of projects across the curriculum, for example presentations, audio dramas, podcasts. — Exploring different audio editing platforms with pupils, teaching them how to use features and tools.	Providing a wide range of opportunities to explore and develop skills in artistic practice. — Providing opportunities to explore different materials, such as woodwork, stonemasonry, metal work. — Providing opportunities to learn about and develop photography skills with both analogue film and digital cameras. — Exploring different digital image creation and editing software and platforms. — Providing opportunities to learn how to use CAD software for different purposes, such as designing floor plans, layouts, products. — Providing opportunities to learn how to use a 3D printer. — Asking pupils to record and present their work in film, engaging in the whole process of production both individually and within a small group. — Teaching pupils how to create a basic 2D platform game, for example using Javascript and HTML.	Tasking pupils regularly with independent research tasks to support their learning. — Considering a "flipped" learning environment, where pupils are introduced to or asked to research the learning materials before the class, with classroom time being used for discussion, reflection, and problem solving. — Teaching pupils how to reference accurately and how to synthesise the work of others. — Exploring copyright laws and Creative Commons licensing. — Exploring how AI and machine learning work, within both closed and open environments. — Reflecting on the ethical and copyright implications of "scraping" the internet for material. — Providing opportunities regularly to reflect on the validity of information found online and the reliability of sources. — Providing guidance on how to identify reliable websites and other sources. — Exploring the "4 Vs" of big data (volume, velocity, variety, and veracity). — Exploring the pros and cons of using big data, for example, improving healthcare, optimising pricing strategies, driving targeted advertising, personalising social media content, optimising manufacturing, algorithmic trading. — Teaching basic statistical analysis, including probability, distribution, standard deviation, interpretation of graphs and other data, and the difference between correlation and causation. — Providing opportunities to explore and reflect on the effectiveness of digital learning tools.	Exploring with pupils how algorithms can be used to control or direct the flow of information. — Exploring how online content has been used to shape people's views, beliefs, and voting intentions. — Exploring the digital "echo chamber" and asking students to experiment with patterns of searches and clicks, reflecting on how this changes their social media feeds and search results. — Exploring examples of more and less positive online communities and cultures, how these grow and develop, and how individuals contribute to this. — Exploring different cognitive and technical strategies to limit problematic digital media use, for example, setting goals and limits, using time-tracking apps and physical reminders, scheduling offline activities, establishing "no-tech" zones and/or times, turning off notifications, setting communication boundaries.	Providing opportunities to practise professional and appropriate communication through role play, letter/email writing. — Providing feedback to support evaluation and improvement. — Exploring philosophical debates, such as the limits of freedom of speech, and teaching the legal definitions and boundaries of libel, slander, equality. — Providing opportunities to pupils to create a positive online presence and ways of promoting themselves, such as a learner profile. — Providing opportunities to discuss and reflect on online interactions and communities. — Teaching strategies for online interactions, such as report and block, non-engagement, speaking out, supporting victims, being a role model, promoting empathy. — Teaching ways of identifying bots, by recognising repetitive and fast responses, mechanical language, avoiding questions, lack of context awareness, overuse of links, generic profile information, repetitive commenting, lack of emotional understanding, spamming. — Providing clear information about types of online sexual content, including pornography, explicit images, sexualised social media posts, and sexualisation within music videos and advertising. — Discussing with pupils how pornography and other sexual content often gives an unrealistic portrayal of bodies, sex, and relationships. — Teaching pupils to critically evaluate the messages in sexual content, including who created it, for what purpose, and how it might affect their thoughts and behaviours. — Exploring the social and relational consequences of viewing online sexual content, including its impact on understandings of consent, intimacy, and gender stereotypes. — Discussing the legal and ethical implications of privacy around image sharing, such as revenge porn and sharing images of people under the age of consent. — Discussing the development of healthy sexuality, whatever the orientation. — Discussing how excessive consumption of sexual content might lead to compulsive behaviour, which might affect a person's ability to form healthy sexual relationships. — In all subjects across the curriculum, providing opportunities to explore and reflect on how the digital revolution has changed everyday life.