



Schola Europaea / Office of the Secretary-General
Pedagogical Development Unit

Ref.: 2020-09-D-51-en-2

Orig.: EN



Digital Competence Framework for the European Schools

Approved¹ by the Joint Teaching Committee – Meeting on 8 and 9 October 2020

Immediate entry into force

¹ This document was presented to the Joint Teaching Committee of 8-9 October 2020 as an annex to the document 2020-09-D-50.

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Presentation

The digital competence

Digital competence is the set of skills, knowledge and attitudes that is essential of educational pathways, professional integration and civic life in a society with a constantly changing technological environment. The ‘**Digital Education Vision for the European Schools**’² states that digital competence must be developed in every learner:

“**Every pupil and student** develops throughout his/her European School education the digital competence to foster **confident, critical, responsible** and **creative** use of, and engagement with, digital technologies for learning, at work, and for participation in society.”

The digital competence is also one of eight **key competences**, a set of cross-curricular responsibilities defined in ‘Key Competences for Lifelong Learning in the European Schools’³.

To better support the development of digital competence, the Joint Teaching Committee approved⁴ the Digital Competence Framework (DCF), here presented⁵.

The Digital Competence Framework (DCF)

The DCF is based on DigComp

The Digital Competence Framework (DCF) is based on the European Digital Competence Framework for Citizens (also known as DigComp)⁶. The main reasons are that:

- DigComp have been developed with the contribution of a large number of experts and is endorsed at European level.
- DigComp contributes to create a common language and under-standing of digital competence.
- DigComp offers interoperability with European national systems, for better recognition of the education delivered in the Europeans Schools, as well as mobility of students and teachers.

² [Digital Education Vision for the European Schools system \(DEVES\)](#), ref. 2018-12-D-7-en-4.

³ [Key Competences for Lifelong Learning in the European Schools](#), ref. 2018-09-D-69-en-1.

⁴ Joint Board of Inspectors (7 October 2020) and Joint Teaching Committee, 8-9 October 2020 (ref. 2020-09-D-50-en-1). The DCF was devised by the IT-PEDA Strategy Working Group, as mandated by the Joint Board of Inspectors (2018-10-D-13-en-1, for the proposition 2018-09-D-32-en-1).

⁵ The DCF is different to programme of study for ICT, as set out in Primary and in Secondary.

⁶ Carretero, S.; Vuorikari, R. and Punie, Y., [DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use](#), 2017, doi:10.2760/38842. DigComp offers a tool to improve anyone’s digital competence, and has become since 2013 a reference for the development and strategic planning of digital competence initiatives both at European and Member State level. DigComp 2.1 is based on the reference conceptual model published in DigComp 2.0. Many Member States have already integrated the European reference framework into their education and training policies. More information: <https://ec.europa.eu/jrc/en/digcomp>.

- DigComp is a flexible framework
- DigComp provides essential guidance and support in the definition of education and training actions to develop digital competence.

The DCF is structured in five areas



Figure 1. The areas of competence of the European reference framework DigComp 2.1

The DCF for the European Schools follows the five competence areas and the twenty-one sub-competences⁷ of DigComp⁷, but has made minor modifications to the descriptors.

The key components of digital competence are distributed in 5 areas, summarised in table 1 below.

- The competence areas 1, 2 and 3 deal with competences that can be retraced in terms of specific activities and uses.
- Competence areas 4 and 5 are “transversal” as they apply to any type of activity carried out through digital means. Problem solving elements, in particular, are present in all competence areas, but a specific area was defined to highlight the importance of this aspect for the appropriation of technology and digital practices.

⁷ To help the reader navigate, each area is represented by a colour. The competences are then distributed within each area to which they relate.

1	<p>Information and data literacy</p> <p>To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organise digital data, information and content.</p>	<p>1.1 Browsing, searching and filtering data, information and digital content</p> <p>1.2 Evaluating data, information and digital content</p> <p>1.3 Managing data, information and digital content</p>
2	<p>Communication and collaboration</p> <p>To interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship. To manage one's digital identity and reputation.</p>	<p>2.1 Interacting through digital technologies</p> <p>2.2 Sharing through digital technologies</p> <p>2.3 Engaging in citizenship through digital technologies</p> <p>2.4 Collaborating through digital technologies</p> <p>2.5 Netiquette</p> <p>2.6 Managing digital identity</p>
3	<p>Digital content creation</p> <p>To create and edit digital content. To improve and integrate information and content into an existing body of knowledge while understanding how copyright and licences are to be applied. To know how to give understandable instructions for a computer system.</p>	<p>3.1 Developing digital content</p> <p>3.2 Integrating and re-elaborating digital content</p> <p>3.3 Copyright and licences</p> <p>3.4 Programming</p>
4	<p>Safety</p> <p>To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion. To be aware of the environmental impact of digital technologies and their use.</p>	<p>4.1 Protecting devices</p> <p>4.2 Protecting personal data and privacy</p> <p>4.3 Protecting health and well-being</p> <p>4.4 Protecting the environment</p>
5	<p>Problem solving</p> <p>To identify needs and problems, and to resolve conceptual problems and problem situations in digital environments. To use digital tools to innovate processes and products. To keep up-to-date with the digital evolution.</p>	<p>5.1 Solving technical problems</p> <p>5.2 Identifying needs and technological responses</p> <p>5.3 Creatively using digital technologies</p> <p>5.4 Identifying digital competence gaps</p>

Table 1. Areas and sub-competences

The DCF is adapted to the cycles in the European Schools

To respond to the needs the European Schools, the DCF is structured using cycle progression statements, to address all learners from Nursery to Secondary. It maps the proficiency levels of Digcomp to the cycles in the European Schools. The DCF proposes, therefore, six proficiency levels⁸.

Descriptions of tasks, problems to be solved and levels of autonomy are sometimes adapted to correspond better to the educational cycles of the European Schools⁹.

Each proficiency level represents a step up in pupils and students' acquisition of the competence according to its cognitive challenge, the complexity of the tasks they can handle and their autonomy in completing the task.

Each level of mastery considers several factors simultaneously:

- the student's level of familiarity with the proposed situation (simple, current, new);
- the complexity of practices with digital tools (elementary, complex);
- the degree of autonomy (with help, alone, shared with others);
- the complexity of procedures (application, development) and goals to be achieved;
- the knowledge necessary for their implementation.

Competence Area, Competence Title and Competence Descriptor							Description of the complexity of the tasks, the problems to be solved and the levels of autonomy		
1.1							Competence area 1: Information and data literacy		
Browsing, searching, filtering data, information and digital content							To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them, to create and update personal search strategies.		
Nursery M1-M22	Primary P1-P2		P3-P4-P5		Secondary S1-S2-S3		S4-S5		S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>		<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>		<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>		<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>		<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify my information needs, • find data, information and content through a simple search in digital environments, • find how to access these data, information and content and navigate between them. • identify simple personal search strategies. 	<ul style="list-style-type: none"> • identify my information needs, • find data, information and content through a simple search in digital environments, • find how to access these data, information and content and navigate between them. • identify simple personal search strategies. 		<ul style="list-style-type: none"> • explain my information needs, • perform well-defined and routine searches to find data, information and content in digital environments, • explain how to access them and navigate between them. • explain well-defined and routine personal search strategies. 		<ul style="list-style-type: none"> • illustrate information needs, • organise the searches of data, information and content in digital environments, • describe how to access to these data, information and content, and navigate between them. • organise personal search strategies. 		<ul style="list-style-type: none"> • respond to information needs, • apply searches to obtain data, information and content in digital environments, • show how to access to these data, information and content and navigate between them. • propose personal search strategies. 		<ul style="list-style-type: none"> • assess information needs, • adapt my searching strategy to find the most appropriate data, information and content in digital environments, • explain how to access to these most appropriate data, information and content and navigate among them. • vary personal search strategies.

Each bullet point correspond to a descriptor of the competence and, at the same time, are written in terms of learning outcomes. Action verbs and keywords are in bold.

Figure 1. Explanation of how the competences are presented

⁸ The six first proficiency levels in DigComp are appropriate for a progression from nursery to secondary. The last two levels (7 and 8) are excluded, because they exceed the level of mastery expected at the end of upper secondary school.

⁹ The descriptors are defined through learning outcomes (using action verbs, following Bloom's taxonomy) and inspired by the structure and vocabulary of the European Qualification Framework (EQF).

The DCF is cross-curricular

The DCF is cross-curricular and will make it possible to better develop digital competence across cycles and subjects in the European Schools¹⁰. From kindergarten to high school, school curricula include the need to acquire and master digital skills. All lessons can mobilise digital tools and resources that contribute to the construction of these skills.

Taking digital competence into account through curricula should not be seen as a constraint, but as an incapacitating opportunity (just as much as other key competences).

The DCF embraces a holistic approach

The acquisition of digital competence is a long-term endeavour, which requires a progressive and transdisciplinary approach. This approach looks at the learner holistically and proposes several possible pathways for development, broken down into small steps that can be individualised for each learner¹¹.

The DCF helps educators understand a student's progress, his or her strengths and the next steps in his or her development.

The DCF is accompanied by task ideas

To facilitate the understanding and the implementation of the DCF, an annexe provides quick examples of possible pedagogical activities, that are becoming more complex, from nursery to upper secondary school. All educational staff can mobilise digital tools and resources that contribute to the acquisition of digital competence. The Annex presents, in a concise manner, examples of activities that help to develop digital competence in a natural and meaningful way¹².

However, while digital competence can be applied to a large variety of subjects, it should not be imposed artificially in all subjects.

Also, as teaching and learning task ideas need to reflect the growing experience and expertise in the field of digital learning, as well as new technologies, this annexe will be kept up to date on the [Pedagogical Development intranet](#).

¹⁰ E.g. social elements of digital competence such as “Netiquette” or “Engaging in citizenship through digital technologies” can be addressed in subjects like Discovery of the World/Human Sciences, European Hours/Ethics, etc.; so not all elements have to be addressed in every subject.

¹¹ A similar holistic approach is undertaken by Welsh Government, ‘[Digital Competence - Framework guidance](#)’, Education Wales, 2018.

¹² These pedagogical ideas are, in part, inspired by:

- Ministère de l'Éducation Nationale, [Document d'accompagnement - Mise en œuvre du Cadre de Référence des Compétences Numériques \(CRCN\)](#), [2019] 2020. See also [Cadre de référence des compétences numériques](#).
- Welsh Ministry of Education, [Digital Competence Framework](#) (2018).

The Digital Competence Framework: areas, sub-competences and descriptors

Competence area 1: Information and data literacy

1.1 Browsing, searching, filtering data, information and digital content

To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify my information needs, • find data, information and content through a simple search in digital environments, • find how to access these data, information and content and navigate between them. • identify simple personal search strategies. 	<ul style="list-style-type: none"> • identify my information needs, • find data, information and content through a simple search in digital environments, • find how to access these data, information and content and navigate between them. • identify simple personal search strategies. 	<ul style="list-style-type: none"> • explain my information needs, • perform well-defined and routine searches to find data, information and content in digital environments, • explain how to access them and navigate between them. • explain well-defined and routine personal search strategies. 	<ul style="list-style-type: none"> • illustrate information needs, • organise the searches of data, information and content in digital environments, • describe how to access to these data, information and content, and navigate between them. • organise personal search strategies. 	<ul style="list-style-type: none"> • respond to information needs, • apply searches to obtain data, information and content in digital environments, • show how to access to these data, information and content and navigate between them. • propose personal search strategies. 	<ul style="list-style-type: none"> • assess information needs, • adapt my searching strategy to find the most appropriate data, information and content in digital environments, • explain how to access to these most appropriate data, information and content and navigate among them. • vary personal search strategies.

Competence area 1: Information and data literacy

1.2 Evaluating data, information and digital content

To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • differentiate between the real and the imaginary in digital content. 	<ul style="list-style-type: none"> • differentiate between the real and the imaginary in digital content, • detect the credibility and reliability of common sources of data, information and their digital content. 	<ul style="list-style-type: none"> • perform the analysis, comparison and evaluation of the credibility and reliability of well-defined sources of data, information and digital content. • perform the analysis, interpretation and evaluation of well-defined data, information and digital content. 	<ul style="list-style-type: none"> • perform the analysis, comparison and evaluation of sources of data, information and digital content. • perform the analysis, interpretation and evaluation of data, information and digital content. 	<ul style="list-style-type: none"> • carry out an evaluation of the credibility and reliability of different sources of data, information and digital content. • carry out an evaluation of different data, information and digital content. 	<ul style="list-style-type: none"> • critically assess the credibility and reliability of sources of data, information and digital content. • critically assess data, information and digital content.

Competence area 1: Information and data literacy

1.3 Managing data, information and digital content

To organise, store and retrieve data, information, and content in digital environments. To organise and process them in a structured environment.

Early education (Nursery)	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • navigate through a digital interface using internal menu to find desired item, on various devices • identify how to retrieve data, information and content in a simple way in digital environments. 	<ul style="list-style-type: none"> • identify how to organise, store and retrieve data, information and content in a simple way in digital environments. • recognise where to organise them in a simple way in a structured environment. 	<ul style="list-style-type: none"> • select data, information and content in order to organise, store and retrieve in a routine way in digital environments. • organise them in a routine way in a structured environment. 	<ul style="list-style-type: none"> • organise information, data and content to be easily stored and retrieved. • organise information, data and content in a structured environment. 	<ul style="list-style-type: none"> • manipulate information, data and content for their easier organisation, storage and retrieval. • carry out their organisation and processing in a structured environment. 	<ul style="list-style-type: none"> • adapt the management of information, data and content for the most appropriate easy retrieval and storage. • adapt them to be organised and processed in the most appropriate structured environment.

Competence area 2: Communication and collaboration

2.1 Interacting through digital technologies

To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • select simple digital technologies to interact, and • identify appropriate simple communication means for a given context. 	<ul style="list-style-type: none"> • select simple digital technologies to interact, and • identify appropriate simple communication means for a given context. 	<ul style="list-style-type: none"> • perform well-defined and routine interactions with digital technologies, and • select well-defined and routine appropriate digital communication means for a given context. 	<ul style="list-style-type: none"> • select a variety of digital technologies to interact, and • select a variety of appropriate digital communication means for a given context. 	<ul style="list-style-type: none"> • use a variety of digital technologies in order to interact, • show others the most appropriate digital communication means for a given context. 	<ul style="list-style-type: none"> • adapt a variety of digital technologies for the most appropriate interaction, and • adapt the most appropriate communication means for a given context.

Competence area 2: Communication and collaboration

2.2 Sharing through digital technologies

To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.

Early education (Nursery)	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • recognise simple appropriate digital technologies to share data, information and digital content. • identify simple referencing and attribution practices. 	<ul style="list-style-type: none"> • recognise simple appropriate digital technologies to share data, information and digital content. • identify simple referencing and attribution practices. 	<ul style="list-style-type: none"> • select well-defined and routine appropriate digital technologies to share data, information and digital content. • explain how to act as an intermediary for sharing information and content through well-defined and routine digital technologies, • illustrate well-defined and routine referencing and attribution practices. 	<ul style="list-style-type: none"> • manipulate appropriate digital technologies to share data, information and digital content. • explain how to act as an intermediary for sharing information and content through digital technologies, • illustrate referencing and attribution practices. 	<ul style="list-style-type: none"> • share data, information and digital content through a variety of appropriate digital tools, • show others how to act as an intermediary for sharing information and content through digital technologies. • apply a variety of referencing and attribution practices. 	<ul style="list-style-type: none"> • assess the most appropriate digital technologies to share information and content. • adapt my intermediation role, • vary the use of the more appropriate referencing and attribution practices.

Competence area 2: Communication and collaboration

2.3 Engaging in citizenship through digital technologies

To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.

Early education (Nursery)	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify simple digital services in order to participate in society. • recognise simple appropriate digital technologies to empower myself and to participate in society as a citizen. 	<ul style="list-style-type: none"> • identify simple digital services in order to participate in society. • recognise simple appropriate digital technologies to empower myself and to participate in society as a citizen. 	<ul style="list-style-type: none"> • select well-defined and routine digital services in order to participate in society. • indicate well-defined and routine appropriate digital technologies to empower myself and to participate in society as a citizen. 	<ul style="list-style-type: none"> • select digital services in order to participate in society. • discuss appropriate digital technologies to empower myself and to participate in society as a citizen. 	<ul style="list-style-type: none"> • propose different digital services to participate in society. • use appropriate digital technologies to empower myself and to participate in society as a citizen. 	<ul style="list-style-type: none"> • vary the use of the most appropriate digital services in order to participate in society. • vary the use of the most appropriate digital technologies to empower myself and to participate in society as a citizen.

Competence area 2: Communication and collaboration

2.4 Collaborating through digital technologies

To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of data, resources and knowledge.

Early education (Nursery)	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> choose simple digital tools and technologies for collaborative processes. 	<ul style="list-style-type: none"> choose simple digital tools and technologies for collaborative processes. 	<ul style="list-style-type: none"> select well-defined and routine digital tools and technologies for collaborative processes. 	<ul style="list-style-type: none"> select digital tools and technologies for collaborative processes. 	<ul style="list-style-type: none"> propose different digital tools and technologies for collaborative processes. 	<ul style="list-style-type: none"> vary the use of the most appropriate digital tools and technologies for collaborative processes. choose the most appropriate digital tools and technologies for co-constructing and co-creating data, resources and knowledge.

Competence area 2: Communication and collaboration

2.5 Netiquette

To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.

Early education (Nursery)	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> differentiate simple behavioural norms and know-how while using digital technologies and interacting in digital environments. choose simple communication modes and strategies adapted to an audience. 	<ul style="list-style-type: none"> differentiate simple behavioural norms and know-how while using digital technologies and interacting in digital environments. choose simple communication modes and strategies adapted to an audience and differentiate simple cultural and generational diversity aspects to consider in digital environments. 	<ul style="list-style-type: none"> clarify well-defined and routine behavioural norms and know-how while using digital technologies and interacting in digital environments. express well-defined and routine communication strategies adapted to an audience, and describe well-defined and routine cultural and generational diversity aspects to consider in digital environments. 	<ul style="list-style-type: none"> discuss behavioural norms and know-how while using digital technologies and interacting in digital environments. discuss communication strategies adapted to an audience, and discuss cultural and generational diversity aspects to consider in digital environments. 	<ul style="list-style-type: none"> apply different behavioural norms and know-how while using digital technologies and interacting in digital environments. apply different communication strategies in digital environments adapted to an audience, and apply different cultural and generational diversity aspects to consider in digital environments. 	<ul style="list-style-type: none"> adapt the most appropriate behavioural norms and know-how while using digital technologies and interacting in digital environments. adapt the most appropriate communication strategies in digital environments to an audience, and apply different cultural and generational diversity aspects in digital environments.

Competence area 2: Communication and collaboration

2.6 Managing digital identity

To create, and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify a digital identity, • recognise simple data I produce through digital tools, environments or services. 	<ul style="list-style-type: none"> • identify a digital identity, • describe simple ways to protect my reputation online, • recognise simple data I produce through digital tools, environments or services. 	<ul style="list-style-type: none"> • discriminate a range of well-defined and routine digital identities, • explain well-defined and routine ways to protect my reputation online, • describe well-defined data I routinely produce through digital tools, environments or services. 	<ul style="list-style-type: none"> • display a variety of specific digital identities, • discuss specific ways to protect my reputation online, • manipulate data I produce through digital tools, environments or services. 	<ul style="list-style-type: none"> • use a variety of digital identities, • apply different ways to protect my reputation online, • use data I produce through several digital tools, environment and services. 	<ul style="list-style-type: none"> • discriminate multiple digital identities, • explain the more appropriate ways to protect one's own reputation, • change the data produced through several tools, environments and services.

Competence area 3: Digital content creation

3.1 Developing digital content

To create and edit digital content in different formats, to express oneself through digital means.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify ways to create and edit simple content in simple formats, • choose how I express myself through the creation of simple digital means. 	<ul style="list-style-type: none"> • identify ways to create and edit simple content in simple formats, • choose how I express myself through the creation of simple digital means. 	<ul style="list-style-type: none"> • indicate ways to create and edit well-defined and routine content in well-defined and routine formats, • express myself through the creation of well-defined and routine digital means. 	<ul style="list-style-type: none"> • indicate ways to create and edit content in different formats, • express myself through the creation of digital means. 	<ul style="list-style-type: none"> • apply ways to create and edit content in different formats, • show ways to express myself through the creation of digital means. 	<ul style="list-style-type: none"> • change content using the most appropriate formats, • adapt the expression of myself through the creation of the most appropriate digital means.

Competence area 3: Digital content creation

3.2 Integrating and re-elaborating digital content

To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> select ways to modify, refine, improve and integrate simple items of new content and information to create new and original ones. 	<ul style="list-style-type: none"> select ways to modify, refine, improve and integrate simple items of new content and information to create new and original ones. 	<ul style="list-style-type: none"> explain ways to modify, refine, improve and integrate well-defined items of new content and information to create new and original ones. 	<ul style="list-style-type: none"> discuss ways to modify, refine, improve and integrate new content and information to create new and original ones. 	<ul style="list-style-type: none"> operate with new different items of content and information, modifying, refining, improving and integrating them in order to create new and original ones. 	<ul style="list-style-type: none"> assess the most appropriate ways to modify, refine, improve and integrate specific new items of content and information to create new and original ones.

Competence area 3: Digital content creation

3.3 Copyright and licences

To understand how copyright and licenses apply to data, digital information and content.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify some work that belongs to others, • find the name of the author on digital work, and thus • identify simple rules of copyright and licenses that apply to data, digital information and content. 	<ul style="list-style-type: none"> • identify some work that belongs to others, • find the name of the author on digital work, and thus • identify simple rules of copyright and licenses that apply to data, digital information and content. 	<ul style="list-style-type: none"> • indicate well-defined and routine rules of copyright and licenses that apply to data, digital information and content. 	<ul style="list-style-type: none"> • discuss rules of copyright and licenses that apply to digital information and content. 	<ul style="list-style-type: none"> • apply different rules of copyright and licenses that apply to data, digital information and content. 	<ul style="list-style-type: none"> • choose the most appropriate rules that apply copyright and licences to data, digital information and content.

Competence area 3: Digital content creation

3.4 Programming

To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> list simple instructions for a computing system to solve a simple problem or perform a simple task. 	<ul style="list-style-type: none"> list simple instructions for a computing system to solve a simple problem or perform a simple task. 	<ul style="list-style-type: none"> list well-defined and routine instructions for a computing system to solve routine problems or perform routine tasks. 	<ul style="list-style-type: none"> list instructions for a computing system to solve a given problem or perform a specific task. 	<ul style="list-style-type: none"> operate with instructions for a computing system to solve a different problem or perform different tasks. 	<ul style="list-style-type: none"> determine the most appropriate instructions for a computing system to solve a given problem and perform specific tasks.

Competence area 4: Safety

4.1 Protecting devices

To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have a due regard to reliability and privacy.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify simple ways to protect my devices and digital content, and • choose simple safety and security measures 	<ul style="list-style-type: none"> • identify simple ways to protect my devices and digital content, and • choose simple safety and security measures 	<ul style="list-style-type: none"> • indicate well-defined and routine ways to protect my devices and digital content, and • differentiate well-defined and routine risks and threats in digital environments, • select well-defined and routine safety and security measures. • indicate well-defined and routine ways to have due regard to reliability and privacy 	<ul style="list-style-type: none"> • organise ways to protect my devices and digital content, and • differentiate risks and threats in digital environments, • select safety and security measures, • explain ways to have due regard to reliability and privacy 	<ul style="list-style-type: none"> • apply different ways to protect devices and digital content, and • differentiate a variety of risks and threats in digital environments, • apply safety and security measures, • employ different ways to have due regard to reliability and privacy 	<ul style="list-style-type: none"> • choose the most appropriate protection for devices and digital content, and • discriminate risks and threats in digital environments, • choose the most appropriate safety and security measures. • assess the most appropriate ways to have due regard to reliability and privacy

Competence area 4: Safety

4.2 Protecting personal data and privacy

To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a “Privacy policy” to inform how personal data is used.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • select simple ways to protect my personal data and privacy in digital environments, and • identify simple ways to use and share personally identifiable information while protecting myself and others from damages. 	<ul style="list-style-type: none"> • select simple ways to protect my personal data and privacy in digital environments, and • identify simple ways to use and share personally identifiable information while protecting myself and others from damages. 	<ul style="list-style-type: none"> • explain well-defined and routine ways to protect my personal data and privacy in digital environments, and • explain well-defined and routine ways to use and share personally identifiable information while protecting myself and others from damages. • indicate well-defined and routine privacy policy statements of how personal data is used in digital services. 	<ul style="list-style-type: none"> • discuss ways to protect my personal data and privacy in digital environments, and • discuss ways to use and share personally identifiable information while protecting myself and others from damages, • indicate privacy policy statements of how personal data is used in digital services. 	<ul style="list-style-type: none"> • apply different ways to protect my personal data and privacy in digital environments, and • apply different specific ways to share my data while protecting myself and others from dangers. • explain privacy policy statements of how personal data is used in digital services. 	<ul style="list-style-type: none"> • choose the more appropriate ways to protect personal data and privacy in digital environments, and • evaluate the most appropriate ways of using and sharing personally identifiable information while protecting myself and others from damages. • evaluate the appropriateness of privacy policy statements on how personal data are used.

Competence area 4: Safety

4.3 Protecting health and well-being

To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> differentiate simple ways to avoid health-risks and threats to physical and psychological well-being while using digital technologies. select simple ways to protect myself from possible dangers in digital environments, and identify simple digital technologies for social well-being and social inclusion. 	<ul style="list-style-type: none"> differentiate simple ways to avoid health -risks and threats to physical and psychological well-being while using digital technologies. select simple ways to protect myself from possible dangers in digital environments. identify simple digital technologies for social well-being and social inclusion. 	<ul style="list-style-type: none"> explain well-defined and routine ways to how to avoid health-risks and threats to physical and psychological well-being while using digital technologies. select well-defined and routine ways to protect myself from dangers in digital environments. indicate well-defined and routine digital technologies for social well-being and social inclusion. 	<ul style="list-style-type: none"> explain ways to how to avoid threats to my physical and psychological health related with the use of technology. select ways to protect self and others from dangers in digital environments. discuss on digital technologies for social well-being and inclusion. 	<ul style="list-style-type: none"> show different ways to avoid health-risks and threats to physical and psychological well-being while using digital technologies. apply different ways to protect myself and others from dangers in digital environments. show different digital technologies for social well-being and social inclusion. 	<ul style="list-style-type: none"> discriminate the most appropriate ways to avoid health -risks and threats to physical and psychological well-being while using digital technologies, adapt the most appropriate ways to protect myself and others from dangers in digital environments. vary the use of digital technologies for social well-being and social inclusion.

Competence area 4: Safety

4.4 Protecting the environment

To be aware of the environmental impact of digital technologies and their use.

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> recognise simple environmental impacts of digital technologies and their use. 	<ul style="list-style-type: none"> recognise simple environmental impacts of digital technologies and their use. 	<ul style="list-style-type: none"> indicate well-defined and routine environmental impacts of digital technologies and their use. 	<ul style="list-style-type: none"> discuss ways to protect the environment from the impact of digital technologies and their use. 	<ul style="list-style-type: none"> show different ways to protect the environment from the impact of digital technologies and their use. 	<ul style="list-style-type: none"> choose the most appropriate solutions to protect the environment from the impact of digital technologies and their use.

Competence area 5: Problem solving

5.1 Solving technical problems

To identify technical problems when operating devices and using digital environments, and to solve them (from troubleshooting to solving more complex problems).

Nursery	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify simple technical problems when operating devices and using digital environments, and • identify simple solutions to solve them. 	<ul style="list-style-type: none"> • identify simple technical problems when operating devices and using digital environments, and • identify simple solutions to solve them. 	<ul style="list-style-type: none"> • indicate well-defined and routine technical problems when operating devices and using digital environments, and • select well-defined and routine solutions to them. 	<ul style="list-style-type: none"> • differentiate technical problems when operating devices and using digital environments, and • select solutions to them. 	<ul style="list-style-type: none"> • assess technical problems when using digital environments and operating digital devices, and • apply different solutions to them. 	<ul style="list-style-type: none"> • Appraise technical problems when operating devices and using digital environments, and • resolve them with the most appropriate solutions

Competence area 5: Problem solving

5.2 Identifying needs and technological responses

To assess needs and to identify, evaluate, select and use digital tools and possible technological responses solve them. To adjust and customise digital environments to personal needs (e.g. accessibility).

Early education (Nursery)	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify digital needs, and • recognise simple digital tools and possible technological responses to solve those needs. • choose simple ways to adjust and customise digital environments to personal needs. 	<ul style="list-style-type: none"> • identify digital needs, and • recognise simple digital tools and possible technological responses to solve those needs. • choose simple ways to adjust and customise digital environments to personal needs. 	<ul style="list-style-type: none"> • indicate well-defined and routine digital needs, and • select well-define and routine digital tools and possible technological responses to solve those needs. • select well-defined and routine ways to adjust and customise digital environments to personal needs. 	<ul style="list-style-type: none"> • explain digital needs, and • select digital tools and possible technological responses to solve those needs. • select ways to adjust and customise digital environments to personal needs. 	<ul style="list-style-type: none"> • assess digital needs, • apply different digital tools and possible technological responses to solve those needs. • use different ways to adjust and customise digital environments to personal needs. 	<ul style="list-style-type: none"> • assess digital needs, • choose the most appropriate digital tools and possible technological responses to solve those needs. • decide the most appropriate ways to adjust and customise digital environments to personal needs

Competence area 5: Problem solving

5.3 Creatively using digital technologies

To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.

Early education (Nursery)	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • identify simple digital tools and technologies that can create knowledge, • show interest in simple cognitive processing to understand and resolve simple conceptual problems and problem situations in digital environments. 	<ul style="list-style-type: none"> • identify simple digital tools and technologies that can create knowledge, • follow simple cognitive processing to understand and resolve simple conceptual problems and problem situations in digital environments. 	<ul style="list-style-type: none"> • select digital tools and technologies to create well-defined knowledge and for well-defined innovate processes and products. • engage in some cognitive processing to understand and resolve well-defined and routine conceptual problems and problem situations in digital environments. 	<ul style="list-style-type: none"> • differentiate digital tools and technologies to create knowledge and for innovate processes and products. • engage in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments. 	<ul style="list-style-type: none"> • apply different digital tools and technologies to create knowledge and innovative processes and products. • apply cognitive processing to resolve different conceptual problems and problem situations in digital environments. 	<ul style="list-style-type: none"> • adapt knowledge and processes and products using the most appropriate digital tools and technologies. • resolve conceptual problems and problem situations in digital environments by engaging in cognitive processing.

Competence area 5: Problem solving

5.4 Identifying digital competence gaps

To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.

Early education (Nursery)	Primary		Secondary		
M1-M2	P1-P2	P3-P4-P5	S1-S2-S3	S4-S5	S6-S7
<i>At basic level, with appropriate guidance or help, and increasing autonomy (by myself or by asking someone), I can:</i>	<i>At basic level, with appropriate guidance or help, and increasing autonomy, I can:</i>	<i>On my own, with increasing autonomy, and solving straightforward problems, I can:</i>	<i>With autonomy, according to my own needs, and solving well-defined and non-routine problems, I can:</i>	<i>With autonomy, according to my own needs, as well as guiding others, and solving more complex problems, I can:</i>	<i>At advanced level, according to my own needs and those of others, and in complex contexts, I can:</i>
<ul style="list-style-type: none"> • recognise where my own digital competence needs to be improved or updated. • identify where to seek opportunities for self-developments and to keep up to date with the digital evolution. 	<ul style="list-style-type: none"> • recognise where my own digital competence needs to be improved or updated, • identify where to seek opportunities for self-developments and to keep up to date with the digital evolution. 	<ul style="list-style-type: none"> • explain where my digital competence needs to be improved or updated, • indicate where to seek well-defined opportunities for self-developments and to keep up to date with the digital evolution. 	<ul style="list-style-type: none"> • discuss on where my digital competence needs to be improved or updated, • indicate how to support others to develop their digital competence. • indicate where to seek opportunities for self-developments and to keep up to date with the digital evolution. 	<ul style="list-style-type: none"> • demonstrate where my own digital competence needs to be improved or updated, • illustrate different ways to support others in the development of their digital competence. • propose different opportunities found for self-development and to keep up to date with the digital evolution. 	<ul style="list-style-type: none"> • decide which are the most appropriate ways to improve or update one's own digital competence needs, • assess the development of others' digital competence. • choose the most appropriate opportunities for self-development and to keep up to date with new developments.

Annex – Task ideas in Nursery, Primary and Secondary

The ideas for activities presented here are basic proposals for initiating pedagogical reflection. Some activities can of course be adapted to different levels. This appendix is also accessible on the [Intranet of the Pedagogical Development Unit](#).

Competence area 1: Information and data literacy

1.1 Browsing, searching, filtering data, information and digital content

To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• Online scavenger hunt: give pupils a set of simple pictures, and let them select the keywords to find similar images (through vocal dictation or by dictation to the teacher).• Formulate a request to use in a search engine (entered by voice dictation or by the teacher).• Try different keywords and see which ones give the best results.• Search image: navigate through the results of an image query, and choose the appropriate image according to the needs.• Find and access applications on a device (computer, tablet).
P1-P2	<ul style="list-style-type: none">• Online scavenger hunt: give pupils a set of simple words, and let them type those words to find the matching pictures (using a general search engine).• Visit regularly online newspapers and magazines for kids, and follow specific themes with keywords.
P3-4-5	<ul style="list-style-type: none">• Online scavenger hunt: give pupils a set of search tasks to perform (e.g. find 3 European flags), by using a general search engine or a specialised site.• Get familiar with the most used online resources, such as Wikipedia.• Search a site using the internal search engine.• Compare and rank results obtained with different keywords provided to students.
S1-S2-S3	<ul style="list-style-type: none">• Online scavenger hunt: give students a set of search tasks to perform (e.g. find the meaning of the EU flag and its date of birth).• Using the web for Scientific information.

Competence area 1: Information and data literacy

1.1 Browsing, searching, filtering data, information and digital content

To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.

Teaching and learning activities

S4-S5

- Online scavenger hunt: give students a complex task to perform (e.g. find the 3 most populated countries in the EU; check if they were the same 10 years ago and 20 years ago).
- Get students to use the advanced options in a search engine (e.g., date, language, country...).

S6-S7

- Online scavenger hunt: give student a complex task to perform (e.g. find the mortality rate in Sweden, Spain and Greece in late Antiquity, Renaissance and Mid-20th century).
- Organise the compilation of a common sitography (references to websites):
 - 1) pooling of work based on individual research of sources;
 - 2) identification of sources in order to cite them in a summary document;
 - 3) creation of an alert on a site, a social network or use of a dynamic information flow application ([RSS feeds](#), etc.).

Competence area 1: Information and data literacy

1.2 Evaluating data, information and digital content

To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• In the frame of a search need, present different information sources and ask the pupils which one they would trust the most (e.g. searching for information on African animals: a website on “animals” cartoon characters, a zoo website, an animal protection organisation website)
P1-P2	<ul style="list-style-type: none">• In the frame of a search need, make the pupils reflect on different information sources and ask them which one they would trust the most (e.g. searching for an image corresponding to the keyword “king”, identify one fictional image and one factual image).• Publish something with the students to make them realise that everyone can publish anything on the internet. Create “fake” information with them.• With the help of the teacher, reformulate the query by modifying the keywords to obtain better results.
P3-4-5	<ul style="list-style-type: none">• Running a search on the same subject, compare two or three results from different sources (a public organisation, a collaborative encyclopaedia, a personal page, etc.).• In the frame of a search need, make the pupils reflect on different information sources and ask them which one they would trust the most (e.g. content is written by different types of users: amateurs, professionals, children for classwork published online).• Reformulate the query by modifying the keywords to obtain better results.
S1-S2-S3	<ul style="list-style-type: none">• In the frame of a search need, make the students compare the presentation of the same fact or data (e.g. monarchy in Europe) between different sources (political blog, academic site...).• Have the students survey with an online form, and export the result in a spreadsheet.

Competence area 1: Information and data literacy

1.2 Evaluating data, information and digital content

To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content.

Teaching and learning activities

S4-S5

- In the frame of a search need, make the students compare the presentation of the same fact or data between different sources, then make them justify which one they would select as the most reliable.
- Get students to analyse sources (reliability or obsolescence of the source, relevance of the information, etc.).
- Have the students survey with an online form and analyse the data in a spreadsheet.
- Have the student produce graphical representations of data in a spreadsheet.
- Activities with a spreadsheet (preparation of a provisional budget, kinetic monitoring of a chemical transformation, etc.).

S6-S7

- In the frame of a search need, about a controversial topic, make the students assess the content of different sources, then make them formulate a synthesis based on the most reliable elements from each source.
- Reflect on the domain names in connection with the content of websites (e.g. gov, edu, com, eu...).
- Use of a geographic information system (OpenStreetMap and uMap) : import and visualise data.

Competence area 1: Information and data literacy

1.3 Managing data, information and digital content

To organise, store and retrieve data, information, and content in digital environments. To organise and process them in a structured environment.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">Using a simple interface on a tactile device, make the pupils save their work by clicking on the proper icon, then show them how to retrieve that saved work
P1-P2	<ul style="list-style-type: none">Using a simple interface on a tactile device, make the pupils save their work by clicking on the proper icon and by using a familiar word to name it and retrieve it; then ask them to retrieve that saved work.
P3-4-5	<ul style="list-style-type: none">Using a variety of interfaces and devices, make the pupils save and name their work, store it in appropriate folder/library and retrieve it (by exploring the file directory and/or using a search engine).Finding, using and then saving the documents provided by the teacher in a class folder.
S1-S2-S3	<ul style="list-style-type: none">Using a variety of interfaces and devices, make the students save and name their work, and navigate through an existing digital organisation (folders and subfolder) to store it and retrieve it.Be able to do it on cloud-based storage.
S4-S5	<ul style="list-style-type: none">Using a variety of interfaces and devices, make the students save and name their work, and create an appropriate digital organisation to store it and retrieve it (e.g. folders and subfolders).Be able to do it on cloud-based storage.Create a shared folder or document for online collaborative work.Compress a file to be able to transmit it.

Competence area 1: Information and data literacy

1.3 Managing data, information and digital content

To organise, store and retrieve data, information, and content in digital environments. To organise and process them in a structured environment.

Teaching and learning activities

S6-S7

- Using a variety of interfaces and devices, make the students search and display the content of a folder/library and make them create a digital organisation by using filters and tags (metadata).
- Be able to do it on cloud-based storage.
- Save or export a file, choosing the appropriate format, depending on the situation and potential users (e.g., local or remote storage space depending on file size and network properties; audio or video format suitable for universal listening).
- Setting filtering and notification rules in webmail.
- Propagation of a formula using relative or absolute references in a spreadsheet.

Competence area 2: Communication and collaboration

2.1 Interacting through digital technologies

To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• If the pupils need to ask a question to a specific person outside the classroom (for a project or even practical information regarding daily life), have them reflect on the best mean to obtain their answer (e.g. dictate e-mail, video or audio call...).• Contribute to a group communication, e.g. for a class blog (choose visuals, record voice narration...).• Dictate message or invitation for a class event.• Send a vocal or video message to someone.• Digital portfolio.• Instant messaging or videoconferencing communication.
P1-P2	<ul style="list-style-type: none">• If the pupils need to ask a question to a specific person outside the classroom (for a project or even practical information regarding daily life), have them reflect on the best mean to obtain their answer (e.g. dictate or write e-mail, video or audio call...).• Write a simple message to someone• Respond to a simple message to someone.• Contribute to a story, by choosing visual and recording voice narration• Instant messaging or videoconferencing communication.
P3-4-5	<ul style="list-style-type: none">• If the pupils need a specific element from a person outside the classroom (answer to a question, picture, document...), make them select the best way to interact given the nature of the element and perform the interaction with help if needed.• Write simple messages and respond using (in a secure online communication service provided by the School).• Contribute to a story, by choosing visual and recording voice narration.• Write simple messages and chose visual illustrations, that the teacher will send on a social network (under a class account). Respond to comments in the same manner.

Competence area 2: Communication and collaboration

2.1 Interacting through digital technologies

To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.

Teaching and learning activities

	<ul style="list-style-type: none">• Adopting a course of action in the event of access to inappropriate or offensive content from the viewing of a video clip.• Drawing up a charter with the pupils on the proper use of the Internet and social networks in the class (in compliance with the school's ICT Charter).
S1-S2-S3	<ul style="list-style-type: none">• Write a post for the class blog using a word processor and taking a picture (after approval, the teacher will publish the content). Write and respond to comments (moderated by the teacher).
S4-S5	<ul style="list-style-type: none">• Write a post for the class blog using a word processor and taking a picture (after approval, the teacher will publish the content). Write and respond to comments (moderated by the teacher).• Write and send e-mails in a foreign language to learners from other schools.• Use of a forum for delegate elections.• Use of a videoconferencing service (with a partner from another schools).
S6-S7	<ul style="list-style-type: none">• Write a post for the class blog using a word processor and taking a picture (after approval, the teacher will publish the content). Write and respond to comments (moderated by the teacher).• Write and send e-mails in a foreign language to learners from other schools.• Moderation of a forum in the context of delegate elections.

Competence area 2: Communication and collaboration

2.2 Sharing through digital technologies

To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• To share content with the parents, make the pupils reflect on the appropriate digital technology according to the nature of the content (e.g. a picture of a painting, recorded comment on a picture...).• When sharing content, make the pupils reflect on how to ensure that people will know who the work belongs to (e.g. add their name to the work).• Contribution to an online museum, classroom or school mini-gallery (e.g. pupils' artefacts).
P1-P2	<ul style="list-style-type: none">• In doing so, add their name to digital work• identify some work that belongs to others, e.g. find a photograph/picture created by a familiar peer/adult• Work with another group on a piece of digital work (story, blog, presentation...)• Record comments on personal work for a digital portfolio or self-assessment videos
P3-4-5	<ul style="list-style-type: none">• Online and multimedia promotion of a class project, of the results of an experiment, of the organisation of an event.• Publication in a class blog (class life, thematic blog, project report) respecting the copyright rules for the publication of the produced resources (e.g. mention the proper references)
S1-S2-S3	<ul style="list-style-type: none">• Have the student apply the proper setting when sharing a document (access and edition permissions).• Promotion on a social network of a class project, of the results of an experiment, of the organisation of an event.

Competence area 2: Communication and collaboration

2.2 Sharing through digital technologies

To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.

Teaching and learning activities

S4-S5

- Ask the student to choose different media (collaborative platform, blog, online whiteboard, slide show...) to share specific documents or publish work online.
- Have the student apply the proper setting when sharing a document (access and edition permissions).
- Have the students use relevant hyperlinks and account for the appropriate file management technique, e.g. some file storage systems will utilise dynamic hyperlinks so that if a file location is changed, the link remains intact, whereas changing file location in other systems could result in a broken hyperlink.

S6-S7

- Use of different language conventions depending on the context of communication. Have the student produce a different version of the same message, to suit different contexts.

Competence area 2: Communication and collaboration

2.3 Engaging in citizenship through digital technologies

To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none"> In the context of a school citizenship project (e.g. charity or environmental protection event), have the pupils reflect on the best use of technology to prepare, inform and promote the project (e.g. video or audio clip, presentation slideshow...).
P1-P2	<ul style="list-style-type: none"> In the context of a school citizenship project (e.g. charity or environmental protection event), have the pupils reflect on the best use of technology to prepare, inform and promote the project (e.g. video or audio clip, presentation slideshow...).
P3-4-5	<ul style="list-style-type: none"> In the context of a school citizenship project (e.g. charity or environmental protection event), have the pupils reflect on the best use of technology to prepare, inform and promote the project (e.g. video or audio clip, presentation slideshow...). Reflect on the relevant hashtags that could be used to discuss a social, economic or environmental issue.
S1-S2-S3	<ul style="list-style-type: none"> Have the student create online flyers for a project or a campaign. Have students organise online polls and votes, or other crowdsourcing activities. Reflect on the relevant hashtags that could be used to discuss a social, economic or environmental issue.
S4-S5	<ul style="list-style-type: none"> Production of information and prevention videos (personal rights, digital identity, cyber- bullying...). Identify, in a significant social network, reliable accounts/sources on a social, economic or environmental issue. Identify, in a significant social network, relevant hashtags related to a social, economic or environmental issue.
S6-S7	<ul style="list-style-type: none"> Have students conduct online debates within and between schools (in teacher-created forums). Ask students to act as moderators.

Competence area 2: Communication and collaboration

2.4 Collaborating through digital technologies

To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of data, resources and knowledge.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• When creating a story collaboratively, have the pupils work in groups on specific tasks (e.g. create the story, illustrate, take picture, record narration...).
P1-P2	<ul style="list-style-type: none">• Multi-hand-written production using an online collaborative document service.
P3-4-5	<ul style="list-style-type: none">• Production of an article on a collaborative encyclopaedia for children.
S1-S2-S3	<ul style="list-style-type: none">• Production or modification of an article on a collaborative encyclopaedia.• Using online project tracking tools for task lists, mind maps or collaborative publishing.• Have the students use the comment feature on an online application, e.g. on word editor.
S4-S5	<ul style="list-style-type: none">• Mutualisation in a collaborative space (collaboration platform, digital notebook, online whiteboard...) of resources found on the Internet.• Using track changes and working in revision mode.
S6-S7	<ul style="list-style-type: none">• With the students, explore and choose the collaborative tools to be used to carry out a project.• With students, explore the planning of a project with digital tools (shared diary, task planning, mind map...).

Competence area 2: Communication and collaboration

2.5 Netiquette

To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• Create rules in class to communicate appropriately. Make pupils understand that they apply online and offline (e.g. no bad words, no name-calling, no cutting-off, not leaving an unfinished conversation abruptly...).• Adapt the message according to the recipient (parents, director, friends from another class...).
P1-P2	<ul style="list-style-type: none">• Categorise messages according to their level of politeness.• Make pupils understand that the way of addressing children and adults is not the same.
P3-4-5	<ul style="list-style-type: none">• Make pupils understand that there are cultural that there are different cultural norms that must also be taken into account in digital communication (written, video, etc.).
S1-S2-S3	<ul style="list-style-type: none">• Learn the elements of codes of emails (subject line, salutation, recipients in cc, etc.).
S4-S5	<ul style="list-style-type: none">• Ask students to discuss and choose the best means of communication for a project (e.g. funding from a charity).
S6-S7	<ul style="list-style-type: none">• Have the student elaborate their profile for a professional network, addressed to post-secondary schools or employers.

Competence area 2: Communication and collaboration

2.6 Managing digital identity

To create, and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none"> On a digital platform, chose/create a digital identity (name and avatar). Make the pupils realise that it represents them and says things about them.
P1-P2	<ul style="list-style-type: none"> Make the pupils understand that what is published using this avatar is a footprint that says things about you.
P3-4-5	<ul style="list-style-type: none"> Digital identity activities: creating or drawing an avatar for classroom use; taking turns writing the biography or profile of the class account on a social network; distinguishing a personal account from an account related to schoolwork.
S1-S2-S3	<ul style="list-style-type: none"> Digital identity activities: create or draw an avatar for use in class; take turns writing the biography or profile of the class account on a network social. Distinguishing a personal account from an account linked to the school work. Device a table listing the differences. Have the student explore how to check the security settings of their devices and/or the software they use. Know basic data protection laws and how organisations are responsible for the security of collected data.
S4-S5	<ul style="list-style-type: none"> Have the students chose the public or private publication of a personal document (online CV, school trip report...) Explain what metadata of a photograph can include, e.g. date, time and location.

Competence area 2: Communication and collaboration

2.6 Managing digital identity

To create, and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.

Teaching and learning activities

S6-S7

- Have the students reflect on the economy of the Internet, especially the market of user profiling (understand the ways websites and companies collect data online and utilise it to personalise content for their users). Have the student understand the principles of the General Data Protection Regulation (the school DPO could be involved).

Competence area 3: Digital content creation

3.1 Developing digital content

To create and edit digital content in different formats, to express oneself through digital means.

Teaching and learning activities

M1-M2

- Create digital “books” (using a slideshow creation or an ebook creator).
- E.g.: in a letter hunt, take a picture (e.g. with a tablet) of everything that starts with letters (A, B...), then create an alphabet book with the pictures.
- Record songs learned during the year in class, and make a collection to share with the parents (e.g.: using a shared folder on a cloud library or a class blog).
- Taking photographs of an object, a character, a place, an activity, a plastic production in progress (in connection with the digital portfolio).

P1-P2

- Using audio recorders/editors to record, listen to, evaluate, modify, publish...
- In groups, create different digital presentations on a specific topic: slideshow, short video... E.g.: on a specific subject (forest, autumn...), one group take pictures to be inserted in a slideshow and write short legends (names, places...), another group records a short video with audio narration.

P3-4-5

- Create digital support for an oral presentation in class. E.g.: create a slideshow with pictures.
- Production of a video tutorial to explain the steps of a procedure.
- Preparation of a report on an educational outing combining text, photographs and videos using editorial software.
- Create multimedia digital books: text, drawing, audio and video recording. Vary the approaches to creation: individual books, group collaboration or the whole class.
- Create artistic works using digital tools: music creation software/apps, digital drawing software/apps.
- Create a stop motion movie.

Competence area 3: Digital content creation

3.1 Developing digital content

To create and edit digital content in different formats, to express oneself through digital means.

Teaching and learning activities

S1-S2-S3

- Have the student produce digital flyers on a topic.
- Have the student design a slideshow for an oral conference.

S4-S5

- Ask the student to design a digital mind map for an oral presentation.
- Production of a video tutorial to explain the methodology for the creation of a diagram, a geometric construction, etc.

S6-S7

- Ask students to design hypertext documents, inserting links within the same document or between different documents.
- Teach students the use of automatic styles and templates to make a presentation.
- Encourage students to develop their productions in a publishing perspective (creation of an 'epub' digital book...).
- For a project, have the students create a website, or a fully edited movie clip.

Competence area 3: Digital content creation

3.2 Integrating and re-elaborating digital content

To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none"> In small groups led by the teacher, and working on a specific topic, have the pupils search for information and aggregate it in a new way. E.g., working on dinosaurs, help the pupils to search for a picture (e.g. a Diplodocus; see competence 1.1) and save it; search information related to the picture (e.g. diplodocus' diet); then find a way to link the picture and the information (slideshow, video, app to animate a picture with voice narration...).
P1-P2	<ul style="list-style-type: none"> In small groups, and working on a specific topic, have the pupils search for information and aggregate it in a new way. Same activity as for M1-M2, with increased autonomy and use of the keyboard.
P3-4-5	<ul style="list-style-type: none"> Rewriting and formatting a text (a letter to another class, to parents; a lesson or a song to be more easily remembered; a poem to be illustrated and displayed to an audience...). Create digital capsules (short explanatory videos) on a given theme, on a rule, on a procedure learned in class. Example: create a capsule on deforestation, a capsule on the tuning of the nominal group, a capsule on "How to multiply a decimal number by an integer"...Re-appropriate the knowledge learned. Added in his digital portfolio, an audio recording explaining the lesson seen in class.
S1-S2-S3	<ul style="list-style-type: none"> Create a slideshow from pictures found online. Add music from a music library.
S4-S5	<ul style="list-style-type: none"> Scanning a document with a scanner application on a mobile device. Converting a document to a non-editable format to freeze it (e.g. pdf).

Competence area 3: Digital content creation

3.2 Integrating and re-elaborating digital content

To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.

Teaching and learning activities

S6-S7

- Subtitling of an existing video.
- Modify an open publication (e.g. Wikipedia article): check info, complete info, add picture...

Competence area 3: Digital content creation

3.3 Copyright and licenses

To understand how copyright and licenses apply to data, digital information and content.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">When producing content, have the pupils sign it. Discuss with them on the usefulness to do so. Make them understand that they can't sign someone else's work and take it over. E.g., name tag with a picture, writing name...
P1-P2	<ul style="list-style-type: none">When producing content, have the pupils sign it and date it. Discuss with them on the usefulness to do so. Make them understand that they can't sign someone else's work and take it over.When reproducing a content, have the pupils attribute the source to the owner (e.g., when painting in the way of a famous painter).
P3-4-5	<ul style="list-style-type: none">Try to identify who has copyright concerning different resources on the web.
S1-S2-S3	<ul style="list-style-type: none">Have the students identify the rights linked to the use of documents (texts, images, sounds, films...).Explain basic copyright laws, e.g. learn that copyright is a legal system that protects their rights to creative work.Have the students search for freely reusable content, raising awareness of the different types of licences.
S4-S5	<ul style="list-style-type: none">Choosing a "Creative Commons" licence for publication of a production.Explore the ethical and legal ramifications of piracy and plagiarism and know that they are irresponsible and disrespectful.
S6-S7	<ul style="list-style-type: none">Choosing a "Creative Commons" licence for publication of a production.Have the student learn a reference standard (e.g., APA).

Competence area 3: Digital content creation

3.4 Programming

To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• Game of following instructions (Simon says...)• Devices that can be controlled by instructions like Bee-bots• Listen to and follow a sequence of instructions from others• Unplugged activities: moving around on a grid, programming the movement of an object in a route, following a recipe...• Handling of a robot; programming of elementary movements
P1-P2	<ul style="list-style-type: none">• Observation and programming of the movements of a robot• Realisation of a simple program with the help of adapted software• Knowledge of the simple functions of the various peripherals used
P3-4-5	<ul style="list-style-type: none">• Introduction to block programming logic• Discovering a technical system and modifying its operating program• Developing games on Scratch software
S1-S2-S3	<ul style="list-style-type: none">• Have the student learn visual coding with Scratch (scratch.mit.edu).• Have student create conditional formatting on a spreadsheet.
S4-S5	<ul style="list-style-type: none">• Have student set specific rules on their webmail.

Competence area 3: Digital content creation

3.4 Programming

To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task

Teaching and learning activities

S6-S7

- In science, have the students manage the interruptions in the execution of a programme (due to the context or sensor interruptions).

Competence area 4: Safety

4.1 Protecting devices

To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have a due regard to reliability and privacy.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">Using the metaphor of the house, make students understand the value of limiting access to our private lives by locking the door of our home. Draw a parallel between a house key and a password, and identify common points and differences.
P1-P2	<ul style="list-style-type: none">Using the same metaphor of the key, make students understand that creating a digital password is the same as creating a personal lock and key. Activity: each student creates a password. The others try to guess what it is.Review with them ways to ensure that the password is safe and strong.
P3-4-5	<ul style="list-style-type: none">Using the same metaphor of the house key, have students understand the importance of not sharing duplicate keys. Similarly, make them realise that a key is useless if they do not close the door when leaving (disconnect at the end of the session). Get students used to respecting the privacy of others' passwords (for example, by looking elsewhere when a classmate enters his or her password).Knowledge of the main risks and hardware protection measures: loss of data due to hardware or human failure, system attack by malicious software
S1-S2-S3	<ul style="list-style-type: none">Launching a verification analysis, such as an application update.Evaluation of password strength.

Competence area 4: Safety

4.1 Protecting devices

To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have a due regard to reliability and privacy.

Teaching and learning activities

S4-S5

- Checking operating system and protection system updates.
- Evaluation of password strength.
- Identification of risk situations when using an IT environment: non-updated computer system, e-mail attachment, Trojan horse.

S6-S7

- Displaying the security certificate of a secure site (https).
- Setting up secure access to an online account reinforced by double-authentication.

Competence area 4: Safety

4.2 Protecting personal data and privacy

To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a “Privacy policy” to inform how personal data is used.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• What is private and personal information? Why not share it online? List of examples of situations relating to privacy. Classification of information that can or cannot be disclosed about oneself or others• Distinguish between someone I know and someone I’ve never met in an online environment (my parents reading the blog versus strangers) and interact accordingly• Encourage students to formulate safety rules during an outing (walking, public transit), and make them understand that they also apply to online interactions (do not give your address or other personal information to strangers...)
P1-P2	<ul style="list-style-type: none">• Play a game where some of the students are dressed up (not recognisable) and have a name tag, sometimes other than their own. Invite those who are not disguised to go and say something to one of the disguised students (who should not speak). Then have the costumes removed and find that some have pretended to be someone else. Explain that the Internet can be used to disguise oneself and that one cannot always know who he/she is talking to.
P3-4-5	<ul style="list-style-type: none">• Identification of the consequences of the disclosure of personal data and awareness of the means to protect them• After browsing, retrieve and analyse the browsing history to become aware of the traces left on the Internet.
S1-S2-S3	<ul style="list-style-type: none">• Creating a strong password.• After browsing, retrieve and analyse the browsing history to become aware of the traces left on the Internet.• Adjusting privacy settings in a browser or in an online service.

Competence area 4: Safety

4.2 Protecting personal data and privacy

To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a “Privacy policy” to inform how personal data is used.

Teaching and learning activities

S4-S5

- Management of the browsing history and cookies.
- Use of a private browsing mode.
- Identify possible risks of installing free and paid for software, for instance free software could download viruses to the device/computer.
- Explore how websites and companies collect data online and use it to personalise content for their users. Consider companies’ motives in doing so.

S6-S7

- Consultation and management of your geolocation history on a mobile device.
- Identification of the data collected in the TOS of a service. Evaluation of the relevance of the collection according to the service.

Competence area 4: Safety

4.3 Protecting health and well-being

To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• Use the candy metaphor to get children to identify the potential health risks of excessive screen use• Consider how actions and words can affect others. See that it's still true when talking with people online.• Identify similarities and differences between online and offline communication.
P1-P2	<ul style="list-style-type: none">• Colour on a human body drawing the parts that are most solicited by the use of screens, and compare them with the parts solicited during a sports session.• List the possible consequences of excessive use of screens.
P3-4-5	<ul style="list-style-type: none">• Draw what the body of a person who would spend all his time in front of screens would look like.
S1-S2-S3	<ul style="list-style-type: none">• Participate in the recycling of equipment at school.• Activities to raise awareness of energy issues. Have the student count the number of electrical devices on stand-by at school or at home. Have them brainstorm on how to reduce this.• Ask the student to produce posters on proper posture for on-screen activities.• Discuss on the school can deal with cyberbullying.• Investigate the legal aspects linked to online behaviour, e.g. cyberbullying, harassment, false statements and publishing inappropriate content/images without consent.

Competence area 4: Safety

4.3 Protecting health and well-being

To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.

Teaching and learning activities

S4-S5

- Have the students filter the communication received, e.g. sorting out e-mails, deciding whom to follow on social media, etc.
- Ask the students to follow their screen time and activities over a week and reflect on the data.
- Discuss the benefits and negative points of photograph manipulation; evaluate digitally edited images in terms of context and purpose, and of social and psychological impacts.
- Critically reflect upon the effects of stereotypes in mass media, social media and gaming.

S6-S7

- In science, evaluate the quantity of waves emitted by connected equipment.
- Understand the legal responsibilities for disposal of technology and the environmental impact of doing so.

Competence area 4: Safety

4.4 Protecting the environment

To be aware of the environmental impact of digital technologies and their use.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• Work on the analogy between everyday gestures for sorting waste in the classroom or home, and the disposal of digital devices.
P1-P2	<ul style="list-style-type: none">• Identification of some daily gestures that can limit a computer's energy consumption.
P3-4-5	<ul style="list-style-type: none">• Tell the story of a battery, from its conception to its disposal.• Contribution to reducing the environmental impact of the energy consumption of digital technologies.
S1-S2-S3	<ul style="list-style-type: none">• The global production of IT-devices causes 2 % of the global CO2 pollution. The use of ICT reduces 20 % of the CO2-pollution compared with "business as usual". How can the 2% get less and the 20 % bigger?
S4-S5	<ul style="list-style-type: none">• Introduce the End of life concept. What happens with the devices of the school or "bring your own"- devices when they aren't used anymore?
S6-S7	<ul style="list-style-type: none">• How do you know which data hall has the least impact on the environment? Energy efficiency is the single most important factor. What percentage of the energy used by the data centre goes to the IT equipment itself and what proportion is used for things like cooling, ventilation and lighting? Introduce the concept Power usage effectiveness (PUE).

Competence area 5: Problem solving

5.1 Solving technical problems

To identify technical problems when operating devices and using digital environments, and to solve them (from troubleshooting to solving more complex problems).

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• Exploring the functions of buttons on a digital device.• Use of keyboard and mouse: clicking, double-click, drag and drop.• Experimenting with a digital device, for example, going forward and backwards.
P1-P2	<ul style="list-style-type: none">• Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (2), for example, following a set of instructions written as arrows.
P3-4-5	<ul style="list-style-type: none">• Creating a sequence of steps used to solve a problem using text, images or symbols• Use a scientific approach of debugging: list all the possible technical explanations, test them one by one by changing only one parameter each time.• Learn how to code the movements of a robot and solve bugs in the coded program.
S1-S2-S3	<ul style="list-style-type: none">• Have the students recover files thrown in the trash.• Have the students find and use available help menus and contextual drop-down help menus.• Have the student write a guide on how to restore their passwords in school.
S4-S5	<ul style="list-style-type: none">• Have the students search for technical help online, and evaluate the content.• Have the student create a flowchart to determine the function or output of a process.• Have the students elaborate a FAQ to solve some technical issues and intended for other students.

Competence area 5: Problem solving

5.1 Solving technical problems

To identify technical problems when operating devices and using digital environments, and to solve them (from troubleshooting to solving more complex problems).

Teaching and learning activities

S6-S7

- Ask the students to create and design models and explain how they represent real-world problems, e.g. selecting and correctly using an appropriate method for illustrating a problem, such as a flowchart or a spreadsheet.

N.B.: a large number of ideas related to subjects can be found on [Digital Competence Framework: Curriculum for Wales 2008 version](#), in the file '[Full framework](#)' [accessed 15 Sept. 2020].

Competence area 5: Problem solving

5.2 Identifying needs and technological responses

To assess needs and to identify, evaluate, select and use digital tools and possible technological responses solve them. To adjust and customise digital environments to personal needs (e.g. accessibility).

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• Learn the basic functions of different devices: switch on, switch off, log on/off.• Identifying common digital systems in the classroom and at home and their purpose, for example, laptops, tablets, interactive whiteboards, smartphones, desktop computers, tablets and smart TVs.
P1-P2	<ul style="list-style-type: none">• Linking identified digital systems with an identified purpose, for example using a laptop to word process a story or using a tablet to take photographs.
P3-4-5	<ul style="list-style-type: none">• Selecting and using an appropriate peripheral device to perform a task and explaining the reasoning for selecting that device, for example, a student explaining why they chose a digital camera to take a photo rather than using the camera on a tablet.• Select and use an application or program adapted to the task, e.g. what tool will we use to write and share our digital book? Which tool will we use to work on our research in a group?
S1-S2-S3	<ul style="list-style-type: none">• Have the students explore the display or view settings on their device and on their main applications.• Have the student prepare a historical timeline of computer development.• Have the student select the proper proofing language in a text editor.
S4-S5	<ul style="list-style-type: none">• Have students elaborate a survey to identify the digital needs of their peers.• Have the student compare a web-based version, a mobile version and a desktop version of a major application, as a text editor.

Competence area 5: Problem solving

5.2 Identifying needs and technological responses

To assess needs and to identify, evaluate, select and use digital tools and possible technological responses solve them. To adjust and customise digital environments to personal needs (e.g. accessibility).

Teaching and learning activities

S6-S7

- Ask students to present the difference and challenges of open source and proprietary software.
- Have students select the best applications for project management, such as collaborative study reviews for a school examination.

Competence area 5: Problem solving

5.3 Creatively using digital technologies

To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">•
P1-P2	<ul style="list-style-type: none">• Contribute to an international knowledge project by writing an article for the digital encyclopaedia Vikidia.
P3-4-5	<ul style="list-style-type: none">• Contribute to an international knowledge project by writing an article for the digital encyclopaedia Wikipedia.
S1-S2-S3	<ul style="list-style-type: none">• Have students use a collaborative digital whiteboard to brainstorm ideas.• Have students ask and answer a question on a course forum.• Design and create real objects with a 3D printer (consult ICT teachers).
S4-S5	<ul style="list-style-type: none">• Have students create a glossary or a FAQ with hyperlinks, pointing to internal and external resources.• Have students create a digital mind map to organise a school trip, or to study for an examination.• Have students propose a modification of a text or a script on a repository hosting platform (e.g., GitHub).
S6-S7	<ul style="list-style-type: none">• Have students collaborate on a wiki, for a course-related topic.

Competence area 5: Problem solving

5.4 Identifying digital competence gaps

To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.

Teaching and learning activities

M1-M2	<ul style="list-style-type: none">• Have the M2 pupils explain the M1 how to manipulate some digital tools commonly used in class.
P1-P2	<ul style="list-style-type: none">• Have each student complete a simple evaluation grid on his/her knowledge of digital tools. Have them formulate a request for help.
P3-4-5	<ul style="list-style-type: none">• In part of the digital portfolio, students self-assess their knowledge of digital tools and their desire to learn in this field.
S1-S2-S3	<ul style="list-style-type: none">• Have the students write an email documenting a technical difficulty (possibly with a screenshot) and asking for help.• Have the students identify, identify, in a group of peers, who can provide technical assistance on a particular issue.• Build the habit of 'Three-Before-Me' or 'Ask 3 Then Me' rule: students must prove that they have looked for at least three ways of obtaining information about a question or problem they encounter before they can ask the teacher for it. > More information.
S4-S5	<ul style="list-style-type: none">• Have students create an online 'Service Desk' for their peers.• Have the students elaborate a survey for assessing the quality of a Service Desk.• Have the students identify the digital competence they would need for specific studies and jobs (career guidance).
S6-S7	<ul style="list-style-type: none">• Have the students explore and select relevant online tutorials/course for identified technical problems (reported by themselves or by others).• Have the students identify the digital competence they would need for specific studies and jobs (career guidance).