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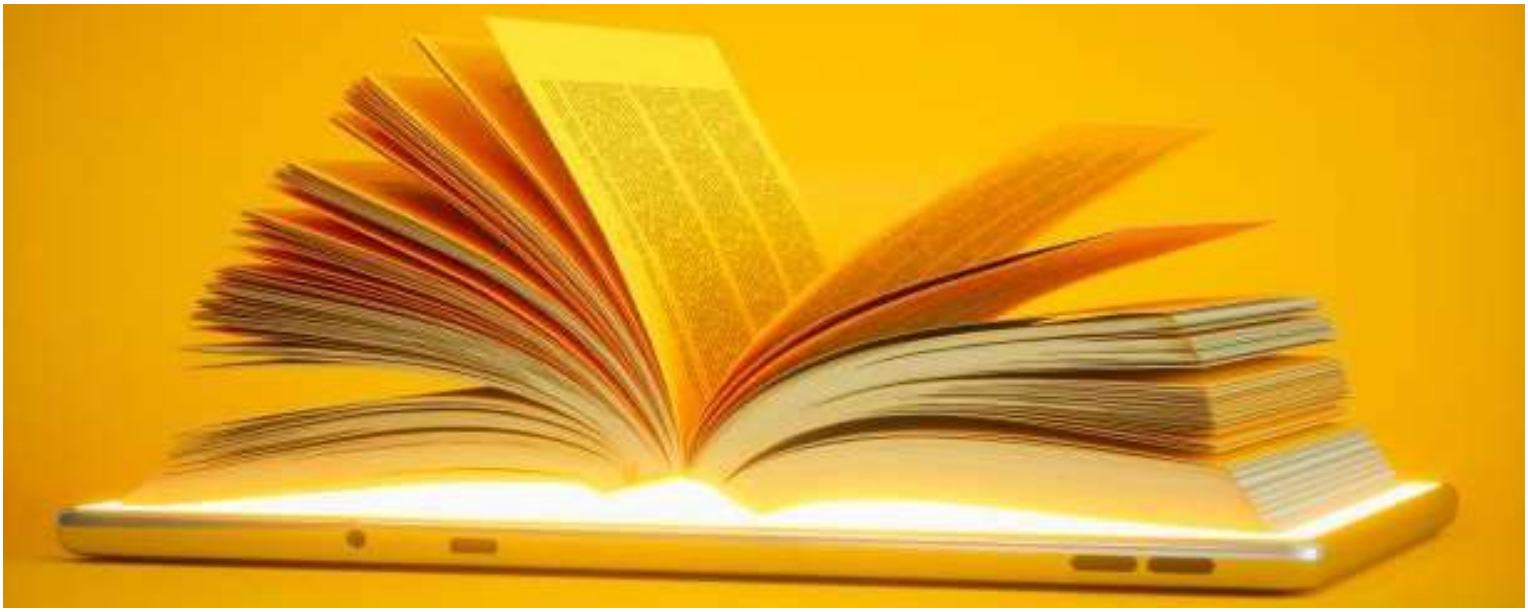
INTERACTed

IO2: INTERACTed Learning Toolkit

(Responsible partner: STIMMULI)



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1. Introduction

The INTERacted Learning Toolkit is both theoretical and practical. It provides teachers with theoretical input on different aspects of digital storytelling, while it also presents different digital tools for digital storytelling and provides digital storytelling activities for classroom implementation that integrate digital storytelling in different subjects of the school curriculum. The INTERacted Learning Toolkit consists of the following 5 sections:

- **Section 1 – Introduction.** It introduces readers to the INTERacted Learning Toolkit, including the target group and learning objectives.

- **Section 2 - Theoretical Framework.** It presents the theoretical framework of digital storytelling (including the definition of digital storytelling, its basic elements, the benefits for students' learning and acquisition of skills, the challenges in the implementation of digital storytelling activities and emotion-driven storytelling).

- **Section 3 - The Learning Design Process.** It presents the results of the systematic review conducted across partner countries (Belgium, Cyprus, Cyprus, Greece Italy, Netherlands, and Poland) regarding current toolkits and pedagogical approaches for digital storytelling, and digital storytelling tools.

- **Section 4 - Digital Storytelling Activities.** This section provides 16 activities ready for classroom implementation that apply to different subjects of the primary school curriculum (Language arts, Mathematics, Environmental Education, Geography, Science, and History) and are associated with different learning scenarios (creation of a learning log, historical events/technological solutions, special moments, and fan bio). The

activities' description facilitates classroom implementation as it includes target audience age, time needed for preparation and implementation, link to school subject, learning outcomes, resources (both online and offline) and a detailed description of all steps for its implementation at school.

- **Section 5 - Assessment Framework.** It includes two tools that evaluate students' learning after participating in the digital storytelling activities (Section 4). Two evaluation tools were developed for each activity: the first tool addresses students, while the second teachers and both aim to study students' learning after the activity.

1.1. Target Group

The INTERacted Learning Toolkit was developed for **primary school teachers** as it contains digital storytelling activities for practical implementation at a primary school level. The learning toolkit is aimed at teachers and educators who wish to implement it as a part of the primary school curriculum tool. The pedagogical scenarios of the toolkit could be part of the school curriculum as they are closely associated with different primary school subjects that are common for the partner countries: Language arts, Mathematics, Environmental Education, Geography, Science (Physics), and History. Simultaneously, as this toolkit has a flexible and user-friendly structure and content and can easily get adapted to other didactical topics, it may be effectively used as an independent learning and teaching by other **educators at informal education settings** like summer schools, after-school clubs, workshops etc.

This toolkit targets **teachers** who are **not experts at ICT** and provides them will ready-to-use activities and a collection of digital tools that will enable them to apply digital storytelling in their classes. Finally, the INTERacted Learning Toolkit is intended for teachers informal who are

beginners in digital storytelling. The toolkit does not require prior knowledge or experience in digital storytelling; it contains all the necessary theory for an in-depth understanding of interactive digital narratives other related concepts (definition of digital storytelling its basic Elements, benefits for students' learning challenges in implementation and emotion-driven storytelling).

1.2. Learning Objectives

Through the INTERacted Learning Toolkit teachers and educators will:

- learn that digital storytelling can have an important cognitive, motivational, and emotive impact on their students. Through the implementation of digital storytelling activities in primary school, pupils develop their knowledge, skills and socio-emotional intelligence and empathy.

- explore the basic elements of digital storytelling and they will get familiarized with the pedagogical approaches used in digital storytelling.

- get familiarized with different digital tools for digital storytelling.

- learn how to embed interactive digital narratives in their classes. The INTERacted Learning Toolkit offers a wealth of activities adapted to primary school education that provides teachers with ready-to-use materials and instructions for classroom implementation (Section 4).

2. Theoretical Framework

2.1. Definition of Digital Storytelling and Basic Elements

Digital Storytelling is an emerging instructional technology that can positively influence the learning and teaching process. There are a lot of different definitions of Digital Storytelling. Barrett (2006) defines Digital Storytelling as "the modern expression of the ancient art of storytelling", while Lisenbee and Ford (2018) build on previous literature and define digital storytelling as a medium to teach 21st century skills. Despite the existence of different definitions, all seem to coincide on the fact that digital storytelling combines the art of telling stories with a variety of digital multimedia, such as images, audio, and video (Robin, 2006). Mellon (1999) pointed out that digital storytelling makes students more willing to create and share stories revealing their deep personal feelings compared to traditional storytelling. Another advantage of digital storytelling over traditional storytelling, is that digital stories can be shared instantly and remain available at a national or international level (Mellon, 1999).

What is Digital storytelling?

Digital storytelling = telling stories + digital multimedia (images, audio, and video)

Figure 1 *What is digital storytelling*

Retrieved from: https://action.gr/2022/01/04/free-online-seminar-on-narrative-methods-for-the-improvement-of-social-inclusion-in-the-classroom/

In this section the characteristics of digital stories will be presented as depicted in current literature. As Sukovic (2017) reports, digital stories can be fictional or factual, however they must always have a narrative. Ohler (2006) highlights that the story itself must be a good one, otherwise the digital technology will make the deficiencies in the narrative even more obvious. Also, Olher (2006) underlines that a digital story should start with the characters setting off for a new adventure, leaving their normal lives behind and should include an event or conflict causing them to undergo an important change. Throughout the adventure, the character evolves; this evolution should be an informative experience for the audience giving them the chance to expand their knowledge (Olher, 2006). Finally, there must be a closure in the digital story, however, not necessarily a happy one (Olher, 2006).

Lambert (2007) proposes the study of the Seven Elements of Digital Storytelling; 'Point of view', 'Dramatic question', 'Emotional content', 'Gift of your voice' and the 'Power of the Soundtrack' and 'Economy' and 'Pacing' (Figure 2). In a digital story, the author provides his/her own perspective of a situation or event, while the story ends when the dramatic question is answered. Digital stories usually have an emotional content, touching the audience in a personal and powerful way- at the same time there is sound supporting the storyline. Finally, economy and pacing are also important aspects of the digital stories, as the amount of content and speed rate may influence the immersion of the audience and their potential overload.

Figure 2 *The Seven Elements of Digital Storytelling*

Retrieved from: https://www.liverpool.ac.uk/centre-for-innovation-in-education/resources/all-resources/digital-storytelling.html

According to Signes (2010), to create a digital story the following process should be followed (see Figure 3).

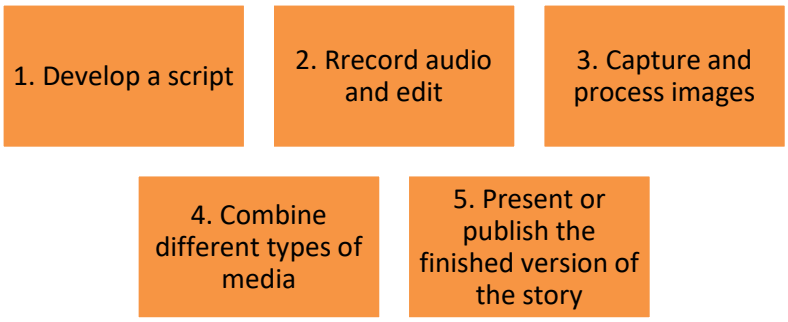

Figure 3 *The process of digital story creation*

Digital stories usually depict an important change in characters' lives and by presenting the characters' viewpoints and setting a specific pace in the sequence of events, they convey emotions and knowledge to the audience. Digital stories share some important elements; however, they often have different content. The difference in content leads to their categorization in different areas. Robin (2006) proposes their **categorization of digital stories into 3 main areas** (see Figure 4).

Figure 4 *Categorization of digital stories*

The digital stories that are used to inform or instruct, are usually employed in educational contexts, and serve learning objectives set by the educators. Lisenbee and Ford (2018) provide examples of digital storytelling activities that can be applied in the classroom teaching or other educational contexts; the examples include creating videos of science experiments, creating slideshows for Parent Teacher conferences, or re-telling stories using graphics to share with others. Current literature suggests that digital stories can be employed in classroom teaching in several different areas of the curriculum in primary and secondary education. Below you may see some examples of its implementation across the school curriculum:

- language and literacy (Oskoz & Elola, 2016; Oskoz & Elola, 2014; Vinogradova et al., 2011),
- social studies (Rolón-Dow, 2011) and even
- science (Anastasiou, 2022; Kotluk & Kocakaya, 2017).

In fact, Anastasiou (2022) explains that digital stories with a scientific content are employed in education to help students make sense of what, how and why a phenomenon happens by describing the natural phenomena and physical behaviors through a set of sequenced events. However, digital storytelling is more common in humanities and social sciences than science (Wu, & Chen, 2020). Besides primary and secondary education, digital storytelling can be employed as a training tool in tertiary education (Price et al., 2015; Sheafer, 2017) and teacher education (Hoban et al., 2011; Sancar-Tokmak & Yanpar-Yelken, 2015) while it can also function as a research methodology within higher education (Austen et al., 2018).

Interestingly, digital stories can also be used in areas outside educational institutions. For example, digital storytelling is currently being used in the sector of public health and social services; the National Health System in the United Kingdom has recently launched video and animation workshops in which patients, careers, managers and/or healthcare professionals share their personal stories concerning a variety of health and social issues. These digital stories are used to raise awareness on different social issues such as living and working with a disability or mental health and inspire and connect with other members of the community. In addition, personal narratives and instructive stories are also widely being used in business and more precisely in digital media and marketing campaigns. Digital stories attract customers' interest because they draw connections with customers' experiences and personal life (Barry, 2018). Therefore, digital storytelling serves as a marketing technique that can increase customers' interest and engagement with the product. Based on the above, digital storytelling can be applied in several areas and levels of education and even in non-education sectors, turning into an informative means or personal narrative transmitting emotions and knowledge.

2.2. Benefits for students' learning and acquisition of skills

Students can gain a lot of through digital storytelling (see Figure 5). First, they can **acquire knowledge** across different disciplines and become familiar with the content of digital stories and the respective subject-matter. For instance, if the students are creating a digital story that concerns the steps of a scientific experiment, they will expand their subject-matter knowledge in science.

Apart from knowledge, students can **enhance their skills**. To be more precise, Lisenbee and Ford (2018) report several skills that students can develop through their involvement with the design, creation, and presentation of digital stories. The skills reported are the following:

research skills, writing skills, organization skills, technology skills, presentation skills, interview skills, interpersonal skills, problem-solving skills and assessment skills (Lisenbee & Ford, 2018). The skills reported by the authors coincide with the skills of the 21st century that all students should develop throughout their school education. The development of important skills of the 21st century is also reported by Dogan and Robin (2008), who supported that their students improved their technical, presentational, research, organizational skills, and writing skills throughout their involvement with digital storytelling activities. In addition, authors report that students can develop their literacy and language skills; for instance, Campbell and Hlusek (2015) highlight that practicing digital storytelling in the classroom can be beneficial for improving students' fluency in reading and oral language. Finally, through digital storytelling students can get familiarized with several ICT resources and improve their digital skills (Sadik, 2008; Sukovic, 2014).

Besides students' acquisition of knowledge and skills, digital storytelling can have positive affective outcomes; **positive affective outcomes refer to learner attitudes and feelings.** Dogan and Robin (2008) reported that the teachers who implemented digital storytelling activities at school observed significantly higher levels of student engagement and motivation. Similarly, Sadik (2008) reported that teachers perceived an increased learner motivation to use digital tools. Positive learner attitudes were observed in the study of Sukovic (2014); Sukovic's project involved the development of digital stories based on a creative reading task. Students' involvement in the project led to higher engagement with learning and to an increased sense of accomplishment (Sukovic, 2014). These results were also confirmed by Hung et al. (2012) who found out that a project-based digital storytelling approach improved the learning motivation, attitude, problem-solving capability and learning achievements of the students. In addition, digital storytelling can have a positive impact on students' emotional intelligence; it was found

that integrating digital storytelling with group discussion led to meaningful improvement in social intelligence and emotional intelligence among the female elementary school students (Zarifsanaiey et al., 2022). Taking everything into consideration, it is concluded that digital storytelling can have positive results not only on acquiring knowledge and skills but also on student attitudes and feelings.

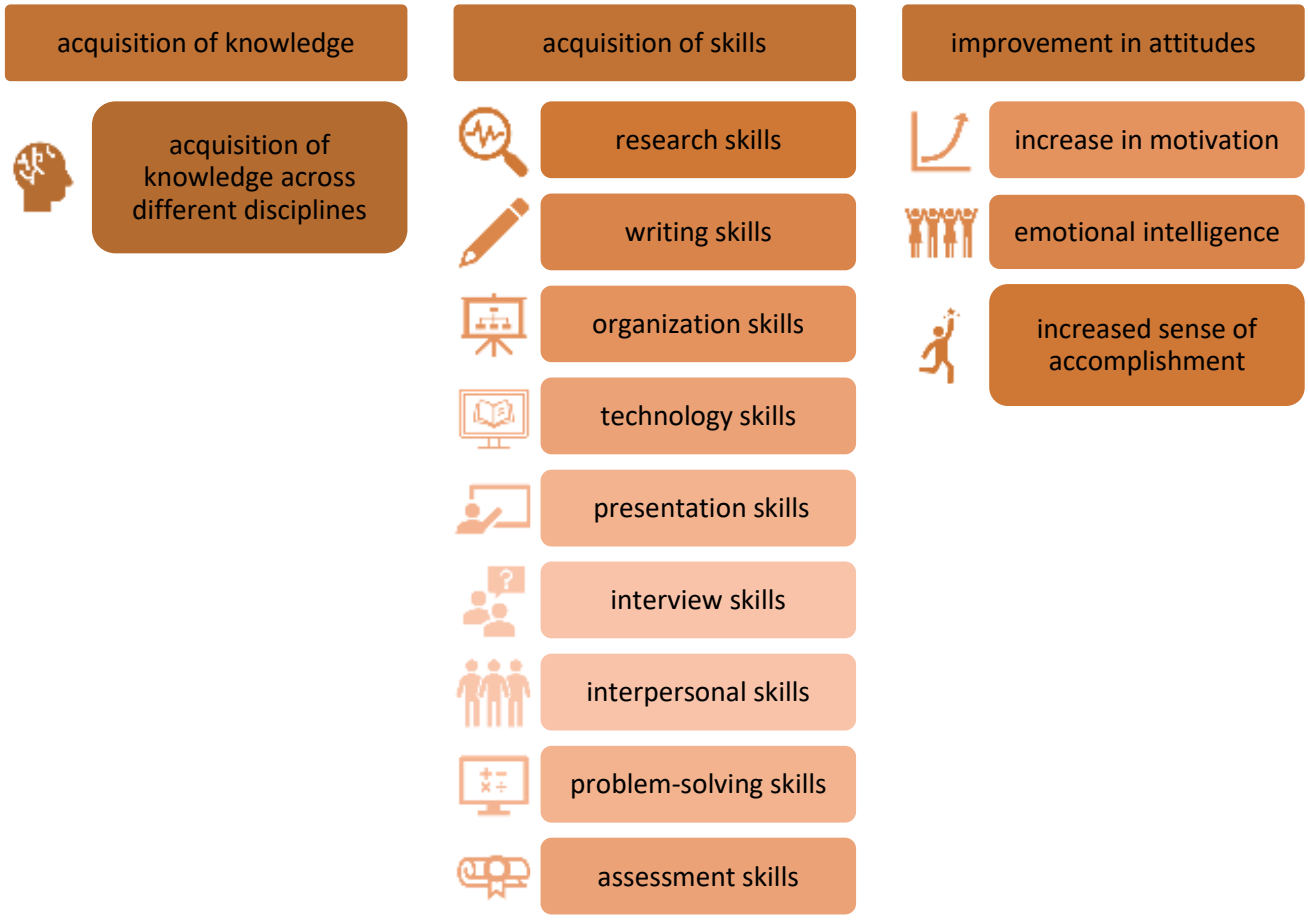

Figure 5. Benefits of storytelling

2.3. Challenges in the implementation of digital storytelling activities

Despite the benefits for students' learning, current literature reports that there are some important challenges in the use of digital storytelling in the school classroom (see Figure 6):

- First, it is reported that students' young age may make it difficult for them to use technological tools independently in the classroom (Lisenbee & Ford, 2018). Therefore, teachers might need to provide a lot of support to their young students throughout the digital storytelling classroom activities.

- Reinders (2010) pointed out that both students' and teachers' level of technical expertise might be a limitation in the application of digital storytelling in the classroom. In agreement with Reinders' (2010) views, Lowenthal (2009) pointed out that the average educator lacks the technical skills to carry out a digital storytelling school project. It is therefore important to provide teachers with training in digital storytelling tools to enable them to conduct digital storytelling activities at school (Papadopoulou & Ioannis, 2010).

- Also, authors raise the issue of time in digital storytelling activities (Christiansen & Koelzer, 2016; Lowenthal, 2009). Christiansen and Koelzer (2016) point out that time can be a limitation when implementing digital storytelling activities; to deal with this issue, the authors suggest that "teachers carefully and thoughtfully plan and integrate short digital storytelling tasks into the curriculum". On the other hand, Lowenthal (2009) proposes that a lot of time should be provided to students to create their digital stories.

Taking everything into consideration, the most important limitations of digital storytelling are students' and teachers' level of digital competence, lack of training opportunities, and the amount of available classroom time that can be dedicated to digital storytelling activities. These limitations should be considered when designing digital storytelling classroom activities and the respective teacher training programs.

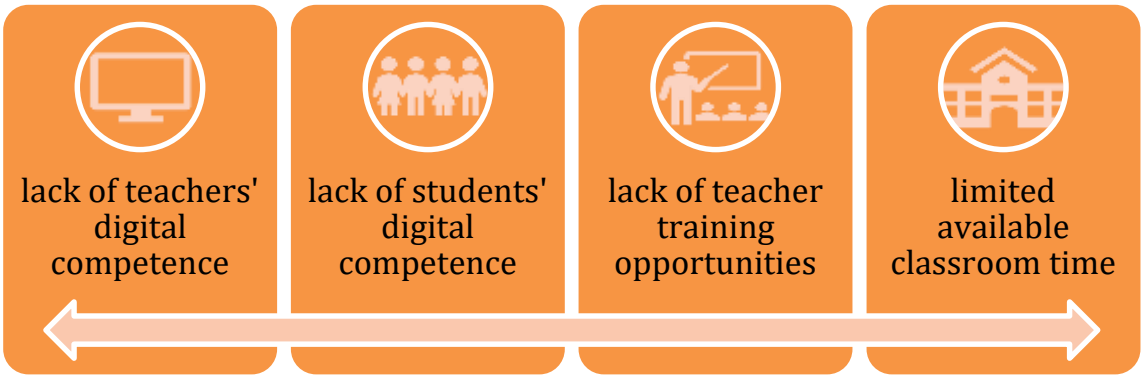

Figure 6. Challenges in the implementation of Digital Storytelling activities

2.4. Emotions and Digital Storytelling

Emotions play a significant role in a wide range of human cognitive processes; emotions are found to influence our beliefs, determine our decision-making, and regulate how we behave (Marsella & Gratch, 2003). Educators should provide students with opportunities for social emotional learning (SEL), enabling them to face personal or family problems or other problems (e.g., the COVID-19 disruption).

The INTERACTed Toolkit focuses on two important aspects of emotions: **empathy and emotional intelligence**. Empathy is a fundamental component of social cognition, and a specific social cognitive ability related to taking part in the suffering of other people (Hoffman, 2000).

Emotional intelligence refers to the capacity for recognizing own and others' feelings, for motivating oneself and for managing emotions well internally and within interpersonal relationships of any kind (Kumar, 2013). In this vein, emotional intelligence is a key factor for academic and professional achievement, as it is a set of socio-emotional skills which enable the intellect to turn into action and accomplishment (Bratitsis & Ziannas, 2015, p. 232). It is very important to foster both students' emotional intelligence and empathy from an early age. Students' emotional intelligence and empathy capacity can be developed through role-playing and teamwork as this is an effective method to encourage students to listen to others' views and to work together to solve problems (Ioannidou & Konstantikaki, 2008). Teachers should also listen and understand their students' views, creating in this way feelings of acceptance to their students, while helping them recognize how they can develop the ability of active listening themselves (Ioannidou & Konstantikaki, 2008). Also, the integration of digital storytelling into the school curriculum can positively affect students' development of their emotional intelligence and empathy. Digital stories have a personal point of view and transmit emotional content (Alonso et al., 2013). The characters make a series of choices as they move through the narrative and are found in a variety of emotional conflict moments. These conflict moments result in a particular series of events and trigger new actions.

Based on all the above, students through digital storytelling get exposed to emotional content and this might help them improve the way they perceive others' emotions and deal with their own feelings.

3. The Learning Design process

In this chapter we will present the results of the systematic literature review conducted at a national level across partner countries. The literature review includes examples of existing learning toolkits that use interactive digital storytelling (Section 3.1.), examples of non-traditional pedagogical approaches that integrate interactive digital storytelling (Section 3.2), and digital tools for interactive digital storytelling that are free and open source (Section 3.3.).

3.1. Existing toolkits for digital storytelling in partner countries

A toolkit is defined as a collection of resources that educators can use in their classes and is accompanied by a guide for implementation. Throughout literature review process, the following toolkits have been encountered in the partners' countries:

Digital Storytelling: podręcznik dla edukatorów (Agnieszka Świątecka, Poland).
This toolkit is aimed at educators, and it covers methodological, technical, theoretical, and practical aspects of the use of digital storytelling. It also provides good practices and case studies, as well as links to resources on the Internet and an extensive bibliography. It consists of six chapters. In the first chapter, teachers will find general information about storytelling. The second chapter focuses on the history of digital storytelling and its possible applications. In the third chapter, teachers will find tips on how to tell a story, the elements of storytelling and the process of creating content. The fourth chapter covers the different types of digital storytelling and the tools that can be used to create digital content. In the fifth chapter, teachers will find tips on how to record digital stories and what apps can be used. In the last chapter, teachers will find tips on workshop preparation. The toolkit guides the teacher from the very concept of digital storytelling to its classroom implementation.

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«Αφηγούμαι Ψηφιακά» (Afigoumai psifiaka) (Σωφρονία Μαραβελάκη/ Sofronia Maravelaki, Greece). The toolkit is addressed to teachers, it works as a guide to the key aspects of digital storytelling and it provides teachers with tools and examples of classroom activities. The toolkit consists of 4 sections. Section 1 is introductory and introduces them to the theoretical framework of digital storytelling. Section 2 is about the process of making digital stories, screenwriting, storyboard creation, ethical principles for creating and sharing digital content, creative commons, and digital story evaluation. In Section 3 teachers see how digital storytelling tools and applications can be implemented at schools. Section 4 is about tool selection, digital story creation, sharing digital stories and evaluation. The toolkit provides teachers with theoretical input on different aspects of digital storytelling, while it also instructs them on how to use different digital tools for digital storytelling and gives examples for classroom implementation. It offers a lot of different resources like links to further investigation materials, tools, tutorials, webinars, tweets, and award-winning student digital stories. Finally, it guides the teachers to create their own digital stories step by step.

De docent als verhalenverteller in het digitale tijdperk (September Onderwijs, Netherlands). The toolkit provides teachers with practical information regarding digital storytelling by giving theoretical information combined with practical tips. The toolkit starts with the educational benefits of digital storytelling and explains how a teacher can apply digital storytelling to keep students motivated during lessons. After that, the toolkit provides three tips (how the teacher can create a story, recommendations for several applications or websites and how to use make a use of them to benefit the students). Lastly, the toolkit presents more examples, research, and other resources that could be helpful. The strength of this toolkit is that it focuses on how teachers can apply digital storytelling in their classroom in an open and welcoming tone. Despite the examples and best practices, this toolkit lacks a strong theoretical

framework in digital storytelling. It is displayed as a blog; it could be published as a separate document or course.

Digital Storytelling: maak en deel verhalen met open digitale technologie (OPEN-AE Academy, Netherlands). This toolkit was designed to introduce the concept of digital storytelling and to guide users to create their digital stories by using openly accessible digital tools. The toolkit is divided in five chapters. Chapter 1 focuses on what digital storytelling is, how the methodology of digital storytelling came about, and how to start exploring this subject. Chapter 2 looks at how you can structure a story with a story circle. Chapter 3 builds upon the story created in the previous chapter and now asks users to find images that fit the story. Here an explanation of the creative common licenses is provided. Chapter 4 focuses on the final steps in the digital storytelling cycle, as editing. Lastly, Chapter 5 provides extra's and frequently asked questions. The strength of this toolkit is that it starts with a chapter dedicated to explaining what digital storytelling is and why it is relevant. The other chapters provide tips that can help bring a story to live. Lastly, every chapter gives examples that illustrate what the author means. However, the toolkit lacks an educational focus, there are no specific examples related to a classroom implementation, as it seems to be intended for a broad audience public, rather than educators.

HET ONTWERPEN VAN DIGITALE STORYTELLING ALS INSTRUCTIEMETHODE (T.R.J. Geverink, Netherlands). This is a report written by a student at the University of Twente. In this report digital storytelling is explained both as a concept and as a method of instruction, while tips for its successful implementation in different classrooms are also provided. The conclusion of the report presents the best practices for digital storytelling in the classroom and how it could benefit students and teachers. The strength of this toolkit is that it starts with a chapter

dedicated to explaining what digital storytelling is and why it is relevant. The different phases of digital storytelling are very well explained so the material is digestible and easy to manage. The conclusions from the experiment provide helpful hands-on practices and tips that can facilitate the implementation in the classroom. This report is written in the framework of a university course therefore, it is quite academic.

Digital Storytelling bij Alfacursisten (Literacy Education and Second Language Learning for Adults, Netherlands). The objective of the toolkit is to guide readers on how to structure introductory digital storytelling sessions. The toolkit describes how students can use digital storytelling to think about their talents, skills, and competences and provides teachers with ten digital storytelling sessions targeted to students who are low literate. The toolkit gives teachers several tips and hands-on practices. Even though this toolkit has been specifically designed for low literate students, the sessions can be adapted to students with different backgrounds to introduce them to the area of digital storytelling. The toolkit does not include a theoretical framework on digital storytelling but is more practice oriented.

Narrare Digitale (Anna Longhina, Italy). It is a web platform that includes a school kit to produce digital stories. In was designed in the framework of the Digital School National Plan by the Italian Ministry of Education. The platform includes a multimedia presentation with tips on how to start using Storytelling in the classroom. The web platform also contains a series of examples of projects already carried out with children and a repository of free digital resources and tools to implement active and creative teaching paths with students. The Platform contains an introduction to Digital Storytelling and includes a list of 15 possible practical ways to introduce Digital Storytelling in the classroom (i.e., creating imaginary interviews or a video reportage, turning a story into a comic or video animation, etc..). Then, there is an eBook with

tips on how to start using Storytelling in the classroom. Also, a school kit is included with a step-by-step guide to create IDN (techniques for digital storytelling, types of digital storytelling, designing IDN, steps to build a story, tools, and Apps for each phase of the IDN development, costs and resources required). Finally, examples of IDN developed in the classroom are provided. It is quite a complete toolkit, as it starts from a theoretical part on digital storytelling, and it contains a step-by-step practical guide, as well as tools and resources. The platform is not very user friendly, and the information is not easy to retrieve; you need to scroll down to read the information.

Getting started with Digital Storytelling: a strengthening method for the integration of vulnerable target groups It is a practical manual for working with a group to strengthen 21st century skills. Not only digital skills, but also skills such as creative thinking, collaboration, and communication are strengthened during the different phases of a digital storytelling process. This toolkit was created thanks to resources obtained from the Belgian AMIF (Fund for Asylum, Migration and Integration) through a collaboration between vzw Link in de Kabel and vzw Blenders (Digidak).

3.2. Innovative Pedagogical approaches in digital storytelling

Throughout literature review process, various approaches/methodologies were identified in the implementation of digital storytelling activities in the school classroom. The most common approaches/ methodologies include project-based methodology, creative writing-based approach, flipped learning, and blended learning. Below we provide examples of how these approaches/ methodologies can be implemented in classroom activities involving digital storytelling. Examples of implementation:

- **Project-based methodology:** students work in groups, participate in brainstorming activities, collect material for their digital stories, create storyboards, design their own digital stories, and finally present their digital stories. You may read more information regarding the application of this methodology in the subject of Ancient Greek here. The project-based methodology works well with the digital storytelling activities; students improve their learning and collaborate effectively to design and present their digital stories.

- **Creative Writing-based approach:** The implementation of this approach follows certain steps. First, a variety of classic fairy tales are presented either by retellings or by watching animations. Then, books containing either intertextual or metafiction versions of these fairy tales are presented and discussed by the students. After that, each student generates his/her own short story using either oral, written, or figurative discourses. Finally, students combine their distinctive literacy discourses into an interactive web poster. You can read more about the implementation of this

approach here. This approach is beneficial to students because it mobilizes creative thinking, it is built upon students' existing knowledge and experiences, it ensures participatory and communicative processes, it creates conditions for developing multiliteracies, and it provides the students with the opportunity to determine the interplay of verbal and written expression.

- **Flipped Learning:** The Flipped learning approach involves changing the style of lesson delivery. The structure of such a lesson is based on watching pre-recorded videos at home and doing exercises in class. In addition to the recorded videos, students can use exercises or interactive quizzes to test their knowledge. The teacher prepares teaching materials in advance and makes them available online. Students take notes and answer questions after studying the contents of the multimedia resources. Students can watch multimedia materials as many times as they need, so they are able to remember the content and focus on the parts they don't understand. The flipped learning approach provides an opportunity to adjust students' skill levels by uploading materials at the earliest and promotes students' collaboration. Since activities during lessons can be directed by students, they take more responsibility for the learning process. Here you can read more about flipped learning in Polish.

- **Blended Learning:** This approach is a combination of face-to-face and online storytelling, supported by digital technologies. The online storytelling takes place through spoken PowerPoint presentations or knowledge clips. Blended learning promotes differentiated instruction (for those who prefer face-to-face and online communication and interaction) and it enables the development of communication

skills in a more holistic way (face-to-face and digital). More information can be found in the book of Rene Boonstra in Dutch.

- **1:1 tablet scenarios:** in the framework of Creative Classrooms Lab project (CCL) learning scenarios and activities, guidelines and recommendations were designed to implement one-to-one computing initiatives in schools and for the effective integration of tablets into teaching and learning. This pedagogical approach divides each learning activity in the following sub-activities: dream, explore, map, make, ask, re-make and show. You can read more about the project here.

- **Workshop-based digital storytelling:** The workshop-based digital storytelling enables individuals – students and teachers, facilitators, and participants to participate in a sharing and co-creative process in which they both reflect their understanding about the wider world through stories and listen to one other and learn from each other. The workshop-based digital storytelling provides a unique opportunity for both facilitators and participants to reflect on their personal experiences.

3.3. Tools for digital narratives

Throughout the literature review process, we identified various tools that teachers and students can use to create their own digital stories. Digital stories can take many different forms, like videos, animations, talking avatars, comic books, eBooks, digital poems, how-to manuals with video, audio instructions, photo books etc. All these different kinds of digital stories can be designed through different digital tools (including Apps, websites, and downloadable programs). To facilitate the selection of appropriate digital tools, we divided our literature review results in categories, including tools for video or animation creation and edit (category 1), tools for digital books or comics creation (category 2), Apps for narrating stories (category 3), tools involving programming (category 4), iOS Apps (category 5), Paid Apps (category 6).

Category 1 - Tools for video or animation creation and edit

Toontastic

Toontastic is a storytelling App that enables children to create their own animated cartoons. With Toontastic children can draw their own characters and settings, customize existing Toontastic characters, and narrate adventures, breaking news stories, science reports, other ideas. it's easy to use and it is particularly designed for children aged 6-12. The Toontastic App helps children map out a story's plot by using story arcs and breaking up the story in three or more stages.

Wevideo

It is an online video editor that permits to easily create videos, podcasts, and GIFs. It is a cloud-based collaborative video creation platform, where you can save your work to your hard drive, upload to the cloud, and pick up where you left off on another computer. It is easy to use, however, free accounts have limitations in terms of video duration and cloud storage.

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[iMovie]

It is an App that allows you to edit your video (crop, rotate, adjust the video) and audio (add and edit sound effects, recordings, music etc.). It is a powerful and intuitive tool; you can use it to make your videos more interesting and exciting to watch.

[Stop Motion Studio]

It is an App with an easy-to-use interface that can introduce learners to the Stop Motion technique. The App is intuitive; it requires little explanation on how to use it. Learners can use Lego or craft material to design the animated objects. You can edit the stop motion video with the other video editing tools (e.g. iMovie, we video, etc.) to make it more attractive.

[Voki]

Voki is an educational tool (has a user-friendly interface and allows learners to create speaking avatars and customize their appearance (head, clothes, and accessories), background and voice (accent, and articulation). You can send a Voki message by sharing the link.

Category 2 - Tools for digital books or comics creation

[Pixton]

Pixton allows teachers and students to construct their own comic book. There is a variety of comic strip layouts, numerous characters and background choices, comics and learners can present their stories and ideas. It is a versatile learning tool, easy to use and suitable for children and teenagers and can be used in a variety of school projects.

[StoryboardThat]

Storyboard That is an easy drag-and-drop creation platform. It includes many layouts, and hundreds of characters, scenes, and items. Users can make their own digital storyboards. Once a storyboard is created, the user can present via PowerPoint, Google Slides, or Apple Keynote, or they can email the storyboard, post to social media, or embed it on a blog. If you do not pay a subscription, you can create only 2 storyboards per week and you have limited access to its features.

[Storybird]

Storybird is an art-inspired creative writing platform (also an App available for iOS and Android), that contains courses and

guides to boost learners' writing skills. Storybird allows learners to create their own e-books, comics, poems, and short stories. Storybird uses artwork from illustrators and animators and inspire writers of any age to turn those images into stories. It is easy to use, however, after the one week's trial you need to get a subscription to be able to use it.

Boom Writer

BoomWriter is a tool that quickly engages students in the writing process. Students read the first chapter of a story, then students write the next chapter based on what they think should happen next. Students can re-draft their work digitally. After the work has been approved, students then read a selection of anonymous chapters which they then need to vote upon. The voting stage provides the students with an opportunity to peer assess other students' writing. Knowing that other students will read their work, provides a true audience for writing and is a fantastic motivator. The winning writing becomes the next chapter in the published book the journey begins again.

Book Creator

Book Creator is a mobile (iOS/Chrome) app for putting together eBooks and digital stories with text, audio, images, and video. Students should read the tutorial and try to create a sample page within the tutorial. Once they're familiar with the basic functions, it's time for students and teachers to start creating a full project: fiction or nonfiction books, how-to manuals with video and audio instructions, photo books, comic strips, and more. It has a super-simple design which makes it easy to build pages, letting students focus on creativity.

Genially

Genially is a tool that allows the creation of all kinds of interactive teaching resources, as presentations, games, interactive images, maps, biographies, and digital stories, among others. Genially is ideal for all levels of education and it can be used by both teachers and students across all educational levels. It is intuitive and user-friendly. It has a variety of visual content and templates available related to

different fields. It requires the creation of an account, and it does not allow real-time collaboration among users.

Magic Green Screen Creator

It is a Greenscreen App for Android. This app is designed to help people experiment, learn, and to just have fun creating simple green screen videos. Shooting with a green screen involves filming a person in front of a solid colour, then removing the colour and adding the background of your choice.

Filmora

Filmora video editor is an easy-to-use video editor and movie maker with music, stickers, filters, text, audio, emoji, backgrounds, etc. Users can Just edit clips and add music, transition effects, text, emoji and filters. They can also use templates to create their own movies on TikTok, Instagram Reels, YouTube etc.

Category 3 - Apps for narrating stories

StoryTelling Cubes

This is an intuitive App designed to encourage students to create and narrate their own stories. These stories are created based on the images of an interactive dice. Students select a category (Animals, Buildings, Christmas, Cities, Energy, Fairy tale, Halloween, Seasons, Shopping, Sport, Travel, Village) or random dices from all categories and shake the phone or touch green field to roll dices. Then, they need to tell the story.

Category 4 - Tools involving programming

Scratch

Scratch is a free programming language and online community where primary and secondary school children can create their own interactive stories and animations. Scratch can be used at school in interdisciplinary projects or classroom activities. Scratch offers limitless possibilities for characters, backgrounds, sounds and actions. Learners can record their voice, choose a sound from the library, or insert any kind of music or sound that they want. Learners can find several examples of digital stories created on Scratch in the Scratch library and they can make a copy of someone else's project and modify it to add their own ideas. Teachers should pre-

teach coding on Scratch and familiarize their students with the interface before asking them to create an interactive story on Scratch.

Scratch Junior

ScratchJr is an App addressed to younger children (ages 5-7). Children can use Scratch Jr to create their own interactive stories. Learners can record their voice, choose a sound from the library, or insert any kind of music or sound that they want and paint their own backgrounds and characters.

Category 5 - iOS Apps

Little Story Creator

Little Story Creator lets you create, arrange, and get creative with videos, text, stickers, pictures, and audio to create a short story. This iOS App allows users to import media from their phones/tablets/computers and create a digital book that they can share.

Mingoville Storytelling

Mingoville Storytelling is an iOS application for primary school students (age 5 to 10) to practice their vocabulary by letting them retell a story told. In Mingoville Storytelling, the student can tell the stories with the use of hundreds of drawings, written words and by recording their own voice. Besides retelling the story, the students can also create their own stories with the drawings provided in the application or their own imagination. They can write or record their story and share it with their peers or teachers. The App has cute and colorful characters, it is fun to work with and it has a lot of scientific backing. You can create only one story for free.

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Category 6 - Paid Apps

Do ink

It is an easy-to-use Greenscreen App for iOs. It makes it easy to create videos, images, and GIFs by combining visual elements such as photos, videos, text, drawings, animations, and the live camera. The App lets users combine multiple image sources and combine images to make layers. It is not free to use.

Doodleinator

The Doodleinator allows users to draw frame by frame doodles that are turned into full-motion videos. This creates a flipbook-style animation that students can share with their peers or teachers. This application allows students to draw the stories themselves, rather than using media files like pictures or videos. This helps students not only with their digital storytelling, but also practice creative skills like drawing. It is easy to use, and students can draw their own characters and pictures. It is only available for Microsoft.

NAWMAL

Nawmal is a downloadable program that you can use to create an animated video. Teachers can make their lessons more engaging by presenting text-based material through an animated video, while students can also create their own videos, either as individual assignments or group projects. It is an easy to learn and fun to use versatile video-maker that allows users to develop their creativity. There's a free seven-day trial version, after that, users need to purchase a subscription.

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4. Digital Storytelling Activities

This toolkit includes activities that correspond to 4 digital narrative scenarios: Creation of a learning log, historical events or technological evolution, special moments, and fan bio. The pedagogical scenarios of the toolkit can be part of the school curriculum as they are closely associated with different primary school subjects: Language arts, Mathematics, Environmental Education, Geography, Science, and History. The digital storytelling activities include a detailed description of the steps for classroom implementation that includes target audience age, time needed for preparation and implementation, link to school subject, learning outcomes and resources (both online and offline). In the following section, an overview of the activities designed is presented.

4.1. Overview of the Digital Storytelling Activities

In this section, the activities designed are briefly presented per pedagogical scenario. Each activity corresponds to one or more school subjects that are common in the school curriculum among partner countries and targets a specific age group. The partner organisations authored the activities under the supervision of lead partner of this result - Stimmuli.

Activity	Author	Link to School Subject	Target Audience
Pedagogical Scenario 1- creation of a learning log			
Activity 1 - Welcome to My World!	SkillsUp	Language arts	7-12 years old
Activity 2 - Recycling!	The Square Dot Team	Language arts, Environmental Education	8-14 years old
Activity 3 - Book trailer		Language arts	7-10 years old
Activity 4 - Cycle stories		Language arts, Science	Primary school (all ages)

Pedagogical Scenario 2- historical events or technological solutions			
Activity 5 - A tour of the solar system		Language arts, Science	10 years old
Activity 6 - Alexander the Great and his conquests		Language arts, History, Science	10-12 years old
Activity 7 – Newton's 3rd law		Science Mathematics	12 years old
Activity 8 - Artificial Intelligence		Science	12 years old
Pedagogical Scenario 3: Special moments			
Activity 9 - Christmas digital poems		Language arts	7-9 years old
Activity 10 - Earth Day		Environmental Education, Geography, Science	10-12 years old
Activity 11 - Christmas Lego story		Language arts, History	6-9 years old
Activity 12 - A visit to NASA Space Center		Science, History, Mathematics	12 years old
Pedagogical Scenario 4: Fan bio			
Activity 13 - The life of Marie Curie		Language arts, Science	10-12 years old
Activity 14 – Learning about Virginia Woolf		History, Language arts	9-12 years old
Activity 15 - André Kuipers		History, Science	10-12 years old
Activity 16 - Leonardo Da Vinci		History, Science	10-11 years old

The full description of the activities is presented in the following section together with the target audience age, time needed for preparation and implementation, link to school subject, learning outcomes and resources (both online and offline).

4.2. Pedagogical Scenario 1: Creation of a learning log

Activity 1 - Welcome to My World!

Subject	Age of students
Language arts	7-12 years old

Learning Outcomes

By the end of the lesson students will have:

- communicated their feelings, become aware of their own feelings, and improved their social skills and empathy.
- improved their writing, broadened their vocabulary, practiced spelling, and learned how to formulate sentences with appropriate grammar, tenses, and vocabulary.
- become familiar with different types of media, learned how to incorporate them in an online book chapter, and created and edited digital content.

Time

Preparation time: 20 minutes

Teaching time: 2 hours and 15 minutes (Part 1: 30 mins; Part 2 and 3: 15 mins each; Part 4: 30 mins; Part 5: 45 mins)

Teaching material

Online:

- Book Creator
- Example of a learning log

Offline:

- A laptop or tablet per student, connected Wi-Fi.
- A laptop, a projector, and a timer for the teacher.

Lesson Plan

	Procedure	Time
Part 1 Introduction & Journal Day 1	The teacher introduces this activity and explains that during this week the students will be creating a journal; they will have 15 minutes every day to write, draw or create something that has been on their mind during the day. The teacher explains that this can be a happy/sad moment or something that happened during schooltime. To do this, students will use Book	30 mins (15 mins-introduction

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	Creator. The teacher shows how students can use this tool. The teacher also shows an example of Journal Day 1. Then, students are asked to work on their journals for Day 1 and include at least one picture (taken by them or found online). Students are encouraged to get creative with their journals.	& 15 mins journal creation)
Part 2 Journal Day - sound	The teacher asks the students to create an entry in their journal, but this time the students must include something with sound (video, a song or a recording) to showcase their feelings or memories of that day.	15 mins
Part 3 Journal Day 3- Drawing	The teacher will ask students to take 15 minutes to create an entry in their journal, but this time the students must include a drawing they made on the application. This can be a part of the chapter but also may be the only thing they put in the chapter.	15 mins
Part 4 Journal Day 4	On the fourth day, the teacher will ask the students to pair up and together think of a moment during their day that they want to put in their book, for example something that happened during recess. They will get 5 minutes to decide this. Every student will then create their entry for 15 minutes and afterwards compare how they expressed and experienced that moment differently for an additional 10 minutes.	30 mins
Part 5 Reflection (instead of evaluation)	The last day, the students are asked to create a chapter in their book on the past few days that they have been journaling. Did they like creating chapters or did they not like writing about their day and feelings? Afterwards, the teacher will ask students if they would like to share their thoughts on the process of journaling. The goal is to create a safe and open space for students to discuss their experiences. An active and fruitful discussion will be the result and the teacher can decide whether this activity is worth doing another time or possibly adapt the activity for other classrooms or colleagues. At the end of day 5, there will be a 15-minute open discussion to encourage students to share their thoughts and opinions on the past week. This is therefore not an assessment, but more an evaluation for the teacher on whether the classroom enjoyed this activity and was meaningful to them.	45 mins

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Activity 2 - Recycling

Subject	Age of students
Language arts, Environmental Education	8-14 years old

Learning outcomes

By the end of the lesson students will have:

- enhanced emotional intelligence and empathy and improved their teamwork and communication skills.
- raised their awareness and learned about the importance of recycling for the environment.
- improved their writing, reading and vocabulary skills and developed their critical thinking.
- learned how to create and edit digital content and become familiar with virtual learning tools.

Time

Preparation time: 1 hour

Teaching time: 2 hours

Teaching material

Online:

- BoomWriter
- Recycling – Chapter 1

Offline:

- 1 laptop and projector for the teacher (Internet is needed) and 1 PC/Laptop per student
- Quiz- recycling (to print out)

Lesson Plan

	Procedure	Time
Part 1 Introduction	The teacher discusses with the students the importance of recycling and presents the most common recyclable materials (paper, plastic, glass, and metal).	30 min
Part 2 Chapter 1	The class will collectively write a story about Recycling through BoomWriter. The teacher presents the first chapter of the book (it is about recycling and reusing materials).	10 min
Part 3 Writing my own chapter	Students can now continue the story and write the next chapter of the book using Boomwriter. Each student continues the story in his/her own way (explaining what people should do to reduce waste). After that, students submit their chapter through Boomwriter.	30 min
Part 4 Review	The teacher reads carefully all the chapters written by the students, she makes some changes or corrections if needed. Then the teacher posts them on BoomWriter.	20 min
Part 5 Evaluate my classmates	The students vote anonymously which chapter they like the best, and the winning chapter becomes chapter 2. The process is repeated in the next lesson until the book is finished. At the end of the lesson a quiz is given to students in order to check their knowledge about recycling.	30 min

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Activity 3 - Book Trailer

Subject	Age of students
Language arts, Environmental Education	7-10 years old

Learning outcomes

By the end of the lesson students will have:

- expressed and shared with their classmates their emotions about the book chosen to present.
- practiced spelling and improved reading and writing skills.
- created and edited digital content in the form of a video

Time

Preparation time: 1 hour

Teaching time: 2 hours

Teaching material

Online:

- WeVideo website
- WeVideo tutorials
- Infographic: Tips on how to make a book trailer
- Examples of a book trailer

Offline:

- 1 laptop/tablet per pair/group connected to the Wi-Fi
- 1 laptop and projector for the teacher
- stationary (e.g., notebooks, pens, pencils)
- The book that each team will present.

Lesson Plan

	Procedure	Time
Part 1 Book selection	The teacher asks students to discuss their favourite books. Groups of students (2-3 students) have to choose a book and promote among their peers through a short digital booktalk (like a movie trailer for a book).	10 mins
Part 2 Discussion	Students exchange opinions on the book's content (the plot, the main characters, the ending etc.) and explore the emotional connection with the book characters, the way they felt after reading it and communicate with each other.	30 mins
Part 3 WeVideo	The students will use WeVideo to create their own book trailer. The teacher instructs them how to use it through WeVideo tutorials. Students experiment with the website.	20 mins
Part 4 Creating the book trailer	The teacher asks the students to create a video book trailer, gives them tips through the Infographic: Tips on how to make a book trailer and shows them an example of a book trailer. The students in pairs/groups discuss the content and create their book trailer. When they face a problem, the teacher helps them out.	30 mins
Part 5- Evaluation	Finally, students present their videos and teacher evaluates them based on these criteria (quality of the narrative, plot, element of surprise, quality of sound effects, etc.)	30 mins

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Activity 4 - Cycle Stories

Subject	Age of students
Language arts, Science	primary school (all ages)

Learning outcomes

By the end of the lesson students will have:

- improved communication, collaboration, and problem-solving skills and responsibility and accountability.
- expressed thoughts and feelings in a creative way.
- acquired vocabulary related to the chosen topic, practiced spelling and improved reading and writing skills.
- created and edited digital content in different formats, to express oneself through digital means.

Time

Preparation time: 1 hour

Teaching time: 2 hours

Teaching material

Online:

- Pixton
- How to Use Pixton Guide
- Life Cycle Teaching Material
- Life Cycle Presentation
- Life Cycle of a Butterfly (video 1, video 2, infographic)
- The Water Cycle (online material)

Offline:

- 1 laptop/tablet per student connected to Wi-Fi
- 1 laptop and projector for the teacher
- stationary (e.g., notebooks, pens, pencils)
- Template -Life Cycle (to print out)
- Worksheets to print out or use online (Worksheet 1, Worksheet 2, Worksheet 3)

Lesson Plan

	Procedure	Time
Part 1 Introduction to Life Cycles	The teacher introduces the topic of life cycles to students using the following online resources (Life Cycle Teaching Material, Life Cycle Presentation, Life Cycle of a Butterfly video 1, video 2 infographic, The Water Cycle - online material) and pre-teaches some vocabulary.	15 mins
Part 2 Life Cycles	After that, students in pairs/teams complete some of the worksheets (Worksheet 1, Worksheet 2 or Worksheet 3) and then create their own life cycle through the Template -Life Cycle.	30 mins
Part 3 Pixton	Teacher shows students the Pixton Guide and students experiment with Pixton. To make the cycle "come alive", students in pairs/groups create a story from the first-person perspective of the "main character" (e.g., a drop of water, a caterpillar, a rock etc) using Pixton.	60 mins
Part 4 Evaluation	Afterwards, students present their creations to the rest of the class. When students finish their presentations, the teacher asks students questions about the different steps of cycles in nature and evaluates their knowledge.	15 mins

4.3. Pedagogical Scenario 2: Historical events or technological solutions

Activity 5 - A tour of the solar system

Subject	Age of students
Language arts, Science	10-12 years old

Learning outcomes of the lesson

By the end of the lesson students will have:

- achieved to write narratives to describe imagined experiences or events using their feelings and imagination and improved their communication skills.
- been able to use critical thinking and expressed their opinions with confidence.
- acquired knowledge about the solar system and improved reading and writing skills.
- created and edited digital content in different formats, to build confidence and connection.

Time

Preparation time: half an hour

Teaching time: 3 hours

Teaching material

Online:

- ScratchJr
- Scratch
- Scratch ideas
- Resources about the Solar System (National Geographic Kids, video)
- Scratch Resources (How to Build a Solar System Scratch Project, Scratch Solar System - Instructions, Tutorial 1 & Tutorial 2, Scratch project 1 Scratch project 2 Scratch project 3)

Offline:

- 1 laptop/tablet per student connected to the Wi-Fi
- 1 laptop and projector for the teacher
- stationary (e.g., notebooks, pens, pencils)
- Worksheet 1 and Worksheet 2 (to print out)

Lesson Plan

	Procedure	Time
Part 1 Introduction to the solar system	Students will design a space tour of our solar system. Before designing the space tour, students choose a planet and then they look for the answers to the following questions in pairs: • What is the planet's distance from the sun?	30 mins

	• What is the diameter of the planet? • Does the planet have any moons? If so, name them. • What is the atmosphere like on this planet? • Are there any unusual features about this planet? To find an answer to the questions, they will use books and/or online resources about the solar System (National Geographic Kids, video). After that, they will work on Worksheet 1 and Worksheet 2 in pairs.	
Part 2 **Creating the planetary tour**	Once the students have completed the activities, they are ready to begin creating their planetary tour. The teacher will let students know that they will present their tour and describe what tourists will see. Then, students will have to brainstorm ways they can share their knowledge and make others curious to take a planetary tour. They will talk about the feelings of a space-tourist and what they might experience on each planet.	30 mins
Part 3 **Familiarization with ScratchJr/ Scratch**	The teacher presents the ScratchJr (lower primary)/ Scratch (upper primary) , Scratch ideas Then, the teacher lets students explore Scratch for a while (sprites, backdrops, sound, blocks, etc.)	45 mins
Part 4 **Creating a Scratch project for the planetary tour**	The teacher asks the students to create an animation of the solar system on Scratch. The teachers presents some examples of solar systems created on Scratch (Scratch project 1 Scratch project 2 Scratch project 3). The students get inspired by these projects and create their own projects in teams - they add text, audio, narration, etc. When they face a problem, the teacher helps them out. Students can remix existing Scratch projects to create their own.	45 mins
Part 5 **Presentation & Evaluation**	When everyone is done, the teacher asks all teams to present their creations. In the end, students vote for the best planetary tour. Students' vote should be based on the following evaluation criteria: quality of the graphics, sound quality, quality of narration, movement, interaction, etc.	30 mins

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Activity 6 - Alexander the Great and his conquests

Subject	Age of students
Language arts, History, Science	10-12 years old

Learning outcomes

By the end of the lesson students will have:

- enhanced their empathy and their communication skills (each group will have to explain the feelings of their perspective)
- had a constructive and fruitful conversation with their classmates.
- learned about the life and conquests of Alexander the Great.
- improved reading and writing skills.
- created and edited digital content in different formats, to build confidence and connection.

Time

Preparation time: half an hour

Teaching time: 1 hour and a half

Teaching material

Online:

- Toontastic
- Suggested websites and videos for the students' research National Geographic Kids Biography 1 & Biography 2 ,The Story of Alexander the Great for Kids, Activity village, How Alexander the Great Conquered the Persian Empire, Video 1 video 2 video 3 video 4 video 5).

Offline:

- 1 laptop/tablet per student connected to the Wi-Fi
- 1 laptop and projector for the teacher
- stationary (e.g., notebooks, pens, pencils)
- Worksheet (to print out or use online)

Lesson Plan

	Procedure	Time
Part 1 Getting to know a historical figure	Students will have to search and gather information about Alexander the Great and his conquests using the suggested websites and videos (see teaching material). The teacher gives students some guiding questions: ● Which was the route of the cities/places that Alexander the Great's army passed? ● Who was living in the places mentioned in the previous question? ● What was their reaction to the new conqueror? ● What about the reaction/opinions/feelings of his own soldiers and people? ● What do we know about his ambitions and objectives?	20 mins

	Students in pairs look for the answers to the questions above and then complete the Worksheet about Alexander's conquests.	
Part 2 Preparing their arguments	The teacher divides the students into three groups that will represent three different points of view about Alexander's conquests: ● Alexander's point of view ● his army and people's point of view ● his enemies' point of view Each group will have to reflect on how each group felt about the war & Alexander's conquests and prepare some arguments to support their opinion.	20 mins
Part 3 Toontastic	The teacher presents Toontastic to students and lets them explore the tool and its potential.	10 mins
Part 4 Creating an animated cartoon.	The teacher asks students to create an animated cartoon presenting Alexander's conquests from the point of view that their team assumed, using Toontastic. The students create their projects in teams. When they face a problem, the teacher helps them out. When everyone finishes the cartoon, the teacher asks all teams to present their digital projects. After the presentation of each project, a discussion follows, and students try to reach a conclusion about the different points of view. Extension activity: do a role-play debate activity to demonstrate the different points of view.	30 mins

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Activity 7 – Newton's 3rd law

Subject	Age of students
Science, Mathematics	12 years old

Learning outcomes

By the end of the lesson students will have:

- created instructional videos for their peers.
- gained knowledge in science (Newton's third law) and mathematics (speed, acceleration, direction)
- developed their collaboration skills.
- used the Internet to gather knowledge about Newton's third law.

Time

Preparation time: 1 hour

Teaching time: 1 hour and a half

Teaching material

Online:

- iMovie (Windows & Mac)
- Filmora (Android & iOS)
- Video (Newtons 3rd Law of Motion - Action and Reaction)

Offline:

- 1 laptop/tablet per pair of students connected to the Wi-Fi
- 1 laptop and projector for the teacher

Lesson Plan

	Procedure	Time
Part 1 Introduction to Newton's 3rd law	The students will be introduced in Newton's 3rd law. The teacher will shortly explain the Law of Reaction and Action by showing students the Video (Newtons 3rd Law of Motion - Action and Reaction). Students look up further information online and find answers to the questions: **Question 1:** Who was Isaac Newton? **Question 2:** What's Newton's 3rd law?	30 mins
Part 2 Video creation	The students are now introduced to iMovie (Windows & Mac) or Filmora (Android & iOS). They are instructed how the tools work. The students get into pairs and are assigned to create a short video in which they answer the questions (**Question 1:** Who was Isaac Newton? **Question 2:** What's Newton's 3rd law?).	40 mins
Part 3 Presentation & Evaluation	When the videos are ready, students present their work to the rest of the class and. Then, the teacher asks students questions to study the learning outcomes of this activity (e.g., What is Isaac Newton most famous for? What is a reaction? What is force? What is mass? What is acceleration?	20 mins

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Activity 8 - Artificial intelligence

Subject	Age of students
Science	12 years old

Learning outcomes

By the end of the lesson students will have:

- reflected on the impact of Artificial Intelligence (AI) on their lives and discussed the arising ethical concerns.
- improved their communication and collaboration skills and learned about AI.
- created and edited digital content to make a short movie about AI.

Time

Preparation time: 1 hour

Teaching time: 1 hour and a half

Teaching material

Online:

- iMovie (Windows & Mac)
- Filmora (Android & iOS)

Offline:

- 1 laptop/tablet per student connected to the Wi-Fi
- 1 laptop and projector for the teacher

Lesson Plan

	Procedure	Time
Part 1 Introduction to AI	The students are introduced to the topic of Artificial Intelligence (AI). It is particularly important to know the students' background knowledge about the topic. The teacher shows some examples of AI and explains that AI collects information and learns on its own.	10 mins
Part 2 Identify AI products	The teacher shows students pictures of AI products on the projector and students raise their hands if they think that the pictures refer to an AI product. Then, students reflect on the advantages and disadvantages of AI in pairs. Advantages of Artificial Intelligence (reduction in human error, zero risks, 24x7 availability, digital assistance, new Inventions, unbiased decisions, performing repetitive jobs, etc.) & Disadvantages of Artificial Intelligence, (high costs, no creativity, unemployment, make people lazy, ethical concerns, etc.)	30 mins
Part 3 AI in our lives presentation & evaluation	The students think of AI products that might take over essential functions in our lives. E.g., robots in health care, teachers, self-driving cars etc., and discuss the potential impact of the AI products in pairs. They record their personal opinions through iMovie or Filmora (students are already familiar with the software -if not, introduce the software). When students' videos are ready, the teacher shows their work on the projector and there is a follow-up discussion on the impact of AI and related ethical issues. The teacher evaluates students' videos based on the following	50 mins

	criteria: video's content, video's clarity and organization, video's creativity, video's visual and audio quality, students' logical reasoning and critical thinking.	

4.4. Pedagogical Scenario 3: Special moments

Activity 9 - Christmas digital poems

Subject	Age of students
Language arts	7-9 years old

Learning outcomes

By the end of the lesson students will have:

- expressed and shared with their classmates their emotions about the Christmas holiday season.
- acquired vocabulary related to the Christmas season
- practiced spelling and improved reading and writing skills.
- created and edited digital content in different formats, to express oneself through digital means.

Time

Preparation time: 30 minutes **Teaching time:** 2 hours

Teaching material

Online:

- Voki website
- Poem example

Offline:

- 1 laptop/tablet per student connected to the Wi-Fi
- 1 laptop and projector for the teacher
- stationary (e.g., notebooks, pens, pencils)
- Worksheet 1: Christmas Poems (to print out)

Lesson Plan

	Procedure	Time
Part 1 Introduction to poetry	The teacher introduces the topic of today's lesson to the students that is: poems about Christmas. The teacher pre-teaches some vocabulary that might be unknown to the students (for example, aglow, peep, pinch, pine, etc.). Then, the teacher gives out the worksheets (see Annex) and then asks the students to read the poems in pairs. After reading the poems, a classroom discussion follows oriented by the guiding questions below: • Poem 1: What makes a perfect Christmas gift? • Poem 2: Why does the narrator pull the blankets up to his/her ears? • Poem 3: What does Santa look like?	15 mins

	• Poem 4: Where did the reindeers go? Why did they fly away?	
Part 2 Writing a poem	The teacher asks the students to write their own Christmas poem in pairs. They need to write a poem about the Christmas holiday season and explain how they usually feel during Christmas and why. Optional activity: the teacher could ask the students to include some specific words in the poem, for example: jolly, tree, magic, thin, night. Also, the teacher could ask the students to make a poem that rhymes.	15 mins
Part 3 Familiarization with Voki	The teacher asks the students how they would feel if they had to read the poems in front of the class. Would they feel confident? Would they feel shy? To avoid making some of the children feel embarrassed, there is a tool that children can use to make an avatar recite the poem for them. They can create their own avatar through The Voki website. The teacher uses the projector to explain how students can create their own avatar, change its features and how they can add voice. The teacher lets the students experiment on the Voki website.	30 mins
Part 4 Making your own digital poem on Voki	The teacher asks the students to create an avatar that recites their poem. The teacher shows them a poem example. The students create their avatars in pairs and add voice. When they face a problem, the teacher helps them out.	30 mins
Part 5 Presentation & Evaluation	When everyone is done, the teacher asks all pairs to present their digital poems recited by the avatars. The teacher evaluates students' work based on the following criteria: creativity and originality, animation's visual and audio quality, language and word choice, rhythm and sound, theme and message, emotional impact, etc.	30 min

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Activity 10 - Earth Day

Subject	Age of students
Environmental Education, Geography, Science.	10-12 years old

Learning outcomes

By the end of the lesson students will have:

- enhanced their emotional intelligence and empathy and improved their teamwork and communication skills.
- raised awareness on environmental issues, nature conservation and environmental movements.
- improved their digital skills and learned how to create and edit digital content.
- created and edited digital content in different formats and learned how to use tablets for photo/video-graphy and greenscreen.

Time

Preparation time: 15 minutes once the needed software is installed

Teaching time: 2x 50'

Teaching material

Online:

- Do ink App (iOS) Magic Green Screen App (Android) or any other app that is capable of generating a greenscreen video / image.
- Image search engine for images of animals and natural areas (google, bing, duckduckgo, etc.)
- Resources Earth Day (Earth Day) and environmental organizations (WWF, Greenpeace, Amazon Forest)

Offline:

- 1 tablet or smartphone per child is preferred, but you can also do it as a group lesson with 1 tablet or smartphone.
- Greenscreen canvas (or 1 wall in the same colour if the app permits change of colour)

Lesson Plan

	Procedure	Time
Part 1 Introduction to Earth Day	The teacher tells students when the Earth Day is (22nd of April) and what it is all about.	10 mins
Part 2 Environmental organizations	Then, the teacher asks students what they can do to protect the environment. The teacher presents certain organisations (e.g., Greenpeace, wildlife protection organizations like WWF or other local equivalent organisations).	20 mins
Part 3 My favourite natural areas and animals	After the kids have learned about these organizations and what they do, they are asked which animals or which natural areas (e.g., Amazon Forest, local forests, Seas, …) they like. Together with the teacher they will search for pictures (using google, bing, or duckduckgo, etc.) of these areas or animals on their tablets and save the pictures.	15 mins

Part 4 **Green screen time!**	Now comes the technical part of this activity, the kids will now take pictures in front of the greenscreen using Do ink App (iOS) or Magic Green Screen App (Android). This can be done in different poses, a few examples: 1. A student loves gorillas and takes a picture with them. The student takes a picture in front of the greenscreen and acts like his/her arm is around the gorilla and it looks like he/she is hugging the gorilla. 2. Another student loves the oceans and would like a picture sitting at the beach. The student sits down in front of the greenscreen like he/she is on the beach. 3. A student loves the Amazon rainforest and wants to have a picture like he/she is hanging from a branch. The student poses in front of the greenscreen with his/her arms up acting like he/she is holding onto a branch. Afterwards, a picture of a tree with a branch is be added. It is important here for the students to learn how to use the greenscreen tool and to think about what the picture they are creating means to them. (Tip: help one student and use her/him as an example for the rest. Then let the kids try to do it independently.)	35 mins
Part 5 **Sharing**	After the photo session, each student shows the picture made and narrates a story based on that picture. Students are encouraged to explain why they took that picture and make it personal. For example, 'Why is this animal/place so important to you?'	15 mins
Part 6 **Reflection**	To round up the lesson, it's important to reflect on why students created these pictures in the first place. Remind them of the importance of nature preservation and the environment. This will raise students' awareness on environmental issues, nature conservation and recycling.	5 mins

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Activity 11 - Christmas Lego story

Subject	Age of students
Language arts, History	6-9 years old

Learning outcomes

By the end of the lesson students will have:

- created narratives using imagination and expressing their feelings.
- improved their communication and collaboration skills.
- learned about Christmas and acquired related vocabulary.
- created and edited digital content in different formats and learned how to make a stop motion video.

Time

Preparation time: half an hour

Teaching time: 1 hour

Teaching material

Online:

- Stop Motion Studio
- Video about Christmas
- Stop Motion Video example

Offline:

- A lot of Lego cubes
- Photo camera's
- Laptop or tablet

Lesson Plan

	Procedure	Time
Part 1 Introduction to the topic of Christmas	The students are introduced to the topic of Christmas. It is important to know students' prior knowledge about the topic. If they grow up in Christian culture, they probably know more about the Christmas than if they are not. It might be helpful to watch a video about Christmas (example). The teacher writes down the key events (Mary and the Angel, Mary and Joseph to Bethlehem, Mary and Joseph in the baby, Angels in the sky, Shephards, Wise men).	10 mins
Part 2 Christmas story creation	The students are introduced to Stop Motion Studio and learn how the tool works. They are asked to make a video of Christmas by 'playing' the Christmas story with Lego cubes (Stop Motion Video example). All key events need to be introduced to the video.	40 mins
Part 3 Presentation & Evaluation	When the videos are ready, students present their work to the rest of the class. This might also be done in a follow-up lesson (if time is up). The teacher evaluates students' work based on the following criteria: creativity and originality, execution of stop motion technique, visual composition, quality of the narrative, etc.	10 mins

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Activity 12 – A visit to NASA Space Center

Subject	Age of students
Science, History, Mathematics	12 years old

Learning outcomes

By the end of the lesson students will have:

- developed their communication, teamwork, motivation, and adaptability skills.
- acquired knowledge of Newton's First and Second law of Motion.
- improved their keyboard writing skills.
- acquired data literacy skills and learned how to edit digital content.

Time

Preparation time: 1 hour

Teaching time: 2.5 hours

Teaching material

Online:

- Virtual museum website- Newton's Laws of Motion inSpace!
- Newton's Second Law of Motion experiment
- iMovie (Windows & Mac)
- Filmora (Android & iOS)

Offline:

- Notebook, pen and pencil
- 1 laptop or tablet per 2 or 3 students
- NASA Research Worksheet (to print out)

Lesson Plan

	Procedure	Time
Part 1 Introduction to the lesson	The teacher introduces the topic of the lesson: Newton's laws of Motion in Space. Teacher asks students if they know what NASA is and explains what role NASA plays. The teacher distributes the NASA Research Worksheet; students write down the answers to the questions.	20 min
Part 2 Virtual tour	Students are divided into small groups and each group is given access to a laptop or tablet. Teacher provides the link to access the virtual museum website. Students watch the tour being guided by the teacher. The teacher explains every slide by asking students what they can see on each slide and explaining how the laws of motion work in space.	30 min
Part 3 Movie experiment	1. Teacher shows students an example of the Second Newton's Law of Motion by striking the ball. The force given to the ball affects its acceleration. The harder you strike the ball the faster it moves. The teacher shows students an experiment about Newton's Second Law of Motion and asks students to perform it themselves. 2. Teacher asks groups of students to conduct the experiment and take a few photos (up to 5) of the experiment. Each photo represents a different stage of the process. Then,	60 min

	the teacher shows how to make a short slideshow movie (up to 1 min long) using iMovie or Filmora. a) The teacher asks the group of students to prepare: ➔ a small flat board, ➔ an object such as a rubik's cube, ➔ a ruler ➔ two small balls, a lighter one and a heavy one ➔ a cup to support the board b) The teacher asks the groups of students to angle the board by supporting it with the cup. The rubik's cube should lie down next to the board at the bottom. c) First, students are asked to roll a light ball towards the rubik's cube d) Then, they measure the distance from the end of the board to the rubik's cube with a ruler e) Students then repeat the same task with a heavier ball. The result of the experiment will illustrate that the rubik's cube can only accelerate if it is under the influence of forces. The distance from the rubik's cube and the board will be bigger only when it is pushed by the heavier ball. The Rubik's cube will only move and change position under the influence of a heavier ball.	
Part 4 Presentation & Evaluation	Each group of students presents their movie to other classmates and teachers encourage the exchange of opinions and feedback. In the end, the teacher asks students questions to check their understanding of Newton's First and Second law of Motion.	30 min

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Pedagogical Scenario 4: Fan bio

Activity 13 - The life of Marie Curie

Subject	Age of students
Science, Language and History	10-12 years old

Learning outcomes

By the end of the lesson students will have:

- improved their empathy, developed an awareness of others' feelings, improved their social and communication skills.
- learned about women's position in society and academia.
- learned about scientific research (physics, chemistry, radioactivity, polonium, etc.)
- improved their reading and writing skills and developed their critical thinking.
- learned to articulate information needs, to locate and retrieve digital data, information, and content, to judge the relevance of the source and its content.
- learned to create and edit digital content.

Time

Preparation time: 1 hour

Teaching time: 1 hour and a half

Teaching material

Online:

- Pixton Application

Offline:

- 1 laptop/tablet per student connected to the Wi-Fi
- 1 laptop and projector for the teacher
- stationary (e.g., notebooks, pens, pencils)
- Worksheet 1: Biography Research (to print out)
- Worksheet 2: Storyboard Worksheet (to print out)

Lesson Plan

	Procedure	Time
Part 1 Biography Research	The teacher introduces the topic of today's lesson to the students: the life of Marie Curie, the important physicist and chemist who conducted pioneering research on radioactivity. The teacher asks students to look up information online about Marie Curie's life and research. Students in pairs look up information online about Marie Curie and complete Worksheet 1: Biography Research.	20 mins
Part 2 Familiarization with Pixton	The teacher tells the students that they will make their own comics about Marie Curie's life in pairs. To make the comics, the students will use Pixton; it allows users to construct their own comic strips and provides a variety of comic strip layouts, numerous characters, and	20 mins

	background choices. The teacher shows students how they can use Pixton by creating an example of comic strips and demonstrating the steps on the projector.	
Part 3 Storyboard Creation	The teacher asks students to select an important life event or accomplishment of Marie Curie and make a comic strip about it. The first step to make a comic would be to create a storyboard. The storyboard is a graphic organizer that consists of illustrations or images displayed in sequence and helps students plan their digital stories. The teacher gives out Worksheet 2: Storyboard Worksheet and asks the students to sketch or take notes on the storyboard boxes in pairs, planning in this way their comics.	20 mins
Part 4: Digital Story Creation, Presentation & Evaluation	The teacher asks the students to create the comics in pairs using Pixton. The students should create the comics based on the storyboard they previously elaborated. When the comics are ready, students show them to their classmates and exchange feedback. Finally, the teacher collects students' worksheets (Worksheet 1: Biography Research), marks them and evaluates students' reading and writing skills.	30 mins

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Activity 14 - Learning about Virginia Woolf

Subject	Age of students
History and Language arts	9-12 years old

Learning outcomes

By the end of the lesson students will have:

- enhanced their emotional intelligence and empathy (developed an awareness on the harsh conditions women had to live under as well as developed an understanding of their feelings).
- improved their collaboration and communication skills.
- learned about the societal norms and gender roles of Woolf's era (women's inequality and suppressive norms).
- Improved their research and writing skills, developed analytical skills - gathered and interpreted data and information, learned how to judge the relevance of the source and its content.
- learned how to create and edit digital content.

Time

Preparation time: less than 1 hour

Teaching time: 1 hour and a half

Teaching material

Online:

- Scratch interface
- Scratch tutorial
- Scratch digital story example

Offline:

- PC/Laptop per group
- Laptop and projector for the teacher
- Stationary (sticky-notes, pens, etc.)
- Worksheets (2) (to print out)

Lesson Plan

	Procedure	Time
Part 1 Getting to know Virginia Woolf	The teacher introduces the topic, proceeds to divide the students into small groups and gives out Worksheet (1) – Getting to know Virginia Woolf in which students write down a few basic facts about the novelist. Students fill in the worksheet by looking up information about Virginia Woolf online.	15 mins
Part 2 Identifying the societal norms	After completing the first worksheet the students are given a second Worksheet (2) in which they have to identify the societal norms and gender roles of Woolf's era through her novels. To achieve that, students look up online summaries of Woolf's novels.	10 mins
Part 3 Familiarisation with SCRATCH	The teacher introduces SCRATCH, the programming interface that students can use to create their digital stories. The teacher navigates and shows them how to use SCRATCH. The teacher shows them this Scratch tutorial. After the tutorial finishes, the students will have some time to explore SCRATCH to familiarise themselves further with the interface.	20 mins
Part 4 Creation, Presentation & Evaluation	Finally, this is the part where the students create an animation (Scratch digital story example). It could be a brief story on her life or a part of it - based on the information that the students have already found. Teacher evaluates students' work based on the quality of the graphics, sound quality, quality of narration, movement, interaction, etc.	45 mins

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Activity 15 - André Kuipers

Subject	Age of students
History, Science	10-12 years old

Learning outcomes

By the end of the lesson students will have:

- enhanced their emotional intelligence and empathy.
- improved their collaboration and communication skills.
- learned about science and Andre Kuipers' space trips made and their influence on his thoughts and feelings about nature- and eco-friendly behaviours.
- improved their research and writing skills, developed analytical skills, and gathered and interpreted data and information.
- learned how to judge the relevance of the source and its content and learned how to create and edit digital content.

Time

Preparation time: 1 hour

Teaching time: 1 hour and a half

Teaching material

Online:

- Scratch
- Scratch tutorial

Offline:

- PC/Laptop per group & laptop and projector for the teacher
- Stationary (sticky-notes, pens, etc.)
- Worksheet- Facts about Andre Kuipers (to print out)

Lesson Plan

	Procedure	Time
Part 1 Getting to know Andre Kuipers	The teacher introduces the topic and students learn about André Kuipers' life, career and involvement with environmental activism. The teacher divides students into small groups and gives out Worksheet- Facts about Andre Kuipers, in which students write down a few basic facts about the scientist/space. The teacher collects the worksheets, lists up some basic facts about André Kuipers and makes sure the students are familiar with his life, career and efforts to protect the environment. Students are stimulated by the teacher reflect on their own lifestyle, its sustainability and impact on the environment. How can students change their lifestyle so that it becomes more sustainable?	30 mins
Part 2 Using Scratch	The teacher introduces Scratch, the programming interface that students can use to create digital stories. The teacher navigates Scratch and presents a brief Scratch tutorial. Then, students will have some time to explore Scratch and its potentialities.	30 mins
Part 3 Creating a digital advertisement	Finally, the students are asked to create a short advertisement in groups for their family in which they show how they can live in a more sustainable way at home (e.g., recycling bins, shorter showers etc.). The life of André Kuipers inspires them to adopt a more sustainable lifestyle.	30 mins

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Activity 16 - Leonardo Da Vinci

Subject	Age of students
History, Art, Science	10-11 years old

Learning outcomes

By the end of this activity students will have:

- learned about the link between curiosity, motivation and achievement and increased their self-awareness.
- learned about different jobs (scientist, architect, musician, engineer, painter, etc.), historical facts and socio-economic aspects of the XV century.
- learned to articulate information needs, locate and retrieve digital data, information, and content, judge the relevance of the source and its content and create and edit digital content.

Time

Preparation time: 1-2 hours

Teaching time: 2 hours

Teaching material

Online:

- Stop Motion Studio

Offline:

- 1 laptop/tablet per student connected to the Wi-Fi
- 1 laptop and projector for the teacher
- stationary (e.g., notebooks, pens, pencils)
- Biography Research Worksheet (to print out)
- Storyboard Worksheet (to print out)

Lesson Plan

	Procedure	Time
Part 1 Introduction to the activity	The teacher introduces the topic of today's lesson to the students: the life of Leonardo Da Vinci, the famous artist, scientist, and inventor of the Italian Renaissance. Leonardo Da Vinci is also considered to be the first to write a professional resume, when in 1482 he was trying to work for the Duke of Milan, Ludovico il Moro. If Leonardo Da Vinci could use today's technology, how would he present his works to the Duke to obtain the job he wishes? The teacher informs the students that they will create Leonardo Da Vinci's video portfolio and explains to students what a video portfolio is.	20 mins
Part 2 Biography Research	The teacher asks students to look up information online about Leonardo Da Vinci life, professions and works. Students in pairs look up information online about Leonardo Da Vinci and complete the Biography Research Worksheet.	30 mins
Part 3 familiarization with Stop Motion Studio	The teacher explains to students that they will design a Video portfolio. They will use the Stop Motion Studio App that allows users to create stop-action movies and provides frame-by-frame editor, timeline, and sound editor. The teacher shows students how they can use Stop Motion Studio by creating an example of a movie and demonstrating the steps to follow on the projector.	20 mins

Part 4 Storyboard Creation	The teacher asks students to select at least two works performed by Leonardo Da Vinci for each of the professions they have discovered (painter, sculptor, engineer, etc.). The first step to make the video is to create a storyboard. The storyboard is a graphic organizer that consists of illustrations or images displayed in sequence and helps students plan their digital stories. The teacher gives to students a Storyboard Worksheet and asks them to sketch or take notes on the storyboard boxes in pairs in order to plan their video.	20 mins
Part 5 Digital Story Creation	The teacher asks the students to create the video in pairs using Stop Motion Studio. The students should create the video based on the Storyboard Worksheet they previously elaborated. When the videos are ready, students show them to their classmates and exchange feedback. When the lesson is completed, the teacher collects the worksheets and videos created and evaluates students' writing skills, collaboration skills, organizational skills (based on the richness, completeness, accuracy of the storyboard worksheet) and the video artwork created.	30 mins

5. Assessment Framework

5.1. Introduction

To evaluate students' learning outcomes after participating in the activities (section 4), two evaluation tools have been developed; the first tool targets students, while the second one targets teachers. In both cases, the aim is to trace students' learning - if the learning objectives were met successfully. In addition, the tools aim to collect information on students' satisfaction with the activity and teachers' views on the appropriateness of the activity. Both tools are presented in following subsections in more detail.

5.1.1. Self-assessment Worksheet (for students)

This worksheet targets students that participated in the digital storytelling activity (see the table below). It aims to collect information on the learning outcomes achieved and trace students' overall satisfaction with the activity. Regarding the learning outcomes, the students are asked to report whether they improved their knowledge and/or skills on the area of the activity (questions 1-4). Students are also asked to report their satisfaction with the activity -if it was fun, interesting, easy, if they would like to participate in similar activities (questions 5-8). Students report their views by marking the icon that describes best how they feel about the activity they participated in.

Template - Self-assessment worksheet

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the icon that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about _____			
2. I learned about _____			
3. I practiced _____			
4. I feel _____			
5. The activity was fun.			
6. The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

5.1.2. Assessment & Self-reflection Form (for teachers)

The teachers who embedded the digital storytelling activities in their teaching can use the Assessment & Self-reflection Form to evaluate their students' learning and self-reflect on the activity and its implementation (see the table below). First of all, the Form studies whether the

learning outcomes have been achieved regarding students' development of knowledge, skills and socio-emotional intelligence and empathy (questions 1-3). Then, the Form studies whether the teacher broadened his/her knowledge regarding the integration of digital storytelling in the learning and teaching process (question 4). Teachers are also asked to self-reflect on how the students reacted to the activity (questions 5-6) and think about its suitability and implementation (questions 7-9). Finally, teachers are asked to report whether they would be willing to implement similar activities in their teaching (question 10) and are requested to reflect on the strong and weak aspects of the activity (question 11-12). Teachers report their views by completing the table below.

Template- Assessment and Self-reflection Form

After implementing the digital storytelling activity in your class, evaluate your students' learning and reflect on the implementation and suitability of the activity by completing the following form:

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. My students learned about _____.					
2. My students developed their _____ skills.					
3. My students improved their _____.					
4. I learned that through digital storytelling _____.					
5. The activity was fun and interesting for my students.					
6. Students did not					

encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

5.2. INTERACTed Activity Assessment

As each of the activities designed for the INTERACTed Learning Toolkit substantially differ in terms of content, the templates presented in the previous section have been adapted to fit each activity. The structure and content of the template are maintained, however, in some cases additional questions are added to include all important aspects of the activity. The templates for each activity are provided below:

5.2.1. Activity 1 - Welcome to my World!

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned how to create and edit content on Book Creator.			
2. I learned how to express my feelings.			
3. I practiced my writing and communication skills.			
4. I expressed how I felt in a specific moment in my day in a creative way.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned how to express their feelings.					
2. My students improved their writing skills.					
3. My students learned how to create and edit digital content.					
4. My students had the chance to express their emotions in a creative way.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.2. Activity 2 - Recycling!

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned why it is important to recycle.			
2. I learned new vocabulary about the environment.			
3. I practiced my writing skills.			
4. I felt I could express my thoughts about the environment using Boomwriter.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

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Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned the importance of recycling.					
2. My students developed their communication skills.					
3. My students improved their writing skills.					
4. My students had the chance to express their thoughts through Boomwriter.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.3. Activity 3 - Book Trailer

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I practiced spelling.			
2. I learned how to create and edit digital content.			
3. I practiced my writing and communication skills using WeVideo.			
4. I expressed and shared with my classmates my emotions about the book I chose to present.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students practiced their spelling					
2. My students practiced their writing and communication skills					
3. My students learned how to create and edit digital content.					
4. My students had the chance to express and share with their classmates their emotions about the book they chose to present.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

5.2.4. Activity 4 - Cycle stories

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned new vocabulary about life cycles.			
2. I learned how to use Pixton.			
3. I practiced spelling and writing.			
4. I created my own life cycle.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

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Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned new vocabulary about life cycles.					
2. My students practiced their spelling and writing skills.					
3. My students learned how to create and edit digital content through Pixton.					
4. My students had the chance to express their thoughts in a creative way.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.5. Activity 5 - A tour of the solar system

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about the solar system.			
2. I learned how to use Scratch.			
3. I practiced writing.			
4. I expressed my opinions.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

Assessment & Self-reflection Form (for teachers)

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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned about the solar system.					
2. My students improved their writing and reading skills.					
3. My students learned how to create and edit digital content in Scratch.					
4. My students had the chance to express their opinion confidently.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.6. Activity 6 - Alexander the Great and his conquests

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about the life & conquests of Alexander the Great.			
2. I learned how to use Toontastic.			
3. I practiced my reading and writing skills.			
4. I feel that I had fruitful conversations with my classmate.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

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Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students about the life & conquests of Alexander the Great.					
2. My students improved their reading and writing skills.					
3. My students learned how to create and edit digital content through Toontastic.					
4. My students had the chance to have constructive and fruitful conversations, expressing different points of view.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.7. Activity 7- Newton's 3rd law

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about Newton's 3rd law.			
2. I learned how to use iMovie or Filmora.			
3. I learned a lot about science and maths.			
4. I feel that I had a fruitful collaboration with my classmates.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students about Newton's 3rd law.					
2. My students improved their collaboration skills.					
3. My students learned how to create and edit digital content through iMovie or Filmora.					
4. My students had the chance to do research and explain what they learned through videos.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.8. Activity 8 - Artificial Intelligence

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about Artificial Intelligenc/			
2. I learned how to use iMovie or Filmora.			
3. I learned a lot about science and maths.			
4. I feel that I had fruitful dicsussions with my classmates.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

Assessment & Self-reflection Form (for teachers)

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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students about AI.					
2. My students improved their collaboration skills.					
3. My students learned how to create and edit digital content through iMovie or Filmora.					
4. My students had the chance to think critically and express their personal views on AI.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

5.2.9. Activity 9 - Christmas digital poems

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned new vocabulary about Christmas.			
2. I learned how to create Avatars with Voki.			
3. I practiced reading and writing.			
4. I expressed how I feel about Christmas.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned new Christmas vocabulary.					
2. My students developed their reading and writing skills.					
3. My students developed their digital skills.					
4. My students had the chance to express their emotions about Christmas.					
5. I learned that through the creation of Avatars my students can express and share their feelings with their classmates.					
6. The activity was fun and interesting for my students.					
7. Students did not encounter any specific difficulties throughout the activity.					
8. The teaching materials provided were appropriate.					
9. The teaching time was enough.					
10. The activity was suitable for the age of my students.					
11. I would like to use similar activities in my classes in the future.					
12. What would you particularly praise about the activity? _____					
13. What improvements would you suggest for the activity? _____					

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5.2.10. Activity 10 - Earth Day

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about important environmental problems.			
2. I learned about the Earth Day.			
3. I learned how to use the green screen.			
4. They learned how to look for a picture of their subject online.			
5. I expressed how I feel about the photo I took.			
6.The activity was fun.			
7.The activity was easy.			
8. The activity was interesting.			
9. I would like to work with green screen again.			

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Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned about some important environmental problems.					
2. My students learned about Earth Day.					
3. My students learn how to use greenscreen.					
4. My students had the chance to express their emotions about a specific place/animal and why it is important to them.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.11. Activity 11 - Christmas Lego Story

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1.I learned a lot about Christmas.			
2. I learned how Stop motion video works.			
3. I collaborated with my classmates.			
4. I use my imagination and expressed my feelings.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

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Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned about Christmas.					
2. My students learn about stop motion video.					
3. My students improved their collaboration skills.					
4. My students had the chance to express their feelings and use their imagination.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.12. Activity 12 - A visit to NASA Space Center

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about Newton's laws of motion in space.			
2. I learned some facts about NASA.			
3. I made a slideshow movie.			
4. I felt that presenting my work to our classmates helped me to better understand the experiment.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

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Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned about Newton's Laws of motion in space.					
2. My students developed their content creation and digital skills by creating a slideshow movie.					
3. My students improved their communication skills.					
4. My students had the chance to present their work and understand the experiment better.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.13. Activity 13 - The life of Marie Curie

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about Marie Curie's life and research.			
2. I learned how to make my own comics with Pixton.			
3. I practiced reading and writing.			
4. I feel I can better understand women scientists now.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

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Assessment & Self-reflection Form (for teachers)

	1	2	3	4	5
1. My students learned about Marie Curie's life and research.					
2. My students developed their reading and writing skills.					
3. My students developed their digital skills.					
4. My students improved their empathy.					
5. I learned that through the creation of digital comics my students can enhance their knowledge about science.					
6. I learned that through the creation of digital comics my students can acquire skills and improve their empathy.					
7. The activity was fun and interesting for the students.					
8. Students did not encounter any specific difficulties throughout the activity.					
9. The teaching materials provided were appropriate.					
10. The teaching time was enough.					
11. The activity was suitable for the age of my students.					
12. I would like to use similar activities in my classes in the future.					
13. What would you particularly praise about the activity? _____					
14. What improvements would you suggest for the activity? _____					

***Scale: 1 Strongly Disagree/ 2 Disagree/ 3 Neutral/ 4 Agree/ 5 Strongly Agree**

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5.2.14. Activity 14 - Virginia Woolf

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about gender and societal norms of Woolf's era.			
2. I learned how to create a short digital story on SCRATCH.			
3. I did research with my classmates.			
4. I expressed my feelings in the digital story.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned about gender and societal norms of Woolf's era.					
2. My students improved their research and collaboration skills.					
3. My students developed their digital skills.					
4. My students had the chance to express themselves about Woolf's life.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

5.2.15. Activity 15 - André Kuipers

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned who André Kuipers is.			
2. I learned how to lead a more sustainable lifestyle.			
3. I collaborated with my classmates.			
4. I learned how to use Scratch.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

Assessment & Self-reflection Form (for teachers)

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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned about André Kuipers.					
2. My students developed their digital skills.					
3. My students improved their collaboration skills.					
4. My students had the chance to reflect on how we can lead a more sustainable lifestyle.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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5.2.16. Activity 16 - Leonardo Da Vinci

Self-assessment Worksheet (for students)

NAME _____ **CLASS _____**

DATE _____

What do you think of the activity? Mark the face that describes best how you feel.

	No 	So and so 	Yes! 
1. I learned about Leonardo Da Vinci.			
2. I learned how to create stop-action videos in Stop Motion Studio.			
3. I did research with my classmates			
4. I feel curious about Da Vinci's life and work.			
5.The activity was fun.			
6.The activity was easy.			
7. The activity was interesting.			
8. I would like to participate in similar activities in the future.			

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Assessment & Self-reflection Form (for teachers)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My students learned about Leonardo Da Vinci.					
2. My students developed their content creation and digital skills.					
3. My students improved their research and collaboration skills.					
4. My students had the chance to express themselves through the video.					
5. The activity was fun and interesting for my students.					
6. Students did not encounter any specific difficulties throughout the activity.					
7. The teaching materials provided were appropriate.					
8. The teaching time was enough.					
9. The activity was suitable for the age of my students.					
10. I would like to use similar activities in my classes in the future.					
11. What would you particularly praise about the activity? _____					
12. What improvements would you suggest for the activity? _____					

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