TALENT MAKER

Teacher's Guide

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Talent-Based Learning and Maker Education in the context of Hybrid Education after Covid-19

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Authors: Maria Berrocal, Jordi Freixenet, Eduard Muntaner, Cristina Riu, Clara Puig, David Mena, Laura Lladó, Marius Marian, Delia Pirvu, Norica Cioaca, Adrian Veliscu, Nikolaos Antonopoulos, Maria Skantzouraki, Elina Diavadianaki, Sofia Kyriakaki, Marianna Paschalidou, Kostas Diamantis, Anastasia Diamantis.

Ilustrations: Maria Berrocal

Graphic Design: Anna Ferrarons

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The guide was co-designed by the UdiGitalEdu team from the **Universitat de Girona** with expertise in Creative Technologies and Maker Education [Jordi Freixenet, Eduard Muntaner-Perich, Maria Berrocal], researchers from the **Universitatea din Craiova** with experience in computer and engineering educational activities [Marius Marian, Eugen Ganea, Florin Stinga] and staff from **Action Synergy** with a long trajectory in Erasmus + projects in the field of social inclusion [Kostas Diamantis, Anastasia Diamantis]. In addition to teachers from **Escola El Pla** [Cristina Riu, David Mena, Laura Lladó, Clara Puig, Mireia Costa, Lydia Navarro, Ariadna Pou, Yolanda Lafuente, Olga Obiols, Anna Guitart, Ricard Miana, Txell Puig, Elisabet Pagespetit, Marc Salvadó, Ismael Pinero, Sílvia Ligero, Núria Parareda, Rosa Muñoz, Montse Salas, Pablo Galan, Pau Martí, Paula Vilagran, Silvia Picart, Miranda Fonfria, Marta Bermudez, Raquel Benítez], **Liceul Tehnologic Constantin Ianculescu** [Antonela-Silvia Dan, Simona-Ștefania Chiriță, Ioana-Mădălina Popescu, Delia-Mihaela Pîrvu, Norica Cioacă, Adrian-Cristian Velișcu] and **1st Dimotiko Scholeio Alikarnassou** [Nikolaos Antonopoulos, Maria Skantzouraki, Elina Diavadianaki, Sofia Kyriakaki, Marianna Paschalidou, Ioannis Panagiotakis, Vassiliki Apostolopoulou, Sofia Papadopoulou, Chrysoula Trentsiou, Maria Margaritaki, Aikaterini Kariotaki], who not only tested in their classrooms the methodology and the activities proposed by the project but also created the Digital Educative Capsules gathered in this Guide and the Digital Capsules Catalogue available in the project website.

Furthermore, it counted on the collaboration and ideas of Adele Bracci from the University of Bologna (Italy) and the students Berta Espona, Mayssae Essabbar, Roger Feliu and Anna Gómez from the University of Girona.

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1.1- Teacher's Guide Introduction

The Talent Maker Guide is addressed to teachers, particularly pursuing to help multicultural school teachers. Nonetheless, considering that the activities might also take place at home, it includes some hints and indicators for families.

It is arranged in five chapters preceded by an introduction that gathers the prelude of this book, the explanation of the project and its context; and concluded with the project conclusions and the bibliography.

The first section includes the Theoretical Revision that establishes the bases of the project, a justification of the election of the Creative Thinking Spiral approach for the Digital Educative Capsules and a comparison of Talent-based learning and Maker Education.

The second one, is a description of the essential ideas of the Talent Maker Methodology: school organisation, learning environments, learning objectives, teachers and pupils' roles, (Digital) Educative Capsules, activity development, connections with the curriculum and evaluation. Not only the Learning Environments pages contain space and equipment considerations, but also the unwritten values promoted during the activities such as recycling, learning by doing or the idea that you can't get it right without getting it wrong, among others.

In the Case Study chapter there are the capsule, the lesson plans and three teachers experience to illustrate the project implementation.

The Digital Educative Capsules section displays some Digital Educative Capsule examples and specifications about their templates, visual supporting materials, and how to upload new Capsules to the participatory exchange system. The Assessment and Feedback pages detail the evaluation and communication during the learning process, as well as the assessment templates and feedback collectors' tools.

Finally, the conclusions chapter reflects on the project experience and evaluates the quality of the intellectual outputs and their impact.

1.2-Talent Maker Project

The Talent Maker project is an Erasmus + call for Cooperation for innovation and the exchange of good practices response. Concretely, a KA226 Partnership for Digital Education Readiness. The good practice that it evolves from and upscales is the *Talents* project of El Pla School. In this section, you will find about the original idea, the aim, the goals, the outputs and the target groups of the project, as well as the consortium behind it.

1.2.1- The Inspiration: *Talents*

El Pla is a public primary school located in Salt (Spain) with 98% of pupils with Catalan, Spanish or both as second languages.

The necessities of its pupils and the sixth hour made the management board reorganise the school schedule from structured lessons such as languages, maths or science in the morning to gradually hands-on activities in the afternoon. For that reason, one afternoon per week each cycle (lower primary, middle primary and upper primary) conducts the *Talents* project.

This project offers a wide variety of workshops, representative of the teacher's talents and the Multiple Intelligences, that children choose concerning their strengths, passions and interests. For example, cooking, sewing, gardening, arts and craft, etc.

Figure 1-El Pla School, Salt (Girona)

Talents contribute to overcome the language barrier, mobilise scholars' knowledge, allow children to express and nourish their intelligences and discover new abilities and motivations.

1.2.2- The Talent Maker Project

"Talent Maker - Talent-Based Learning and Maker Education in the context of Hybrid Education after Covid-19" aims to **reduce the unfair gap generated during lockdown between schools with resources and most local pupils and multicultural schools with fewer resources and wider class diversity**. Its primary goal is to help elementary schools to **improve their face-to-face, distance or hybrid education**.

The target groups of the project are **multicultural schools, their teachers** and **children from migrant**, **Roma minorities** and **refugee families**.

Talent Maker has developed four outcomes to contribute to its objectives: a new Methodology, a Teacher's Guide, an online Catalogue of Digital Educative Capsules and a Participatory Exchange System, all available on the project website under the Creative Commons licence.

The innovative **Methodology** blends Talent Promotion learning and cutting-edge Maker Education approaches. It is based on Howard Gardner's Theory of Multiple Intelligences and Seymour Papert's constructionism. In summary, it promotes students to make an artefact or product they are passionate about or in a field they are skilful in, to build and mobilise their knowledge.

The **Educative Capsules** gathered in the **Catalogue** are hands-on and cross-curricular activities that reproduce the methodology following Mitchel's Resnick Creative Thinking Spiral. Although they have step-by-step instructions, pictures and some videos to overcome the language barrier, they ensure a space for children to imagine and be original with their creations. Overall, they promote active and creative learning, bringing together the talents of the teachers and children in a wide range of areas, such as robotics, science, music, photography, DIY, and so on.

The Methodology and the Educative Capsules are thought to be implemented as collaborative workshops at school and independent Digital Educative Capsules at home by pupils. Moreover, the fact that both have been tested in different contexts and communities (migrants in Spain, refugees in Greece and minorities in Romania) allow us to ensure its transferability.

The **Teacher's Guide** is a support document that describes the Theoretical Framework, the Methodology, and the Capsule's Template and includes a Case Study and examples of Digital Educative Capsules, among other contents.

The **Participatory Exchange System** allows teachers from around the world to share their talents through a Capsule, inspiring other teachers, awakening the passions of pupils that they do not know and creating a community that makes the most of learning through their interests and strengths.

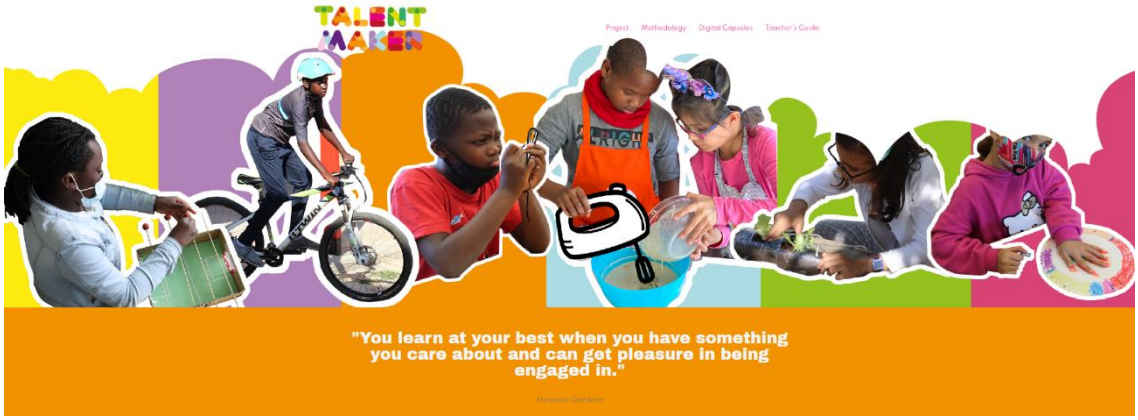


Figure 2-Talent Maker website heading

After all, Talent Maker motivates **children independently from their background** to feel they are **capable pupils** and can learn in consonance with who they are and want to become.

Click on the link or scan the code to visit our website!

https://talent-maker.eu/

1.2.3- The Project Consortium

The consortium members of the Talent Maker project form a balanced partnership. Two Universities (Universitat de Girona and Universitatea din Craiova) with proficiency in educational initiatives in computers, engineering and creative technologies, an organisation (Action Synergy) with an extended network and record about social inclusion Erasmus + projects, and three schools (El Pla, Constantin Ianculescu, Nea Alikarnassou) representatives of the target groups of the project and professionalism facing the educative challenges of their contexts. Notably, the location of two partners per country guaranteed teamwork and support between them and ensured dissemination and impact at the national level.

UdiGitalEdu-Universitat de Girona (Spain)

https://udigital.udg.edu/

Escola El Pla (Spain)

https://agora.xtec.cat/escolaelpla/

Universitatea din Craiova (Romania)

https://www.ucv.ro/

Liceul Tehnologic Constantin Ianculescu (Romania)

https://gsacarcea.ro/

Action Synergy (Greece)

https://action.gr/

1st Dominiko Scholeio Alikarnassou (Greece)

http://protoalikarnassou.weebly.com/

1.3- Pandemic Impact on Education

The Covid-19 pandemic succeeded in halting or suspending most of the assumed services of modern society temporarily. When lockdowns and associated movement restrictions were imposed on the population, children and their education were particularly afflicted.

It is estimated that in 2020 more than 1.2 billion children in 186 countries were affected by **school closure due to COVID- 19** (UNESCO, 2021). As a result, schools had to rethink their delivery methods, and **online lessons** replaced traditional face-to-face teaching and learning. However, as the UNICEF-ITU report on Connectivity in Education (2021) states, **two-thirds of the world's school-age children did not have internet access at home**.

In Europe, March was the hardest month since the second half of the academic year had just started which caught schools and teachers almost totally unprepared for this new reality. In the online approach, **unreadiness** and the **digital divide**, which is the gap that concerns the accessibility of technology, became a challenge for the educational systems. That was especially true for **schools and families from vulnerable communities**, where pupils' **dropouts** increased during lockdowns and **skills lost** and **falling behind** are still unfinished learning consequences.

Explicitly, children from migrant families, minorities and refugees, who were already at risk due to their intrinsic realities, had to struggle with another critical problem: the access to education in their host populations **perpetuating countries' and communities' inequalities**.

As the UNICEF Executive Director, Henrietta Fore claimed: *"Lack of connectivity doesn't just limit children and young people's ability to connect online. It prevents them from competing in the modern economy. It isolates them from the world. And in the event of school closures, such as those currently experienced by millions due to COVID-19, it causes them to lose out on education. Put bluntly: Lack of internet access is costing the next generation their futures."*

So, faced with this context, governments, communities, and schools had to adapt and provide educational services at varying levels. Concretely, in our consortium:

The ***1st Dimotiko Scholeio Alikarnassou*** (Alikarnassou, Greece) operated with smartphones, tablets and laptops. But rather than a small percentage of pupils (around 8%), mainly refugee children, who did not have an Internet connection or any digital device and couldn't follow the online lessons, most families had Internet access.

The Greek government offered several tablets to needy pupils but failed to cover all requests. Similarly, the schools cooperated in this effort by borrowing digital devices which were returned to them later.

A specific issue for the Greek educational online system was the simultaneous access to online resources. There were frequent problems with the connection to online services, with sound or video streaming coordination.

Family support was also crucial. Half of the parents aided children with online homework, and some lower-primary parents participated in the live sessions with them.

Nonetheless, pupils at home were easily distracted by siblings, pets, or noises in the house. Therefore, the quality of their performance decreased.

The ***Liceul Tehnologic Constantin Ianculescu*** (Carcea, Romania) collaborated with pupils in online education through smartphones using different applications (e.g., WhatsApp, Zoom). Although most of them had mobile phones, not all engaged actively from March to June. Some families also owned a laptop or a PC, but children had to share it with brothers and sisters.

The city councils donated tablets with Internet access to affected pupils. Meanwhile, the government recommended and financed the use of Google Suite for Education by creating accounts for educators and learners. In this aspect, there was an initial overhead with pupils and teachers accommodating the Google platform. Teachers observed that some of the children experienced a lack of interest in online lessons despite having the

necessary IT connectivity and infrastructure. Around 20% refused to participate. The older the pupils, the lower the concern for distance education. On the other hand, during the first week of the pandemic, the schools' teachers spent plenty of time hanging on the phone with pupils' families. Parents' support was usually poor since adults were not technologically aware. Nonetheless, they got involved and tried to help. Occasionally, they were as curious as the children about the new e-learning platforms, but after a while, they lost enthusiasm.

Conversely, ***Escola El Pla*** (Salt, Spain) experienced that 98% of their students lacked internet access and computers and tablets. Consequently, initially, children had to work with their parents' mobile phones using their limited Internet data, which had to be shared among several siblings.

Furthermore, teachers had to bring stationary materials and worksheets door by door at every children's domicile to allow pupils to work offline.

However, they couldn't count on their parents' support during the remote education tasks, and the learning environment at home wasn't appropriate for learning to thrive.

Gradually, as the government put in action guideline plans and actions such as facilitating a digital device per student or guaranteeing internet access; educators, families and learners started discovering the use of technological educational applications and resources that support remote learning.

Once back to regular school, consortium teachers noticed an increase in learning difficulties, a dramatic fall-off in learning contents and abilities and an attention span reduction, among other consequences.

In the last stages of the pandemic situation, **"blended learning"** or **"hybrid learning"** became the adopted models. Although both concepts denote a combination between face-to-face and online education, **"blended learning"** uses online resources **to**

supplement face-to-face education, whereas **"hybrid learning" replaces** some in-person educational materials.

Yet, despite being undeniable that in-person education not only provides several benefits academically but also in the social and emotional well-being of children, **online delivery** has some good points to consider too. For example, online learning develops **21st century abilities** like:

- **Media literacy skills**, defined by the National Association of Media Literacy Education as "a series of communication competencies, including the ability to access, analyse, evaluate and communicate information in a variety of forms, including print and non-print messages", can be boosted through encouraging students to be **multimodal content producers**. For instance, creating blogs motivated by an **(active) real-world audience awareness** allows sharing about a topic of interest, integrating written text, images, animations, sounds and colours. In turn, this contributes to increasing **writing skills** and **critical thinking** as pupils need to adjust the purpose of their entries to their targeted readers.
- **Communication and collaboration skills:** creating learners' communities, solving problems together (putting children in contact with students from another part of the globe), reflecting and building on each other's ideas, submitting constructive comments or considered responses on learning platforms, blogs or social media; while giving students a **sense of pride in their work**.

Another distance education asset is that it can facilitate **authentic learning** designated by Collins (1998) as "the notion of learning knowledge and skills in contexts that reflect the way they will be used in real life" by working on collaborative projects, contacting experts in the field that is being investigated, actual links to audiences, etc.

In the future, blended and hybrid learning models will likely continue being utilized. However, there may be potential long-term effects of online delivery on academic performance and social-emotional well-being that need to be balanced. Investment in

technology and internet infrastructure and ongoing evaluation of distance education strategies will be determinative for providing a high-quality and equitable learning experience for all learners.

2.THEORETICAL FRAMEWORK

The following theoretical framework provides a rigorous foundation for our project. Reading chapters 2 and 3 consecutively, you will find the pedagogical and didactic proposal developed from theory to practice.

2.1- Talent based learning

2.1.1- Our Knowledge about the Brain

The latest discoveries in **Cognitive Science** and **Neuroscience** revealed that we have physically and genetically different brains. Moreover, they disclosed that our life experiences and how we record our memories influence brain development and operation. Both findings**, neurodiversity** and **neuroplasticity**, proved that we do not learn in the same way.

2.1.2- Historical Unidimensional Intelligence Perspective

However, throughout history, we have assessed people's minds from a unidimensional perspective. The **Intellectual Coefficient test (IQ)** of the psychologist **Alfred Binet** became a valued "scientific" quantitative tool of pupil's intelligence and academic success in 1905. Since then, similar tests such as the **Scholastic Aptitude Test (SAT)** punctuate **verbal and mathematics skills** to classify people on an intellectual scale. This method has worked well for some students and elite academic institutions. Nevertheless, it does not consider the wide range of cognitive styles (neurodiversity), excluding equally apt students outstanding in other areas.

That is because, traditionally, the **occidental culture has valued mathematical logic and language above other subjects**. Besides, it held the IQ test in high regard. Consequently, intelligence was considered the ability to **solve problems**, like those presented in IQ tests**, find an answer to specific questions and learn new content quickly and efficiently**. Furthermore, it was treated as an innate attribute, practically invariable with age, training or experience (the opposite that neuroplasticity has determined). As a result, schools have offered a closed curriculum, fact-focus, and periodical standard exams.

2.1.3- Theory of Multiple Intelligences

In 1983, despite the extended uniform school vision, the evolution psychologist **Howard Gardner** and his Project Zero Harvard research group put on the table the **Multiple Intelligences Theory (MI)** with the publication of Frames of Mind. This pluralist mind perspective identifies a set of intelligence that everyone possesses in different amounts. When one or two prevail, we call them talents.

Therefore, it considers that we are the compound of our bits of intelligence, which are understood like our **abilities to solve problems** or **mobilise knowledge to construct a valuable cultural product for our society**. As well as, a **means of expression**.

Figure 3-Talents Maker Workshops and Categories Stickers

The Eight Intelligences

- **Visual-Spatial:** People strong in this intelligence are more aware of images and objects properties in our environment: shapes, colours, patterns, designs and textures. They usually enjoy jigsaw puzzles, reading maps and finding their way around new places. They also fancy drawing, painting, working with clay, constructions or fabric. They think forming mental pictures. Consequently, it is easy for them to imagine, visualise and pretend.
- **Naturalistic:** A naturalistic inclined person interprets the events in our natural world skilfully: discern and classify different spices, read the weather, have an affinity with animals, and admire and respect all living beings. They have fun spending time outdoors and collecting natural objects, among others.
- **Musical:** Those keen on musical intelligence are sensitive to sounds of our daily life and are likely to recognize the tones and the musical instruments of a composition, identify and reproduce rhythmic patterns and musical sentences, etc. They love listening to different music styles, singing, playing instruments, etc. Moreover, music may affect their emotions, facial expressions and movements more than others.
- **Logical-Mathematical:** This intelligence facilitates the understanding of numbers, maths, logic, patterns and relationships. It goes from concrete to increasingly abstract concepts. Individuals with a developed logical-mathematical intelligence like working with mathematical formulas and operations, solving complex problems or puzzles, conducting experiments, analysing information and asking cosmic questions. They are systematic, organised and their thoughts' and actions' arguments are rationales.
- **Body-Kinaesthetic:** People with this intelligence as strength have a sharp sense of body awareness and exceptional body language. Generally, they learn better after seeing someone modelling the task and when actively involved in it. They adore physical movement: dancing, role playing, inventing things with their hands, etc.
- **Verbal-Linguistic:** A verbal-linguistic minded person is marvellous at language comprehension through reading, writing and speaking. They relish literature,

creative writing, debating with people, learning new words and linguistically based humour. They think in words, thus expressing themselves precisely.

- **Intrapersonal:** This intelligence involves self-reflective skills that allow managing our emotions, values, beliefs and spirituality. For intrapersonal people, it is important to know the significance, meaning and purpose of things. Also, to be in tune with their inner world. They are creative, and although they are good at advising others, they appreciate some solo time.
- **Interpersonal:** Those who have acute interpersonal intelligence have excellent social abilities: efficient communication, empathy, mediation, deal closing, conflict resolution, etc. Habitually, they have a lot of friends, enjoy teamwork and are great group members. They learn through personal interactions.

Intelligence Development

As pointed before, every human show independently of their education or cultural support, nuclear skills related to each intelligence at a basic level. For that reason, they are considered universal. Yet, the **intellectual potential that people reach is tightly linked with their training and cultural environment**. But, which is the natural growth of an intelligence?

The natural evolution of each intelligence begins with a **row modelling ability**, a universal skill manifested during the first year of a person's life, such as discerning the different sounds of a language. In the next stage, children develop, and posteriorly will show their intelligence through the acquisition of a **symbolic system**, for instance, oral communication and storytelling (linguistic intelligence). Then, through formal education, they learn the **notational system linked to its symbolic**. Carrying on with the previous illustration, literacy and literature. Finally, teenagers and adults can express their intelligence through their **vocational careers or hobbies**. In due course, ideally, the imaginary person of the example would end up performing as a writer, librarian, journalist, TV or radio announcer, speech pathologist, politician or lawyer, among others.

2.1.4- Talent Promotion Benefits

The combination of our intelligences makes us unique. If we value this diversity, bringing into play all the human abilities, not only **individuals** would **feel better** themselves and **more qualified**, but they would also feel more **compromised and capable of collaborating with others** to achieve the common good.

In other words, when people reach their vocational goals, adjusted to their strengths and constraints, they feel supported and more engaged, therefore more likely to assist society constructively. To sum up, **we need people doing what they do best: being themselves**.

Figure 4-Urban Garden Workshop

Click on the link or scan the code to listen to teachers' testimonials on our YouTube Channel!

https://youtu.be/Vd1N4xOg5eo

2.2 - Maker Education

The **Maker Education** awakens everyone's inner motivation to create, design, modify, build or make things. It does it in an informal, playful, collaborative and sometimes functional way. In the process, people use a learning network, their knowledge of different disciplines, to build up what they have imagined as a result of their interests or desires.

Influenced by the culture **DIY (Do It Yourself)** or recently **DIWO (Do it with others)**, the main benefits of the Maker Education, other than the fostering of the **STEAM**, are the development of an empowering **sense of self and community** that inspires all to **shape our world**.

However, to fully understand the relevance of the Maker Education in educational contexts, its implications and origins, we have to go back to Jean Piaget's Constructivism.

2.2.1- Constructivism

Jean Piaget was a renowned Swiss psychologist well known for his **Theory of cognitive development** and other valuable contributions to his field in childhood. He was considered the father of **Constructivism**, a learning theory that supports that children put their knowledge up making a process of assimilation of what is new concerning what they already know. In other words, Jean Piaget stated that children acquire comprehension with what is meaningful for them in a self-construction cycle.

2.2.2-Constructionism

Seymour Papert, professor at the MIT Media Lab, had the opportunity to work with Jean Piaget and, as his disciple, developed his ideas over the years from which emerged a new learning theory: **Constructionism**.

With this theory, Papert put forward that humans build their knowledge better when they participate in the **construction of shareable and meaningful "artefacts"** such as

poems, robots, crafts, etc. On the whole, he considered that we put together knowledge in our minds while making something with our hands.

Like Piaget, he affirmed that children gain understanding from their interaction with the learning object. Conversely, and that became the main difference with Constructivism, he remarked that the effectiveness of the learning process would increase if they constructed significant shareable products after their interactions with the object.

Figure 5- Robotics Workshop with Lego Constructions

Mindstorms: Children, Computers and Powerful ideas (1980), Papert's major-league book, lay the basis of what nowadays we know as Computational Thinking, Creative Computing and Maker Education. It also presents the first programming language for children: LOGO. But, foremost, the book contemplates computers as a medium of self-expression and a tool for knowledge construction instead of a device for consumer users.

2.2.3- Computational Thinking and Creative Computing

Although both concepts were introduced in Mindstorms, **Jeannette M. Wing** popularised **Computational Thinking** in education and psychology research in 2006 in an article where she defined it as solving problems, designing systems and understanding human behaviour relying on the fundamental concepts of computer

science. Furthermore, she suggested that this reasoning style is an essential skill as it applies to problem resolution in different fields, not only in computer science. Therefore, she thinks that it should be integrated into other disciplines.

After her publication, other authors have proposed their definitions agreeing on Computational Thinking as the ability to identify problems that can be solved similarly to what a programmer would do when giving instructions using a programming language (Berry and Selby & Woollard, 2014). Besides, among its benefits, it is generally thought that its practice boosts skills like creative resolution, ambiguity tolerance and complexity management.

On the other hand, with digital technologies, **Creative Computing** has grown into an educational trend. Engineers, educators and researchers have created accessible technology tools for children to express themselves, initiate projects and share them with others. These tools, with little previous knowledge required, cover the interdisciplinary area enclosed by creativity and computing. What is more, they spur children to program and make tangible things while participating in an online community.

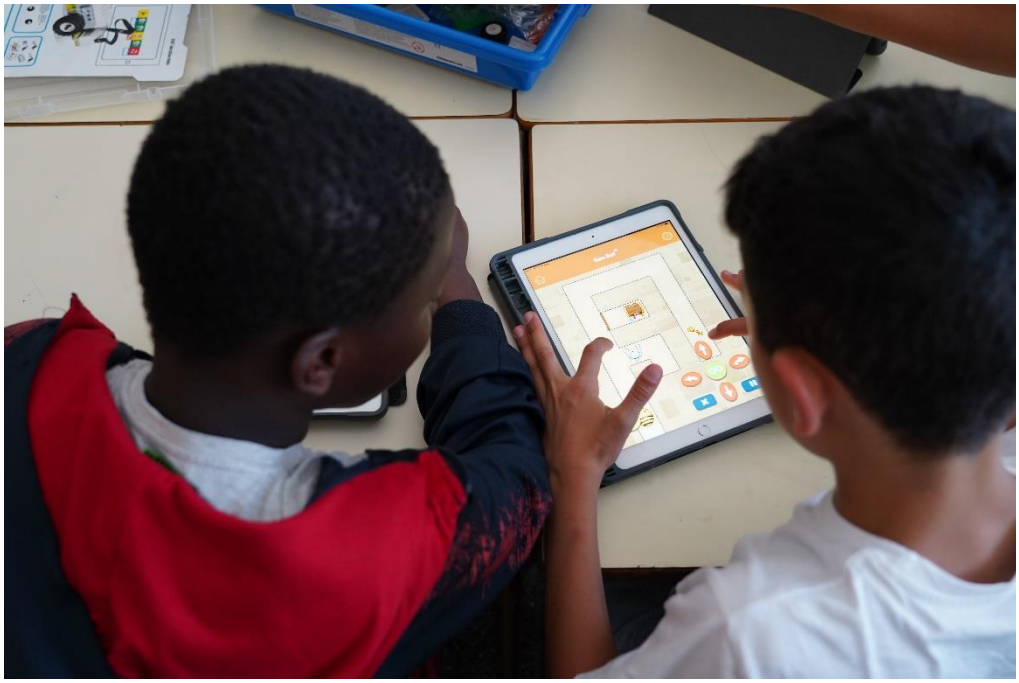


Figure 6- Robotics Workshop with the Bee-Bot App

2.2.4-STEAM

STEAM Education is a learning approach that blurs the boundaries of **Science, Technology, Engineering, Arts and Mathematics** to promote project-based learning. The acronym STEM, the same without A, became popular because its subjects were considered key to future jobs and the knowledge economy. A few years later, the A was added representing the Arts and, widely, the **Humanities and Social sciences**. The intention was to broaden the benefits of hands-on education: collaboration, dialogue, creativity, inquiry and critical thinking. Also, to take advantage of the properties of art: personal expression, empathy, meaning-making, purpose.

2.2.5- Inspirational Projects

Many schools, non-profit organisations and education researchers are currently exploring ways to motivate children to take control of their own learning while they make/build/create/invent within workshops, tinkering activities, makerspaces, hackerspaces, etc. Accordingly, as you will see in the following section, our implementation of the project has been inspired by initiatives like **Kriti Activities** and **Paper Crane Lab**, accessible, affordable and hands-on STEM and Maker education pastimes.

2.2.6- Tinkering

In a conventional dictionary tinker is defined as a verb that means: to make small changes to something, especially in an attempt to repair or improve it (Cambridge Dictionary, tinker. In the Cambridge Dictionary. Retrieved April 21, 2022).

However, the word tinkering in an educational context refers to the innovative pedagogy introduced by the Tinkering Studio at Exploratorium of San Francisco. **Karen Wilkinson** and **Mike Petrich**, members of the studio and authors of the book "The Art of Tinkering", describe it as:

> *[...] it's more of a perspective than a vocation. It's fooling around directly with phenomena, tools, and materials. It's thinking with your hands and learning through doing. It's slowing down and getting curious about the mechanics and mysteries of the everyday stuff around you. It's whimsical, enjoyable, fraught with dead ends, frustrating, and ultimately about inquiry. It's also about making something, but for us, that thing reveals itself to you as you go. Because when you tinker, you're not following a step-by-step set of directions that leads to a tidy end result. Instead, you're questioning your assumptions about the way something works, and you're investigating it on your own terms. You're giving yourself permission to fiddle with this and dabble with that. And chances are, you're also blowing your own mind.*

Therefore, tinkering is powerful not only because it helps people understand **how things are made** or they **work** after having enabled them unstructured time to focus, explore and test their ideas and projects. But also, because it promotes feelings of **empowerment**, for instance, when the participants feel proud of their result and share it with their family and friends.

2.2.7- The Creative Thinking Spiral

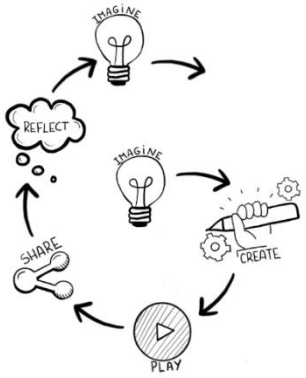
The Talent Maker methodology is built upon the previous learning theories. Yet, when brought into action, its most evident approach is the **Creative Thinking Spiral**. After all, the activity development proposal and the Educative Digital Capsules clearly follow its scheme. But what is this spiral about?

> The Creative Thinking Spiral is a process that promotes natural learning simulating the characteristic educational experiences of kindergarten.

Mitchel Resnick, a Seymour Papert's disciple, is the LEGO Papert Professor of Learning Research at the MIT Media Lab (Massachusetts Institute of Technology) and leads the **Lifelong Kindergarten research group** founded by himself. The explicit goal of his team is to help people, especially children, become creative thinkers through the development of technology activities and learning engagement.

When learners participate in these activities that support the spiral process, they **imagine** what they want to do**, create** a project based on their ideas, **play** with their creations, **share** them with others and **reflect** on their experiences to imagine and start the whole cycle all over again. Resnick's team considers it should be the learning approach during our entire life. Hence, the name of their research group.

Figure 7- Creative Thinking Spiral illustrated by Clara Puig



As just revealed, the Creative Thinking Spiral has had a strong influence on the Talent Maker Project. The main reason is that it is an example of a **well-balanced structure-freedom support**. It recognises the curious nature of children and the experimental potential of playing and, on that account, focuses on creating a fertile and playful environment for scholars to develop their full creative potential. All this focused on the **process** rather than the product.

2.3- Talent Promotion vs Maker Education

As you could notice in the Methodology description, despite Talent Promotion and Maker Education being different education approaches, they have enough in common to be a coherent combination and sufficient distinctions to work with complementarity. Both perspectives draw their activities from **students' strengths or interests** which most of the time are associated. In particular, Talent-based learning departs from children's Multiple Intelligences, and Maker Education allows for pupils' passions. Additionally, they comprehend **learning as a hands-on activity**. Talent promotion mobilises knowledge to construct valuable cultural products for our society. While Maker Education constructs sharable and meaningful artefacts to build understanding. In like manner, they help us put together ideas in our minds when making something with our hands with different but interrelated intentions. Moreover, the two of them have a **social dimension**. Talent-based learning pursues obliging and culturally relevant products. Similarly, Maker Education aims for significant artefacts to share with others.

3. TALENT MAKER METHODOLOGY

This chapter sets the grounds to apply the main ideas and principles of the literature review in a formal education setting and, especially in elementary European multicultural schools.

3.1- School Organisation

When applied as a school project, Talent Maker requires some logistical reorganisation. Below are the main steps to implement it before and during Covid-19, with a common outset explained hereafter.

The first stage for a school to launch the project is to identify and determine the teachers' *talents* that will be offered to the students. The selection process criteria should appraise if they are feasible, age-appropriate and motivating for the children. Also, if the elected ones represent the eight multiple intelligences. The second phase consists of teachers introducing their *talents* to pupils with a class-to-class visual support presentation.

Before Covid-19: The third step before Covid-19 involved students listing the *talents* in their preference order. Then, teachers would organise scholars in reduced (10-13 kids) lower-primary, middle-primary and upper-primary mixed groups ensuring they enrol, at least one term, in one of their first options. Finally, children would enjoy a *talent* workshop one afternoon per week during the term. By the end of the year, pupils would get to engage three *talents* from their list.

During Covid-19: Conversely, the third step during Covid-19 is dividing students into half groups of the same class. Next, they spend from three to four sessions on each *talent*, allowing them to try all the workshops during the academic year and, maybe, to discover a new passion.

After Covid-19: Subsequently, to these experiences, teachers discussed different possibilities of combining both organisations, taking advantage of the potential offered by each one. In the end, they agreed to let lower-primary children pass by all the *talents* supplied by their teachers to discover their likes and strengths. Meanwhile,

middle and upper primary pupils spend each term in one of the *talent* workshops of their choice, as they did before the pandemic.

3.2- Learning environments

3.2.1- Spaces and equipment

Talent Maker is thought to be carried out in multicultural schools and in case of a lockdown at their families' homes. Thus, the Capsules included in this guide consider the possibility of incorporating or replacing materials with available ones. Likewise, they are not expected to be implemented in an ideal space. They pursue to be adapted easily to the location and equipment at disposal.

However, the schools sometimes prepare workshops or *talents* where they work with specific materials and equipment that children might not get the chance to work with otherwise. In this case, when home-learning, they can borrow them after signing a compromise contract or perform the part that does not require them at home and continue it at school. For this reason, you will find some capsules divided into two parts.

Because there can be as many talents and talents activities as teachers imagine, and the project intends to be applied in as many schools as desired, here are some space and equipment recommendations to follow the Talent Maker methodology accurately:

Equipment:

- Promote the reuse of materials or the employment of recycled products.
- Encourage children's responsibility for the proper use of the equipment.
- Try to stick to school/household appliances.
- When this is not possible, suggest easy to find and affordable materials.
- Provide variety (different colours, shapes, textures, flavours) and a wide range of options (alternatives).
- Remember, safety first.

Space:

- Make the most of your space: make it pleasant, cosy and magical.
- Together with children, keep the working area safe and tidy during and once the activity has been finalised.

- Ensure children know where to find the materials during the activity and guarantee equipment is accessible for pupils during the workshop to promote their autonomy.
- Prioritise natural light rooms and outside spaces.
- A disposition of the space that allows children to interact with each other: help, share, play, etc.
- When likely to stain or damage, protect with newspaper or tablecloths the endangered surfaces.

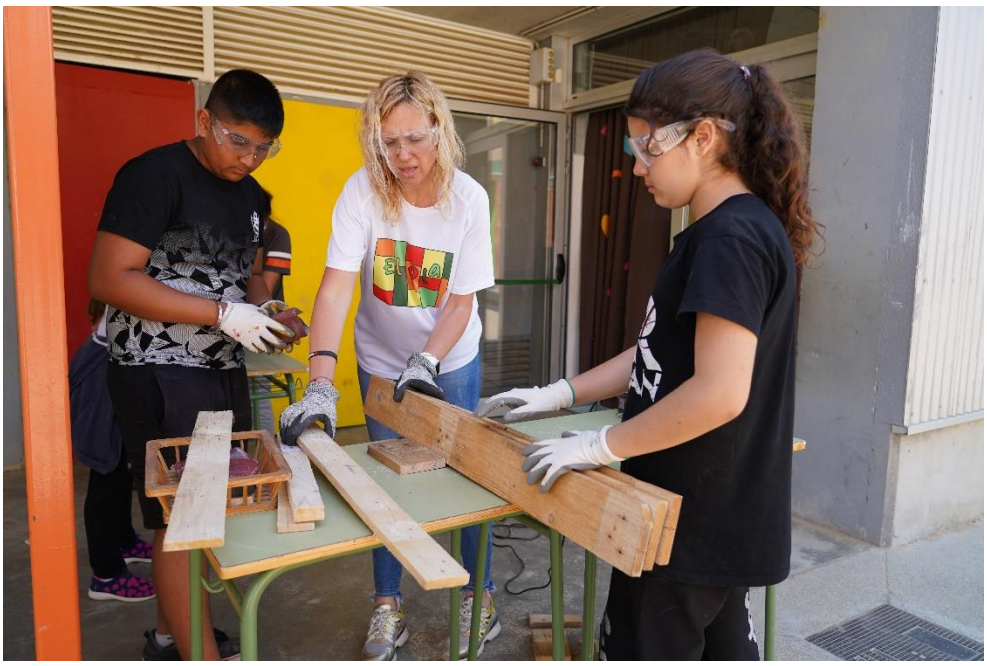


Figure 8- Bricolage Workshop with protection and security materials

3.2.2- Hidden curriculum

Furthermore, a rich learning environment with the following Lifelong Kindergarten principles as a base is essential for the adequate Talent Maker project's performance through the workshops at school and the Digital Educative Capsules at home.

- **Projects, Passion, Peers and Play:** the four P's spur creative learning experiences because when scholars are committed to a project based on their passions, they put all their dedication. Moreover, as creativity is considered a social process, sharing, collaborating and building on peers' work with a playful spirit allow them to experiment, take risks and improve by taking advantage of their interaction.

- **Learning by Doing:** In order to achieve deep learning and authentic and relevant insights, learner must interact with the content directly. By making things, children become creators and designers of their knowledge meaningfully.
- **Low floors, high ceilings and wide walls:** It is beneficial to provide pupils with a lot of opportunities. Scaffolding their beginnings but letting them space to grow and go further as they get expertise. Simultaneously, offering choices along the way that bow to their personality is expected to increase their inner motivation, engagement and responsibility.
- **You can't get it right without getting it wrong:** It is crucial to understand mistakes as part of the learning process in creativity and innovation. Therefore, in trial-and-error methodologies providing the confidence to err to students is an empowerment.
- **Hard fun:** An activity that requires effort can be equally amusing if motivating for the learner. Seymour Papert defined the hard-fun concept as something enjoyable precisely because challenging.

3.2.3- Emphasis on reusing and upcycling creatively

At the heart of the project is another underlying idea: promoting a **circular economy**. In other words, looking after keeping resources in use as long as possible, extracting the maximum value from them while operative, and recovering and regenerating products and materials until the end of their usefulness (Fundació Bofill, 2022).

In order to accomplish circularity, Talent Maker activities **foster reuse**, understood as finding novel uses for objects that have reached the end of their lifecycle without transforming them; and **upcycling**, which aims to repurpose them into items that serve a different purpose(s) through an alteration of their form, colour or shape (Evers, 2018; McCollough, 2018; Scott and Weaver, 2018; Wilson, 2016).

Also, **sustainability** which can be **a topic to explore from all talents**. For instance, when grocery shopping in Cooking, it is easy to introduce a discussion about the importance

of consuming seasonal products. Additionally, in Sports, pupils could run a campaign about walking or cycling to school. Even in Music, the song theme can be about a topic related to the well-being of our planet, and the message can be reinforced by playing musical instruments created from upcycled materials.

Therefore, it is part of the teachers' job to evidence problems of our century like climate change, global warming, deforestation, carbon footprint and linear economy, among others. Just like introducing **positive concepts to think about and inspire children's ideas and products** such as locavore, eco-friendly, zero-waste, preservation, upcycle, reuse and reduce.

Upcycling turns the **equipment and the material limitations targeted schools and families may encounter into an opportunity to contribute to a sustainable environment** while reusing or giving a new life to daily life and household objects. Not to mention the **multiple benefits regards creativity**. For example, improving children's **divergent thinking skills**, a crucial for problem-solving (Martin, 2015) and pupils' **mindset growth**, an essential factor in fostering creativity and innovation (Martínez & Stager, 2014). Besides providing opportunities for learners to **engage in open-ended exploratory activities** that can help them thrive a sense of curiosity and wonder about the world around them.

Figure 9- Upcycling cloth pegs and shoe boxes to build a football table at the DIY Games Edition Workshop

This type of learning can lead to the development of new ideas, insights, and perspectives, all essential for creativity (Resnick, 2014).

3.3- Learning objectives

Despite the wide variety of workshops that the project allows and, as a consequence, the freedom for **teachers** to **choose** on which **conceptual knowledge** to focus; following the Talent Maker methodology properly intends to thrive two learning goals:

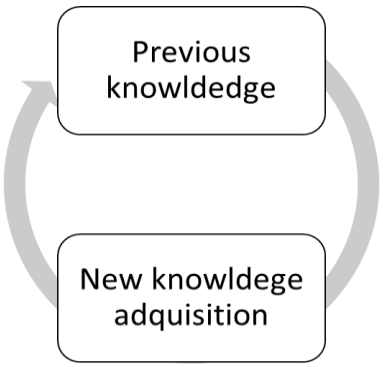


Figure 10- Talent Maker Learning Objectives Diagram

Learning objective 1: Mobilise previous academic knowledge through its workshops while acquiring new ones as pupils build products/artefacts (conceptual and **procedural knowledge)**.

Learning objective 2: Shape up these soft skills: creativity, collaboration and critical thinking; whilst improving their digital abilities and learning to express themselves using Creative Technologies (procedural and **attitudinal knowledge**). It is suggested to introduce **one "c" skill per stage accumulatively**, from less to more abstract: collaboration (lower primary), collaboration and creativity (middle primary) and collaboration, creativity and critical thinking (upper primary). Besides, for the Digital competencies, it is recommended to follow the DigCompEdu framework.

- **Creativity:** The capacity to imagine, conceive, express or make something that was not there before. (Durham Comission, 2019).

- **Collaboration:** Collaboration builds on the skills of effective communication by placing it in an interpersonal setting. But collaboration is more than cooperation. It is about learning to plan and work together, to consider diverse perspectives, and to participate in discourses by contributing, listening, and supporting others (Laura Greenstein, 2012).
- **Critical thinking:** Mode of thinking about any subject, content, or problem in which the thinker improves the quality of his or her thinking by skilfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them (Linda Elder, 2007).
- **Digital competence:** Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking (Council Recommendation on Key Competences for Lifelong Learning, 2018).

Click on the link or scan the code to check the DigComEdu framework of the EU

https://joint-research-centre.ec.europa.eu/digcompedu_en

3.4- Teachers role

The teachers have a fundamental role in Talent Maker. They are more than mirrors or inspiration. They are the bridge between children and their passions acting like carers of the time-space where kids can make the most of themselves.

Accordingly, within the project, teachers act as guides. They are responsible for planning the sessions and structuring the Capsules. That would be until the pupils are ready to design their own. Additionally, they provide a variety of materials and tools while assuring order and safety during the workshop performance.

However, the learning environment is not only about the equipment. It also has to do with the atmosphere during the activity development. Students should experience hard fun, not be afraid to make mistakes, feel actively involved in their learning, collaborate with their peers, etc. So, it is the teacher's task to build up these previously detailed underlying ideas.

Indeed, teachers need to identify the concepts and skills mobilised in the workshops. And their connections with their curriculum too. Then, set realistic goals for students. Throughout the sessions, it is relevant that teachers formulate good questions pursuing pupils' wonder, reflection and understanding. They also should give feedback when asked or needed for the objectives' achievement.

Yet it is undeniable the paper of teachers as behaviour and performance models. In the Talent Maker workshops, sometimes they awaken admiration becoming someone to look up to by children. In this role, they spark and inspire kids' imagination. Foremost, teachers gave them faith, recognizing their potential and the person that they can turn into.

3.5- Pupils role

On the other hand, pupils play the main character in the project. The blended methodology nourishes their multiple intelligences and gives them a hands-on approach in their learning while mobilising cross-curricular competencies.

Besides, in Talent maker, students imagine, hypothesise, get inspired, play, explore, share, exchange help and feedback and reflect, to start all over again imagining.

The small groups promote a closer relationship with the teacher and a tight collaboration between peers. Taking advantage of this situation, when working on collaborative teams, assigning rotative group roles is recommended. So, every child has the chance to experience different responsibilities within a social group, avoiding stereotyped behaviours. Here are some of the possible labels:

Manager: the student that leads the group: distributes the tasks, oversees the quality of the group performance and guarantees progress.

Material Manager: the person in charge to gather the materials, ensure the proper use of the equipment, keep the work-space safe and tidy and check everything is clean and returned to its place once the workshop is finished.

Scribe or Recorder: the pupil that documents the process or writes down, takes photos and records voice or video when required by the activity.

Helper or Encourager: the child that takes care of the emotional wellbeing of the group members and the relationships within the group and checks if someone needs help.

Time keeper: the student that makes sure the group is focused during the workshop and manages the time for each task.

In their active role, they have choices and, making their own decisions, boost their inner motivation and self-discipline. Because as Howard Gardner stated, "you learn at your best when you have something you care about and can get pleasure in being engaged in".

Figure 11- Arts & Crafts Workshop

Click on the link or scan the code to listen to pupils' testimonials on our YouTube Channel!

https://www.youtube.com/watch?v=qbJKsfswfAA

3.6- (Digital) Educative Capsules

Not only the Digital Educative Capsules aim to allow the transfer of the school Talent Maker workshops to home in a lockdown situation. But also, to be visual support during the school implementations. Correspondingly, they split the activities into easy step-to-step instructions, accompanied by a picture to overcome the language barrier, and require affordable and attainable materials given the needs of multicultural families. Additionally, most of the Capsules have QR codes with links to illustrative videos of the activity, related content that may be required by pupils to follow the workshop or extra information.

Furthermore, they always follow the Creative Thinking Spiral structure: Imagine, Create, Play, Share and Reflect. At the same time, promote an activity development that captures the project Methodology. Despite this stable layout, which has two purposes: boosting the scholars' confidence and teachers' fidelity to the project, the Digital Educative Capsules template licences creativity since they accept multiple answers and results.

See chapter *4-Digital Educative Capsules* on page 47 to learn more about them.

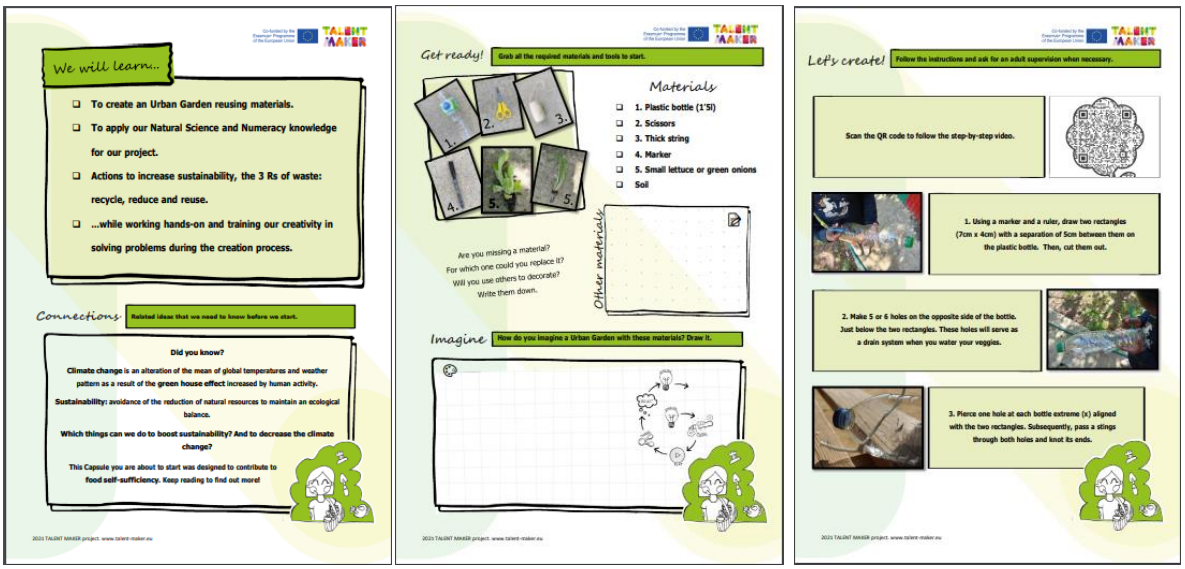


Figure 12- Digital Educative Capsule of a Gardening Workshop

Click on the link or scan the code to visit our (Digital) Educative Capsules Catalogue!

https://talent-maker.eu/catalogue-of-digital-capsules/

3.7- Activity Development

According to its methodology and its theoretical foundations, Talent Maker proposes the following activity development:

Imagine

1. For a start, remind children of the aspects performed and learned in the previous sessions or make them recall an event or experience linked to the content of your workshop (knowledge harvest).
2. Next, invite them to hypothesise about the project they are about to begin from the materials and the space where they find themselves.
3. Once they have shared their ideas, only if necessary, show examples of the possible activity results to spark pupils' ideas.

Create (imagine, create, play, share and reflect)

4. Then, let students commence the hands-on phase where they can count on the teacher's question-based guidance and the Educative Capsules visual support. Encourage them to play in order to experiment the Creative Thinking Spiral natural learning as well as helping each other during the making process.
5. When ready, and if considered adequate by the teacher, suggest kids record their steps (writing down, drawing, taking pictures, etc.), to elaborate their itinerary demonstrating another way to get the same, a similar or an alternative result; or both in a blank Educative Capsules worksheet.

Play and Share

6. Provide students time to enjoy their creation: taste it, wear it, perform it, play with it, etc. In addition to displaying or sharing it with others while feeling proud of their work.

Reflect

7. At last, it is vital to finish the activity with a reflection of the process: identifying and putting a name to their difficulties, the parts they liked, learned, surprised them or developing further the experienced concepts or ideas, among others.

Figure 13- Talent Maker Activity Development Diagram

On this page, following the activity development, are the evaluation activities suggested for a Talent Maker workshop. To find in detail about these evaluation resources, go to Chapter 6-*Assessment and Feedback,* on page 83. Please, notice this is a non-mandatory complete assessment proposal for each teacher or school to adapt to their convenience.

3.8- Evaluation

When starting and during the Talent Maker workshops, teachers explore learners' previous knowledge and, optionally, can evidence them in a **harvest of knowledge**. This will help create connections with concepts or models that children are already familiar with and reveal things they might still not know and may need to create their products. Moreover, teachers and fellow pupils provide **real-time feedback**.

By the end of the session, one or more of the pupils' attitudes related to the **Learning Objective 2** (creativity, collaboration and critical thinking) is recorded on a **self-assessment star rating** (Digital Educative Capsule) and at the end of each term on **co-evaluation grids** in addition to Digital Skills. If a teacher is interested in doing an extensive follow-up of one of these soft skills, they can use its grid in a systemized way at the end of each session by using **Plickers** *(see on page 87)*.

Besides, teachers obtain information linked with other school subjects (**Learning Objective 1**) from their observations written in a **Reflective Journal**. Ergo, the evaluation of academic knowledge and abilities acquired is flexible to the teachers' focus on the activity and assessed according to each country's curriculum and school programme.

Furthermore, the compilation of the completed Educative Digital Capsules by children on individual **Pupil's Learning Portfolios** serves as evidence of their progress (assessment of learning) and supports the co-evaluation of the soft skills and as guidance for the end-of-term **progress interview** and **work contract** (assessment for learning).

On the other hand, at the end of the project implementation, teachers reflect on their talent workshops and Educative Digital Capsules experiences using a **success plan checklist**. Then, discuss with colleagues of the same cycle (lower, middle or upper-primary) the way to perform better: update, improve, overcome difficulties, adapt to children's needs, etc.

3.9- Curriculum connections

This section offers and overview of the three study programmes of the countries involved in the project and a final space where the links with the Talent Maker Methodology are highlighted.

3.9.1- Spain

In Spain, concretely in Catalonia, the Government recently determined a new curriculum (Decree 175/2022, of 27 September, on the organization of basic education courses) in the terms set by current legislation. The document, which is structured in 4 Chapters and 7 Annex, includes the key competencies and their indicators, the specific competencies of each subject, the corresponding assessment criteria, knowledge or content and learning situations, without prejudice to the pedagogical autonomy that law grants to schools. Specifically:

- **Chapter 1. General Provisions:** Object and scope of application, Elements of basic education, Pedagogical principles, General objectives and Language regime.
- **Chapter 2. Curriculum:** Structure, Elements, Areas of primary education (children 6-12 years old), etc.
- **Chapter 3. Pedagogical Management:** Autonomy of canters, Schedule, Teaching equipment, Educational guidance, Tutorial action, Course transition (transitions between stages and educational continuity), Educational care within the framework of an inclusive education system, Curricular diversification programs, Individualized support plan and Teaching resources and materials.
- **Chapter 4. Evaluation:** The evaluation of learning**,** Assessment sessions, Qualification and passing the course**,** Assessment and grading of student learning with an individualized support plan, Diagnostic and end-of-stage evaluations**,** Official evaluation documents**,** Assessment acts, Academic record, Report at the end of the primary education stage, Guidance Council, Personal report for transfer and Authenticity, security and confidentiality.
- **Annex 1** lists the key competencies, which are mandatory and come from those established in the Recommendation of Council of the European Union of 22 May 2018 on key competences for learning permanent This annex describes the operational indicators, which define the competence profile of departure of students at the end of basic education.
- **Annex 2** contains the description of the knowledge areas of primary education.
- **Annex 4** lists and describes the transversal competences.
- **Annex 5** contains an explanation of situation-based learning.
- **Annex 7** presents the time distribution of the different areas and subjects throughout each of the stages.

The Government makes clear the importance of the elementary education teachings for the **educational continuity of the students, to guarantee their comprehensive training, as well as the development of their personality and the preparation for**

the complete exercise of human rights and active and democratic citizenship in today's society.

For this reason, comprehensive training must focus on **key skills development** and **different learnings acquisition to make possible personal and collective prosperity,** moving towards a **more equitable and sustainable society with more social cohesion**.

Click on the link or scan the code to find out more about the Catalan Curriculum!

https://dogc.gencat.cat/ca/document-del-dogc/?documentId=938401

3.9.2- Romania

In Romania, a new School Curriculum for Primary Education, Preparatory Class and Grades I-II (no. 3418/2013) and III-IV (no. 5003/2014) were established by order of the Minister of National Education in 2013 and 2014, respectively. The new Study Programme for Elementary Education (children 6-10 years old) replaced the one developed in 2003-2005.

From the premise that it is the document that regulates in-school performance, it is a must for teachers, regardless of their subject, to know and comprehend its implications.

The current programme, which **focuses on training and developing students' skills**, answers several questions about the learning goals and the content proposed by the different fields of study in a genuine didactic approach. For instance,

- What concretely should I aim for in learning activities with my students?
- Why do I need to pursue these targets?
- How do I effectively reach them?

- How do I ensure that each of my students can succeed?
- How do I know if what I set out to achieve has been attained?

Furthermore, its underlying idea is that each discipline contributes to structuring the **students' training profile** centred on **key competencies** and that all these inputs must be convergent because they do not develop in isolation and are not the prerogative of a particular subject. Despite the school curriculum does not have a rigid epistemological and knowledge cut—out, it was developed under the **status that each discipline has in the education framework plan**: number of hours allocated, lessons studied, level of schooling studied, curricular area to which it belongs, **knowledge, skills and attitudes**; besides their responsibility due the key competencies.

Click on the link or scan the code to learn more about the Romanian Study Programme!

https://programe.ise.ro/

3.9.3- Greece

In Greece, the Interdisciplinary Single Framework of Study Programs and Detailed Study Programs for compulsory education for Nursery, Primary and High School children (5-15 years of age) is determined by the Ministerial Decision No. 21072a/C2 of the Minister of Education and Religious Affairs and described/published in Government Gazette No. 303 & 304/13-03-2003.

According to the Curriculum, the school contributes to the **formation of the student's personality with moral principles and a strong self-concept and emphasizes the satisfaction of his emotional and mental needs and interests**. The cultivation of the **conscience of the European citizen**, the development of a spirit of **cooperation and collectivity**, the safeguarding of the democracy of political life, freedom, secularism, solidarity, justice, culture, intellectual cultivation and social cohesion in open pluralistic societies, are supported as values by the

educational system of Greece and frame the common purpose of the European Education.

The Study Programme refer to the basic principles of education in Greece, the general purposes of teaching the lessons (courses), the axes of the cognitive content, the general cognitive goals, the values, attitudes and skills that are cultivated with the teaching of lessons, as well as the specific aims and objectives of each course.

On the grounds of methodology, the goals are divided into:

- **Cognitive**: refers to the acquisition of basic knowledge and the cultivation of mental abilities necessary for processing information.
- **Emotional:** refers to the development of the student's emotional world, and the cultivation of his interest in scientific knowledge, while they are related to the adoption of values, attitudes and behavior.
- **Psychomotor**: refers to the student's development of skills such as making measurements, performing experiments based on specific instructions, using instruments, building and operating devices, drawing maps, and applying the motor skills acquired.

In addition, the teaching methodology mentions different **approaches**, **activities** and **teaching strategies** for all subjects are proposed to the teacher.

Finally, the objectives of the student's assessment, the **forms of assessment**, the basic **principles of assessment**, **assessment techniques** and means of expressing the assessment result are defined.

Click on the link or scan the code to find out about the Greek Curriculum!

http://www.pi-schools.gr/programs/depps/index_eng.php

3.9.4- Talent Maker Connections

On the whole, in addition to compiling the teacher's regulations and guidelines for elementary education, **the three Study Programmes pay special attention to the key competencies to live in today's world**. This fact perfectly matches Talent Maker **Learning Objective 2** as it contributes to enhancing soft skills such as **Creativity, Collaboration and Critical thinking,** as well as **Digital Competence**.

Moreover, the Greek and Spanish curriculums look after **pupils' personality development and emotional well-being** in addition to **social cohesion, cooperation and collectively spirit**. In the same way, the Talent Maker's **Talent-Based Learning model** offers children the opportunity to **discover their vocations** while not only **learning and mobilizing academic content (Learning Objective 1)** but also learning about themselves. Indeed, when participating in the project, students are immersed in situations where they figure out their **strengths and constraints**. More importantly, how to **work them out and make the most of them within a team at the service of a common goal:** creating a product. Overall, this reinforces pupils' recognition as **capable** and, consequently, **good self-esteem**; while making them feel **part of a group.**

4. DIGITAL EDUCATIVE CAPSULES

Talent Maker Project aims to reduce the learning gap generated during lockdowns due to the digital divide, improving face-to-face and online education in primary multicultural schools around Europe.

To complete that work, it created exciting step-by-step Educative Digital Capsules with videos to allow children to carry out the good practice that evolved into the Talent Maker project independently at home. The Capsules consider the language barrier constraints, attainable and affordable materials and pupils' multiple intelligences and interests.

However, teachers involved in the project didn't want to give up the possibility of implementing Talent Maker workshops at school, as it meant an opportunity to introduce learning experiences and materials that children won't get familiar with otherwise. Consequently, they designed Educative Digital Capsules to make the most of their performance in the classroom setting too.

As a result, the consortium produced two Digital Capsules templates per talent (gathered in one document supported by PowerPoint) becoming a powerful and motivating resource for home, in-class learning or hybrid education.

4.1- Templates

4.1.1-Home Learning

Learning goals and other subject connections

We will learn: Teachers expose the contents, skills or values that they will focus on during the activity with **child-friendly vocabulary** to share with students concrete learning goals of the workshop, making them aware of what is expected of their activity execution.

Connections: Teachers provide some facts to spark children's curiosity (*Did you know?* Format is suggested). They describe the context and the reasons that motivated the activity and linked ideas of other areas providing the Capsule with meaning.

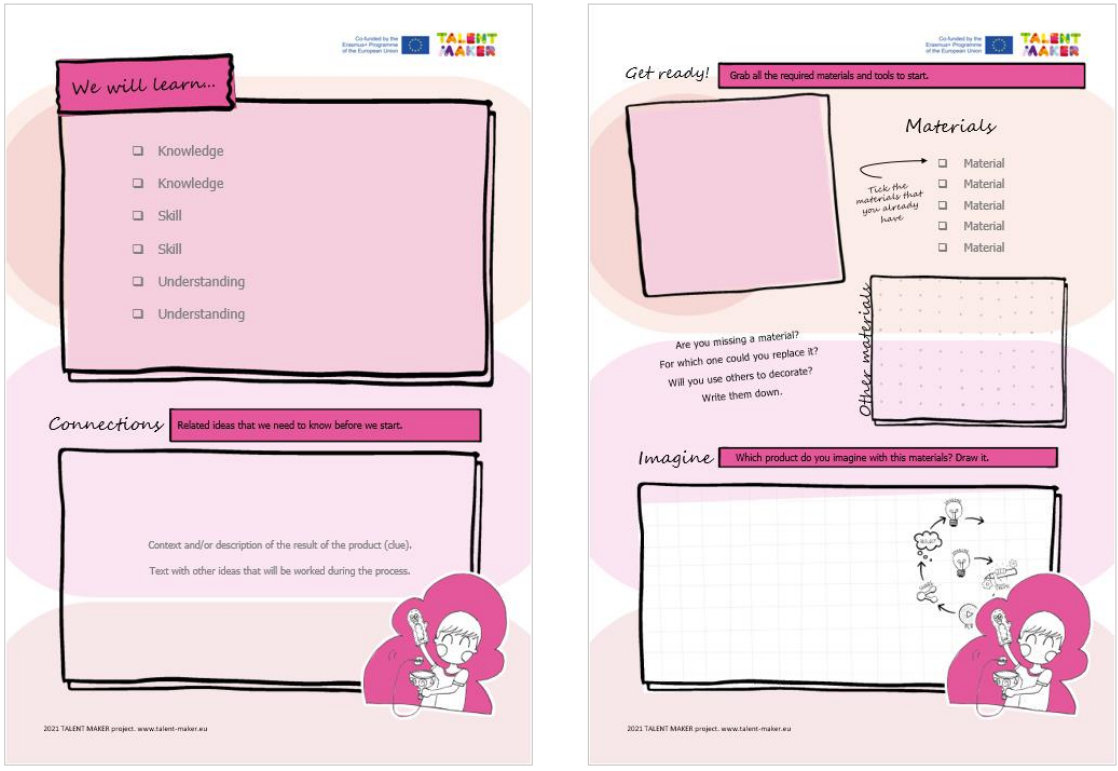


Figure 14- Learning goals and other subjects' connections & Get ready -Materials and Imagine

Get ready! Materials and Imagine

Materials: The teacher lists the materials required for the activity and, optionally, adds others randomly to provoke pupils' critical thinking when selecting which ones they will use or encourage final product personalisation.

A **photo with the materials with the same number as in the list** is strongly recommended to contribute to overcoming the language barrier and introducing specific vocabulary.

Other material: This note is reserved for children to think about if they were able to gather all the materials needed, and if missing some, to find a replacement, as well as to incorporate others of their own choice.

Imagine

In this space, children's imagination is sparked allowing multiple options, for example:

1. Pupils can **draw what they wonder they are going to design** from the previous materials and introduction (learning goals and connections).
2. If they already know what it will be, they can **sketch what they expect will be their final result**. The teacher can ask older children to label the product parts or include other specifications such as colour or material.
3. They can draft the plan they think they will have to follow to make it.
4. Students can create a mind map with the ideas that come to their minds when thinking about a given keyword, for instance, the workshop title.
5. They can write inquiries or hypotheses related to the topic and try to find out about them during the creation process.

Create

Attending the age group, language acquisition grade and the teacher's learning focus, *Let's create!* admit a variety of adaptations:

1. The teacher can give children this section with step-by-step instructions supported by pictures or videos (the QR code to the videos can be included as one of them) chronologically organised.
2. Reflective questions to orientate progression can be written in bold by the teacher.
3. On the other hand, the teacher prints the pages with only the images and asks pupils to glue the instructions with the picture that matches them or the other way around.
4. Alternatively, the teacher can print the instructions and the images unorderly, and ask pupils to glue them on the *Let's create* in the right order.
5. As a choice, images are given and pupils write the steps that follow.
6. Increasing the complexity, students write the steps and take photos or represent their sequence of actions.

Play and Share

The teacher encourages children to experiment through play and to share their output in order to receive **families' and fellow pupils' feedback and recognition**. Playing and sharing lead to reflection which provokes the Creative Thinking Spiral to start again. In this space, children draw or attach a photo of them interacting with their final product and complete the sentence by writing the name of the person with whom they shared it. It is recommended that, whenever possible, **teachers arrange students' works in a display.**

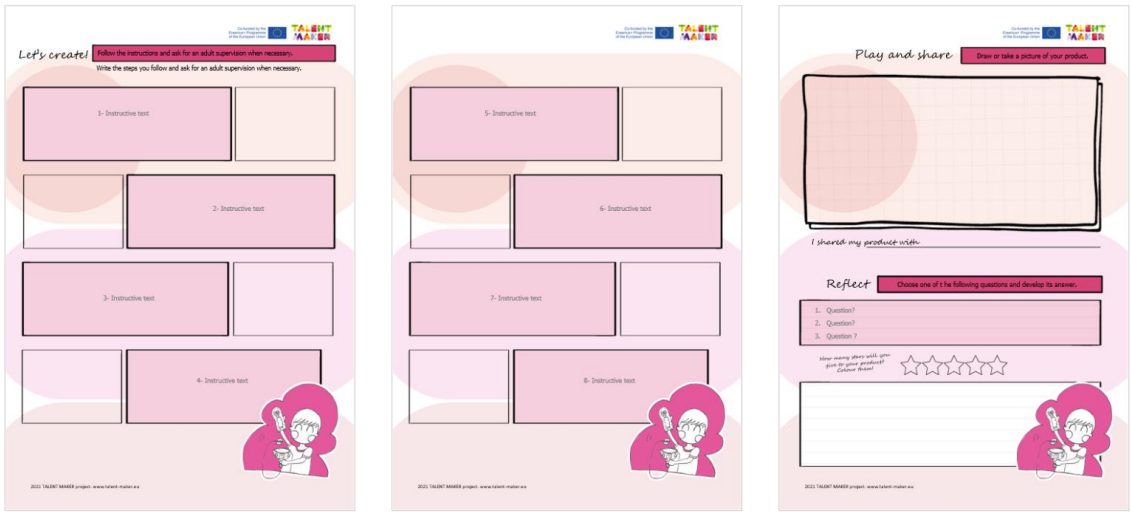


Figure 15- Creating process I and II, Play & Share and Reflect

Reflection

The teachers formulate **three questions to upswing students' awareness of their learning process**. They can be addressed to identify enjoyable parts or difficulties found and how they were overcome, something that they have learned during the process or teach/learned to/from a colleague, etc. They can also refer to the initial **learning objectives understanding** and it is indifferent if they are about contents, skills or values.

Children choose one of the requests and develop its answer in the space provided underneath. Finally, **they rate their performance by colouring the number of stars**. The teacher promotes pupils to reflect on their performance in terms of values such as resilience and collaboration.

4.1.2-School Workshop

Portfolio Evidence

At school, pupils have the guidance of the teacher who, through questions and feedback, encourages progression and learning in the elaboration of the product.

Therefore, templates are kept simple to accentuate the **hands-on and collaboration essence**.

They only have a space for children to write the name of the Workshop, express what they imagine and reflect on what they have learned, just as has been detailed in the **Imagine** and **Reflect** of the previous section.

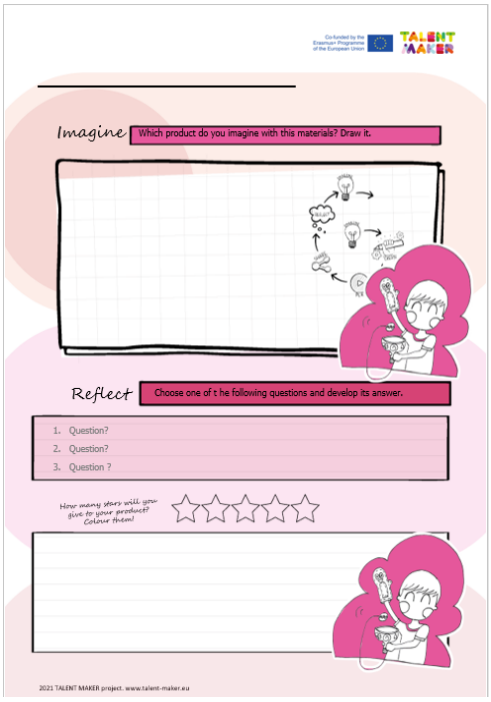


Figure 16- Portfolio evidence: Imagine and Reflect

When completed and put together after a period of time, independently of the Digital Educative Capsules template used, they serve as **evidence of the pupil's learning progress**.

4.2- Editing Digital Educative Capsules Templates

Teachers can create their own Digital Educative Capsules by downloading the templates from the Talent Maker official project website. The template for each talent can be found in its section of the online Catalogue.

Click on the link or scan the code to download our Digital Educative Capsules Templates!

https://talent-maker.eu/catalogue-of-digital-capsules/download-templates/

Adding text

Editable grey text boxes are for filling them with information related to a specific capsule. These are the learning goals, the activity context or spark, the materials, the step-by-step instructions of the creating process and the reflective questions. Once they have been completed, the teacher can change to black their typography colour.

Editable black text boxes explain how to advance in the Digital Educative Capsules. They provide information on what pupils are expected to do in each section of the Creative Thinking Spiral. Teachers can modify them slightly to be coherent with the activity.

Adding images

Pictures can be easily uploaded from your computer by clicking on the image boxes.

Editing the Slide Master

When working on the Templates with PowerPoint, the slides can be modified by going to *view,* specifically to the *master slide*. The *master slide* provides multiple options which teachers can adapt or edit to their needs.

4.3- Schools Workshops vs Home Learning

As pointed out in various moments through this guide, Talent Maker activities have been designed to be implemented at home, school or partly in both settings. The three options provide a different scope for learning, strengthening divergent skills on each occasion. This space analyses the opportunities of each implementation model based on the participating teachers' experiences and reflections.

Materials and equipment availability at home vs school

At home, although most children had the required materials when they did not, they could easily replace them for others. Moreover, some of them eagerly incorporated more to decorate their final product.

On the other hand, teachers place specific workshop materials and tools at pupils' disposal at school. Furthermore, they may include extra stuff and options variety when possible to guarantee learners' freedom within the activity proposal.

Therefore, if education systems were to combine both learning situations, the material and equipment at home could provide the time and context to thrive in creativity and resourcefulness. While at school, they will set a more structured and guided learning experience. In addition to offering the possibility of discovering tools and materials, they may not get to know otherwise.

Autonomy and collaboration at home vs school

Most pupils were able to complete the Digital Educative Capsule at home. The majority could even do it by themselves. However, children who regularly need help also required support with this home-learning task. A few also struggled to read the instructions carefully, making it difficult to follow the sequence an issue aimed to be solved by offering a video tutorial of the Digital Educative Capsule (see page 57).

Conversely, working in half groups with a teacher and in pairs or groups in the classroom guarantees children's activity fulfilment but leaves space for different grades of implication. That is what role label rotation intends to compensate (see page 36).

Consequently, hybrid education has both benefits and challenges. At-home learning can provide a level of independence and self-direction beneficial for some students but, at first, not be suitable for those who need extra assistance. To balance that, many educators have suggested that incorporating technology and multimedia resources can support pupils' learning. On the other hand, collaborative work and a close relationship with the teacher in the school context may leave space for a more interactive learning experience while encouraging socialization.

Benefits and drawback at home vs school

At home, children had more time and the possibility to work at their pace. Also, they were forced to figure out things by themselves, boosting their autonomy, what teachers have associated with more creativity based on pupils' results. Besides, as they

communicated once back at school, they had the chance to share the activity with their family, what brought them joy.

Nonetheless, teachers pointed out that in some cases parents got too involved, not allowing children to act on their own. On the contrary, other pupils missed an adult or teacher's help, encouragement and inspiration, as well as the option to ask questions. However, the lack of teamwork between peers was identified as the main drawback. Finally, teachers highlighted how low self-esteem children feared not being able to achieve the expected result of the Capsule and tended to compare they outputs with the ones of their classmates.

Overall, hybrid education could provide pupils with the best of both worlds: the flexibility and autonomy of remote learning combined with the guidance and support of in-person instruction. Additionally, it could potentially allow for more personalized learning experiences, as children could work at their own pace and receive individualized attention from their teachers. Finally, it could help to address some of the limitations of remote learning, such as the lack of teamwork and social interaction, by providing opportunities for pupils to interact with their peers in person, as well as involving families in their children learning.

Hybrid education		
	At home	**At school**
Materials and equipment	More resourcefulness.	Materials that will not use in another context.
Autonomy and collaboration	More autonomy.	Peers collaboration.
Benefits and drawbacks	More time and own pace work. Family involvement.	Teacher's guidance, inspiration and teamwork.

Figure 17- Summary Table

4.4- Capsules Video Tutorials

Teachers are encouraged to create mute video tutorials and add their QR code to the Capsules in order to embrace home learning and facilitate overcoming the language barrier. They can use clips from this video that illustrate the workshops' main steps as images to support the instruction text of the Capsules.

When it comes to the video content, the recordings must guide the process without being excessively specific about how, as it is crucial to leave space for pupils' collaboration, problem-solving, creativity and critical thinking.

On the next page, some recommendations for recording and editing the videos.

Appearance:

- Work on a light-filled space
- Avoid shadows and backlighting
- Wear a plain T-Shirt

Sound:

- Mute the sound unless indispensable for your workshop
- Incorporate an instrumental copyright free music

Recording:

- Use a tripod
- Go for landscape orientation
- Play with two camera framings: medium and close-up shots (focus on the actions)

Editing:

- Edit with a free online video editor. The Talent Maker Team worked with Canva as it is one of the simplest.
- Add a front and a final cover including the name of the workshop
- Keep it brief, between 2 and 4 minutes.

Figure 18- Video recording and edition tips

Click on the link or scan the code to watch the Digital Educative Capsules available on our YouTube Channel!

https://www.youtube.com/@talentmakereu3905/playlists?view=50&sort=dd&shelf_id=3

5. CASE STUDY

5.1- The Capsule

Co-funded by the Erasmus+ Programme of the European Union

We will learn...

- TO CHOOSE 🕮 🕮 THAT PORTRAY NATURE.
- TO REDISCOVER THE WORDS AND THEIR TEXTURE: COLOURS, SHAPES, CHARACTER, ETC.
- TO REPRESENT NATURAL ELEMENTS THROUGH ART:
- TO PLAN OUR WORK AND WORK INDEPENDENTLY.

Connections

ENJOY THIS 🕮 BEFORE WE START:

https://www.youtube.com/watch?v=wpDv1rYFqTQ&ab_channel=JoyfulLearningforYoungMinds

DID YOU KNOW?

OCEANS ( ) ARE ENOURMOUS AREAS OF SALTY WATER.

AROUND 70% OF EARTHS SURFACE IS COVERED BY .

HENCE THE EARTH IS ALSO NAMED THE BLUE PLANET.

Co-funded by the Erasmus+ Programme of the European Union

TALENT MAKER

Get ready!

GRAB THE MATERIALS AND THINK ABOUT IT...

Materials

Tick the materials that you already have

- ❑ 1. SHOEBOX
- ❑ 2. PAPER OF DIFFERENT TEXTURES AND COLOURS
- ❑ 3. SEA SAND AND SHELLS
- ❑ 4. PAINT/MARKERS/GLUE
- ❑ 5. DIGITAL DEVICE WITH SCRATCH ACESS

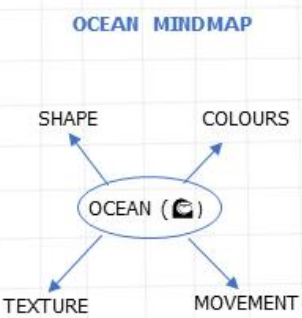
ARE YOU MISSING MATERIAL? FOR WHICH ONE COULD YOU REPLACE IT? WILL YOU USE OTHER MATERIALS TO DECORATE?

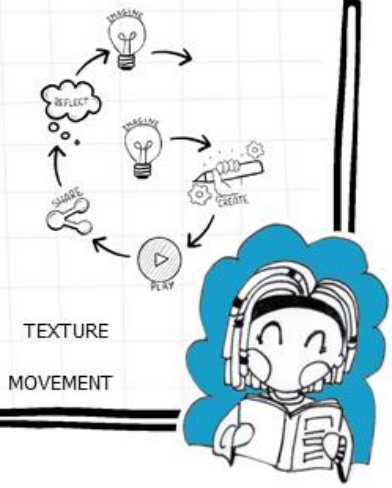
Other materials

Imagine

THINK WORDS THAT WE ASSOCIATE WITH THE 🐚 :

OCEAN MINDMAP





TEXTURE

MOVEMENT

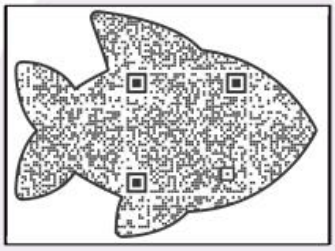
Co-funded by the Erasmus+ Programme of the European Union

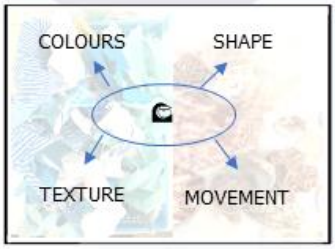
TALENT MAKER

Let's create!

FOLLOW THE INSTRUCTIONS AND WATCH THE VIDEO.

1- SCAN THE QR CODE TO FOLLOW THE STEP-BY-STEP VIDEO.





2- THINK ABOUT THE WORDS OF YOUR MINDMAP. HOW COULD YOU REPRESENT THEM WITH THESE MATERIALS?

HAVE A LOOK AT OTHER RELATED TO THE OR DO A LITTLE RESEARCH ON FOR INSPIRATION.

3- WRAP THE SHOEBOX WITH COLOUR PAPER AND ITS INSIDE COMBINING THE COLOURS OF YOUR MIDND MAP.

DO YOU KNOW ALL THEIR NAMES? SCAN THE QR CODE TO LEARN SOME.

Co-funded by the Erasmus+ Programme of the European Union

TALENT MAKER

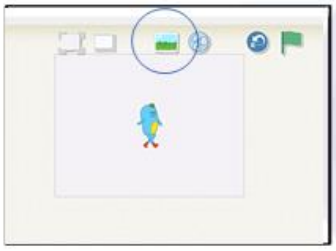
4- ADD SAND AND OTHER 🌍 ELEMENTS LIKE 🐚.
INCORPORATE PAPER OR FABRIC OF DIFFERENT COLOURS AND TEXTURES.

5- YOU CAN INCLUDE SOME 🌍 LIFE LIKE SEAWEED OR ANIMALS:

🐙🦈🐡🦀🐚🐢🐠

6. YOUR FISHBOWL IS DONE!

TURN ON YOUR 💻 AND OPEN 🐱 JR

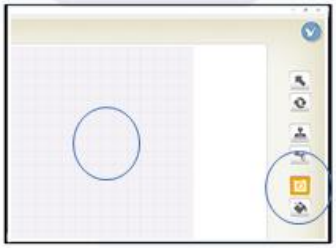


7- 🖱 ON THE 🏞 IMAGE.

Co-funded by the Erasmus+ Programme of the European Union

TALENT MAKER

8- SELECT THE 🖌.



9- CHOOSE THE 📷, 🖱 THE CHECKED PAPER AND TAKE A PHOTO OF YOUR FISHBOWL.

10- ADD CHARACTERS BY 🖱 ✚, OR DELATE THEM BY KEEPING THEM 🖱 UNTIL THE ✖ APPEARS.

11- 🖱 A CHARACTER AND START CODING WITH A YELLOW BLOCK.

YOU CAN RECORD YOURSELF EXPAINING A MEMORY BY THE 🎥 WITH THE 🎤 BLOCK.

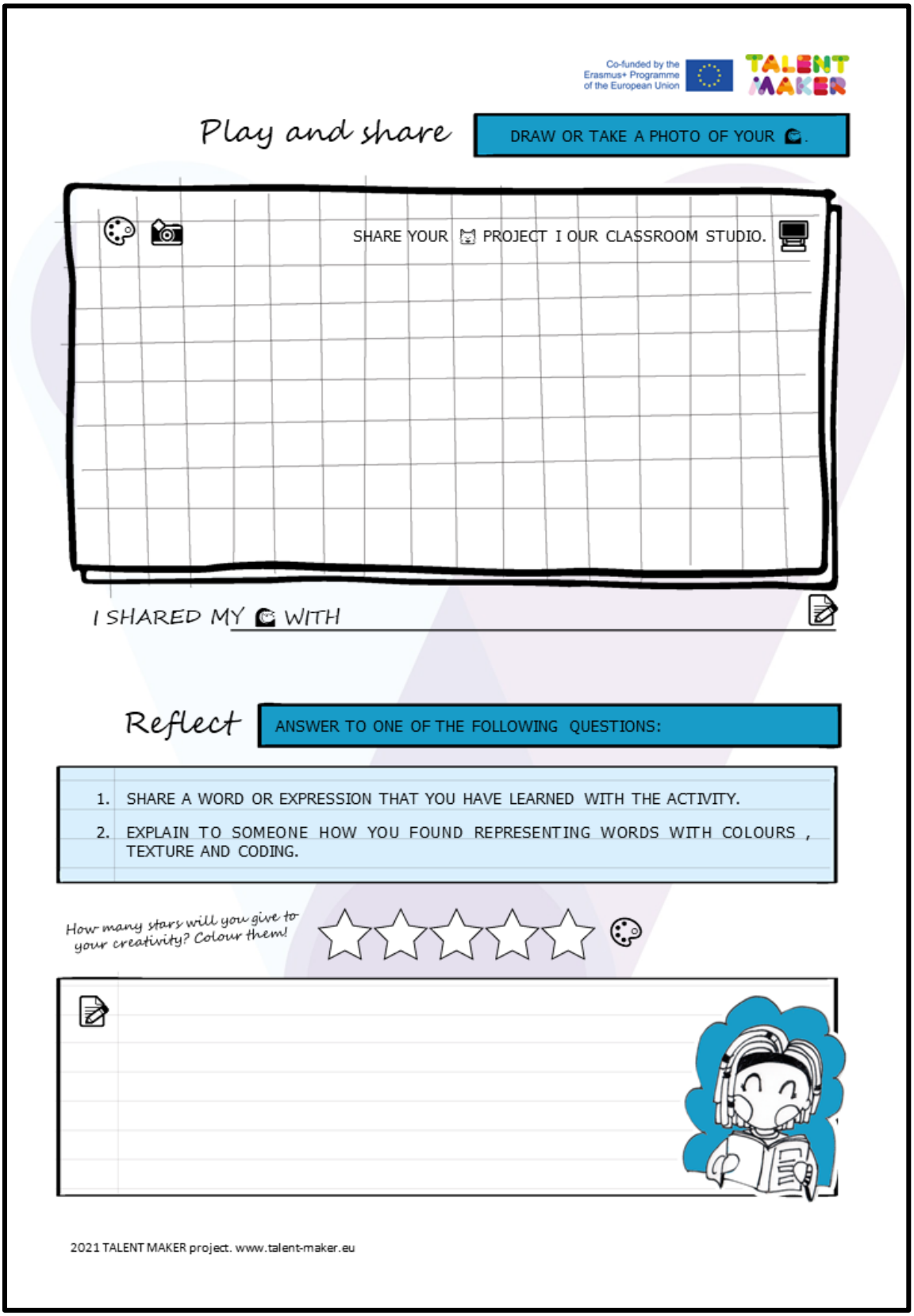


Figure 19- Sea in a Fishbowl – Home Learning Capsule

5.2- The Lesson Plan

Lesson planning is a critical process where teachers define the concretization, distribution and timing of the learning objectives, contents and evaluation criteria and their contribution to achieving targeted competencies. Besides, Lesson Plans usually include a summary of the activities, pupils' groupings during them, the materials required and the methodology to carry them out. All this, considering their class group and each child's necessities.

Lesson Plans templates not only aim to facilitate this teacher's task to think ahead of their work to guarantee effective learning by plotting and arranging an action line for the session with relevant details on different aspects of the intervention. But also allow them to reflect on the means to improve their teaching.

In what follows, an empty segmented Lesson Plan Template for the Talent Maker Methodology described and a filled one with a workshop as an example.

Click on the link or scan the code to preview and download an empty Lesson Plan template!

https://docs.google.com/document/d/1Z8MGQZ2f5XsKy-LTZ-D5Nc8_r4HZ58D3/edit?usp=sharing&ouid=117055531288592708448&rtpof=true&sd=true

The first row sets out the basic information about the Talent Maker workshop:

- **Talent:** the type of activity or talent provided by the teachers (based on their strengths and passions) at the pupils' disposal, such as Cooking, Jewellery, Cycling, Robotics, Knitting, Theatre, Robotics, etc.
- **MI:** the Multiple Intelligence(s) that the workshop focuses on Logic-Mathematical, Musical, Body-Kinestetic, Visual-Spatial, Naturalistic, Linguistic, Intrapersonal, or Interpersonal. See the eight categories of intelligence detailed in section *The eight intelligences* of *Figure X- Sea in a Fishbowl – Workshop Capsule 2.1.3-The Multiple Intelligences.*

Age: the children's age that is addressed in the workshop: kindergarten, lower primary, middle primary, upper primary, lower-secondary, etc.

Talent Maker Lesson plan		
Talent: *[Activity type: cooking, gardening, robotics, etc.]*	**IM:** *[Multiple Intelligence or potential capacity to train]*	**Age:** *[Target group age]*

Figure 20-Talent Heading

As teachers may develop several workshops of the same Talent, the following section it is expected to be added (copied and pasted) for as many lessons as the teacher carries out focused on the same Multiple Intelligences and age group.

In the first part, which corresponds to the top four rows, there is a layout for the **workshop title** and the **date** it is programmed to be conducted. Also, there are the entry fields for the **schedule,** the time frame when happening, and the **location,** the space where it's taking place. Besides, it lists the **equipment and materials** required, as well as the **bibliography and web references** that were utilised to design the lesson or will be applied during the session.

[Workshop Title]	*[Date]*
Location*: in the class / in the gym / at home / in park / online, etc.]*	*[Schedule]*
Equipment and materials	*[The list of materials and equipment]*
Bibliography and web references	*[The list of web and bibliographical references]*

Figure 21-Workshop Practical Information

In the second part, as designated by its label, there are the **specific learning goals (Learning Objective 1)** of each workshop, and the teacher has space to answer the following questions:

- **What are we going to do?**

  Summary of the learning activity.
- **Why are we going to do it?**

  Enumeration of the learning goals pursued with the workshop performance: knowledge and skills linked to the academic subjects and the particular ones of the workshop or talent, in addition to some values shared with the pupils in the "We will learn…" of the Educative Digital Capsules.
- **How are we going to organize ourselves to do it?**

  Break down the activity into steps or tasks following the Creative Thinking Spiral (Imagine, Create, Play, Share and Reflect), pupils' organization (individual, pairs or groups) and pedagogical and didactics strategy or method selected.
- **What is the outcome, and why?**

  Statement of the envisioned outcome and its relevance.

Specific learning goals:	
What are we going to do?	*[Brief description of the workshop].*
Why are we going to do it?	*[Correlate the lesson with the specific and general learning objectives and the purpose in its context].*
How are we going to organize ourselves to do it?	*[Break down into steps or tasks keeping on mind the Creative Thinking Spiral: Imagine, Create, Play, Share and Reflect].* *[Children's organization: groups, pairs, individually, etc.]* *[The pedagogic and didactic strategies and methods used for each phase: demonstration, conversation, inquiring, reflection, observation, role-play, problematization, reading, interpretation, mimics, mixed, etc.]*
What is the outcome, and why?	*[Detail the expected result(s) and its motivation or purpose]*

Figure 22-Workshop Learning Objective 1 and Description

In the third and last part, there are the **general learning goals (Learning Objective 2): Collaboration, Creativity, Critical Thinking and Digital Skills.**

As pointed out in 3.3-*Learning objectives*, the three first are thought to be launched and assessed accumulatively per age stage, from younger to older children in the previous order. Therefore, although the lesson plan integrates the assessment indicators of the three Cs arranged in three columns, teachers might adapt it to show only the ones they will be evaluating.

On the other hand, teachers might highlight the Digital Competencies tailored to pupils' age and learning necessities covered in the lesson. At national level, each country has a specific classification of the Digital Skills. The Talent Maker Lesson Plan Proposal has adopted the ones set for the *European Reference Framework DigComp 2.1*.

General learning goals:		
Collaboration	**Creativity**	**Critical Thinking**
Works productively • Everyone participated • Worked well together (helped each other, shared and distributed tasks) • Were focused on the task all the time • Finished well the task **Demonstrates respect** • Everyone listened to others ideas respectfully • Everyone discussed others ideas politely **Compromise and shared responsibility** • Everyone was flexible (negotiation, agreements, conflict resolution) • Everyone did their best	**Curiosity** • Intrigued by new elements and ideas • Seek new elements • Explore new ideas and elements **Flexibility** • Adapt well to new situation • See many possibilities **Originality** • Come up with many ideas	**Critical insights development** • Understands the meaning of the data • Explains the data to others • Draws a conclusion from the data • Uses the data to make connections to his/her work **Analysing information** • Identifies and understands the main issue • Establishes priorities among details • Sees unstated implications **Different viewpoints** • Able to find at least three main viewpoints and explain them to others

Digital Skills	
Competence area 1: information and data literacy 1.1- Browsing, searching and filtering data, information and digital content 1.2- Evaluating data, information and digital content 1.3- Managing data, information and digital content **Competence area 2: communication and collaboration** 2.1- Interacting through digital technologies 2.2- Sharing through digital technologies 2.3- Engaging citizenship through digital technologies 2.4- Collaboration through digital technologies 2.5- Netiquette 2.6- Managing digital identity	**Competence area 3: digital content creation** 3.1- Developing digital content 3.2- Integrating and re-elaborating digital content 3.3- Copyright and licences 3.4- Programming **Competence area 4: safety** 4.1- Protecting devices 4.2- Protecting personal data and privacy 4.3- Protecting health and well-being 4.4- Protecting the environment **Competence area 5: problem solving** 5.1- Solving technical problems 5.2- Identifying needs and technological responses 5.3- Creatively using digital technology 5.4- Identifying digital competence gaps

Figure 23-Workshop Learning Objective 2

Finally, find as an example, the Talent Maker Lesson Plan completed for the *Library Workshop*. Concretely, the two sessions dedicated to "*The sea in a Fishbowl*" Capsule, one unplugged and another plugged, which its implementation is developed in the next section as a Case Study by the three schools participating in the project from Greece, Romania and Spain.

Figure 24-The Sea in a Fishbowl Diorama Workshop

Talent Maker lesson plan

Talent: *Library*	**IM:** *Linguistic*	**Age:** *6-7 years old*
The sea in a fish bowl (unplugged)		*20/02/2023*
Location: *School Library*		*15:00 to 16:30*
Equipment and materials	*Ambience: different types of blue fabric and papers (variety of colours and textures), magnifying glass, sea word in light letters, blanket, sand, seashells, etc.* *Books about the sea: Wave (Suzi Lee), The Rainbow Fish (Marcus Pfister), Life in a Coral Reef (Wendy Pfefferetc).* *Product: Shoeboxes, paint, sand, shells, cardboard, colour paper, fabric, etc.*	
Bibliography and web references	*1- Wave (Suzi Lee)* *2- Diorama examples* 1- 2-	

Specific learning goals:

What are we going to do?	*We are going to read and listen to books (and image books) about the ocean and create our **sea diorama** in a shoebox (fishbowl) in pairs or groups while increasing our vocabulary of shapes, textures, colours, movement and sea life.*
Why are we going to do it?	*To forge literature enjoyment, gain vocabulary and its understanding by representing designation (nouns) and describing words (adjective and adverbs) physically.*
How are we going to organise ourselves to do it?	**Imagine** 1. *Surprise: Children enter the library and find an ocean ambience.* 2. *Big-group discussion: The teacher asks for the names of the elements displayed: seashells, sand, fish toys, paper, etc.* 3. *Big-group discussion: What colour are they? What texture do they have? What shape? How do they move?* 4. *Individually, guided by the teacher, pupils complete the mind map of the "imagine" part of the Capsule.* 5. *Modelling: The teacher reads aloud some books and plays the video of Wave (Suzi Lee).* **Create** *(hands-on part in pairs)* 6. *Modelling: The teacher shows a sea diorama to inspire children's projects. In addition to other internet images as examples (see bibliography).* 7. *Pupils work on designing and creating their "Sea inside a fishbowl" using diverse materials. They stablish connections between the books they have red and themselves (previous experiences), the world and other texts (books and stories).* **Play and Share** 8. *Children move freely in the library to share and play with each other Sea in a Fishbowl (sea diorama).* **Reflection** 9. *Big-group discussion: Which materials have you used to represent X shape/ texture/colour/movement?*

What is the outcome and why?	*A physical representation of the words they have learned and have been working on to promote their understanding and the new language acquisition through a making and sharing process.*

General learning goals:

Collaboration

Works productively

- Everyone participated
- Worked well together (helped each other, shared and distributed tasks)
- Were focused on the task all the time
- Finished well the task

Demonstrates respect

- Everyone listened to others ideas respectfully
- Everyone discussed others ideas politely

Compromise and shared responsibility

- Everyone was flexible (negotiation, agreements, conflict resolution)
- Everyone did their best

The sea in a fish bowl (plugged)	*27/02/2023*
Location: *1st grade classroom*	*15:00 to 16:30*

Equipment and materials	*- 8 tablets with Scratch Jr. downloaded and photo cameras integrated* *- Pupils' Seas in a fishbowl*
Bibliography and web references	*How to Code an Underwater Scene in Scratch Jr [7 Minute Tutorial]*

Specific learning goals:

What are we going to do?	*We are going to animate our sea diorama or create an underwater scene with Scratch Jr., focusing on literacy elements like characters (sprites), setting (background) and the events sequence of a story (sprites code programs).*
Why are we going to do it?	*To get started with coding as a potential storytelling tool and a means of creative expression.*
How are we going to organise ourselves to do it?	**Imagine** 1. *Class-group conversation: Last session vocabulary review by pointing different elements in their diorama and previous learning experiences.* 2. *Class-group brainstorming and discussion: How can we bring to life our diorams? [coding]* 3. *Teacher modelling and class-group conversation: Scratch Jr. interface presentation* **Create** *(hands-on part in pairs)* 4. *Pupils edit (paintbrush icon) a white canvas background (landscape photo) by taking a picture (photo camera and clicking on the drawing area) of their diorama.*

	5. *They choose sprites from the Scratch Jr. gallery, draw their own in the image editor or take a pic of the characters of their diorama and erase their photo background.* 6. *Children code the sprites to swim, spin, chase others, talk, etc.* **Play and Share** *(in pairs with the class group)* 7. *Children present to the whole class their Scratch Jr. project.* **Reflection** 8. *Individually, children choose one of the Capsule's questions and answer it orally, by drawing or writing.*
What is the outcome and why?	*A Scratch Jr. animation to start building pupils' confidence, especially girls, to use coding as a means of expression, giving them a voice in a digital era.*

General learning goals:

Collaboration

Works productively
- Everyone participated
- Worked well together (helped each other, shared and distributed tasks)
- Were focused on the task all the time
- Finished well the task

Demonstrates respect
- Everyone listened to others ideas respectfully
- Everyone discussed others ideas politely

Compromise and shared responsibility
- Everyone was flexible (negotiation, agreements, conflict resolution)
- Everyone did their best
-

Digital Skills

Competence area 3: digital content creation
3.1- Developing digital content
3.4- Programming

Competence area 5: problem solving
5.1- Solving technical problems
5.3- Creatively using digital technology
5.4- Identifying digital competence gaps

Figure 25- Library Lesson Plan

5.3- Case Study

As previously anticipated, this last section gathers the experience of three teachers from different nations and multicultural schools who do not know each other but somehow have been connected through Talent Maker.

They all are participating in the project and, to prove its transferability agreed on implementing the same Digital Educative Capsule in their classroom setting and recorded the two session episodes with pictures, videos and a written reflection of the teaching and learning events under their watch. Please, note that the children's names have been changed to respect their anonymity.

The picked Capsule to implement was the *Sea in a Fishbowl* (see first Digital Educative Capsule of the Annex) addressed to lower primary children. The teachers slightly adapted the Digital Educative Capsule and its Lesson Plan, shown before, to their pupils, teaching style, school context and country curriculum.

Mireia Costa Gay is the library teacher at the El Pla school (Girona, Spain). She leads the Reading Lab (lower primary) and the Zen Library (middle primary) *talents*, sharing her passion for children's literature and promoting reading taste. She designed the original proposal for the chosen Digital Educational Capsule.

I always introduce the proposals of the Reading Laboratory's Capsules in a singular set-up to surprise and motivate the children from the beginning. The ambience is essential. Above all, the pupils should find it prepared when they arrive.

For example, I represented the sea with fabrics of different colours and textures. On top, I exhibit a variety of books about

the ocean among related objects (treasure chest, LEGO boat, sea animals' toys) that I found at the school. Therefore, pupils knew and had previously handled them on other occasions. I also added natural elements like shells, stones and sand that they could easily find in their immediate environment. All this is for bringing the activity closer to children so they can feel identified and safe.

By presenting the activity this way, I already observed learners behaving differently. Just entering, an expression of fascination arose them. Even with reserved children, who usually do not communicate much with their facial gestures; I could discover admiration in their eyes, heard the emission of surprise sounds and noticed more participation.

A good example is Fatumata, who often looks indifferent and dull, did not stop smiling and actively intervened during the session.

First, we sat in a circle around the marine display, where I presented the books by mentioning the title, reading the synopses or showing the covers. Then, we analysed the genre of all of them: non-fiction, graphic novel, poetry, comic, etc.

Thus, I immersed them in the atmosphere I had created by lighting the spark so they would crave to explore the book that had most attracted them.

Later, they worked on making the diorama in pairs. The aim was to collect what they liked most about the books in a shoe box, transforming it into an ocean with a hand of paint and various textures material. In addition, I explained to them that I had done this activity during the lockdown with my daughter using home stuff and stationery and going to look for sand and stones in the river that we took when walking the dog. Sharing the task as a personal experience and reinforcing the message that it was unnecessary to buy the materials or go to sea; made the task seem more accessible to pupils.

I remember conducting this activity with a middle primary group that usually generates disruptive dynamics. However, since it was a hands-on activity, it was less demanding and more comfortable for me to lead the session. They really wanted to read the books because they had to build a diorama based on them. This process helped them not only achieve the lesson-learning goals and establish connections between the books and the

tangible sea they were creating but also with their personal experiences.

As for the relationship between peers, it was super good. There were no arguments or bad words. The workshop took place in a pleasant atmosphere, creating interesting collaboration dynamics and synergies like how they supported each other and started literary conversations: "This title is similar to that of my book", and "Look at my back cover", or "These are watercolour illustrations", etc.

It was the same during the second session when they discovered Scratch Jr., although some children preferred to work individually. For instance, Mohamed, a boy who faces learning difficulties, evidenced his autonomy, effort and devotion during the creation process and volunteered to be the first one to present his project, feeling comfortable and confident sharing his work.

Overall, I was amazed by their curiosity and how intuitively they got Scratch Jr. going, as it was their first contact with this coding language for children. Nonetheless, not only pupils are captivated by Scratch and the tablets, but also by books.

Figure 26- Sharing time: Sea dioramas

Madalina Popescu, who is an ESL (English as a Second Language) teacher at Constantin Ianculescu High School (Cârcea), adapted the workshop to implement it during her lessons. Here her experience and reflections after implementing the activity:

I provided for them an environment to learn in their own way. When you walk into their classroom, you see that it's very open; it's inviting, and extremely interactive. There were 3 working centres and the students chose by themselves which activity to start with.

The students used very good manners and knew that "please" and "thank you" have to come with every request when working in teams or when they moved from one centre to another.

I started by asking learners to guess some sea animals as I described them: It's big. It's grey and white. It's got a big mouth and big teeth. It can swim very fast. (a shark)

I asked where do these animals live? I wrote ocean/sea on the board and asked learners to tell me the names of any animals they know that live in the sea.

I noticed that some of them preferred to draw the animals and the others to write the name of a real sea animal.

They cut them out and added a description underneath. Others preferred to manufacture the fish tank, to glue or paint, to get their hands dirty with sand and shells.

Finally, they glued the sea creatures on the wall of the box to make an 'Under the sea' display.

I noticed that learners' vocabulary has expanded tremendously, they show interest for a full conversation in English and they understand me better.

To review the newly introduced vocabulary, we watched a very funny video book called Waves.

The children were all happy and enjoying themselves, engaging in different activities and exercises, often at their pace and direction.

In Scratch they used as a background the 'Under the sea' display they have created. Coding the animals to move or adding the sound of the waves was a lot of fun, too.

While coding students attending the class felt a bubbly excitement of success and improvement and had clarity on what was expected of them or areas of improvement needed. I witnessed students who felt great about themselves and also had a lot of fun.

There were moments when they needed guidance, direction but I encouraged them to practice in order to improve themselves.

In conclusion there isn't just one method of teaching and a good teacher will always adjust the lesson plan, the topics, the method, the synergies in order to get the results, the students are looking for.

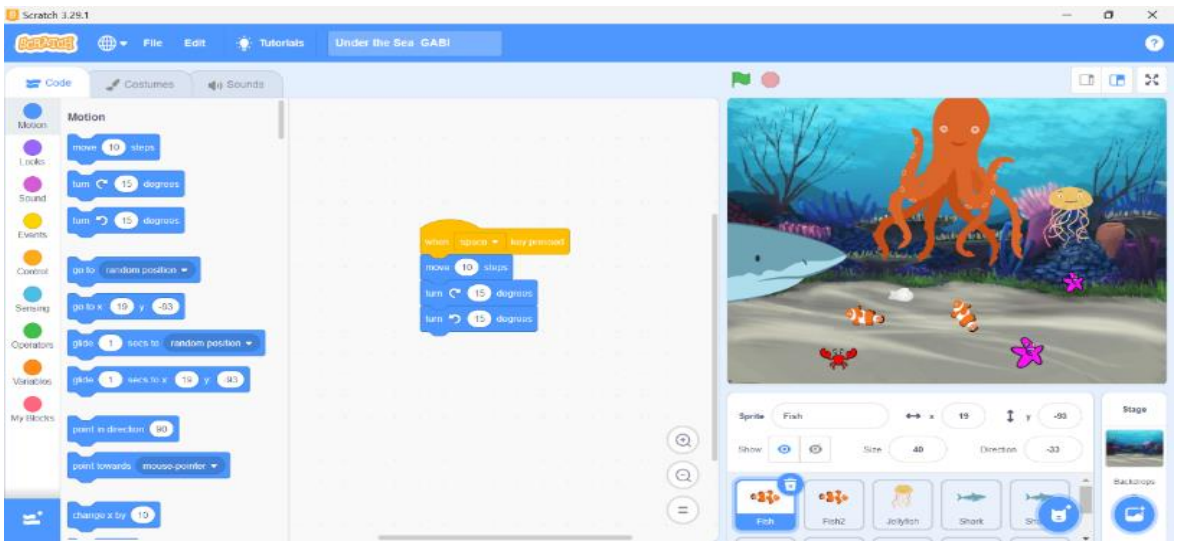


Figure 27- Under the sea – Gabi's Scratch Project

Mrs Marianna Paschalidi, the teacher of 5th grade at the Primary School of Nea Alikarnassos (Crete, Greece), carried out the Capsule with her pupils. Here are her observations and comments on the project, as well as her feelings on the outcome.

In my view, the implementation of the capsule called The Sea in a Fishbowl was a perfect example of what the whole project is all about. The various observations I made were riveting and complied with the meaning and aims of Talent Maker.

Firstly, I noticed that all students were actively involved in the activity, no matter how much motivation they usually manifest at school. Even 'weak' students who rarely participate in any academic subject showed great interest in the workshop, performing even better than 'strong' students. Their interest in something they had never done before was astonishing. It was like, they discovered a new skill and interest they had never considered. And they enjoyed it. The example of Nicholas, a rather unmotivated student who excelled at the activity, clearly reflects the aims and results of the project.

In addition, it was amazing how much pupils interacted with their peers and collaborated to create a product together. As I see it, we live in a digital world where everybody works individually. Cooperation is a term which means very little to modern people. However, the case study reversed the trend proving that cooperation is an innate quality of people. For instance, three of my students, who are always trying to do things alone and rarely accept the help of others, showed a strong passion for collaboration. That came as a surprise to me since I had never managed to involve them actively in teamwork. Furthermore, they encouraged others to get involved and tried to leave nobody out of the process.

But above all, what offered me the most satisfaction was that they all enjoyed what they were doing. It was like watching your pupils having genuine pleasure in what was going on. Sometimes they took the initiative to improve or correct something or even solve practical problems. I cannot forget when I had no answer to one of their questions, but Atticus offered me some helpful advice which solved the problem. Then, he was in his world, where the impossible became possible.

Only after these observations I realized the whole project's essence and numerous benefits to our children.

Figure 28- Primary School of Nea Alikarnassos: Sea diorama

6. ASSESSMENT AND FEEDBACK

6.1- The Assessment Grounds

What we teach depends on what we assess, and how we assess depends on what is taught and how (Bill Lucas, 2022). Due to the two learning objectives and the project's educative purposes, Talent Maker assessment proposal focuses on **assessment as** and **for learning (formative learning).** Nonetheless, **assessment of learning** is also present. However, within the project, it intends to measure students' progress by comparing their current results (learning goals achievement) with previous ones. This section is strongly inspired by the lessons learned from Neus Sanmarti and her work in Assessment for Learning, 2010.

Assessment for learning

Through pupils' responses to the activity development and teachers' questions, **teachers get information** not only to **modify their Talent Maker Capsules** but **also the lessons of the curricular subjects**, adapting the pathways to guide students' learning. Therefore, it contributes to the **previous academic knowledge identification and mobilisation** while **ensuring class-group and individual progress** in the new content and skills acquisition (Learning objective 1).

An **observation log/journal/diary** is recommended to support this task, allowing teachers to remember and consider their notes when planning future sessions, transfer information to other teachers and subjects and offer a global learner view when writing evaluation reports. Having a **list of the assessment indicators** (the ones included in the co-evaluation rubrics) might also be of help.

Similarly, a **knowledge harvest** (initial assessment questionnaires, mind maps posters to display in the classroom or quoting children's ideas in the teacher journal) is suggested to **evidence the learning process** when later enabling reflective conversations between teachers and pupils or completing other assessment activities.

At the same time, **children obtain information about their performance** and **work on**

refining it by attending to the **real-time teachers' and peers' feedback** during the workshops.

Assessment as learning

When it gets to the **Share** and **Reflect part of the Educative Capsules**, pupils **take a photo of or draw their output**, **answer one question of their choice** out of the three proposed, and **colour the number of stars** they consider to represent their performance in one of the Learning objectives 2. These tasks encourage **metacognition of their making process** and **generate learning evidence** gathered in the students' **Digital Educative Capsules Portfolio**.

Furthermore, at the end of the term, learners complete **co-evaluation rubrics** to assess their acquisition of higher order skills like **creativity** and **critical thinking**, as well as **collaboration** and **digital competencies** (Learning objective 2) based on the **workshop experiences** and the **evidence** generated during the process (**Learning Portfolio**). This task contributes to creating a **shared understanding of what is being assessed** as it simplifies, translates and constructs a social representation of **how these abilities look like and are expected** in a teaching and learning process (Vicent-Lacrin, 2019).

Assessment of learning

Teachers fill out the rubrics before the **progress interview. Together with the student,** discuss the **grade of achievement of the learning goals** and compare the pupil's current results with previous ones, emphasising what went well and how he/she could improve by **looking at the evidence** (journal notes, Learning Portfolio and previous Rubrics).

Optionally, they can agree on a **working contract** where the student, supported by the teacher, writes guidelines to overcome the difficulties that has found and compromises to put effort into them during the next period.

"Students perceive what is important to learn based on what the teacher values."

(Neus Sanmartí, 2010)

6.2- Assessment and Feedback Tools

Not only this section provides assessment tools for the targeted skills and competencies related to the project **Learning objective 2**, but also strategies to ensure the **goals previously set for the school teachers (Learning objective 1)** in their **lesson plan** (see chapter 4, page X).

Nonetheless, as mentioned in the last paragraph of *3.8- Evaluation*, it is not indispensable to use all the instruments described below. Rather than this, it is suggested that teachers **select the abilities they are more interested in training and assessing**. Then, design their **lesson plan integrating assessment activities and tools in different stages** and adapting them to pupils' needs and age.

Suggested assessment activities and tools

What?	Assessment for learning			Assessment as learning			Assessment of learning
When?	During the lessons					At the end of the term	
How?	Knowledge harvest	Real-time feedback	Journal	Digital Educative Capsules (Portfolio)		Co-evaluation rubrics	Progress interviews and working contracts
Who?	Teacher and students	Teacher and students	Teacher	Students		Students and teachers	Teacher and students together

Figure 29- Assessment activities and tools

Click on the link or scan the code to access Plickers and systematized your assessment rubrics!

https://get.plickers.com/

6.2.1- Knowledge Harvest

As referred to in the Theoretical Framework, according to Piaget, children learn from interpreting new information within their knowledge framework (assimilation), which they modify to address what does not fit from the latest (accommodation).

In the Talent Maker Project, the Knowledge Harvest is about evidencing the pupils' previous knowledge of the capsule's topic and identifying misinterpreted ideas; to facilitate the acquisition of the concepts introduced for setting a context, being helpful or required in the making process.

It can be conducted as an oral discussion previous to the activity, guided by good questions like the ones proposed by the STEAMcat programme (2021) of the Catalan Department of Education: *What do I know about the topic? Are right all these ideas? Is there among them a myth?*

Alternatively, answers can be written and talked through afterwards. This format would allow collecting and keeping them as a display or a document which can be consulted or compared at the end of the workshop or the term to observe new learning and progress. Post-it, paper labels, drawings and traditional mind maps are alright. Nonetheless, this could be a perfect opportunity to work the Digital Competence by incorporating digital resources, which might be convenient for online learning too, at your convenience, such as the following:

Google Jambord | Padlet | Bubbl | Popplet | Canva

6.2.2- Real-time feedback and Good Questions

Immediate feedback increases motivation (Skinner, 1958) and facilitates understanding of the relationship between actions and their results (Hernstein Loewsnstein, Prelec & Vaughan, 1993). According to a study by Hattie and Timperley (2007), it is most effective when it is specific, timely, and directed towards the intended learning outcomes as it allows students to correct their mistakes and adjust their learning strategies. Furthermore, questions can be a valuable tool to provide real-time feedback by assessing understanding, encouraging reflection or identifying misconceptions among others.

But what do we consider a good question? A good question is a stimulating inquiry that encourages us to improve our observation, test or experiment. It involves forming the answer rather than saying it. These interrogations belong to the "productive questions", which are meaningful inquiries because of our knowledge but push us to activate it to give an unprecedented response.

These are some considerations to succeed in generating good questions by Neus Sanmartí, 2003:

- Indirect and contextualized interrogations.
- Clues on the question wording (useful information to elaborate the answer).
- Proper verb selection in order to inquire what the question intends (define, describe, explain, justify, etc.).
- Other interesting inquiries are the ones that begin with "How" to promote pupil's activity or "Why" and "Why do you think" for pupils reasoning.

Figure 30- Reflective questions

6.2.3- Teacher's Reflective Journal

Reflective thinking defined by Dewey as "active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further consequences to which it leads" (Dewey, 1933, p. 9); is an essential practice of teachers to guarantee quality teaching.

Accordingly, not only a Reflective Journal helps put down ideas, personal thoughts and experiences, but also for reflections and insights. In the Talent Maker project, the purpose of the teachers' Reflective Journal is twofold:

- Recording the information obtained by observing children regarding the learning objectives and children's global development.
- Helping teachers identify their weaknesses, seek improvements, and connect their existing knowledge with new information (Dalouglu, 2001; Lee, 2007; Richards & Ho, 1998; Yost et al., 2000, as cited in Abednia et al., 2013, p. 504).

In other words, collecting facts to establish connections between pupils' knowledge, skills and values put into practice during the Talent Maker workshops and the rest of the school events and providing a critical self-assessment tool for teachers, paying attention to the consequences of the course of action.

To improve their effectiveness, teachers can share their main findings or concerns from their Reflective Journals' during the discussion at the end of the project implementation, for example at the end of the term with their colleagues, as suggested in the second-last paragraph of the *3.8- Evaluation*.

6.2.4- Pupil's Learning Portfolio

Storing the Digital Educative Capsules in a Portfolio, as proposed in the *3.8-Evaluation section,* is just the first step for pupils to elaborate their Learning Portfolio. Because of a Portfolio is a purposeful collection of children's works that exhibits their efforts, progress and achievement in one or more areas and more, a child selection of contents and the

criteria for choosing and judging its merit. Foremost, evidence of pupils' self-reflection (Paulson, Paulson and Mayer, 1991).

In the Talent Maker Project, this tool for showcasing a representative breadth of acquired skills (National Council for Accreditation of Teacher Education cited by Zubizarreta, 2004) sets the basis to perform a comprehensive assessment of a pupil's growth during or at the end of the Talent Programme by both the teacher and the own child when completing the co-evaluation rubrics and filing in the working contract during the progress interview (Zubizarreta, 2004).

Here eight guidelines for realizing powerful Learning Portfolios by Paulson, Paulson and Mayer, 1991:

1) **Self-reflection proof**: the final product, in the Talent Maker framework, should include Digital Educative Capsules reflective questions and other pupils' evidence (notes, images, videos, Scratch projects, etc.) related to learning about learning.
2) **Children ownership**: portfolios are done by the pupil, so they are the ones in charge to discard and pick the Digital Educative Capsules they want to keep.
3) **Portfolio vs cumulative folder**: although children first gather all their work, by the end of the term, they need to remove the Digital Educative Capsules, notes or other evidence they consider meaningless or redundant to exhibit their learning progress.
4) **Portfolio activities:** portfolio purpose, goals, contents (Digital Educative Capsules, reflections and learning evidence), standards (performance quality indicators) and judgments (conclusions).
5) **Variable purposes:** during the Talent Programme, pupils may save Digital Educative Capsules and evidence for different reasons (instructional, inspirational, unfinished, etc.). Nevertheless, by the end of the Programme, it should only contain the material that the child is willing to share.
6) **Coexistence of multiple purposes:** pupils' personal goals and interests must not conflict with the teachers or parents.
7) **Growth illustration:** It should illustrate children's progress over time using Digital Educative Capsules, reflections, and other evidence.

8) **Portfolio models:** provide a variety of portfolios as examples to support the learning portfolio creation.

Figure 31- Juggling learning evidence

6.2.5- Co-evaluation rubrics

Co-evaluation rubrics can help pupils and teachers appraise the children's work together, with the learner taking an active role in the assessment process (Clark, 2012).

They typically imply setting clear performance criteria and breaking abstract ideas into observable indicators to encourage pupils' comprehension of the expected performance and how they can improve the involved skills. For instance, a rubric about collaboration might include benchmarks such as respect, work, compromise, and responsibility.

Using co-evaluation rubrics in elementary education can help children become more self-aware and reflective learners (Hattie & Timperley, 2007). By working with their teacher to evaluate their competencies, pupils can identify their strengths and weaknesses and develop strategies for refinement. In turn, they can help build their confidence, motivation, and engagement in their learning.

Lower Primary

Collaboration rubric adaptation of Greenstein (2017).

COLLABORATION					
WORK	1- 				
	2- 				
	3- 				
	4- 				
RESPECT	5- 				
	6- 				
COMPROMISE & RESPONSABILITY	7- 				
	8- 				

Figure 32- Lower Primary Collaboration (see Annex 1)

Middle Primary

Creativity rubric adaptation of Greenstein (2017).

	CREATIVITY				
CURIOSITY	Intrigued by new elements and ideas 				
	Seek new elements 				
	Explore new ideas and elements 				
FLEXIBILITY	Adapt well to new situations 				
	See many possibilities 				
ORIGINALITY	Come up with many ideas 				

Figure 33- Middle Primary Creativity

Upper Primary

Critical Thinking rubric adaptation of Greenstein (2017).

	CRITICAL THINKING				
Critical insights development	Understands the meaning of the data				
	Explains the data to others				
	Draws a conclusion from the data				
	Uses the data to make connections to my work				
Analysing information	Identifies and understands the main issue				
	Establishes priorities among details				
	Sees unstated implications				
Synthesize	Able to find at least three main viewpoints and explain them to others				

Figure 34- Upper Primary Critical Thinking

Digital Skills rubric based on DigCompEdu Framework, (Punie, 2017).

DIGITAL SKILLS					
Information	Browsing, searching and filtering data, information and digital content.				
	Evaluating and managing data, information and digital content.				
Collaboration	Sharing through digital technologies.				
	Collaborating through digital technologies.				
Content Creation	Developing digital content.				
	Remixing digital content.				
	Programming.				
Problem Solving	Solving problems (debugging)				
	Using Digital Technologies creatively				

Figure 35- Upper Primary Digital Skills

6.2.6- Progress Interviews and Working Contract

Progress interviews, also known as progress reviews or check-ins, are commonly used to monitor children's academic advancement and identify areas where they may need additional support or resources. These meetings are regularly scheduled throughout the academic year (e.g., at the end of each term or talent session block) and conducted by the teacher.

During these meetings, pupils may be asked to reflect on their learning and identify competencies where they feel they are making headway or struggling by examining their learning portfolio and co-evaluation rubrics. Teachers can then make suggestions to provide feedback and guidance on how to improve, and together with the learner, set goals for the next academic term and a plan to help them achieve their objectives.

Working or learning contracts (see on page 114) are another assessment tool popularly used in education. These contracts are agreements between the children and the teacher that outline specific learning objectives, tasks, assessment criteria, etc. In the Talent Maker context, the soft skills developed during the workshops. The purpose of a learning contract is to provide learners with a shared and clear understanding of what will be expected of them as well as the performance criteria by which to be evaluated.

Working contracts can be beneficial to guarantee DUA, allowing education individualization and facilitating attending to those with unique learning needs or goals. By working collaboratively with their teacher to create a customized learning contract, children can take ownership of their education and develop competencies such as goal-setting, self-reflection, and self-evaluation.

In summary, these assessment resources promote a positive and constructive learning environment, helping learners achieve their full potential by supporting them to monitor their personal and academic growth, receive feedback, and refine the skills needed to succeed in their educative pursuits.

6.2.7- Teachers Success Plan Checklist

A success checklist is a list of criteria or milestones required to achieve a particular objective, which can respond to diverse purposes: personal development, project management, performance evaluation, etc.

One of the benefits of using them is that they provide a clear and concise roadmap for accomplishing a goal (Gollwitzer & Sheeran, 2006), helping individuals or teams stay focused and motivated (Klein, 2015), as they can see what needs to be done to be successful. Additionally, they can track progress and identify areas where improvement is entailed and, as a consequence, contribute to performance enhancement and the likelihood of achieving desired outcomes.

At the end of the project implementation, teachers can use a success plan checklist to reflect on their performance. Then, exchange experiences and discuss with colleagues of the same cycle (lower, middle or upper-primary) the criteria they should include and strategies to better their implementation.

6.2.8- Teachers Assessment by Pupils

Learners assessing teachers provide valuable feedback and enable educators to improve their teaching methods. When pupils are allowed to evaluate their teachers, it not only empowers them but also encourages a culture of transparency and accountability. Indeed, it reinforces the message that everyone has things to learn and room for refinement.

Through assessments, learners can provide constructive criticism, which helps educators to identify areas of enhancement and make necessary adjustments to their teaching strategies. It also facilitates teachers to understand the needs of their children better and adapt their teaching styles accordingly. Ultimately, pupils assessing teachers aim to improve the quality of education and create an environment where children can thrive.

				
COLABORATION				
SUPPORT I received help from the teacher or a colleague when I needed it.				
RESPECT My teacher listens to me when I have a question and talks to me respectfully.				
RESPONSIBILITY My teacher trusts me and gives me responsibility in the workshop.				
CREATIVITY				
INQUIRY My teacher awakens my curiosity about this talent by asking me questions				
ORIGINALITY The workshop inspires me and awaken me new ideas.				
CRITICAL THINKING				
CONNECTIONS My teacher helps me to make connections between the events of the *Talent* and my daily life.				
CONCLUSIONS I had the opportunity to express or share my thoughts about what we have learned.				

Figure 36- Teachers Assessment by Pupils Rubric Proposal

7. CONCLUSIONS

This last chapter includes the evaluation of the intellectual outputs produced by the Talent Maker consortium and the project's goals achievement, highlighting its impact on promoting teaching Creative Technologies practices through the curriculum, and fostering greater multicultural understanding and cooperation among European educators. Moreover, it finishes by reflecting on the overall Talent Maker experience: the challenges encountered and the lessons learned during the two-year project.

7.1- Project evaluation

7.1.1- Intellectual Outputs

Methodology

The Methodology has been the backbone of the project. It set the basis for classroom implementation, the Teacher's Training, the Digital Educative Capsules and the Teacher's Guide. We have designed this method with the intention of helping teachers to design and implement maker experiences in the classroom. From the original idea of El Pla School, the different schools and project participants have discussed and adapted it, trying to generate materials that are valid for all types of teachers and multicultural schools in Europe.

It has progressively impacted most partnership teachers and pupils since November 2021. Concretely, 45 educators and 437 learners within the consortium. Moreover, around 300 teachers have been reached and it is expected to reach at least 200 more through training, workshops, project social networks, dissemination and multiplier events. Consequently, 75 schools and about 8000 children.

The 28 pages of the document formalize and portray the evolution result of the Talents project from El Pla School. They gather the Talent-based learning and Maker approaches theoretical foundations and a detailed description of the method tested and refined by the consortium.

Therefore, we can say that this pedagogical and didactical proposal meets the transferability standards and successfully integrates Creative Technologies.

Digital Educative Capsules' Catalogue

The Digital Educative Capsules' Catalogue collects hands-on activities designed to be carried out at school, at home or both settings (hybrid education), considering the needs of multicultural schools: language barrier and the accessibility and affordability of the material.

They are organised by Talent (12 categories: Gardening, Robotics, Cooking, Arts & Crafts, Sports, DIY Game Edition, Zen, Circus, Radio, Library, Science and Music) and are browsable by language, age group, Multiple Intelligence focus, recommended space (indoor/outdoor), video (yes/no), materials (plugged/unplugged) and affiliation (consortium/external).

Currently, there are 72 Digital Educative Capsules with a clear Maker philosophy and almost half with a Creative Technology Digital extension: 7 in Romanian, 10 in Greek, 20 in Catalan and Spanish, and a selection of 15 in English. However, its online format and the Participatory Exchange System, which we will detail later, can be transformed into a living resource where trained teachers or educators interested in Talent Maker can upload their own Capsules.

To support this and to guarantee the transferability to other educative contexts and coherence with the methodology, the Digital Educative Capsules Templates were created for the previously mentioned categories, plus an additional neutral one. Before agreeing on a final template, consortium teachers tested and had pedagogical discussions about the different versions. Furthermore, mute video tutorials were recorded to support the activity's progress and language struggles.

For that reason and the teachers' implementation feedback (see *Case Study* on page 75), we are confident of the quality of these results as they have demonstrated their suitability for the target group, their delivery versatility (see *Home Learning vs School Workshop* on page 54) and their cross-curricular potential integrating digital technologies.

Figure 37- Digital Educative Capsule Catalogue Categories

Teacher's Guide

The book you have in your hands is a guide elaborated by all partners that contain the essentials of the Talent Maker project: theoretical framework, methodology, case studies, assessment proposal, etc. It intends to allow educators focusing on multicultural school teachers, both replicate the project in their schools or integrate Talent Maker workshops in their teaching practice.

The guide is also available on the project website in all the partnership languages (English, Spanish, Catalan, Romanian and Greek), so we foresee many downloads from the trained teachers and all those who have already shown interest in Talent Maker.

We hope not only have communicated the practical and theoretical principles of the project but also our appreciation and strong belief in its potential for improving our learners' education and personal development.

Participatory Exchange System

The Participatory Exchange System consists of a simple form that permits teachers to submit the Digital Educative Capsules they have elaborated from the downloaded template and select the labels by which it will be found. Moreover, website visitors can Like the Capsules they have found interesting.

At this project stage, we are happy to open the possibility of contributing to teachers and educators unaffiliated with the consortium, strengthening the sense of an educative community. Nonetheless, the project partnership will act as a curator to the collection to ensure minimal quality.

Teacher's Training

As mentioned before, about 300 teachers were reached, and it is expected to outreach at least 200 more through the YouTube Channel, where the training sessions of the Spanish online course will be at everyone's disposal at any time.

The training programme was deliberately planned to enable educators to conduct the project and incorporate Talent Maker workshops into their lessons with a strong accent on the opportunities for Creative Technologies across the curriculum. Furthermore, before offering it to teachers external to the partnership, the consortium participated in a pilot training for capacity building.

For all this, and the participants' level of satisfaction and perception acquired, we are optimistic about the impact Talent Maker training had on teachers and educators who had walked with us.

Overall, the consortium is confident that the Talent Maker's intellectual outputs will continue to empower teachers and be used and adapted by educators around and beyond Europe.

7.1.2- Goals, Objectives and Aim

The previous results were milestones on the project roadmap toward the Talent Maker objectives, goal and aim.

Although the project did not last enough to collect solid evidence about Learning **Objective 2**: if the activities boosted learners' **collaboration, creativity, critical thinking and digital competence**; the theoretical framework strongly supports the methodology principles, which also integrates **Objective 1**: **mobilising knowledge and skills by making a sharable artefact while gaining new ones**. In addition, the previous experience of El Pla School point in that direction. Besides, trained teachers' sensations go along, as well as children's learning evidence.

Additionally, the elaborated intellectual outputs support **teachers' empowerment** in Maker approaches, including the use of Creative Technologies; and talent promotion practices, both recognised as **beneficial for children's education** and **success in the 21st Century**. Hence, the Talent Maker contributed to **improving face-to-face and distance or hybrid education** by adapting the produced resources to multicultural schools and the three delivery formats, highlining the strengths and weaknesses of each to achieve an interesting balance.

Finally, the achievement of the previous goal has made the Talent Maker play a part in **reducing the unfair gap generated during lockdowns**. Nonetheless, the digital divide remains a significant challenge which not only schools and educational institutions can address by prioritizing equitable access to technology and digital resources but also professional development for educators to effectively integrate technology into their curriculum (Darrow, 2019).

7.2- Talent Maker Experience

Talent Maker has been a rewarding experience for all involved. Foremost, as Cristina, the principal of El Pla School, always says: a **growth** one.

This Erasmus+ project brought us, a diverse group of experts and teachers from Romania, Greece and Spain, who not all have known or collaborated before; together. Since the first moment, we have worked tirelessly to elevate our reference practice of El Pla School by ensuring its transferability to other multicultural schools and extending its already Maker activities with Creative Technologies.

Because although most of the time, we couldn't coincide in time and space, we had a common purpose and a shared mindset which fostered a greater sense of community and cooperation within the team.

As a consortium, we hope Talent Maker has inspired and will engage others to explore the potential of Maker Education and Talent Promotion workshops in their classrooms.

Finally, we would like to extend our gratitude to all those who have contributed to the project: the pupils and the teachers drawn in, the Erasmus+ Programme, our organisations and the people we have met along the way in the Teacher's Training and dissemination and multiplier events, among others; and look forward to continued collaboration. Thank you for making it possible.

"A dream you dream alone is only a dream.

A dream you dream together is reality."

John Lennon

Figure 38- Talent Maker Team – Last Transnational Meeting, Girona

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Annex

TALENT MAKER

Collaboration rubrics (upper primary)

COLLABORATION					
Work	Everyone did his or her assigned duties and sometimes more.				
	We worked well together.				
	We used all our time efficiently to stay focused on the task.				
	We produced the required work.				
Respect	Everyone respectfully listened to other's ideas.				
	Everyone respectfully discussed other's ideas.				
Compromise & Responsibility	Everyone was flexible in working together to achieve a common goal.				
	Everyone did their best work and followed through on assigned tasks.				

Working contract (upper primary)

Adaptation of Assessment for learning, Sanmartí, 2010)

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Date: ..... Contract duration: .....

Pupils' name: .....Teacher's Name: .....

What do I want to improve?

.....

.....

.....

What can I do to get better?

.....

.....

.....

How will I know that I am progressing?

.....

.....

.....

I undertake to fulfil this agreement (or contract).

If I do not, I will explain why I haven't.

Pupil's signature

Teacher's signature

Definition and examples of the capsules catalogue categories

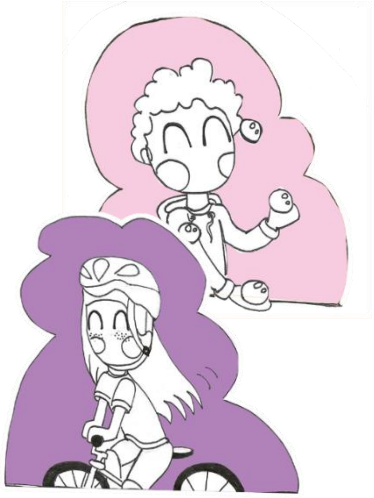
The digital educative capsules designed within the framework of the project are workshops belonging to a wide range of *talents* that aim to represent the eight multiple intelligences.

Here are some examples of talents. Naturally, it could be that some of the teachers' or educators' talents are not represented in any of these instances. Therefore, we have designed a neutral template that can be used for whatever is convenient.

Sports and circus

These families, associated with kinesthetic intelligence, can include all those *talents* related to movement and body expression.

In their activities, the means to reach the goal is the body. Some of the workshops that can be included are the planning and execution of routes, the introduction to a variety of sports, circus exhibitions, the organization of orienteering races or sports days for the youngest of the school, etc.



https://talent-maker.eu/catalogue-of-digital-capsules/sports/

https://talent-maker.eu/catalogue-of-digital-capsules/circus-capsule/

Music

Music and dance are two of the 7 arts, the first linked to musical intelligence and the second to kinaesthetic (although you listen to music the means of expression or communication is the body). The capsules designed in this field can consist of co-creating songs or choreographies, learning dances and musical interpretations, generating rhythms, producing sounds, as well as building instruments built from recycled materials.

https://talent-maker.eu/catalogue-of-digital-capsules/music-capsule/

Art and crafts

The category of art and crafts teaches various painting and sculpture techniques and, therefore, is mainly related to visual-spatial intelligence.

Activities such as creating portraits with recycled materials, making simple jewellery, creating an infographic, building a model, etc. can be part of it. In short, workshops where aesthetics are explored through computer programs, brushes, hands, artificial intelligence, etc.

https://talent-maker.eu/catalogue-of-digital-capsules/arts-capsules/

Sciences

The science workshops include not only experiments carried out following the scientific method but also the construction of models to understand different non-human physical aspects, such as natural phenomena, the movement of the planets, the cycles of nature, etc. They can also be complemented with the creation of digital animations that simulate and reproduce the experiments.

For this reason, science capsules often address naturalistic intelligence and logical-mathematical or visual-spatial intelligence.

https://talent-maker.eu/catalogue-of-digital-capsules/science-capsule/

Coking

Cooking is one of the talents that can mobilize various intelligences according to the accent of the activity proposed by the teachers.

If you pay attention to cutting fruit and passing your pieces through a skewer, fine motor skills (kinaesthetic intelligence) will be worked on. However, if the focus of the workshop is to distribute the fruit equally among the team members or the creation of coloured patterns on the skewers, logical-mathematical intelligence will be developed. Otherwise, if the children read the recipe (instructional text) and record themselves doing a *tutorial*, they will be mobilizing their linguistic intelligence, or if the changes that some foods suffer in the kitchen are analysed, naturalistic intelligence. Naturally, when designing the workshop, teachers will be able to emphasize one or more intelligences.

https://talent-maker.eu/catalogue-of-digital-capsules/cooking/

Garden and gardening

The garden and gardening family includes proposals such as building an urban garden at home, growing vegetables at school, and creating a quiz to learn the characteristics of fruits and vegetables. The objective of the activities is to teach how to care for, recognize and classify plant species in the environment while interacting significantly with the natural environment.

https://talent-maker.eu/catalogue-of-digital-capsules/gardening/

DIY: DIY and game editing

"*Do-It-Yourself*" (DIY) is an English term used to describe the practice of building, modifying, or repairing things without the help of experts or professionals. A similar concept is "*Do It With Others*" (DIWO), which emphasizes the importance of working together, gathering resources and knowledge, and creating a supportive environment in which individuals build things, and learn and grow together.

DIY projects can range from simple tasks, such as decorating objects or building games by reusing materials, to more complex projects, like building furniture for the yard or repairing and painting doors. Interpersonal, logical-mathematical, visual, spatial and body-kinaesthetic intelligences are some of those involved in the process.

https://talent-maker.eu/catalogue-of-digital-capsules/diy-games-edition-capsules/

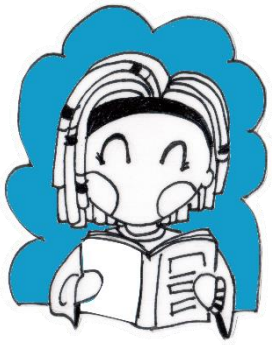
Robotics

Educational robotics workshops promote computational thinking and the use of creative technologies. Activities included in this category generally consist of building and programming robots and other digital devices to perform specific tasks. For example: creating a game with Scratch, designing the route of a *Bee-Bot*, overcoming a challenge with a LEGO robot, etc. However, although the use of logical-mathematical intelligence stands out, robotics projects are a great opportunity to work in groups on how to put technologies at the service of society (interpersonal intelligence).

https://talent-maker.eu/catalogue-of-digital-capsules/robotics-capsule/

Library

The ability to understand and interpret texts, as well as to express oneself with words orally or in writing, is linked to verbal-linguistic intelligence. On the one hand, library talent activities aim to promote a taste for reading while increasing students' vocabulary and literary background through reading but also to create *lap books*, dioramas, story animations and *digital storytelling*. In contrast, radio films focus on the role of children's communicators, interacting with others (interviews) or through the production and editing of audio pieces.



https://talent-maker.eu/catalogue-of-digital-capsules/library-capsule/

https://talent-maker.eu/catalogue-of-digital- capsules/radio-capsule/

Meditation and yoga

This category, mainly related to intrapersonal intelligence, proposes dynamics to recognize and feel emotions, as well as reviewing the lines of thought that induce them. In their capsules, tools and strategies are offered and built to achieve this, such as the development of an anger traffic light to help students recognize situations in which this emotion addresses them, identify their reasons and think of ways to act in these circumstances.

https://talent-maker.eu/catalogue-of-digital-capsules/zen-capsule/

Contribute to the Catalogue of Digital Capsules

Teachers and educators who are eager to create their own Talent Maker activities can collaborate in the expansion of the collection by sharing their capsules through the participatory exchange system on the project website.

To upload a capsule to your collection, select the "Send capsule" option in the "Digital Capsules" tab in the top menu of the website or visit the following link directly and complete the form.

https://talent-maker.eu/submit-capsule/

There are a number of fields that you need to enter to make searches easier. These fields are:

Title: Representative title of the activity that allows visitors to the catalogue to get a general idea about its content.

Summary: Brief description of the capsule indicating its teaching-learning objectives, the product or device to be created and the procedure for its preparation.

Talent: Most significant category of the workshop. The families available from which you can choose are the following: garden and gardening, robotics, cooking, arts and crafts, sports, do-it-yourself: game publishing, meditation and yoga, circus, radio, library, science and music.

Language: Language in which the capsule is delivered. They can be presented in English, Greek, Romanian, Spanish or Catalan.

Age group: Age of children for whom the activity has been designed or is more suitable: 6-8, 8-10, 10-12.

Intelligence: Multiple intelligence worked from the capsule: visual-spatial, naturalistic, musical, logical-mathematical, kinaesthetic, verbal-linguistic, intrapersonal and interpersonal.

Recommended space: Venue in which it is recommended to implement the workshop: indoors or outdoors.

Video: Post mentioning if there is a *tutorial* that accompanies the capsule to guide students in putting it into practice.

Plugged or unplugged: Section indicating whether the activity requires (plugged in) or not (unplugged) the use of digital devices such as computer, tablet, Internet, Makey Makey, micro:bit, etc.

Author and affiliation: Name of the author of the capsule and relationship with the project consortium: if the person presenting the capsule is a member of one of the organizations of the association, he must indicate consortium, otherwise *external*.

Featured image: An image that will accompany the capsule and be visible in the catalogue.

PDF file: Space to upload the digital educational capsule you want to share in PDF file format.

Finally, once completed, enter the verification code or captcha and click "Send". The capsule will be reviewed by a consortium member and, once approved, will be available to the whole community through the project website.

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Home learning

Co-funded by the Erasmus+ Programme of the European Union

We will learn...

- ❑ To create a model of an inclusive city.
- ❑ Assemble robots using different Lego kits.
- ❑ To use colours and distance sensors.
- ❑ To follow step-by-step instructions (written comprehension skills).
- ❑ Don't give up and learn from mistakes (resilience).
- ❑ How to put technologies at our service for social causes.

Connections

Related ideas that we need to know before we start.

Did you know?

Inclusive cities take into account all citizens' needs and contributions equally.

Sensory disabilities affect people's senses: hearing (deafness), sight (blindness), touch, smell and taste.

This Capsule that you are about to embrace was designed by an elementary class who had a **friend with blindness**. They wanted him to **be able to go from his house to school safely without his parents**.

Are you ready to reproduce and face this challenge using Lego and creating your own city model?

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Get ready!

Grab all the required materials and tools to start.

Materials

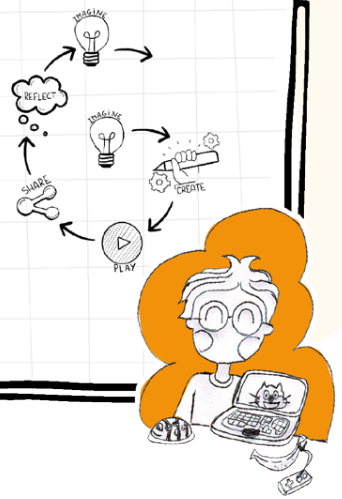
- ❑ 1. Styrofoam
- ❑ 2. Cardboard (cardboard boxes)
- ❑ 3. Glue and scissors/cutter
- ❑ 4. Paint Colours and paint brushes
- ❑ 5. Toothpicks (and or paper tubes)
- ❑ 6. Lego Mindstorms
- ❑ 7. Lego Wedo 2.0 or Lego Education Kit

Are you missing a material?
For which one could you replace it?
Will you use others to decorate?
Write them down.

Other materials

Imagine

How you imagine your inclusive city? Draw it and label its main futures.



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Let's create!

Follow the instructions and take advise from the videos to make your **city model**.

1. Sketch the streets, the sidewalks, the green areas and the roads (15 cm width) on the Styrofoam that will be the base of your city model. **Is it an inclusive city?**

2. Paint your city. **Give thought to its location, climate and season to decide the colour palate.** Will it be tropical, dry, temperate, continental or polar? Will it be rainy/dry or spring/summer/autumn/winter?

3. Wrap (with colour cardboard or white paper) and/or paint different size cardboard boxes to represent city buildings (**houses**, city-hall, **school**, hospital, supermarket, etc.). **Are the windows and the rooftops adequate for the climate?**

4. Use paper tubes and toothpicks for fences, trees, bushes, flowers, etc. **Is it a green/sustainable city?**

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Play and share

Draw or take a picture of your project.

I shared my city model with

Reflect

Choose one of t he following questions and develop its answer.

1. Share something that surprised you about the relation between houses and climate.
2. What have you enjoyed the most during the creation process?
3. What is the relevance of inclusive cities for you?

How many stars will you give to your critical thinking? Colour them!

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We will learn...

- ❑ About local, national and international news.
- ❑ About the format of radio news.
- ❑ About radio news broadcasting.
- ❑ To record and edit audio files.

Connections

Related ideas that we need to know before we start.

Did you know?

Radio stories are written as scripts. They include live or recorded voice reports and, sometimes, actuality (the sound of someone speaking, most of the time taken from an interview or speech). Actuality segments can also be named grabs, cuts or inserts.

In this capsule, we will research press on current world events, both written and oral, to adapt them to the radio news format and broadcast them.

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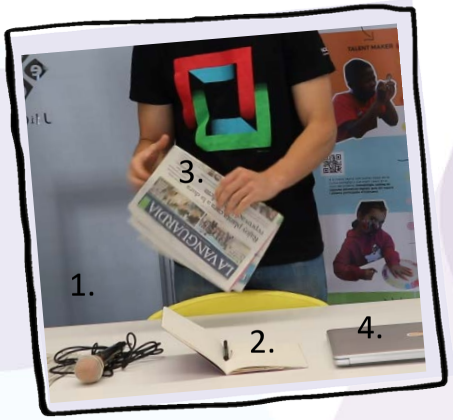
Get ready!

Grab the required materials and equipment to start.



Materials

Tick the materials that you already have

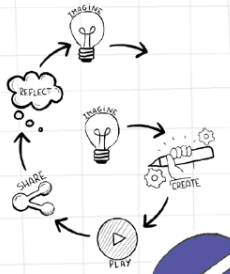
- ❑ 1. Audio input device
- ❑ 2. Notebook and pencil
- ❑ 3. Newspaper
- ❑ 4. Digital device with access to Scratch
- ❑ Internet access
- ❑ Audacity application

Are you missing a material?
For which one could you replace it?
Will you use others for sound effects?
Write them down.

Other materials

Imagine

What do you think is the structure that radio news follow?



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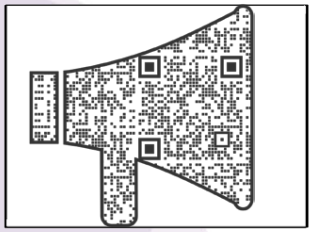
Let's create!

Set up your radio station and follow the instructions.

1- Scan the QR code to follow the step-by-step video.



2- Think about some events that are going on in our world and list them in categories: international, national, local or scholastic. Discuss them with a friend, a colleague or a family member.

3- You can up grow your list by searching on a variety of information channels like National Geographic, CBBC Newsround, a local newspaper, a radio programme etc.

Can you think of any others?

4- Choose a news of your interest and learn about it (reading, watching and listening) from at least two different information sources.

How did they differ? Why do you think is that?

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5- Now it's your turn to write your news and adapt it for a 3 to 5 minutes radio broadcasting.

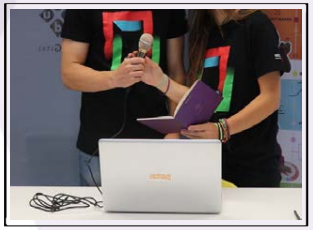
Scan the QR code and watch the video. **Did you remember the news reports structure? Name its parts.**

6- Scan the QR code and watch the video. Then, go over your script and write the final version.

How radio news broadcasting is different than news reports?

7- Read your final version and practice its intonation aloud before recording yourself in *Padlet* (voice recording option). You might need a microphone. Do not worry, most digital devices have it integrated. Otherwise, you can connect one (borrowed from the school perhaps).

Tip: Put your digital device in a shoebox or closet so that the sound doesn't escape to get a better sound quality.



8- Download your audio from *Padlet* and drag it to Audacity. Add music or sound effects. Cut the parts you want to remove and incorporate a grab if relevant for your news. Headphones are recommended for this task.

Save your final audio in mp3.

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Play and share

Upload your mp3 to *Padlet*.

Choose the category of news that it belongs: international, national, local, scholastic or sportive.

Here your classroom *Padlet* QR code.

I shared my radio news broadcasting with _____

Reflect

Choose one of t he following questions and develop its answer.

1. What did you learn about radio news broadcasting? How is it different from other information channels?
2. Which part of the activity did you find tricky? Which did you enjoy the most? Explain the reasons.
3. Were you able to incorporate a grab? Mention the steps you followed to do it.

How many stars will you give to your creativity? Colour them!

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We will learn...

- ❑ TO IDENTIFY ANGER.
- ❑ THINGS THAT MAKE US 😠.
- ❑ WHY DO WE FEEL THIS WAY.
- ❑ TECHNIQUES TO CALM DOWN.
- ❑ TO ⏸ BEFORE ACTING.

Connections

BEFORE YOU START...

DID YOU KNOW?

ANGER IS ONE OF THE BASIC EMOTIONS. IT IS COMMON TO ALL MAMMALS AND SOME OTHER 🐶🐔🐵🐘🐻. RAGE IS THE 💪 FORM OF ANGER (KIDDLE, KIDS ENCYCLOPEDIA FACTS)

THIS IS AN INTROSPECTION ACTIVITY. YOU ARE GOING TO REFLECT ON HOW YOU ACT AND HOW YOU WOULD LIKE TO ACT WHEN FEELING ANGRY THROUGH A INTERACTIVE STORY.

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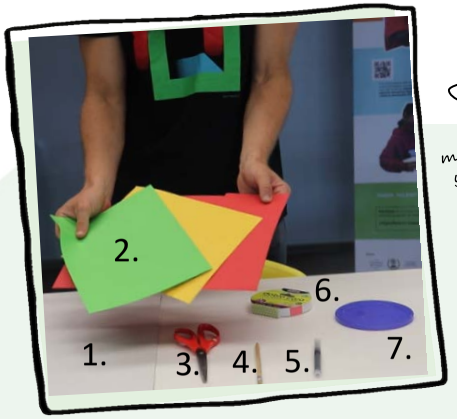
Get ready!

GRAB THE MATERIALS AND THINK ABOUT IT...



Materials

Tick the materials that you already have

- ❑ 1. CARDBOARD
- ❑ 2. 3 COLOUR PAPER
- ❑ 3. SCISSORS
- ❑ 4. PENCIL
- ❑ 5. BLACK MARKER
- ❑ 6. DOUBLE SIDED LID
- ❑ 7. CIRCULAR OBJECT

YOU WILL ALSO NEED:

- ❑ DIGITAL DEVICE WITH SCRATCH ACCESS
- ❑ MAKEY MAKEY
- ❑ TIN FOIL PAPER

Other materials

Imagine

WHAT ANGER-CONTROL TOOL DO YOU IMAGINE WITH THESE MATERIALS?

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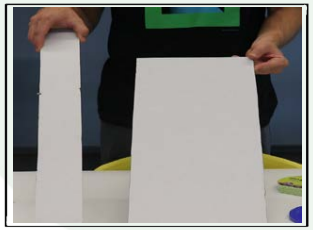
Let's create!

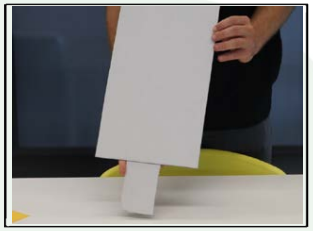
FOLLOW THE INSTRUCTIONS AND WATCH THE VIDEO.

1- SCAN THE QR CODE TO FOLLOW THE STEP-BY-STEP VIDEO.



2- DRAW A RECTANGLE ON THE CARDBOARD AND CUT IT SO YOU WILL HAVE 2: 1 BIG AND 1 SMALL

3- USE THE DOUBLE-SIDED TAPE TO FIX THE 2 RECTANGLES TOGETHER TO CREATE YOUR .



4- DRAW AND CUT OUT A ◯ IN EACH COLOUR PAPER USING A CICULAR OBJECT.

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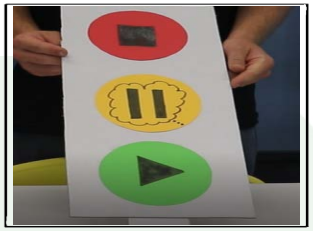
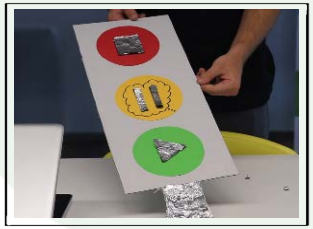
5- PASTE THE CIRCLES ON THE CARDBOARD AND DRAW THE SYMBOLS (■,⏸,▶).

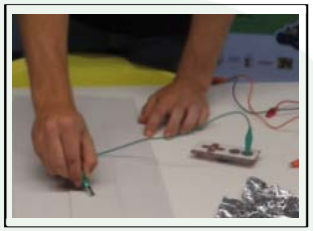


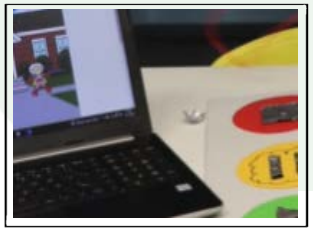


6- COVER THE SYMBOLS AND THE HANDLE WITH TIN FOIL PAPER AND USE THUMBTACKS TO FIX IT.

7- OPEN AND THE MAKEY MAKEY EXTENSION. CLIP A CROCODRILE PEG FROM THE MAKEY MAKEY BOARD TO:

- EACH SYMBOL (■,⏸,▶)
- TO THE HANDLE.





8- CREATE A STORY ON ABOUT A SITUATION WHERE SOMEONE GETS ANGRY. **TOUCHING THE HANDLE AND THE CORRECT SYMBOL THE SITUATION HAS TO GET SOLVED.**

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Play and share

SHOW YOUR ANGER SEMAPHORE.

SHARE YOUR PROJECT.

I SHARED MY ANGER-CONTROL TOOL WITH _____

Reflect

ANSWER TO ONE OF THE FOLLOWING QUESTIONS:

1. EXPLAIN TO SOMEONE WHEN YOU HAVE USED YOUR CRITICAL THINKING DURING THE CAPSULE.
2. GIVE A HINT TO SOMEONE ABOUT HOW TO ACT WHEN FEELING ANGRY TO COOL DOWN.
3. FINISH THE SENTENCE: I FELT ANGRY WHEN...BECAUSE...

How many stars will you give to your critical thinking skills? Colour them!

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We will learn...

- ❑ To make percussion instruments by reusing daily life materials.
- ❑ To understand the function of the different percussion instrument parts.
- ❑ To distinguish among different instrument timbers.
- ❑ To develop hand dexterity.

Connections

Related ideas that we need to know before we start.

Did you know?

Luthiers: are crafters that make and repair string musical instruments.

What do you think is the name for percussion musical instrument makers?

This Capsule that you are going to embrace is about turning daily life materials into percussion musical instruments. For later, form a band and put your musical skills in practice.

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Get ready!

Collect the materials that you will need to create your drum kit.

Materials

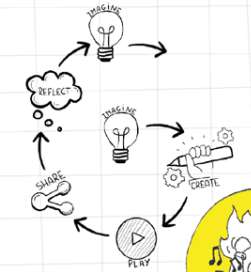
- ❑ 1. Plastic and aluminium cans and plastic bottles
- ❑ 2. Scissors
- ❑ 3. 2 Corks
- ❑ 4. Colour papers
- ❑ 5. Tape
- ❑ 6. Ribbon
- ❑ 7. Wooden skewers
- ❑ 8. Paper plate

Are you missing a material?
For which one could you replace it?
Will you use others as props?
Write them down.

Other materials

Imagine

How do you imagine your drum set with these materials? Draw it.



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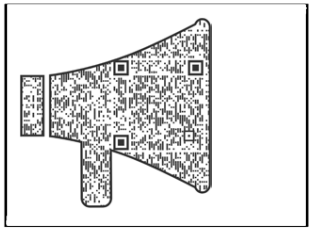
Let's create!

Follow the instructions and ask for an adult supervision when necessary.

1. Optionally, wrap the food-cans **(toms)** and the plastic bottles **(bass drum)** with colour paper. Scan the QR code to follow the video tutorial.



2. Use tape to stick it, surrounding both container's ends.

3. Arrange the containers on a table and fasten them together with tape.

4. Turn the craft upside down so that the surface we will play on (**bater/top head**) is up.

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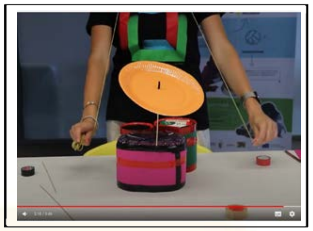
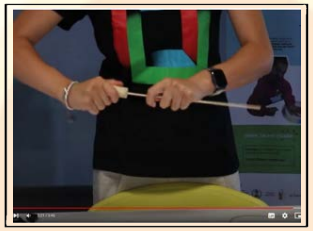
5. Drive a wooden skewer in the container with the softest surface.

6. Pierce a hole in a paper plate **(cymbal)** and place it on top of the skewer, fixing it with tape.

7. Measure the ribbon and cut it according to your height (about 90cm).





8. Finally, press two wooden skewers into the corks as deep as 2cm. Now you have your **drumsticks**!

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Play and share

Draw or take a picture of your drum set.

Think about the parts of a drum kit you have learned and label them in your drawing.

I shared my drum kit with _____

Reflect

Choose one of the following questions and develop its answer.

1. On what do you think depends on the timber of your drum set parts?
2. What do you think is the aim of each drum set part?
3. How were you creative during the creation process?

How many stars will you give to your creativity? Colour them!

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We will learn...

- ❑ To use Scratch and Makey Makey to give percussion DIY instruments real percussion instrument timber.
- ❑ To distinguish among different instrument timbers.
- ❑ About electrical circuits.
- ❑ About conductive and insulator materials.
- ❑ To develop basic coding skills.

Connections

Related ideas that we need to know before we start.

Did you know?

Conductivity: is the property of allowing heat or electricity to go through something.

Electronic instruments: produce or change sounds using electricity.

This Capsule that you are starting is about giving **different timbers and pitches** to your DIY percussion instruments. For later, form a band and put your musical skills in practice.

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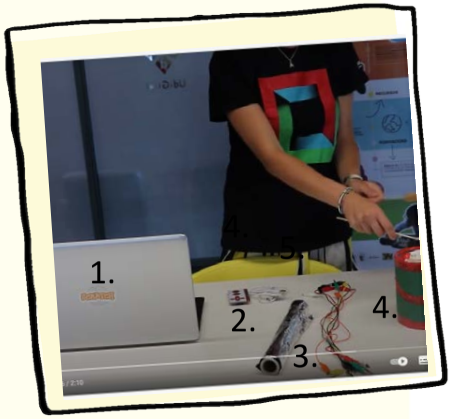
Get ready!

Collect the materials that you will need to create your drum kit.



Materials

Tick the materials that you already have

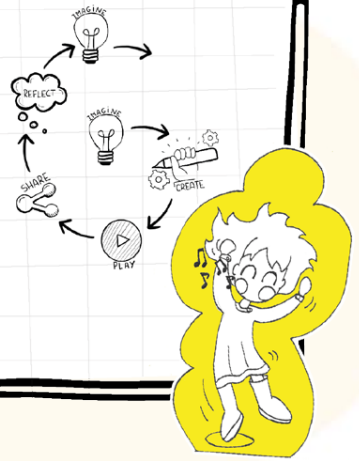
- ❑ 1. Computer with access to Scratch
- ❑ 2. Makey Makey
- ❑ 3. Tin foil paper
- ❑ 4. DIY percussion musical instrument

Are you missing a material?
For which one could you replace it?
Will you use others as props?
Write them down.

Other materials

Imagine

Which steps do you imagine you will have to follow? Draw/name them.



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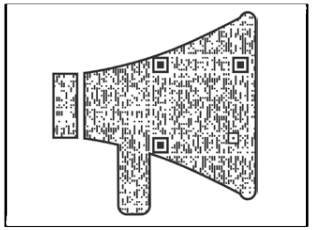
Let's create!

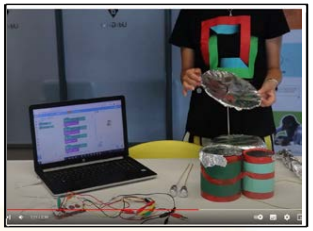
Follow the instructions and ask for an adult supervision when necessary.

1. Scan the QR code to follow the video tutorial.



2. Cover the **drumsticks tip** with tin foil paper.

3. Also, the top head of the toms, the bass drum and the cymbal.



4. Why do you think we are using tin foil paper? Scan the QR code to find out more.

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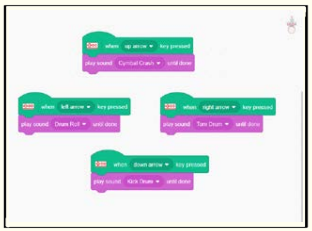
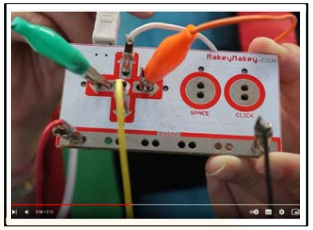
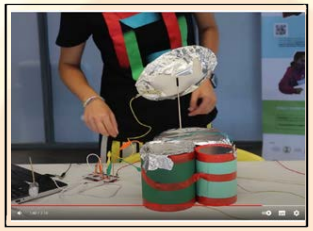
5. Open the Makey Makey **Scratch extension** on the computer and connect the **Makey Makey board** using the white USB cable.



6. Program different sounds for each Makey Makey board key: up, down, right and left arrows.

7. Connect the **alligator pegs** from the Makey Makey board to each of the drum set parts tom head.





8. Then, connect an alligator cable from **Makey Makey Earth** to each drumstick. **Does it play your Scratch program?**

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Play and share

Draw the before and after of your drum set.

I shared my new drum kit with _____

Reflect

Choose one of the following questions and develop its answer.

1. Explain why your drum kit has become or not an electronic instrument.
2. Explain with your own words why you could play the sounds you had programmed in Scratch.
3. Explain a problem you encountered and how you solved it.

How many stars will you give to your critical thinking? Colour them!

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We will learn...

- ❑ To create an Urban Garden reusing materials.
- ❑ To apply our Natural Science and Numeracy knowledge for our project.
- ❑ Actions to increase sustainability, the 3 Rs of waste: recycle, reduce and reuse.
- ❑ ...while working hands-on and training our creativity in solving problems during the creation process.

Connections

Related ideas that we need to know before we start.

Did you know?

Climate change is an alteration of the mean of global temperatures and weather pattern as a result of the **green house effect** increased by human activity.

Sustainability: avoidance of the reduction of natural resources to maintain an ecological balance.

Which things can we do to boost sustainability? And to decrease the climate change?

This Capsule you are about to start was designed to contribute to **food self-sufficiency**. Keep reading to find out more!

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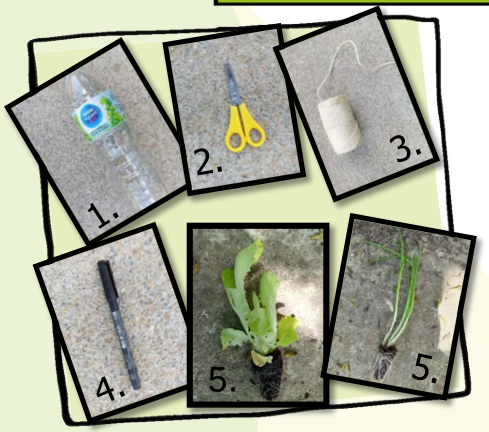
Get ready!

Grab all the required materials and tools to start.



Materials

- ❑ 1. Plastic bottle (1'5l)
- ❑ 2. Scissors
- ❑ 3. Thick string
- ❑ 4. Marker
- ❑ 5. Small lettuce or green onions
- ❑ Soil

Are you missing a material?
For which one could you replace it?
Will you use others to decorate?
Write them down.

Other materials

Imagine

How do you imagine a Urban Garden with these materials? Draw it.

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Let's create!

Follow the instructions and ask for an adult supervision when necessary.

Scan the QR code to follow the step-by-step video.

1. Using a marker and a ruler, draw two rectangles (7cm x 4cm) with a separation of 5cm between them on the plastic bottle. Then, cut them out.

2. Make 5 or 6 holes on the opposite side of the bottle. Just below the two rectangles. These holes will serve as a drain system when you water your veggies.

3. Pierce one hole at each bottle extreme (x) aligned with the two rectangles. Subsequently, pass a stings through both holes and knot its ends.

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4. Fill the plastic bottle with soil.

How much soil will you need for a 1,5 l bottle?

Next, dig a hole in the soil in each open space with your fingers.

5. Inside one of the holes, plant the lettuce. Once you have introduced it, cover its roots and press the soil around it to fix it.

6. Repeat the same process in the other hole seeding another veggie. For instance, green onions.

7. Finally, water your urban garden! Once its finished…

How should be the place where you hang it?

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Let's create!

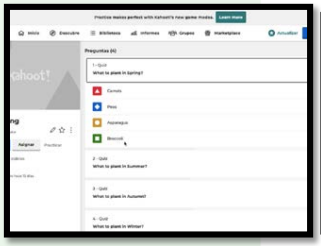
Get a digital device with internet access and follow the instructions.

1. Now that you have an urban garden, **do you know what to grow each season? Who can you ask or where can you find this information?**

2. After a little research, write the answers to the previous questions in a paper and **think new inquiries** related to the topic and look for their responses.

3. Switch on your digital device, look for *Kahoot!* in your web browser and *sing up* to create your student account or *log in* if you already have one. Scan the QR code for a quick access.

https://kahoot.com



4. Create a multichoice Quiz: Type your questions and four possible answers. Then, tick the correct ones. **Do you know other platforms to create Quizzes?**

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Play and share

Draw or take a picture of your urban garden.

Press *start* to generate the PIN that the players need to participate in your Quiz.

I played with my Quiz with

Reflect

Choose one of t he following questions and develop its answer.

1. What is the difference between recycling and reusing materials? What are their benefits?
2. How do you see numeracy and natural science knowledge linked to the veggie garden?
3. What was your most relevant learning during the creation process of this urban garden?

How many stars will you give to your critical thinking? Colour them!

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We will learn...

- ❑ To read municipality maps.
- ❑ Take buildings or places as reference to understand localities maps.
- ❑ The good habit of planning ahead a sport activity to decrease unnecessary risks.
- ❑ How to plan a route with multiple locations.
- ❑ The general functioning of route planning tools.

Connections

Related ideas that we need to know before we start.

Did you know?

Route planning is an often overlooked yet crucial factor in how successful our rides are. When cycling, a bad route can turn an adventure sour or even leave us in danger.

In this Digital Educative Capsule, you are going to plan our next school ride by exploring an online route planner tool.

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Get ready!

Grab a digital device with internet access to start.

Materials

Tick the materials that you already have

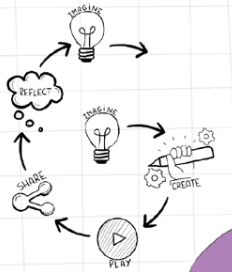
- ❑ Digital device (computer) with internet access
- ❑ *Paint* application

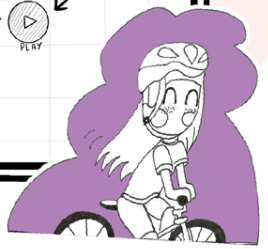
Are you missing a material?
For which one could you replace it?
Write them down.

Other materials

Imagine

Which places would you like to see during our ride? Draw them in a sequence.





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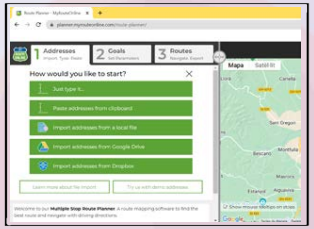
Let's create!

Turn it on and follow the instructions to plan our next cycling route.

1- Open an internet searcher, look for an online route planner and "Plan your route!". For example:

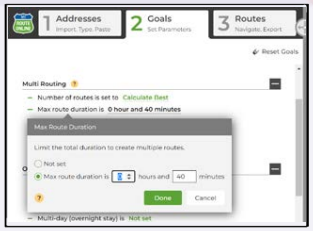
https://www.myrouteonline.com/



2- Select "How would you like to start?". For instance, by "typing the addresses" of the places you would like to see.

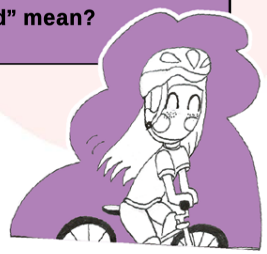
3- Check their locations are right.

What did it help you to recognise the different areas?



4- Set goals like the departure time, the max route time duration or optimize route to its minimum distance.

What does "optimized" mean?



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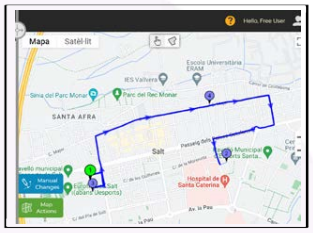
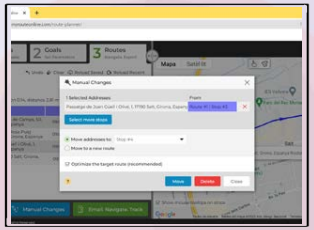
5- Click to "plan your route" and examine the program default route.

Is it the route that you were expecting?

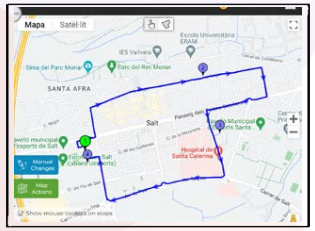


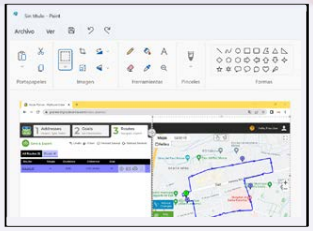


6- Go to "manual changes" and re-arrange the addresses in a sequence that makes sense to you.

What criteria did you follow?

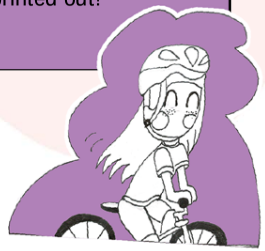
7- Go over your final route. Review the street directions, the time that is going to take, the starting and ending point as well as the intermediate stops.





8- Make a Screenshot and paste it to your computer "Paint" application. Cut it and save it as an image.

Your route is ready to be printed out!



Scan the QR code if you need help to follow a step-by-step video.

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Play and share

Upload an audio to Padlet explaining your route.

Replace it with your own Padlet QR code.

Remember to tell us about:

the places we will see, the main streets we will go through, the important turns in the way and why you chose this circuit.

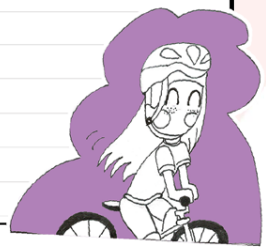
I shared my cycling route with _____

Reflect

Choose one of t he following questions and develop its answer.

1. What do you think are the benefits and inconveniences of planning sports routes ahead?
2. What was the most difficult part to think and create when designing the circuit?
3. Think of other life situations (at least two) when it might be helpful to use a municipality map.

How many stars will you give to your critical thinking skills? Colour them!



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We will learn...

- ❑ VOCABULARY
- ❑ CUT FRUIT, SKILLS
- ❑ CREATE COLUR/FRUIT PATTERNS
- ❑ PRACTICE COUNTING (1, 2, 3, 4, ...)
- ❑ SHARE FAIRLY
- ❑ PREPARE A HEALTHY SNACK OR DESSERT

Connections

BEFORE YOU START...

DID YOU KNOW?

PATTERNS ARE REGULAR REPETED ARRANGEMENT. FOR INSTANCE:

?

HEALTY SAID OF SOMETHING THAT CONTRIBUTES TO KEEP MIND AND BODY IN A GOOD CONDITION. WITHOUT ILLNESS.

THE YUMMY RECIPE THAT YOU ARE ABOUT TO START CAN BE SERVED AS A DESSERT OR SNACK.

WILL YOU BE FIAR DISTRIBUTING THE INGRIDIENTS?

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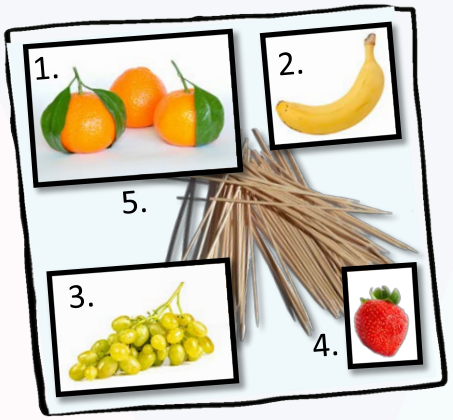
Get ready!

WASH YOUR HANDS AND GRAB THE INGRIDIENTS!



ARE YOU MISSING A FRUIT ? FOR WHICH ONE COULD YOU REPLACE IT? WILL YOU USE OTHER INGRIDIENTS TO DECORATE?

Ingredients

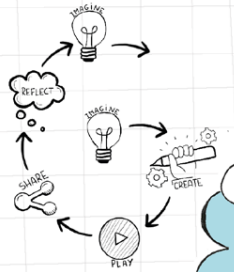
Tick the ingredients that you already have

- ❑ 1. 1 MANDARINE
- ❑ 2. 1 BANANA
- ❑ 3. 20 GRAPES
- ❑ 4. 8 STRAWBERRIES
- ❑ 5. 8 WOODEN SKEWERS

Other ingredients

Imagine

DRAW THE SNACK YOU IMAGINE WITH THESE INGRIDIENTS.



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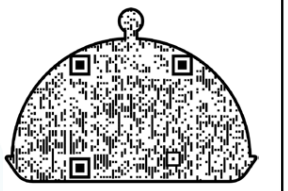
Let's cook!

PUT ON YOUR APRON AND ASK FOR AND ADULT SUPERVISION.

1- WASH THE 🍓 AND THE 🍓.

*SCAN THE QR CODE TO FOLLOW THE VIDEO RECIPE!



2- WHAT IS THE DOUBLE OF 8 STRAWBERRIES?

CUT THE 🍓 IN HALVES TO CHECK YOUR ANSWER.

3- PEEL THE 🍌 AND CUT IT USING A 🔪 OR ✂️.

4- PEEL THE MANDARINE. BEFORE YOU SEPARTE ITS SEGMENTS, **HOW MANY HALVES IN A 🍊?**

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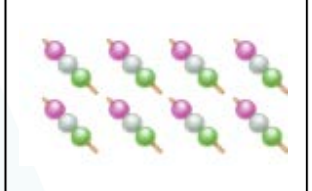
5- IF THERE ARE **8 BROCHETTES** AND YOU WANT TO SHARE THEM FAIRLY WITH **4 PEOPLE**, **HOW MANY BROCHETTES 🍡 WILL HAVE EACH**?

CIRCLE THEM.



6- CREATE A PATTERN **FOR 2 BROCHETTES**. FOR EXAMPLE:

🍓 🍓 🍌 🍌 🍓 🍌 🍌 🍓

HOW MANY 🍌 SLICES WILL YOU NEED IN TOTAL?

6- REPEAT THE SAME **TWO MORE TIMES**. FOR EXAMPLE:

🍓 🍓 🍌 🍊 🍓 🍓 🍌 🍊

🍓 🍊 🍊 🍓 🍌 🍓 🍊 🍊 🍓 🍌

7- PUT YOUR FRUIT PATTERNS ON THE WOODEN SKEWERS 🍡.

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Taste and share

DRAW OR GLUE A PHOTO OF YOUR SNACK.

I SHARED MY SNACK WITH _____

Reflect

ANSWER TO ONE OF THE FOLLOWING QUESTIONS:

1. DID YOU LEARN THE NAME OF A NEW FRUIT? WHICH ONE?
2. WHAT PART DID YOU ENJOY THE MOST? WHY?
3. HOW MANY HALVES DO YOU THINK THERE ARE IN TWO MANDARINES?

How many stars will you give to your collaboration skills?

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We will learn...

- ❑ To create toys reusing materials.
- ❑ To apply numeracy knowledge (measurements) in DIY projects.
- ❑ To collaborate (teamwork) and/or play together.
- ❑ ...while working hands-on and training our creativity in solving problems during the creation process.

Connections

Related ideas interesting to know before we start.

Did you know?

There are several football table World Championships.

The longest football table game lasted over two days.

The most expensive table ever sold went for 85.000€.

This capsule is about making your own football table by reusing easy-to-find home materials while boosting your imagination and manual dexterity.

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Get ready!

Grab all the required materials and tools to start.

Materials

Tick the materials that you already have

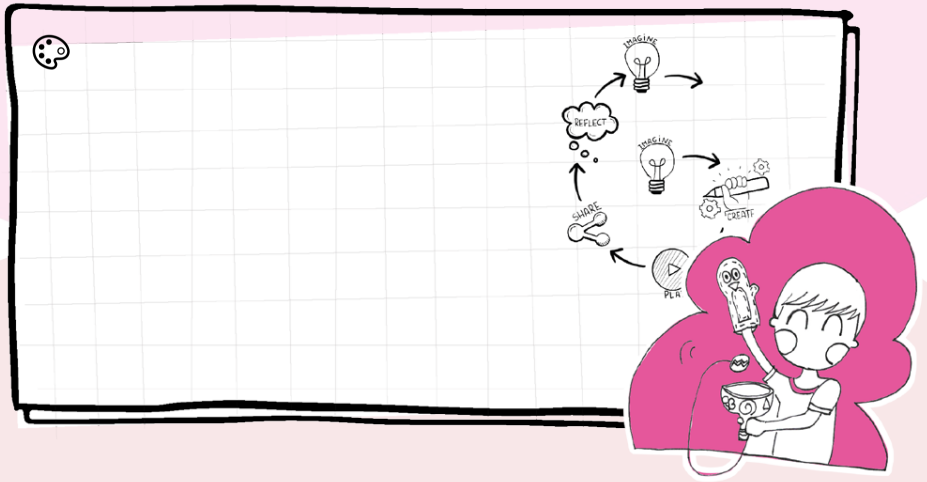
- ❑ 1.Tin foil paper
- ❑ 2.Shoebox
- ❑ 3.12 Clothes pegs
- ❑ 4.Colour cardboard
- ❑ 5.Colour paint
- ❑ 6.Wooden skewers
- ❑ 7. 6 Cork stoppers
- ❑ 8.Two-sided tape
- ❑ Scissors

Are you missing a material?
For which one could you replace it?
Will you use others to decorate?
Write them down.

Other materials

Imagine

What steps will you follow to create your football table? Sketch them.



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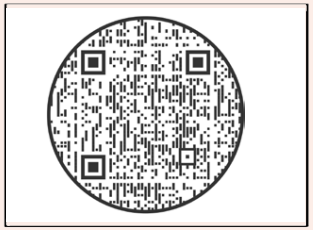
Let's create!

Follow the instructions and ask for an adult supervision when necessary.

1. Scan the QR code to access the step-by-step video. If possible, find a family member or a friend to work together on this Capsule.

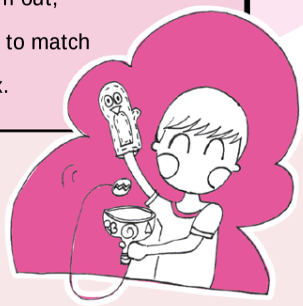


2. If attached, remove the shoebox lid by cutting it out.

What geometrical shape is our shoe-box? Can you name its parts?

3. Stick to stripes of double-sided tape on the shoebox interior base. Place the colour cardboard on, representing the football field.

4. Draw two equal rectangles on the smaller box faces and cut them out, making the goals. Their base has to match the base edge of the box.



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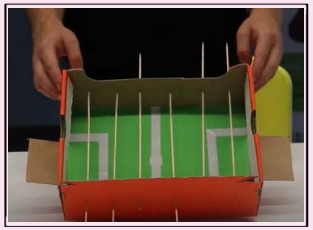
5. Paint the football field lines.

Do you know the names of the field regions and their function? Scan the QR code to find out more about football.

6. Also, colour the cloth-pegs as football players from two teams: 1 goalkeeper, 3 defenders and 2 forwards per team. If you like, **work on your own equipment design**.

7. Draw a horizontal line on the bigger box faces at a height that clothes pegs almost reach its base. Then, measure its length, divide it into six parts and pierce a hole in each to pass through a wooden skewer.



8. Place the cloth pegs players on the wooden skewers as mentioned in step 6 and press the cork stoppers like in this picture.

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Play and share

Agree on the game rules and play with a friend.

I played with my football table with

Reflect

Choose one of t he following questions and develop its answer.

1. Which social skills did you apply while making your football table? And while playing?
2. When playing with your football table, did you find yourself in a conflict? How did you solve it?
3. How did you organise yourself to work together on the same project? How did it work? Why?

How many stars will you give to your collaboration skills? Colour them!

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We will learn...

- ❑ To connect the physical world with the digital.
- ❑ Some basics of coding with Scratch.
- ❑ To collaborate (teamwork) and/or play together.
- ❑ ...while working hands-on and training our creativity in solving problems during the creation process.

Connections

Related ideas interesting to know before we start.

Did you know?

The first digital scorekeeper was invented back in 1908. Before, people used scorecards.

The largest scoreboard in the United States is in Florida in the Everbank Field (American football field).

In this Capsule, you are going to program your digital scoreboard to incorporate it into your DIY football table.

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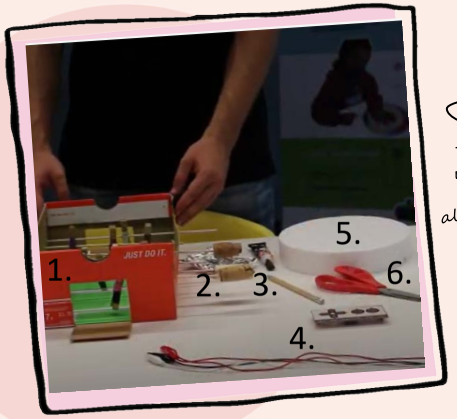
Get ready!

Grab all the required materials and tools to start.



Materials

Tick the materials that you already have

- ❑ Computer with access to Scratch
- ❑ Shoebox lid
- ❑ Tin foil Football ball
- ❑ 1.DIY Football table
- ❑ 2. Tin foil paper
- ❑ 3.Glue
- ❑ 4.Makey Makey
- ❑ 5. Platform
- ❑ 6.Scissors

Are you missing a material?
For which one could you replace it?
Will you use others to decorate?
Write them down.

Other materials

Imagine

How do you imagine your Scoreboard Scratch project? Draw it.

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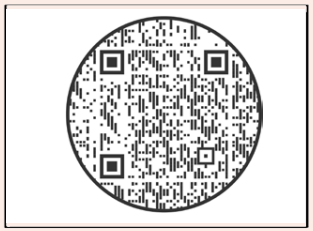
Let's create!

Follow the instructions and ask for an adult supervision when necessary.

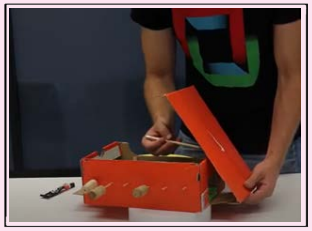
1. Scan the QR code to access the step-by-step video. If possible, find a family member or a friend to work together on this Capsule.



2. Glue the platform to the base of your DIY football table. The platform has to be big enough to keep the shoebox steady.

Why do you think we are elevating our field?

3. Remove the longer side-faces of your shoebox lid. Place one short side in one of the goals and draw a line where the inside base meets the top edge of the box.



4. Using this line, draw two rectangles the same width as the goals and cut them out.

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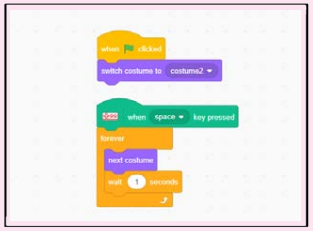
5. Wrap the rectangles middle and base with tin foil paper. Next, glue them in the goals, leaving a space to recuperate the ball.

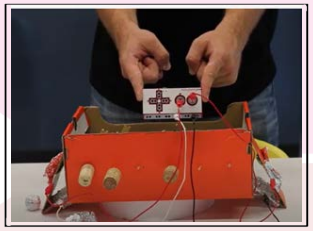
How come we have wrapped the goals with tin foil paper this way? What else is made of tin foil in our football table?

6. Open the Makey Makey Scratch extension in your computer. Pick a background and two number 0s as sprites. **Go to costumes** and personalize them.

7. Program the two sprites to **change costume** every time the right or the left arrow key is pressed (Makey Makey instruction blocks). Also, to reset to 0 when the green flag is pressed.

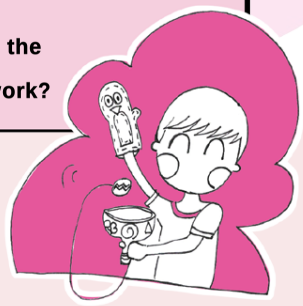
What previous step did you have to do for this to work?





8. Finally, connect the alligators pegs attending to your coding program.

In this case, how do we close the circuit to make the program work?



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Play and share

Try out your scoreboard playing with a friend!

I tested my scoreboard with _____

Reflect

Choose one of t he following questions and develop its answer.

1. How does it help or not having a scoreboard while playing with friends? Why?
2. Explain to someone how your football table scoreboard works. Write down what you are going to tell.
3. What do you think is the relevance of game rules? Justify your answer.

How many stars will you give to your critical thinking? Colour them!

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We will learn...

- ❑ The message that face expressions, gestures or postures send to others.
- ❑ To express emotions, moods and ideas intentionally trough our body language.
- ❑ To use music to reinforce the ideas we want to communicate through our body language.

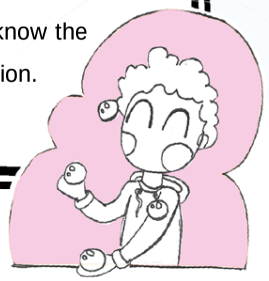
Connections

Related ideas that we need to know before we start.

Did you know?

Mime: is a type of acting that exaggerates physical movement and expressions that do not use words or speech. It has its origins in the theatres of ancient Rome and Greece. Some people believe that primitive humans used mime as they could not talk.

The Capsule you are going to start it is about getting to know the possibilities of your body as a means of communication.



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Get ready!

Grab all the required materials and tools to start.

Materials

Tick the materials that you already have

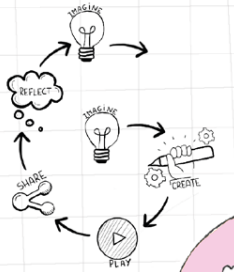
- ❑ 1. Your own body
- ❑ 2. Device with video recorder
- ❑ 3. Device with access to internet

Are you missing a material?
For which one could you replace it?
Will you use others to decorate?
Write them down.

Other materials

Imagine

How is the body posture of someone sad? And happy? Draw them.



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Let's create!

Read follow the instructions and watch the videos. Practice your acting and record yourself.

1. Watch and re-enact the video of a mime acting out different situations for inspiration. Scan the QR code to access the video.

1.1. *Let's warm up, and pretend you are climbing stairs.*

How fast would you walk stairs when going to tidy up your bedroom? And knowing there is a gift?

1.2. *Wow, stop! You have reached a wall. Wait, did you put yourself inside a trap?*

If so, how would you feel? Shocked? Scared?

1.3. *What is it? A box! Let's lift it!*

If your as strong as Hercules it might be easy for you, but don't show off please!

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1.4. *What now? A rope! Let's pull it to find out what is on its end.* **Are you breathing rapidly because of the effort? Taker care, do not fall backwards.**

2. Make up your own performance. Think about your **facial expressions, gestures, postures and breathing** according to your show events.

3. Once you have **rehearsed** until mastering it, **represent it in front of your family** and ask them to **record it.**

4. Using a device with internet access use a free **video editor** to **add sound effects or music** to reinforce the message of your performance.

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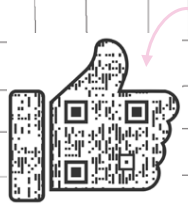
Play and share

Upload your video to Padlet to share it!



Replace it for your classroom Padlet

I shared my mime performance with _____

Reflect

Choose one of t he following questions and develop its answer.

1. Do you think gestures and postures have the same meaning worldwide? Put an example.
2. Share something that you have noticed about non-verbal communication during this capsule.
3. Explain the part that you most enjoyed acting out as a mime and why.

How many stars will you give to your creativity? Colour them!

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We will learn...

- ❑ About volcanos (what are they?).
- ❑ The names and the function of their parts.
- ❑ How and why volcanos are originated.
- ❑ The consequences of a volcano eruption.
- ❑ To work in a team.
- ❑ To solve problems that we may encounter.

Connections

Related ideas that we need to know before we start.

Did you know?

The Ring of Fire: also referred to as the Circum-Pacific Belt, is a path along the Pacific Ocean characterized by active volcanoes and frequent earthquakes. Most of the Earth's volcanoes and earthquakes take place along it (National Geographic, resource library).

You have been learning about the layers of the earth and the tectonic plates; in this capsule, you are going to find out about volcanoes while making a model and simulating an eruption.

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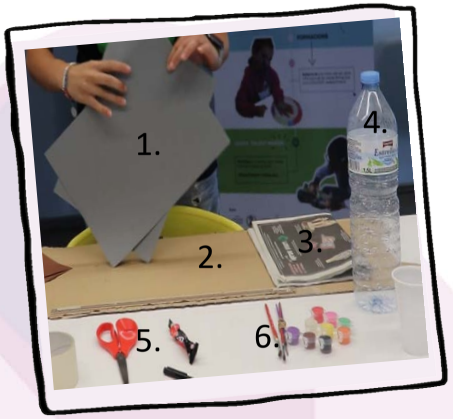
Get ready!

Grab all the required materials and equipment to start.



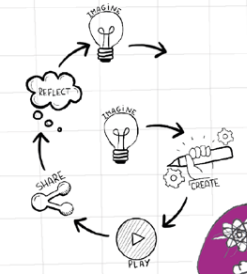
Materials

- ❑ 1. Colour paper
- ❑ 2. Cardboard
- ❑ 3. Newspaper
- ❑ 4. A plastic bottle
- ❑ 5. Glue/tape, colour paper, scissors
- ❑ 6. Paint and brushes
- ❑ Soda and vinegar
- ❑ Digital device with internet access

Are you missing a material?
For which one could you replace it?
Will you use others for sound effects?
Write them down.

Imagine

How do you imagine the inside of a volcano? Draw it and try to label its parts.



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Let's create!

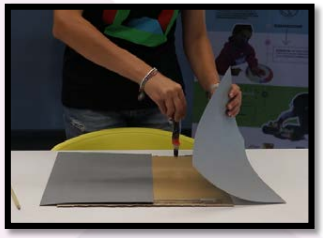
Follow the instructions and ask for an adult supervision or help when needed.

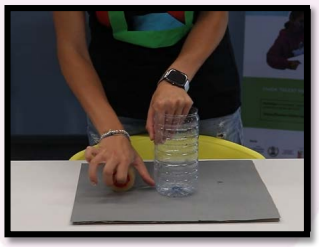
1- Scan the QR code to follow the step-by-step video.

2- Using the scissors, cut a shape of your choice out of cardboard to make the base of your volcano model.

3- Paint your model base or wrap it with colour paper to make it look like the **top earth crust layers**.

If you added an orange/red thicker layer underneath what would you be representing?





4- Remove the top of your plastic bottle (your **volcano main vent**) and fix it in the middle of the model base.

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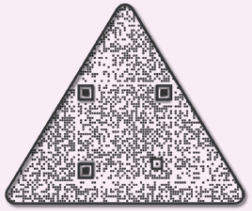
5- Wrap the bottle with newspapers to build the **volcanic cone**. Cover it with colour paper and add some features to make it look more real!

6- Start a research on internet or in books to find out more about famous volcanos around the world for inspiration. **Can you find one in each continent?**

7- Pour soda from the **crater**. Then, add vinegar into the volcano **throat**. **What did it happen? What is the name of the semi-fluid that comes out from volcanos?**



8- Scan the QR code to learn more about volcanos! **Why real volcanos erupt?**

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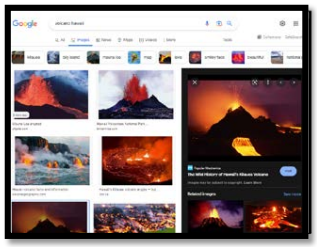
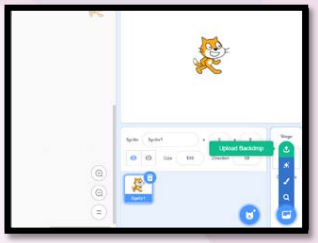
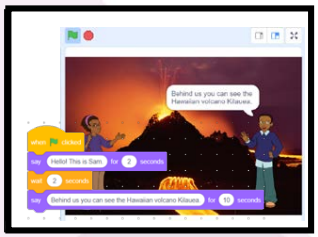
9- Take a photo of your volcano or pick one from internet and download it in your digital device.





10- Open Scratch and upload the photo of your volcano model or the one you have previously downloaded as a backdrop.

11- Select two characters from the Scratch sprite gallery and program them to have a dialogue about volcanos.



12- The characters script should include some of the following topics (scan the QR code for some volcano facts):

What are volcanoes (definition, locations and types), the name of their parts and their functions, how eruptions are provoked and what they think are their consequences, other interesting facts.

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Play and share

Draw or take a photo of your model.

Share your Scratch project on our class studio.

I shared my science model with...

Reflect

Choose one of t he following questions and develop its answer.

1. Do you think volcano eruptions may have some benefits? If so, which ones?
2. Share something that you have learned while working on your volcano model.
3. Explain a challenge you faced when programming in Scratch and how you overcame it.

How many stars will you give to your collaboration skills? Colour them!

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We will learn...

- ❑ TO CHOOSE 🕮 🕮 THAT PORTRAY NATURE.
- ❑ TO REDISCOVER THE WORDS AND THEIR TEXTURE: COLOURS, SHAPES, CHARACTER, ETC.
- ❑ TO REPRESENT NATURAL ELEMENTS THROUGH ART:
- ❑ TO PLAN OUR WORK AND WORK INDEPENDENTLY.

Connections

ENJOY THIS 🕮 BEFORE WE START:

https://www.youtube.com/watch?v=wpDv1rYFqTQ&ab_channel=JoyfulLearningforYoungMinds

DID YOU KNOW?

OCEANS ( ) ARE ENOURMOUS AREAS OF SALTY WATER.

AROUND 70% OF EARTHS SURFACE IS COVERED BY .

HENCE THE EARTH IS ALSO NAMED THE BLUE PLANET.

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Get ready!

GRAB THE MATERIALS AND THINK ABOUT IT...

Tick the materials that you already have

Materials

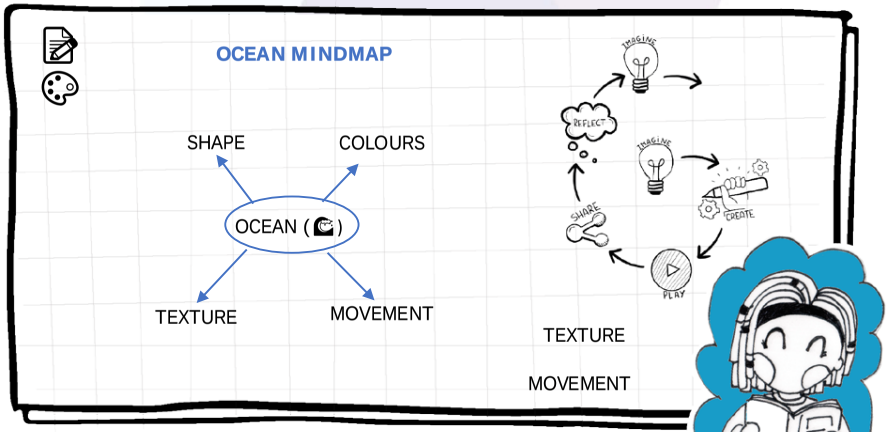
- ❑ 1. SHOEBOX
- ❑ 2. PAPER OF DIFFERENT TEXTURES AND COLOURS
- ❑ 3. SEA SAND AND SHELLS
- ❑ 4. PAINT/MARKERS/GLUE
- ❑ 5. DIGITAL DEVICE WITH SCRATCH ACESS

ARE YOU MISSING MATERIAL? FOR WHICH ONE COULD YOU REPLACE IT? WILL YOU USE OTHER MATERIALS TO DECORATE?

Other materials

Imagine

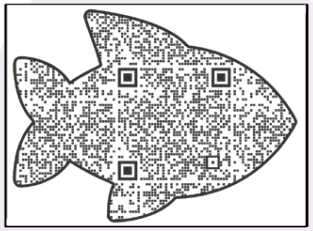
THINK WORDS THAT WE ASSOCIATE WITH THE :

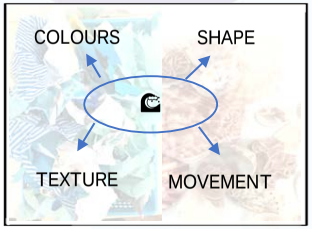


Let's create!

FOLLOW THE INSTRUCTIONS AND WATCH THE VIDEO.

1- SCAN THE QR CODE TO FOLLOW THE STEP-BY-STEP VIDEO.





2- THINK ABOUT THE WORDS OF YOUR MINDMAP. HOW COULD YOU REPRESENT THEM WITH THESE MATERIALS?

HAVE A LOOK AT OTHER RELATED TO THE OR DO A LITTLE RESEARCH ON FOR INSPIRATION.

3- WRAP THE SHOEBOX WITH COLOUR PAPER AND ITS INSIDE COMBINING THE COLOURS OF YOUR MIDND MAP.

DO YOU KNOW ALL THEIR NAMES? SCAN THE QR CODE TO LEARN SOME.

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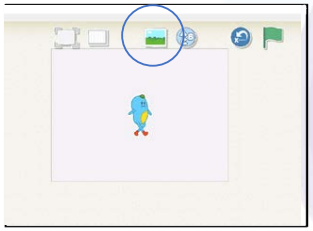
4- ADD SAND AND OTHER ELEMENTS LIKE . INCORPORATE PAPER OR FABRIC OF DIFFERENT COLOURS AND TEXTURES.

5- YOU CAN INCLUDE SOME LIFE LIKE SEAWEED OR ANIMALS:

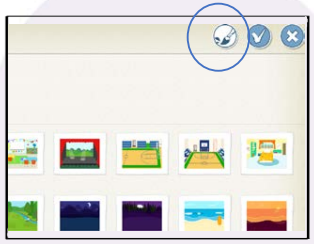
6. YOUR FISHBOWL IS DONE!

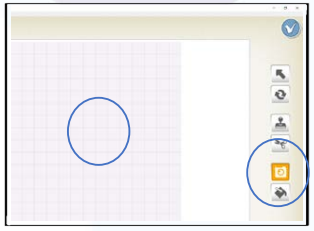
TURN ON YOUR AND OPEN JR



7- ON THE IMAGE.

8- SELECT THE 🖌.





9- CHOOSE THE 📷 , 🖱 THE CHECKED PAPER AND TAKE A PHOTO OF YOUR FISHBOWL.

10- ADD CHARACTERS BY 🖱 ✚ , OR DELATE THEM BY KEEPING THEM 🖱 UNTIL THE ✖ APPEARS.

11- 🖱 A CHARACTER AND START CODING WITH A YELLOW BLOCK.

YOU CAN RECORD YOURSELF EXPAINING A MEMORY BY THE 📷 WITH THE 🎤 BLOCK.

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TALENT MAKER

Play and share

DRAW OR TAKE A PHOTO OF YOUR 📷.

SHARE YOUR 🐱 PROJECT I OUR CLASSROOM STUDIO.

I SHARED MY 📷 WITH

Reflect

ANSWER TO ONE OF THE FOLLOWING QUESTIONS:

1. SHARE A WORD OR EXPRESSION THAT YOU HAVE LEARNED WITH THE ACTIVITY.
2. EXPLAIN TO SOMEONE HOW YOU FOUND REPRESENTING WORDS WITH COLOURS , TEXTURE AND CODING.

How many stars will you give to your creativity? Colour them!

2021 TALENT MAKER project. www.talent-maker.eu

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School Workshop

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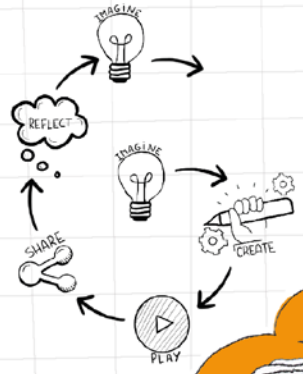
Imagine

How do you imagine the robot that will make our blind friend school transfer?

Draw it and label its main futures.



Reflect

Choose one between the following options and develop its answer.

1. Explain in your own words why the robot that makes the transfer stops when the traffic light is red.
2. Share a problem you faced assembling one of the robots and how you solved it.

How many stars will you give to your collaboration skills? Colour them!

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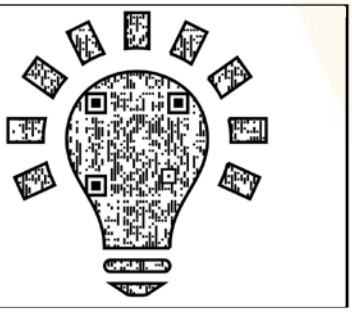
Let's create!

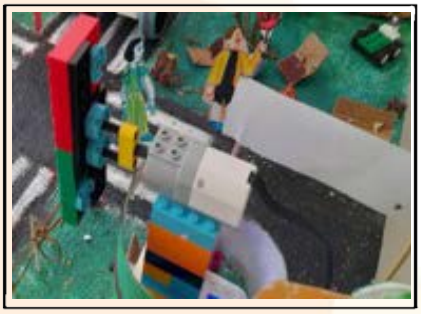
Follow the instructions and ask for your colleagues collaboration during the process.

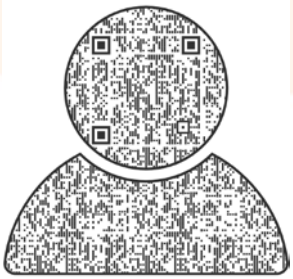
1. Assemble the traffic light following the Education Lego Kit or Lego Wedo instructions.



2. Attach a motor and a smart hub to the traffic light robot (from minute 0:06 to 0:40). Scan the QR code to follow the step-by-step video.

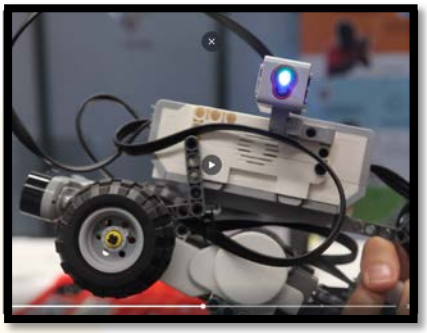
3. Tests the traffic light before placing it on the city model.

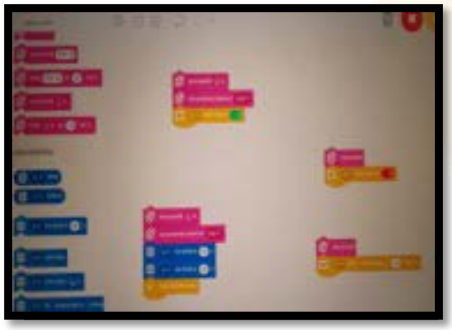




4. Assemble the robot that will do the transfer using Lego Mindstorms instructions (from 0:42 to 1:34). Scan the QR code to follow the step-by-step video.

5. Attach the light and the distance sensors to the robot that will do the school transfer.





6. Program the robot using Scratch to go from the targeted starting point to the desired final destination.

7. Place the robot in front of the blind child house and test it. **Did it arrive to the school? Did it stop when the traffic light was red?**

8. Finish with a class-demonstration. Now, you can share it with the families or other grades of your school.

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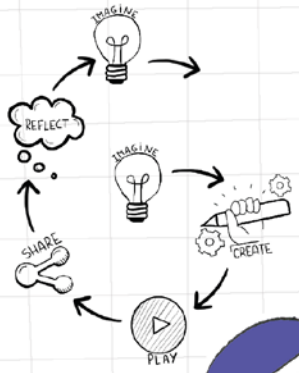
Imagine

What do you think is the structure that radio news follow?



Reflect

Choose one of t he following questions and develop its answer.

1. What did you learn about radio news broadcasting? How is it different from other information channels?
2. Which part of the activity did you find tricky? Which did you enjoy the most? Explain the reasons.
3. Were you able to incorporate a grab? Mention the steps you followed to do it.

How many stars will you give to your creativity? Colour them!

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Imagine

WHAT ANGER-CONTROL TOOL DO YOU IMAGINE WITH THESE MATERIALS?

Reflect

ANSWER TO ONE OF THE FOLLOWING QUESTIONS:

1. EXPLAIN TO SOMEONE WHEN YOU HAVE USED YOUR CRITICAL THINKING DURING THE CAPSULE.
2. GIVE A HINT TO SOMEONE ABOUT HOW TO ACT WHEN FEELING ANGRY TO COOL DOWN.
3. FINISH THE SENTENCE: I FELT ANGRY WHEN...BECAUSE...

How many stars will you give to your critical thinking skills? Colour them!

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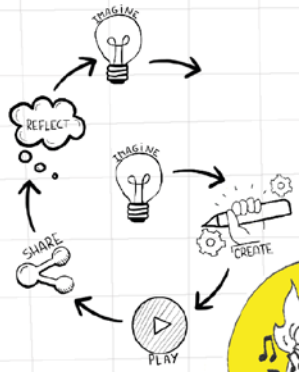
Imagine

How do you imagine your drum kit with these materials? Draw it.



Challenge: Will you be able to label its parts by the end of the workshop?

Reflect

Choose one of the following questions and develop its answer.

1. On what do you think depends on the timber of your drum set parts?
2. What do you think is the aim of each drum set part?
3. How were you creative during the creation process?

How many stars will you give to your creativity? Colour them!

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Imagine

Which steps do you imagine you will have to follow? Draw/name them.

Reflect

Choose one of the following questions and develop its answer.

1. Explain why your drum kit has become or not an electronic instrument.
2. Explain with your own words why you could play the sounds you had programmed in Scratch.
3. Explain a problem you encountered and how you solved it.

How many stars will you give to your critical thinking? Colour them!

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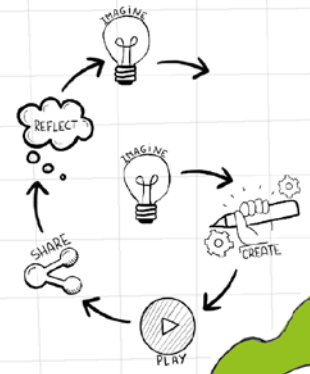
Imagine

How do you imagine a Urban Garden with these materials? Draw it.



Reflect

Choose one of t he following questions and develop its answer.

1. What is the difference between recycling and reusing materials? What are their benefits?
2. How do you see numeracy and natural science knowledge linked to the veggie garden?
3. What was your most relevant learning during the creation process of your product?

How many stars will you give to your critical thinking? Colour them!

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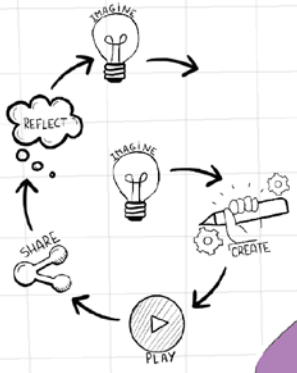
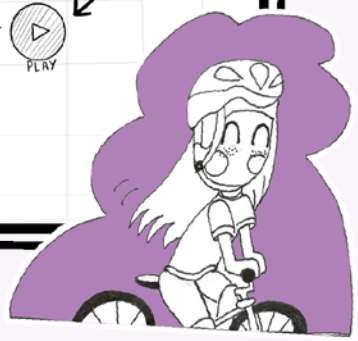
Imagine

Which places would you like to see during our route? Draw them in sequence.



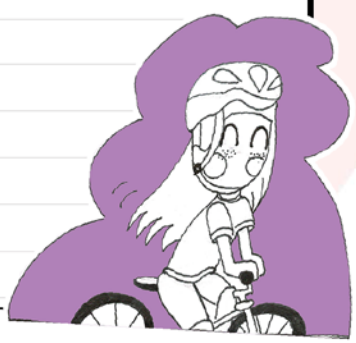


Reflect

Choose one of t he following questions and develop its answer.

1. What do you think are the benefits and inconveniences of planning sports routes ahead?
2. What was the most difficult part to think and create when designing the circuit?
3. Think of other life situations (at least two) when it might be helpful to use a municipality map.

How many stars will you give to your critical thinking skills? Colour them!



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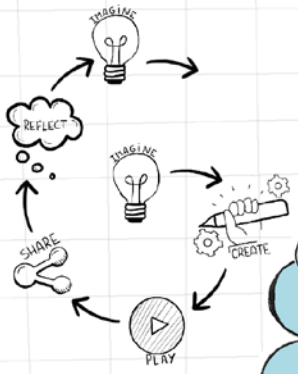
Imagine

DRAW THE SNACK YOU IMAGINE WITH THESE INGRIDIENTS.



Reflect

ANSWER TO ONE OF THE FOLLOWING QUESTIONS:

1. DID YOU LEARN THE NAME OF A NEW FRUIT? WHICH ONE?
2. WHAT PART DID YOU ENJOY THE MOST?
3. HOW MANY HALVES DO YOU THINK THERE ARE IN TWO MANDARINES?

How many stars will you give to your collaboration skills?

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Imagine

What steps will you follow to create your football table? Sketch them.

Reflect

Choose one of t he following questions and develop its answer.

1. Which social skills did you apply while making your football table? And while playing?
2. When playing with your football table, did you find yourself in a conflict? How did you solve it?
3. How did you organise yourself to work together on the same project? How did it work? Why?

How many stars will you give to your collaboration skills? Colour them!

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Imagine

How do you imagine your Scoreboard Scratch project? Draw it.

Reflect

Choose one of t he following questions and develop its answer.

1. How does it help or not having a scoreboard while playing with friends? Why?
2. Explain to someone how your football table scoreboard works. Write down what you are going to tell.
3. What do you think is the relevance of game rules? Justify your answer.

How many stars will you give to your critical thinking? Colour them!

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Imagine

How is the body posture of someone sad? And happy? Draw them.

Reflect

Choose one of t he following questions and develop its answer.

1. Do you think gestures and postures have the same meaning worldwide? Put an example.
2. Share something that you have noticed about non-verbal communication during this capsule.
3. Explain the part that you most enjoyed acting out as a mime and why.

How many stars will you give to your creativity? Colour them!

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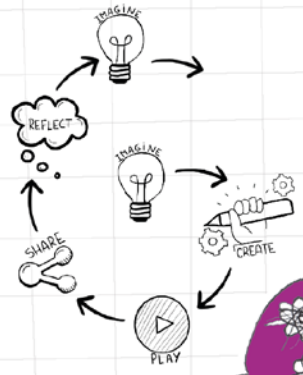
Imagine

How do you imagine the inside of a volcano? Draw it and try to label its parts.



Reflect

Choose one of t he following questions and develop its answer.

1.	Do you think volcano eruptions may have some benefits? If so, which ones?
2.	Share something that you have learned while working on your volcano model.
3.	Explain a challenge you faced when programming in Scratch and how you overcame it.

How many stars will you give to your collaboration skills? Colour them!

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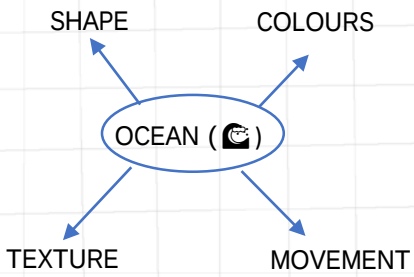
Imagine

THINK WORDS THAT WE ASSOCIATE WITH THE :

OCEAN MINDMAP



Reflect

ANSWER TO ONE OF THE FOLLOWING QUESTIONS:

1. SHARE A WORD OR EXPRESSION THAT YOU HAVE LEARNED WITH THE ACTIVITY.
2. EXPLAIN TO SOMEONE HOW YOU FOUND REPRESENTING WORDS WITH COLOURS, TEXTURE AND CODING (MOVEMENT, AUDIO, MUSIC, ETC.).

How many stars will you give to your creativity? Colour them!