

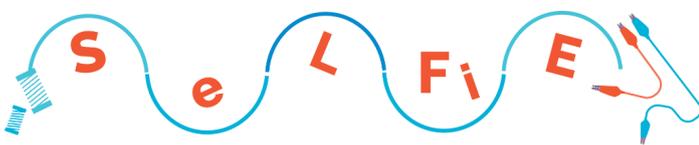


Co-funded by the
Erasmus+ Programme
of the European Union

COORDINATORS:

ILEANA MARÍA GRECA DUFRANC
ESTHER SANZ DE LA CAL

Let's take care of the Sea



STEAM educational approach and foreign language learning in Europe



UNIVERSIDAD
DE BURGOS

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- Website: project-selfie.eu
- Instagram: /selfie_clil_stem/
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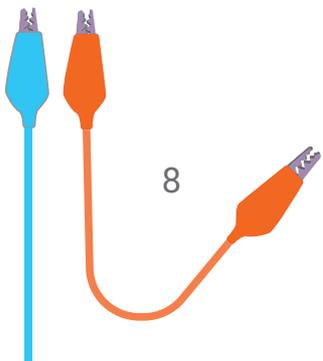


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Theoretical aspects of the Selfie model

SeLFiE Model

The set of SeLFiE tools that are presented in this booklet take the innovative didactic approaches of STEAM (Science, Technology, Engineering, Art and Mathematics) and integrate them with approaches to learning a second language. The radically innovative potential of the SeLFiE model is found in its capacity to integrate scientific language, which tends to be simpler and easier to understand for students, with the rich daily language and practical vocabulary of the Content and Language Integrated Learning (CLIL) framework.

An integrated approach is proposed, based on the completion of projects through the use of stories that link up different curricular areas. In this way, attractive learning experiences are achieved through teaching models such as Research-Based Learning (RBL) and engineering design.

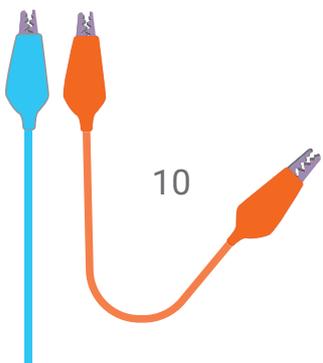
Project partners

This project was coordinated at the University of Burgos working in collaboration with two other universities: the University of Malta (UM), Malta, and the University of Granada (UGR), Spain. The International Trilingual School of Warsaw (ITSW), Poland, also participated; the Centre for Teacher Training and Educational Innovation (CFIE) of Burgos, Spain, a public teacher-training institute that forms part of the Regional Government in Spain for training infant, primary and secondary school teachers; and Kveloce R&D+I, an expert consultancy for the implementation of European projects.

The partners have worked together to develop the SeLFiE model and to compile examples of good practice among working teachers across Europe. See the following websites to find these and other information on the Project and on its YouTube channel:

project-selfie.eu/

www.youtube.com/channel/UCjF4_Jhz0gcbIV2cJpHkmiw/featured



Characteristics and focus of the SeLFiE model

With regard to the characteristics of the project, its main objective is to improve the competences of bilingual infant and primary education teachers for the application of STEAM teaching methods to further the learning of a second language; as well as to improve the general STEAM and foreign-language-related competencies of student teachers of infant and primary education across Europe. Thus, a new method emerges for teaching STEAM in a bilingual context: the SeLFiE model.

This model seeks to promote a wholistic approach for the acquisition of skills in a second language (English, Spanish, French or any other second language in the first stage of education) through STEAM topics at the same time as integrating a series of active teaching methods, mainly: the Project-Based Learning (PBL) approach; Inquiry-Based Learning (IBL); Engineering Design Process (EDP) in scientific education; and, Content and Language Integrated Learning (CLIL).

In this way, the narration of stories is used to provide a context that links up the content areas. Thanks to which, the learning is really authentic; it will better reflect the real world and will adapt the learning to different contexts, as well as stimulating emotions and motivation that are so important to achieve significant learning.



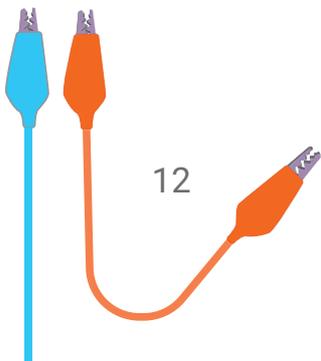
Balance between language and content in the SeLFiE model

The SeLFiE model combines the learning of STEAM materials with the learning of a second language through the use of different methods: active, inquiry-centered, student-centered and collaborative learning. The model reflects the complexity of reality, combining CLIL and integrated learning of STEAM areas.

In this context, the narration of stories, in its broadest sense, is used as a guiding thread that motivates children to commit themselves to approaching a topic, connecting one investigation with another, as the children inquire into different aspects of a story or focus themselves on a particular topic. The participation of the children in investigations that may or may not be conducted in a second language creates opportunities in which the children can communicate and collaborate while they are working, and share their conclusions with others in a language that is not their mother tongue.



Figure 1. The SeLFiE model for learning STEAM+L2 at primary school level.



Co-teaching within the SELFIE model

In the same way that different topical areas in the SELFIE model are presented in a holistic way, teachers must also work together, in order to guarantee that the project continues to be a unified whole, which requires co-teaching. This collaboration can be with other professionals, such as specialist subject teachers, but also perhaps with the teachers of the same course, the teaching assistants and the management of the center.

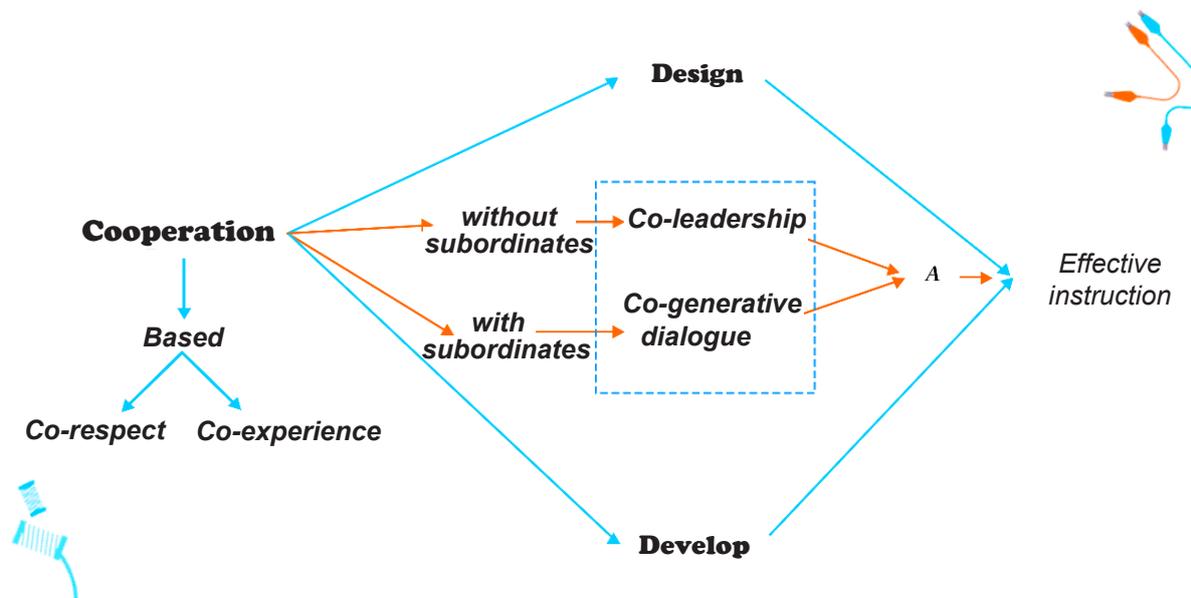


Figure 2. Relation between the different factors that determine the efficiency of co-teaching.

Co-teaching is, therefore, an integral aspect of the SELFIE model, because it is also necessary to collaborate with other teachers, if the model is really to be integrated in teaching. It must also be applied in a holistic manner, so that the learning process is also a holistic experience. Whether you speak or share the possibility of collaboration with your colleagues, the important thing is that you work together in a democratic and respectful manner, using the strong pedagogical points of each person so that learning is meaningful, creative, and fun for the students.

The SELFIE team invite you to read the set of proposals that we are presenting to you in this book, organized in the form of a project that has a storybook as its guide. As you will see, the examples of teaching experiences that we are offering you are varied and adaptable, which is why we hope that you will find the inspiration to test and to adapt some of them, in accordance with your needs.

The project

An underwater photograph of a vibrant coral reef. The scene is dominated by a large, intricate white branching coral structure in the center-left. To its right, there are various other coral species, including green and brown branching corals and some more rounded, brain-like corals. Numerous small, dark-colored fish are seen swimming around the coral. The water is a deep, clear blue, and the overall lighting is bright, highlighting the textures and colors of the marine life.

Introduction

In this project, a storybook called *Guardians of the Sea* (Edwards, 2020) will serve as a common thread to enhance the development of linguistic skills among students, furthering their understanding of the plot. The narrative is used as a link to develop communicative and STEAM-related skills. Prediction skills will be exploited when reading and listening to the story, so as to help students connect their previous knowledge with new knowledge and to improve their foreign language reading skills.

Students will make creative use of language to communicate their understanding to their peers during the activities, which promote the use of language in real situations. In relation to the scientific units, content related to materials, material properties, their impact on the environment (plastics), and care for the environment will all be covered. In addition, the contents related to scientific methods will be addressed.

In the mathematical unit, students will collect and organize data for graphic representations of the impact of plastics on our environment. The use of predictions and guessing to facilitate decision-making will be encouraged and geographic procedures (measurement, coordinate systems, locations, etc.) will be included. Moreover, reflecting on the social environment and the search for solutions to real problems will be promoted, developing critical thinking and responsible attitudes towards the environment.

Reading area

Books may be placed in this area, whether fictional or non-fictional, the oceans and sea, as well as the keywords of the story. The students can also bring books that they have at home or that they have borrowed from a public library. The children can access the area during the time that is assigned to them, attending alone or in pairs and then sharing their opinions on the reading with their classmates.

Topic Table

Students may bring objects and toys that have some relation with the story and the content they have learnt on this project. These objects are placed on the Topic Table, a place to which the children can go to play and to go over the story or the experiments, making use of the materials.





Characteristics

Book

Edwards, M. (20 20). *Guardians of the Sea*. Independently Published.

- Title: *Guardians of the Sea*.
- Author: Mónica Edwards Schachter.
- Year: 2020.
- Editorial: Independently Published.
- ISBN 13: 9798678789754

School year

- This project is suitable from the 3rd-year of primary education and if working with older children, the concepts can be explored in some depth.

Subjects

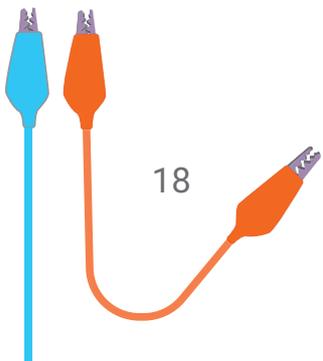
- Natural and social sciences, English language, mathematics, plastic arts and musical education.

Methodologies

- Cooperative learning.
- Content and Language Integrated Learning (CLIL).
- Inquiry-based Science Teaching (IBST).
- Engineering Design.
- Problem-based learning.

Competencies

- Communication in a foreign language.
- Mathematical competence.
- Basic competencies in science and technology.
- Learning to learn.
- Digital skills.
- Social and civic skills.
- Awareness and cultural expressions.



Objectives

- Listen to and understand the authentic fictional story 'Guardians of the Sea' making predictions and completing sentences.
- Make predictions.
- Write, read and listen to a mini-book or a comic.
- Write a letter or email.
- Make an oral presentation.
- Listen to peer presentations and question the speaker.
- Develop cooperative tasks to elaborate the final task.
- Learn about plastics, their properties and their impact on our lives and environment.
- Develop solutions to reduce the use of plastics.
- Develop natural plastics.
- Think of actions that could heighten our feelings of environmental-related responsibility.
- Use research methodologies and engineering design.
- Prepare an inventory of the amounts and sorts of plastics we use.
- Represent and understand bar charts.
- Estimate the most likely events taking into account the facts.
- Guess the lifespan of plastics and investigate the actual values.
- Learn to use geographic location techniques (geographic positioning system).
- Develop critical thinking and creativity in problem solving.
- Be aware of the human impact on nature.

Evaluation

- ✓ Techniques
 - Systematic observation.
 - Metacognition.
 - Analysis of student productions.
 - Specific test.
- ✓ Tools
 - Rubrics and list of assignments.
 - Worksheets.
 - Oral presentations and Kahoot.

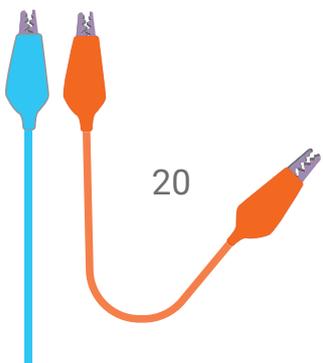


Approaching the needs

- Individualization of the learning process.
- Activities when finishing rapidly.
- Scaffolding activities.
- Rewards for active participation.
- Different types of groupings.
- Activities for students with visual, auditive and kinetic orientations.

Framework

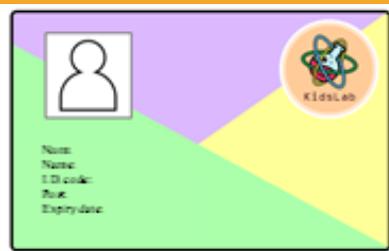
- Model and demonstration.
- Different ways of describing concepts.
- Inclusion of visual help.
- Giving the student time to speak.
- Continuous testing of student comprehension.
- Activate previous knowledge.



Before reading

Preparation

NOTE: As a motivational exercise, personalized identity cards can be created for each student, showing their photo and personal data, as if it were an accreditation for a scientific laboratory.



Before reading the book, it is important that you try to create a pleasant atmosphere that stimulates curiosity, that motivates and that interests the students. In doing so, you can use decorations related with the theme of the story.

In this way, the students experience different sensations, make numerous deductions and propose a stream of questions that provide insight for you into their previous ideas, their willingness to learn and interest in learning.

It is likewise convenient that you have all the materials prepared that you will need during the session. Their sequential arrangement in a specific part of the classroom will give you easy access to them, favoring dynamism during the activities and reducing the time between one task and another.

Implementation in the classroom

Activity 1. A different music

Music is a resource through which the topic of the project may be introduced at the same time as working on emotional education.

MAIN EXPERIENCES

- Know the musical possibilities of water.
- Discuss previous experiences.
- Reflect and share the emotions generated by music.
- Reflect on climate change and its implications.



PREPARATION

TIMING

- Play the video once with no images.
- 2-3 minutes for individual reflection on listening.
- 5 minutes for jointly sharing ideas, opinions, emotions...
- Play the video again with audio and image.
- 2-3 minutes to comment on final reflections.

MATERIALS

Everything necessary to project the videos and to listen to their sound tracks:

- River <https://youtu.be/aHAIRspii5g>
- Waterfall <https://youtu.be/YqlxpcmkvVA>
- Waterfall https://youtu.be/-cLE_9QxmBc
- Rain <https://youtu.be/tv9vPHYTQf0>
- Beach <https://youtu.be/2lcdEJ4Jhs0>

CONNECTION WITH FAMILIES

- Send regular newsletters to the families detailing student progress and learning.
- Encourage family members to reinforce the activities within the classroom at home, which can stimulate curiosity and exploration.
- Prepare a folder with activities and proposals to work on at weekends.

TEACHING PLAN

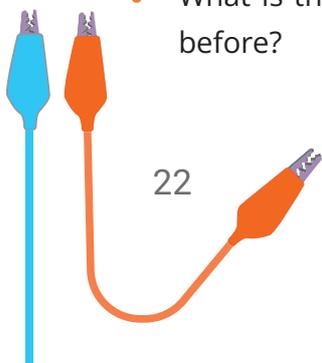
DEVELOPMENT

Reproduction and reflection on the video

Play the video with no image, only listening to the soundtrack, allowing students to listen closely, so that they ask their own questions and reproduce the rhythm with body percussion.

Then invite him to reflect on what he has heard.

- What is the sound like? Have you heard anything like that before?



NOTE: It is recommended that the students sit on the floor in a circle, closing their eyes and speaking in a low tone of voice.



NOTE: At the same time as listening to the music, invite the students to repeat the rhythm with claps, clicks, beats ...



3rd-year primary-school student:
"Seemed like a very fun and special activity".

NOTE: In addition to ice, water can generate other different sounds. The students can be invited to reflect on the sounds of water.

Some answers:

- Snowballs falling on the ground.
- A block of ice breaking away from a glacier.
- The sound of hail falling on car roofs and bonnets

- Where could it have been recorded? Do you know of any similar places?
- How are you feeling? What does this music convey to you? In what situations do you feel this way?

After sharing the responses and commenting on the opinions of the students, play the video again with images and sound.

- What are you thinking now? Have you been to such places?
- Does your perception of sound change? Does it still convey the same idea to you?
- Would you like to visit them?

Some minutes will be put aside for reflection, allowing students to express their surprise and curiosity and to discuss what they have seen and heard.

Geolocation

Based on these comments, the location of Niagara Falls will be investigated.

With the help of the Google Maps program, the students must situate Niagara Falls on the map, measuring its distance from other cities such as Buenos Aires, Paris and Sydney.

- Are the waterfalls where you thought they were? Would you like to visit them?
- Do you think these falls will always have water? Will they be contaminated? How will the waterfalls that are a place of great touristic interest affect the ecosystem?

In this way, the concept of climate change may be introduced, approaching its consequences and the need to care for the planet.

Activity 2. The map of the sea

Considering the previous knowledge of the students on the subject is essential to dynamize the teaching-learning process, socialize the information, debate the different points of view and establish relationships with the new learning.



The visualization of this knowledge in a mind map in the Popplet application will allow you to know the starting point on which to develop your teaching activity, while helping students to be more aware of their own metacognition process.

MAIN EXPERIENCES

- Reflect on the forms of water, its properties and functions.
- Understand the importance of water in life.
- Organize information in a visual and synthetic way.
- Communicate and orally share one's own ideas with others.

PREPARATION

TIMING

- 10 minutes to raise the sections and information to be included.
- 7-10 minutes to organize the information.
- 5 minutes to share the proposals.

MATERIALS

- Digital device with internet connection.

CONNECTION WITH THE UNITED NATIONS SUSTAINABILITY DEVELOPMENT GOALS

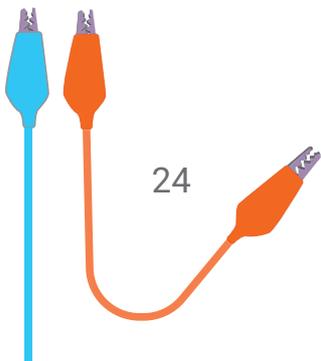
- Propose activities for inquiry and exploration that strengthen the awareness of students and their responsibility for a better planet.
- Play the videos that show the students what the actual situation of the planet is and what the relevance of the SDGs is.

TEACHING PLAN

DEVELOPMENT

Preparation and organization of information

Prior to the creation of the mind map it is important that the students, organized in groups of 4-5 students, decide what water data they want to include in their proposal. For this you can use the



technique of pencils to the center, allowing the students to talk for a few minutes and share their ideas.

- What do you know about water? What characterizes you?
- In which states can it be found? What form does it have in nature?
- Is it important? For whom? Why?
- What can you do to reduce water consumption?

After collecting the information, they must organize it schematically, making sure to expose it in a synthetic and visual way. Remind them that they can use arrows, keywords, and drawings, instead of writing long paragraphs.

Design and creation of the mind map

Once students are clear about how they are going to organize the information, they can create the mind map in the Popplet app, thereby developing digital competence. It is important that all members of the group participate, being able to establish roles with certain functions. Also, remind them that they can include photos and videos, links to pages with more information and all those resources they want to enrich their proposal.

NOTE: If you do not have digital devices or internet connection, you can replace the application with cardboard, pens and hand drawings. On the other hand, to include additional information you can print QR codes that redirect to the selected pages.

NOTE: It is recommended that this activity be carried out at times before and after learning, to gain a globalized vision of the process.

It is important to drive critical thought and analysis of the tasks, the achievements and the improvements that have been achieved, as well as the difficulties and the problems, seeing them as future learning opportunities.

Activity 3. How we learn!

Metacognitive processes are fundamental so that the students become aware of their own cognitive processes and their regulation.

To do so, you can use thinking routines or metacognitive staircases with which to promote self-reflection among the students on their experiences and previous ideas, so that they inquire into their concerns and interests and in consequence set goals to be achieved.

In this way, the students will visualize the progress of their learning more clearly, will interrelate concepts and skills, and will strengthen their ontogenetic development.



MAIN EXPERIENCES

- Reflect on what you have already learnt or know about the topic.
- Set out what you want to learn, including conceptual, attitudinal and procedural knowledge.
- Reflect on what and how you have learnt.

PREPARATION

TIMING

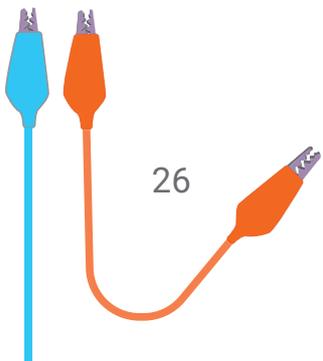
- 3 minutes for explaining the parts that integrate the thinking routines or metacognitive staircase.
- 5-7 minutes to complete one of the sections.
- 5 minutes to share the responses together.

MATERIALS

- Photocopy of worksheet with the structure that students have to complete.
- Pencils, paints, markers, etc.

CONNECTION WITH GENDER QUESTIONS

- Remember to incentivize student participation and motivation. Use positive language and reinforcement.
- Encourage students to participate during the classes and to assume responsibilities within the dynamics of the classroom.
- Create heterogeneous groupings organizing rotating roles in which the students and their companions have specific responsibilities.
- Include figures with female references in the explanations. Highlight their relevance and their involvement in their work.



TEACHING PLAN

DEVELOPMENT

Knowing my learning with the KWL routine

NOTE: The activity could be done in small groups, nevertheless, it is recommendable that the students complete it individually, because the progress for each individual will be different, which will let you highlight each person's good points, and progress, improving self-esteem and self-concept.

Start explaining the importance of knowing what, how and why we learn to the students. Let them talk about it and explain their point of view. Knowing their positions will help you to adapt the routine to their needs.

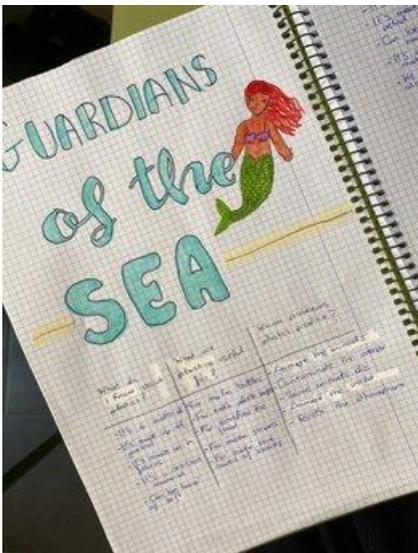
Subsequently, relating their ideas with the task, suggest that they complete a thinking routine or a metacognitive staircase. *The Know Want Learn (KWL) routine* is proposed here: what I know (K), what I want (W) and what I have learnt (L).

Encourage the students to express their earlier ideas on the photocopied worksheet, while explaining that in this way after some time has elapsed, they will be able to recall the starting point, which will help them appreciate their progress.

Remember to point out that in addition to concepts, they can also write procedures and attitudes.

After a few minutes, invite the students to share their worksheets. It is important for them to know that there are no wrong answers, that each student will have different proposals, all of which will be equally valid.

Throughout the project, they continue to complete the different parts, for which purpose it is recommendable that the new contributions will be completed without seeing what had already been written, so that the students are not influenced by their previous ideas and interests. The subsequent analysis will show them everything that they have learnt, it being important to highlight their progress, their improvements and the capabilities they have developed.



K, W, L (Know, Want, Learn)

Topic

K	W	L
What I know	What I want to know	What I have learnt



Activity 4. Predictions

In the process of reading, the realization of predictions constitutes a type of inference in which the reader relates what he reads in the text with his knowledge and previous experiences, trying to anticipate, to predict what will happen next.

This step is fundamental throughout the reading process, contributing to the planning and anticipation of the reading, as well as to the verification, review and control of what is read. On the other hand, it is also essential to motivate and maintain interest in the text, establishing an emotional connection with the book.

MAIN EXPERIENCES

- Predict what is going to happen in history from the cover of the book.
- Correctly argue opinions and assessments.
- Improve oral expresión.

PREPARATION

TIMING

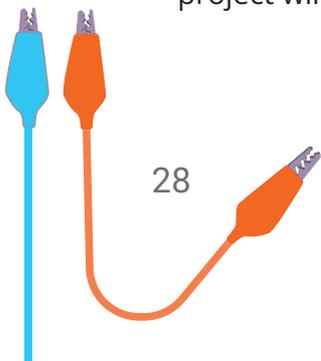
- 5-7 minutes to brainstorm the concept of prediction.
- 10 minutes to predict history.
- 5 minutes to share the proposals.

MATERIALS

- Cover drawing.
- Pens, paintings, pencils.
- Tab on predictions.

CONNECTION TO INCLUSION

- It actively promotes respect for difference in students.
- Identify possible barriers (physical, social, cultural) and organize the class taking them into account.
- It offers the same opportunities to all, but fleeing from uniformity; the methodologies that we propose in this project will help you in this objective.



NOTE: It is recommended that you provide students with visual supports, such as posters or posters that help them better understand such an abstract concept. It is also important that they relate their contributions to everyday examples, such as weather forecasts.

WHAT IS A PREDICTION?



A prediction is, according to Duke and Pearson (2002), a riddle, an idea or an estimate of what might happen in the future.

WHY SHOULD READERS MAKE PREDICTIONS?

- ✓ Because they make the reader think about the idea or the main event during the text and monitor their understanding.
- ✓ Because they allow the reader to think before they read.
- ✓ Because they make the reader more engaged and entertained.



MAKE PREDICTIONS

A prediction is a guess that is made with the help of text or images



"I believe that _____ because _____"



Before reading

Watch the title and illustrations



During the reading

STOP! Predict what's going to happen



After reading

✓ Confirms ✗ Modify your prediction

2nd EPO student: "I really liked predicting the future, it's like having a crystal ball."

NOTE: Remember that it is important that each group explains their proposals orally to the class, focusing on what aspects they have taken into account to make them.

- It organizes students into heterogeneous groups in which they can develop their own abilities and experience the possibility of helping their peers to develop academically and personally.

TEACHING PLAN

DEVELOPMENT

Rain of predictions

It begins by inviting students to brainstorm the concept of prediction. It is important that you ask questions that enhance the reflective thinking of the students and that allow them to build a complete concept of prediction.

- What is a prediction? How is it formed?
- What are predictions used for in everyday life? And during the reading?
- When are they made? Why are they important?

Predicting the story

Once the concept of prediction has been clarified, it invites students to observe the cover of the book and make their own predictions. Make them reflect on the different elements of the story:

- The characters, what are they going to be like? How are they going to behave? Where will they live?
- What events are going to take place? How will they affect the characters?
- How are these problems going to be solved? What will be the end of the story?

From the answer to these questions they can make a scheme in which all the predictions are reflected. In this way, as you advance in the reading of the book, they can be reviewed and modified. For its design and organization you can divide the class into small groups and assign each one a theme on which to work.



Activity 5. Discovering stories!

When presenting the reading, it is important to create an intriguing atmosphere, awakening curiosity and emotion that entices the students to learn more. You can start with an 'Escape Room' or with a treasure trail that leads the students to the book, the title of which is covered up. In this way, looking only at the drawing on the cover, new titles can be invented and the adventures hidden within it can be imagined from the drawing on the cover.

MAIN EXPERIENCES

- Invent a title for a story.
- Make predictions, giving reasons in written work.
- Communicate and orally share your own ideas with others.

PREPARATION

TIMING

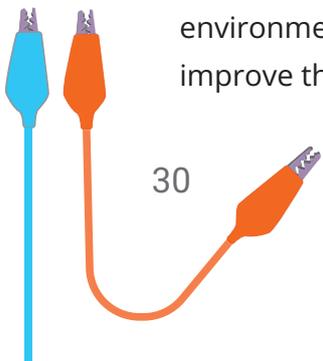
- 15-20 minutes to find the book.
- 2-3 minutes to observe and to reflect on the cover of the book.
- 5 minutes to invent a title and to justify it.
- 5-7 minutes to put in place ideas, opinions, arguments...

MATERIALS

- Book *Guardians of the Sea* (Edwards, 2020) with the title covered.
- Worksheets to fill in with different options.
- Writing materials.

CONNECTION WITH THE RESPONSIBLE CITIZEN

- Remind the students of the importance of respecting the norms of conviviality, in the school environment and family and social life.
- Use debates and role plays to present reality-based situations that raise student awareness, in relation to their responsibility for improving their physical and social environment. Ask them to propose actions to solve or to improve those situations.



- Set out visits and programs of shared events with local associations, so that the students collaborate in the search for solutions within their real environment

TEACHING PLAN

DEVELOPMENT

The search for the lost book

In the first place, it is important to prepare a scheme of the tests to be completed and their order. A relation between them is recommendable, so that the activity is more dynamic, intuitive and self-controlled. In addition, you can use riddles to work on previous knowledge, to reinforce concepts, and to improve procedures.

With regard to the groups, cooperative work in groups of around four members will be central. It is important to recall the norms of conviviality and classroom norms to maintain an atmosphere that is conducive to learning.

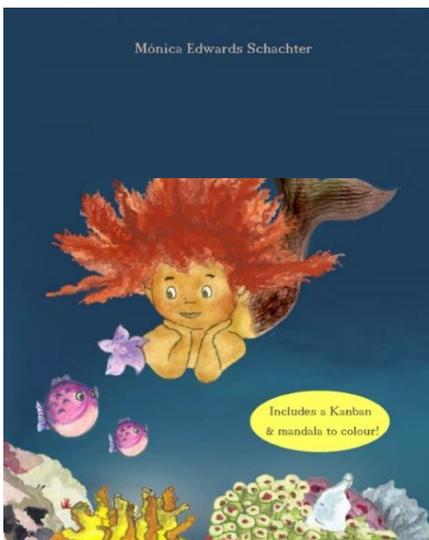
Taking all the above aspects into consideration, it could be to open a padlock that will give access to a box in which the the students can read the text that will lead them to the following step and so on successively until the book is found.

You must not forget to cover up the title on the book cover, for which purpose you can use a sheet and a piece of adhesive tape.

Discovering the book

Having found the book, invite the students to sit on the ground forming a semi-circle. Arranged in this way, students can see the book cover without difficulty. Keeping the title covered up, propose questions that favor reflection on the story that they will discover later on.

- What is this drawing? Why does it appear on the cover?
- What sort of book could it be? An adventure book? A horror story? A mystery story?...
- Where will the story take place? Do more people appear in it?



NOTE: When working cooperatively, it must be taken into account that two groups do not coincide in the same test. To do this, different starting points can be established, so that the challenges are the same, but in different order until you reach the book. Another option would be to have several books which will be assigned a color that will match that of the group that must find it, in this way each group follows the path of its color.



After giving oral answers to the questions, the students are handed a worksheet on which they must individually invent their own titles and justify them, each student setting out an idea of what the story will be.

Subsequently, a few minutes will be given over to sharing their proposals, expressing the different points of view and options. In addition, the written work can be placed on a classroom noticeboard as a way of decorating the classroom.

Activity 6. Tagging vocabulary

Vocabulary is essential for reading comprehension. Their learning should not only focus on meaning, but also on morphology and spelling. It is also important that you provide students with different contexts in which to frame each of the words. In this way, a significant and real learning will be promoted that will have a positive impact on the reading capacity of the students.

EXPERIENCES

- Know the meaning of new words.
- Perform lexical classifications by word families.
- Improve oral expression.

PREPATION

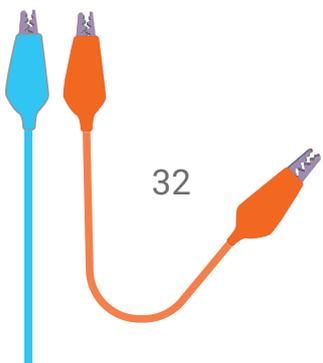
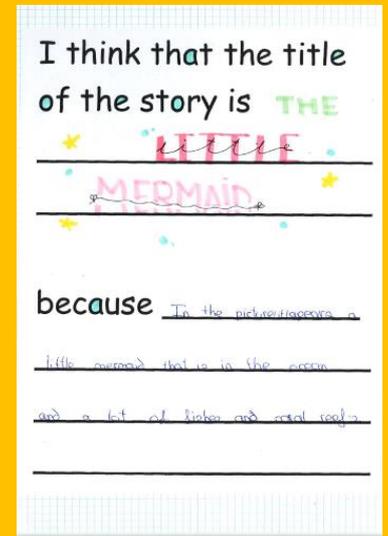
TIMING

- 5-7 minutes to label the words on the cover and define them.
- 5 minutes to classify them by word families.
- 5 minutes to share the proposals.

MATERIALS

- Book cover.
- Pens, paintings, pencils.
- Fotocopy to complete with word families.

NOTE: The activity can be complemented by drawing an alternative book cover following their proposals.



CONNECTION WITH DIGITAL WORLD

- Create a blog with restricted access in which there are curiosities on the topics that are worked, proposals for additional activities and reinforcement exercises.
- Use digital platforms such as Padlet to strengthen the debate and the divulgation of ideas and opinions among the students.
- Strengthen the search for information in digital sources. It is fundamental to emphasize the importance of comparing data.
- Work on the positive aspects (sustainability, agility, etc.), but also on the negative aspects of the networks (cyber bullying, digital dependency, identity phishing, etc.) and propose, together with families, simple actions to minimize them.

TEACHING PLAN

DEVELOPMENT

Tagging words

Show the cover to students and ask them to label and define the words that appear on it. In addition to including a written definition, they can create a visual dictionary in which they describe the words with drawings, which will help to better understand the lexicon and facilitate its internalization.

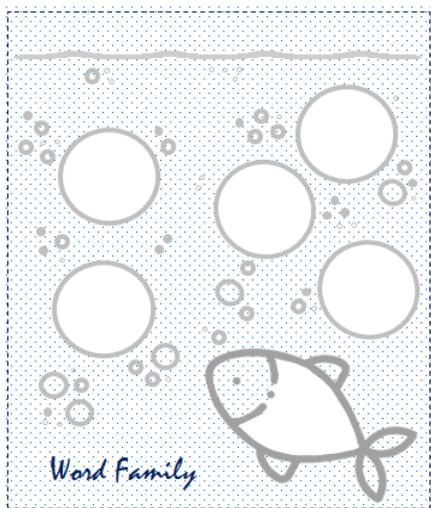
Word family

Once the meanings and classes of words have been clarified, he introduces the concept of word family. To do this, instead of explaining to students what it is, allow them to deduce it with examples and questions.

- Do you know any words similar to sea? What does it mean?
- What do they all have in common? How are they different?

Next, it invites the students to complete a form like the one proposed with other examples of word family. To do this, you can divide the class into small groups and carry out the activity

NOTE: Remind students that they can use the dictionary to help themselves. It is important that they know that it does not only provide information about the meaning of words, but also indicates the etymology, grammatical category, meanings and even phrases made or synonyms and antonyms.





When all students have completed the sheet, spend a few minutes sharing the proposals. It enhances the debate, emphasizing the importance of respecting speaking times and making constructive criticism that contributes to learning.

Activity 7. What is Kai like?

Continuing with the parts on the book cover, we will center attention on the picture of the mermaid. It is important that the students are familiar with the protagonist, can imagine what the drop of water is like and what it feels. This closeness favors empathy and enthusiasm to know more, to advance through the book and to discover what happens to the mermaid, the drop of water, through its journey

MAIN EXPERIENCES

- Provide descriptions of people: personal appearance, profiles, and portraits of the protagonist of the book.
- Improve the lexical orthography related with physical features, personality traits, emotions, and feelings.
- Predict and describe the characteristics of the person.

PREPARATION

TIMING

- 3-5 minutes to differentiate between physical features and personality traits.
- 10 minutes to describe the mermaid.
- 5 minutes to reflect upon and to go over the results.

MATERIALS

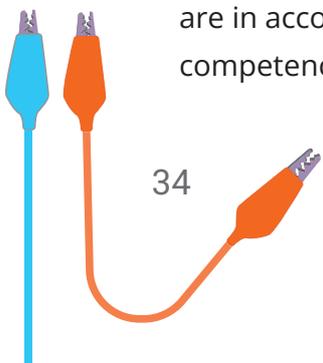
- Poster of the mermaid (A3 size).
- Post-its.
- Pencils, paints, markers, etc.

CONNECTION WITH DIGITAL WORLD

- Remember to use evaluative methods and instruments that are in accordance with the proposal for the development of competences and the active and collaborative

NOTE: From the word "plastic bottle" invites students to discuss the consequences arising from their overconsumption and lack of recycling. In addition to dealing with the repercussions, it emphasizes the importance of carrying out preventive and minimizing actions of damage. In relation to this you can work on the Sustainable Development Goals, specifically goal 14 – conserve and sustainably use the oceans, seas and marine resources.

NOTE: That activity can be done either before or after the reading, it being possible to include it at both times. Before reading, make predictions on what the character is like, which after the reading can be evaluated and modified, whenever not in accordance with the storyline.



methodologies that have been proposed. These frameworks will strengthen self-evaluation and involve the students in the evaluation process.

- It is important to carry out an initial evaluation, another one during the activities and a final one to perceive the progress of the students.

TEACHING PLAN

DEVELOPMENT

Getting to know Kai

Before completing the descriptions, it is important for students to understand the need to include not only physical features, but also features related with personality, the emotions, and the feelings of the person.

In relation with those aspects, you can explain that descriptions of people are different in accordance with the content that is included.

- Personal appearance: physical features.
- Moral profile: character and feelings.
- Portraiture: physical features, character and feelings.

The next step is to invite the students to apply what they have learnt and to draw a portrait of Kai. To do so, pin an A3 size poster of Kai to a noticeboard or the blackboard so that all the details can easily be well appreciated and hand out various post-its to each student. You can in this way use two colors to differentiate the internal and the external features, which will help you to check understanding of both concepts.

Each student must write a word on the post-it that describes Kai in the mind of that student, being able to accompany it with a drawing. Once you have it ready, stick it around the poster.

You can ask questions to help them think such as:

- Is she blonde? Is she a brunette? Is she a redhead?
- Are you young or old?
- Are you happy? Is he sad? Is she angry?

NOTE: Preparing a scheme of the principal differences will help to consolidate the concepts, at the same time as providing visual support during the activity.





It is important to try not to repeat words and to involve all students in the exercise, using words within a lexical range that they already know or can enlarge with the help of a dictionary.

When the students have stuck at least one post-it, it is a good idea to read over all the words, once again to emphasize the differences between the physical features and the character descriptions.

On the other hand, the activity can be focused on working each sort of personal description in an isolated way. In this case, the task could be to include or only to read the words of each category.

NOTE: You can also perform the activity by completing a form that will include a description of the physique and personality that will be completed with a drawing of the person described. In addition, to work the artistic skills students can create figures of the mermaids using recycling materials such as rolls of toilet paper.

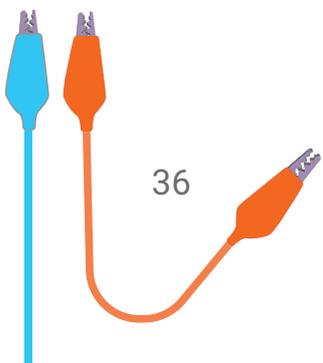
People description

Physical traits	Drawing	Personality traits



5th-year primary-school student: "I liked it a lot, it's a different way of describing things."

3rd-year primary-student: "Using post-its was real fun."



NOTE: The reading of the book does not have to be done in a single session, but can be divided up to cover various classes. In this way, the related activities can continue to be interspersed with each part of the story (see the After Reading section), which will help the students to understand the links and the contextualization of the different parts better.

In addition, before returning to the reading, a few minutes must be dedicated to asking questions, performing dramatizations or jointly preparing summaries. What was previously read can be reviewed with them, going over the key words and the most relevant events and making deductions about what is going to happen.

2nd-year primary-school student: "The story seemed very funny to me and was a very entertaining way of learning new content".

5th-year primary-school student: "It seemed very funny and amusing. It was a topic that I really liked a lot".

4th-year primary-school student: "The topic seemed like good fun to me, and a way of learning with games and different activities that we were doing with the topic. My opinion is... I liked it".

During the reading

Preparation

During the reading of the book, it is important to create a calm and relaxed atmosphere that lends itself to paying attention, listening and enjoying the story. In addition, it has to be remembered that all the students must be able to see the book, for which reason sitting on the floor in a semi-circle is the ideal arrangement.

With regard to the materials, you must have all those resources that you are going to use within reach, to avoid losing time and above all so as not to distract your students. It is likewise recommendable to have read the book beforehand, so that you are familiar with its content and its learning possibilities.

With this information and taking into account the characteristics of your students, a plan that will guide you during the reading can be drawn up. In this way, you will know which questions to ask, where to place the emphasis and at which times it is necessary to pause and to clarify some concept or event.

Implementation in the classroom

Activity 8. Storytelling

During the reading, remember that it is important that students show their interest, are attentive and participate in the dynamic. Some routines, dynamics and strategies are presented that will help you to achieve it.

PREPARATION

TIMING

- 2-3 minutes to introduce the book, analyzing the cover, describing the lead character ...
- 20 minutes for reading.
- 5 minutes for the final reflection.



MATERIALS

The book to be read is *Guardians of the Sea* and the materials that you need for the dynamic exercises to capture student attention.

CONNECTION WITH FAMILIES

- Send regular newsletters to the families detailing student progress and learning.
- Encourage family members to reinforce the activities within the classroom at home, which can stimulate curiosity and exploration.
- Prepare a folder with activities and proposals to work on at weekends.

TEACHING PLAN

DEVELOPMENT

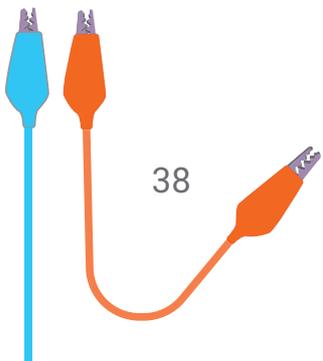
You can return once again to the cover of the book, in order to present the book, reviewing the title and the author on the cover. You can also ask the students for a brief description of Aba, recalling physical and psychological aspects.

Once you start reading, you must bear in mind various points. In the first place, try to show the book at all times, so that the students observe the illustrations, which will help to understand the oral text.

With regard to oral expression, you have to lend attention to pronunciation and modulation of the voice. It is important to stress and to emphasize those words and expressions that are the most important for the story and for subsequent activities. You can, once again, resort to gestures and facial expressions.

On the other hand, it is important to ask questions throughout the reading. You can bring students to reflect on what is going to happen afterwards. They will, in this way, make hypotheses and predictions, practicing syntactic structures and grammar in the corresponding foreign language.

NOTE: You can partially change the text of the book, using simpler structures and include concepts and key words related with the topic, which appear at other points in the original story.



Likewise, with the objective of dynamizing the reading and making it more participative, invite the students to make gestures, complete phrases or expressions that regularly crop up throughout the reading and that they might know ...

In addition, you can include dynamics to consolidate key vocabulary and to encourage active listening among the students. For example, using cards in which words and images relate a concept. One can be handed out to each student, who every time the same word is heard, has to stand up. In this activity, it is recommendable to set a word so that all the students stand up when it is said, achieving a feeling of unity and group cohesion.

NOTE: You can glue the cards to wooden lollipop sticks to facilitate their use. Try to make the drawings visual and simple. Repeat the words a lot to ensure they are reinforced.

Finally, having finished the reading it is important to stimulate reflection, take time to go over the most important moments and to emphasize those situations that will be basis of the following activities. Do not forget to propose questions on whether they liked or did not like the reading, which has been your favorite part or whether they would recommend the book to their friends.





After reading

Preparation

The reading of the book will include various activities with which to work numerous concepts, contents and procedures from different disciplines.

Establishing relations between the story in the book and what was worked in each activity or exercise is important. Doing so will make it much easier for the students to connect and to interrelate what is learnt, at the same time as giving them an important role when reading.

In the same way as with the episodes previously pointed out, you must create a relaxed, participative environment that motivates and interests the students. In addition, as you already know, it is recommendable that you have all the materials and the resources within reach that you will need for each situation. Likewise, drawing up a plan will help you to reach all your objectives and to use the available time to the utmost.

NOTE: Leaving the book in the reading corner, the students can go over to it whenever they may need to read it.

Implementation in the classroom

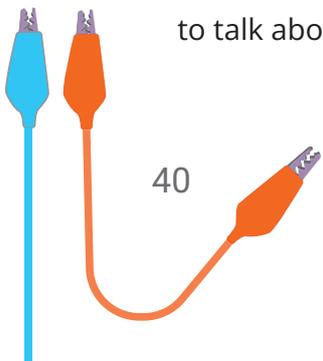
Activity 9. Journey to the interior of the story

All stories have some parts that characterize them. Inquiring into the characters, the scenography and the succession of events can be a way of reviewing what has been read, confirming whether the story has been understood and at the same time, establishing a generic foundation that will help the students to create their own stories with coherence and correction. It is important that the whole process is guided with questions that favor reflection with reasoned proposal.

PREPARATION

TIMING

- 8-10 minutes to introduce the components of the story and to talk about them.



- 15 minutes to complete a mental map.
- 5 minutes to reflect on the activity.

MATERIALS

- Photocopies with schemes of the mental map to be completed.
- Pencils, pens, paints, etc.
- And if possible: digital device with an internet connection.

CONNECTION WITH THE UNITED NATIONS SUSTAINABILITY DEVELOPMENT GOALS

- Propose activities for inquiry and exploration that strengthen the awareness of students and their responsibility for a better planet.
- Play the videos that show the students what the actual situation of the planet is and what the relevance of the SDGs is.

TEACHING PLAN

DEVELOPMENT

The structure of a story

The Pencils-in-the-center technique can be used to approach the structure of the story, in this way, split into groups of 4 to 5 students, the students talk for a few minutes about what they consider are the shared aspects of all the stories. Once that time has elapsed, each individual member will write a proposal. Subsequently, they all share their material in the group and they reach a consensus.

The mental map

After getting to know the principal elements, you can suggest that the students complete a mental map, in other words, a scheme in

3rd-year primary-school student: "I liked the topic a lot, although it lasted quite a long time and it was, at first, more difficult than other projects. It was very funny and the activities were very good for learning what the stories were like".

NOTE: You can use visual aids to help the students to recall all the elements and their characteristics.



which all the characteristics will be included, relating them with the book that has been read.

You can ask questions to help them in the process such as:

- What is the beginning of the story? What is the outcome? And the end?
- Who is the leading character? And the secondary characters? What do like about them?
- Who is your favorite character? Why?
- Where does the story take place?
- Is there any problem in the story? If so, how is it resolved?
- What do you think of the end? Do you like it? Would you change anything? What?
- Is there a relation between the beginning and the end?

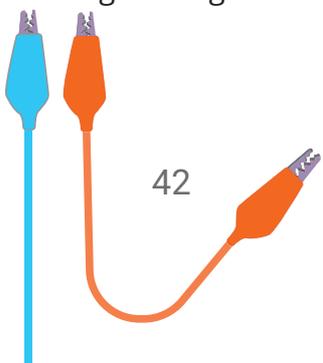
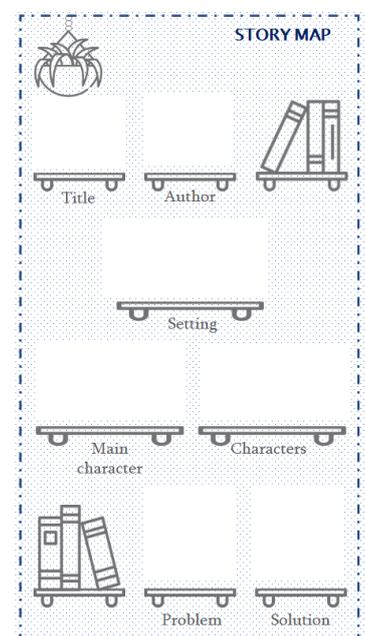
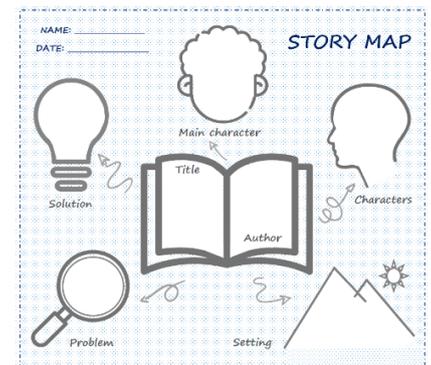
Each student can complete a mental map or, if preferred, can draw it in small groups. A guided proposal of a mental map is shown here in which the students only have to complete specific information from the book, nevertheless, you can invite them to draw the template as well, thereby strengthening creativity and independence.

On the other hand, if you have digital devices, you can use the Mindomo application, thereby working on digital skills.

Talking about and discussing the maps are recommendable to draw the activity to a close, incentivizing reasoning and presentation. It is important that the students are shown the importance of summarizing and organizing the information in a visual and piece-by-piece approach. This process will help to summarize the topic under study and in general to understand the texts better.

Activity 10. The disordered story

In the same way as it was important to know each part of the story, the students also have to be capable of sequencing the events and acts that take place in them. This organization will help you once again to go over the text that was read and to improve student



NOTE: The activity can be done both in an individual manner and in small-sized groups. In addition, it can be developed during the reading or as a method of correction.

understanding at the same time as reinforcing the concepts and ideas related with matter and its states and changes.

PREPARATION

TIMING

- 15 minutes to write out and complete the photocopied worksheets.
- 5 minutes to share the proposals.

MATERIALS

- Reading book.
- Pictures of parts of the story.
- Photocopies to complete the sequence of events.
- Pencils, pens, paints.

CONNECTION WITH THE RESPONSIBLE CITIZENSHIP

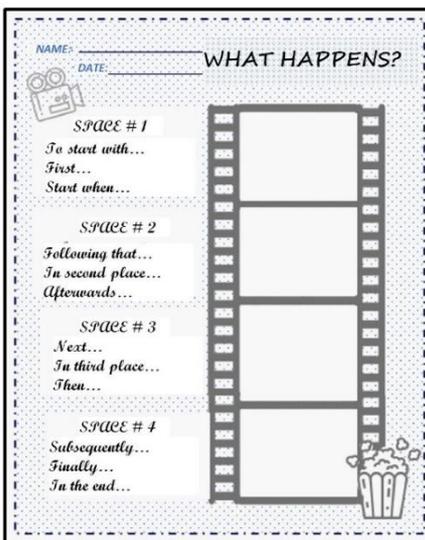
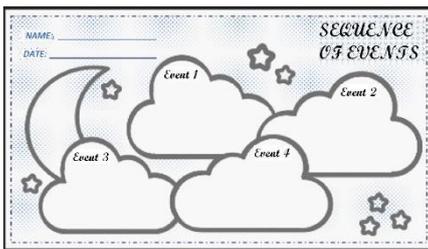
- Remind the students of the importance of respecting the norms of conviviality, in the school environment and family and social life.
- Use debates and role plays to present reality-based situations that raise student awareness, in relation to their responsibility for improving their physical and social environment. Ask them to propose actions to solve or to improve those situations.
- Set out visits and programs of shared events with local associations, so that the students collaborate in the search for solutions within their real environment.

TEACHING PLAN

DEVELOPMENT

Ordering history

It is recommendable for the students to try to follow the temporal sequence, which will facilitate recording all the information without forgetting any aspect of importance.



- Organize the students into heterogeneous groups in which they can develop their own capabilities and experience the possibility of helping their companions to develop both academically and personally.

TEACHING PLAN

DEVELOPMENT

We are set designers

Introducing students to the audiovisual world, explain that they are going to create a *freeze frame*. That is, they will stage a specific moment of the book and take photographs of it, as if they were the frames that make up a video. To do this, first of all, they must select the scene they want to represent, trying to make it a specific and relevant action of the story.

Then, in a collaborative way, each working group must determine the positions and functions of each of the team members, their location in the space, the sets they want to use, the expressions and gestures they have to perform... It is important that they keep in mind that since it is not a video in which they are going to talk or move, non-verbal language is of vital importance.

Once the organization is established and all the decoration is prepared, each group will take the photographs of their proposals and share them with the rest of the class, explaining the selected moment, the reason for said selection and how the process has been until reaching the final result, focusing on the problems and how they have been solved.

Activity 12. Plastic hunters

Linking the contents of the classroom to the natural environment is fundamental, so that students connect their learning to the surrounding reality. Strengthening this relation will help them to understand the concepts better and to convert them into lasting knowledge over time. In this sense, the student can reflect on how present plastics are in their day to day, what their characteristics are and what they are used for.

NOTE: In the following link you will find more specific information about freeze frames for teachers.

<https://dramaresource.com/freeze-frames/>

NOTE: The photographs can be printed and exhibited as an art gallery in the corridor of the center or in a space where the rest of the students, teachers and families can see them. In addition, each group can write a brief description, which will also work on written expression.

NOTE: It is important to begin with the previous knowledge of the students, so that they learn the phases and can relate them with the changes of state, in case they are unfamiliar with the water-cycle process. The activities relating to singing, dancing and rhythm will be perfect for this purpose.



Linking the contents of the classroom to natural reality is essential for students to connect their learning with the reality that surrounds them. Enhancing this relationship will help you to better understand the concepts and turn the contents into lasting knowledge over time.

PREPARATION

TIMING

- 5-7 minutes to observe, analyze and discuss what happens in the book.
- 10 minutes to create a plastics board.
- 5 minutes to comment on the proposals and influence the content.
- 10 minutes to classify the plastics.
- 5 minutes to share the proposals.

MATERIALS

- The reading book.
- Pens, paintings, pencils.
- Photocopies.

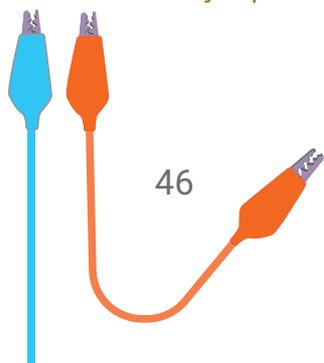
CONNECTION WITH GENDER QUESTIONS

- Remember to incentivize student participation and motivation. Use positive language and reinforcement.
- Encourage students to participate during the classes and to assume responsibilities within the dynamics of the classroom.
- Create heterogeneous groupings organizing rotating roles in which the students and their companions have specific responsibilities.
- Include figures with female references in the explanations. Highlight their relevance and their involvement in their work.

TEACHING PLAN

DEVELOPMENT

The hunt for plastic



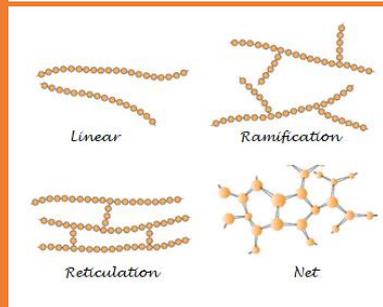
Student of 6th EPO: "I found it very interesting because it has been a different way of learning, there should be more topics like this because it helps us learn vocabulary in a different way."

NOTE: Make students reflect on all the plastics of their day to day, not only the containers, but also utensils such as toothbrushes, pens or even the polyester of clothes. They can complete a table like the one proposed in the photocopy.

The plastic hunt

Characteristics	Utility	Problems

NOTE: You can use visual supports to facilitate the understanding of the students.



NOTE: If you want to encourage the research work and reflective thinking of your students you can develop the activity through the flipped classroom methodology. This learning modality proposes that students prepare the theoretical part at home to allocate classroom time to inquire, reflect and debate on the information exposed.

NOTE: To boost the activity you can divide the class into groups and rotate the sheets, so that each group adds its contributions to the proposals of the others. In this way, all students will learn and enrich themselves together, which will contribute to improving the group climate.

As mentioned, it is important to start from the reading book. Have students remember what happens in the story, emphasizing what happens when turtles or sharks get trapped in abandoned plastic nets.

- Why are there plastics in the sea? What could be done to avoid them?
- Why are so many plastics used? What advantages do they have? And drawbacks?

From the answers to these questions invites the students to create a table in which they indicate the main characteristics, usefulness and problems produced by plastics. Once all the students, either individually or in groups, have completed the activity, invite them to share their proposals and add those of their classmates that are interesting to them.

Classifying plastics

Once we know the plastics that surround us, it introduces the concept of polymer, its characteristics, the types that exist and some everyday examples, allowing the students to complete the explanation with their own contributions and doubts.

Taking this data into account, it invites students to classify as natural or synthetic polymers the plastics of the previously completed table. In addition, they can include new examples or drawings that enrich the final result.

Activity 13. Discovering different plastics

The analysis of the reality that surrounds the students will generate in them new knowledge that will enhance curiosity and intrigue for new questions. This analysis must occur in any everyday aspect, such as observing that the same number does not appear in the shampoo bottle as in the water bottles.

PREPARATION

TIMING

- 5-7 minutes to observe different containers and notice the differences.



- 10 minutes to sort the packages by numbers and describe their characteristics.
- 15 minutes to complete a descriptive table.
- 5 minutes to share the proposals.

MATERIALS

- Envases and plastic containers: water bottles, CD's, takeaway food containers, yogurt glasses, gloves, shampoo bottles, detergents, milk bottles...
- Pens, paintings, pencils.
- Photocopies.

CONNECTION WITH THE RESPONSIBLE CITIZENSHIP

- Remind the students of the importance of respecting the norms of conviviality, in the school environment and family and social life.
- Use debates and role plays to present reality-based situations that raise student awareness, in relation to their responsibility for improving their physical and social environment. Ask them to propose actions to solve or to improve those situations.
- Set out visits and programs of shared events with local associations, so that the students collaborate in the search for solutions within their real environment.

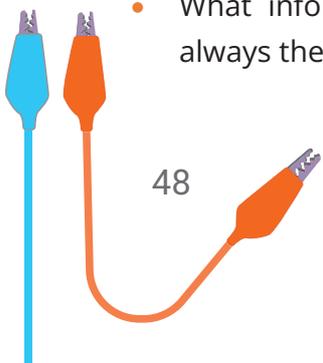
TEACHING PLAN

DEVELOPMENT

Researching plastics

To enhance learning by discovery, invite students to sit on the floor forming a circle, in the middle of which you will place all the containers and plastics that you have previously selected. For a few minutes it allows students to manipulate, observe and analyze the materials, converse with each other and reflect on the information that appears in them.

- What information appears on the packaging itself? Is it always the same? How is it similar? How is it different?



NOTE: It is recommended that in the classroom there is a wide variety of plastics that your students can handle. Make sure there are examples of all plastic classification numbers and that these examples are familiar to your students.

NOTE: To make it easier for students to focus on plastic information and not be distracted by product-specific information, it is recommended that you previously remove labels or stickers.

NOTE: You can show students a poster with a table showing the types of plastics classified and a brief description that includes the ease or difficulty of recycling. However, if you want to encourage their critical thinking, information synthesis and search and analysis capacity, you can invite them to search the internet for the data they need to verify their hypotheses.

TYPES OF PLASTICS ACCORDING TO THEIR NUMERICAL CLASSIFICATION						
PET Polyethylene terephthalate	PE-HD High-density polyethylene	PVC Polyvinyl chloride	PE-LD Low-density polyethylene	PP Polypropylene	PS Polystyrene	Biodegradable A and others
Made easier to recycle by high temperatures and softening under heat.	Plastic, made to recycle, but possible to impact, chemical and temperature.	Difficult plastic, but possible to recycle. It has high resistance and a low density.	Difficult plastic, but possible to recycle. It has high resistance and is easy to melt.	Difficult plastic, but possible to recycle. It is very resistant and easy to melt.	Difficult plastic, but possible to recycle. It has high resistance and is easy to melt.	Made very complicated to recycle. It has layers with different types of chemical structures.

- Do all containers with the same information have the same characteristics? What are they?

After that time, he engages in a debate in which all students can participate and share their deductions. It raises questions that guide their thinking until they reach the conclusion that there are different types of plastics, with different characteristics and that therefore they have associated numbers ranging from 1 to 7.

Next, invite them to classify the products, for this you can form small groups and associate a certain number with them. Each one must collect all the containers of that number and describe the characteristics they perceive when touching, handling and observing it in depth. They can then contrast their predictions with the information you provide.

We analyze our plastic environment

Once they are clear about the characteristics, invite the students to look around and create a table like the one proposed here in which they include at least one example of each type, filling in the data indicated, such as plastic properties, use and recycling. To complete the activity you can ask him to cut the labels with the numbers and paste them on the photocopy.

NOTE: As a result of its proposals, it invites students to reflect on the daily consumption of plastic.

- Do you think you consume a lot of plastic? Do you recycle it? What measures does the rest of the community put in place?
- How do you think it affects marine animals that there are traces of plastic in the water? What about plants? What about humans?

TYPES OF PLASTICS							
	PET	PE-HD	PVC	PE-LD	PP	PS	O
Name							
Use							
Plastic properties							
Recycling							
Expense							

Activity 14. Is it a paradise?

The use of images during the teaching activity improves the understanding and retention of the contents in the students. They also provide information that cannot be transmitted verbally, while evoking experiences, emotions and memories that help students connect with new learning.

PREPARATION

TIMING

- 10 minutes to observe two images, analyze them and compare them with each other.
- 5 minutes to view a video and comment on it.



- 10 minutes to analyze what happens in the story and its similarities / differences with what is seen in the real images and in the video.

MATERIALS

- Reading book.
- Various images of natural landscapes and islands of plastic or waste in the sea.
- Everything you need to project the image and audio of the video The five plastic islands that stain the ocean and no country wants to clean. <https://youtu.be/hoD3ghHhqq8>

CONNECTION WITH DIGITAL WORLD

- Create a blog with restricted access in which there are curiosities on the topics that are worked, proposals for additional activities and reinforcement exercises.
- Use digital platforms such as Padlet to strengthen the debate and the divulgation of ideas and opinions among the students.
- Strengthen the search for information in digital sources. It is fundamental to emphasize the importance of comparing data.
- Work on the positive aspects (sustainability, agility, etc.), but also on the negative aspects of the networks (cyber bullying, digital dependency, identity phishing, etc.) and propose, together with families, simple actions to minimize them.

TEACHING PLAN

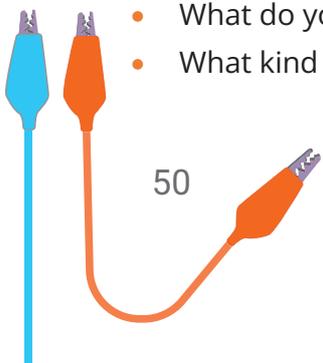
DEVELOPMENT

Analyzing the reality

Show students an image of a paradisiacal place like a tropical island and ask them questions that make them reflect on that environment and the sensations / emotions it transmits.

- What do you see in the picture? Can you describe it?
- What kind of landscape is it? Where can it be located? Why?

NOTE: It is important that both images show natural environments in which no human alterations appear, except for marine debris.



- How does it make you feel? In what more places do you feel this way?
- Would you like to go there on holiday? Why?

Then show him an image in which plastics appear floating in the sea or some kind of waste. It raises questions similar to those asked previously and allows students to talk and debate.

He then invites students to compare the two images in detail, emphasizing what may have happened to get to the second image.

- What happened? Who can be responsible? Why did he do it?
- Do you think it's an isolated or common problem? Why? What consequences can it have in the short term? And in the long term?
- What can be done to fix it? Who should do it?
- What steps can be taken to prevent it from happening again? What can you do?

With the answers to these questions, it tries to encourage reflection and awareness of students. It is important that you are aware of the gravity of the situation and the repercussions it may have. To this end you can project the video The five plastic islands that stain the ocean and no country wants to clean. <https://youtu.be/hoD3ghHhqq8>.

From reality to the book and viceversa

Once the situation in the real world has been analyzed, it invites students to return to the book, in this way they will better understand the connection of their learning with reading. Specifically, it goes back in history to the moment in which several birds are seen by Triton...

- What happens at that time? Can you describe the scene?
- Why is Triton surprised?
- What happens to birds? What consequences can it have for them?



Activity 15. Plastics researchers

The search for information constitutes an educational strategy that contributes to the development of skills such as the ability to synthesize, the expansion of the lexicon and the development of written expression. On the other hand, critical thinking is encouraged, improving the ability to select that information that is useful and contrast it.

PREPARATION

TIMING

- 5 minutes to view the video and comment on it.
- 15 minutes to search for information and complete the form.
- 5 minutes to share the results.

MATERIALES

- Photocopy with the data to be filled.
- Internet connection and digital devices to search for information.
- Everything you need to project the image and audio of the video Garbage Island in the Pacific: everything you need to know. <https://youtu.be/Yd5RNwmLQ8w>

CONNECTION WITH THE RESPONSIBLE EVALUATION

- Remember to use evaluative methods and instruments that are in accordance with the proposal for the development of competences and the active and collaborative methodologies that have been proposed. These frameworks will strengthen self-evaluation and involve the students in the evaluation process.
- It is important to carry out an initial evaluation, another one during the activities and a final one to perceive the progress of the students.

NOTE: If you do not have an Internet connection, you can provide students with varied information on the subject in paper format. It is recommended that you include all kinds of data and variations in them so that it is the students who select the data they need.

NOTE: In case of carrying out the activity cooperatively you can assign to each member of the group an information or topic on which to inquire and then, through the expert group technique, establish a consensus with the entire class group.

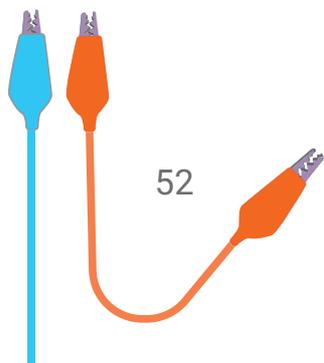
THE GREAT PACIFIC GARBAGE PATCH

Researcher's Archive:

- o Size:

- o Localization:
 - Longitude (east or west): _____
 - Latitude (north or south): _____
- o Mass:

- o What kind of plastic is the most common?



TEACHING PLAN

DEVELOPMENT

Visualizing the Pacific Garbage Island

First, it projects the video on the plastic island and allows the students to discuss and talk about the aforementioned data after its visualization.

- What do you think of the video? What surprised you the most? Why?
- Did you imagine it would be like this? Have you ever seen garbage floating in the sea? Did it look like the garbage island?
- What do you think of the method used to clean it? Do you think it's effective? Can you think of any ideas to help this work?

NOTE: In relation to the Great Pacific Garbage Patch, you can invite students to locate it on a coordinate map and search for it in the Google Earth application.

- What countries are near the garbage island? Why do you think it's there?
- When would it begin to form? Now you can see it? Why?

Note that its visualization in the application is not possible because the definition in the oceans is not enough. In addition, the island moves as a result of currents and some plastics are the size of a grain of rice, therefore, it is difficult to see them.

Completing the information

It then gives each student or work group a photocopy indicating the data to be collected. To complete the entire sheet, he reprojects the video and then allows the students to look for the information they lack or in which they want to deepen.

Once all the students or groups have all the required data, spend a few minutes to share the proposals and allow the students to complete the information.

Activity 16. Marine currents

In this activity, the students are introduced to the scientific world through the story. It is important to follow the steps that the scientists use, at least approximately, and to repeat the same structure in all the experiments. In this way, the students will know beforehand how they should organize themselves and will become familiar with operational scientific procedures.

Remember that manipulative skills are essential and offer your students the possibility of experimenting, making mistakes, and learning for themselves. Ask questions and make them reflect on each phase of the process.



PREPARATION

TIMING

- 5-7 minutes to introduce the scientific method and its phases.
- 5-7 minutes to propose, observe and to analyze what happened in the book, going so far as to propose the research hypothesis.
- 15 minutes to perform the experiment.
- 20 minutes to set out the process to follow and to discuss the events.

MATERIALS

- Glasses.
- Plastic card.
- Plate.
- Jug with cold water.
- Jug with hot water.
- Red food coloring.
- Blue food coloring.

3rd-year primary-school student:
"The topic was very interesting. The
form of working was very amusing
and educational".

2nd year primary school student: "I
enjoyed experimenting, the
sciences are easier like that and
more fun".

CONNECTION WITH FAMILIES

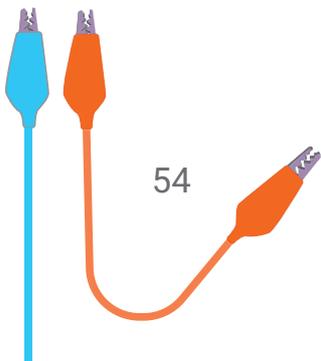
- Send regular newsletters to the families detailing student progress and learning.
- Encourage family members to reinforce the activities within the classroom at home, which can stimulate curiosity and exploration.
- Prepare a folder with activities and proposals to work on at weekends.

TEACHING PLAN

DEVELOPMENT

Inquiry into sciences

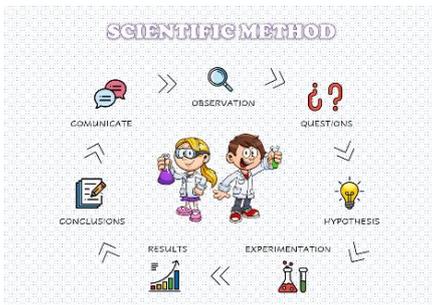
You can explain to the students when introducing the experimentation that they are in fact going to perform experiments, but to do so they have to follow the steps that scientists follow. You can raise questions that lead them to think



about this process and to deduce in a collaborative manner the different phases of the scientific method.

Having mentioned all the phases, repeat them in the corresponding order. You can play rapid repetitive games to consolidate those concepts. Songs and visual schemes can likewise be used.

Once all the phases have been mentioned, repeat them in the corresponding order. You can make quick repetition games to finish strengthening these concepts. You can also use songs or visual schemes.



Experimenting

As mentioned it is important to start from the reading book, so it will return to the moment in which Triton and Vanora find many plastic remains on the beach, posing the students questions that make them reflect on what happens and what they observe in the illustration.

- Why are there plastics on the beach? How do you think they got there?
- If Triton and Vanora don't remove them, what will happen to them?

The answers to these questions will help students define a research question: How do sea currents work?

Then, returning to the phases of the inquiry, students will know that it is necessary to formulate hypotheses: the temperature of the water influences the marine currents, causing the water to move.

Having established the research question and the hypothesis, it is time to start to experiment. To do so, divide the class into groups of four or five members who will work cooperatively and give to each group all the materials that they will need.

The experiment procedure will be divided into two phases:

Step 1

1. The glasses are filled to the brim, one with cold water and one with hot water.



2. Red dye is poured into the hot water and blue in the cold water.
3. The plastic card is placed on top of the glass with cold water, squeezing with your hand to fix it, it is turned over and placed on top of the glass with hot water.
4. Carefully move the card to let the water pass.
5. Write down and describe what happens.

Step 2

1. Steps 1 and 2 described above are repeated.
2. The plastic card is placed on top of the glass with hot water, squeezing with your hand to fix it, it is turned over and placed on top of the glass with cold water.
3. Carefully move the card to let the water pass.
4. Write down and describe what is happening.

After finishing the experiment, ask the students to summarize what has happened and write their results and conclusions.

- What happened? Why?
- Are there differences between the phases? Which ones?

Time-lapse

Return to the scientific method, to end the experiment, and remind your students of the importance of communicating conclusions, for which purpose you can create a time-lapsed video with the photos and the drawings that they have been preparing throughout the experiment.

You can ask questions to dig a little deeper into what happened.

- What has happened to the water? Why is it mixed?
- Do you know of any natural situation in which the same thing happens? What benefits does it have for ecosystems?

Activity 17. Fracturing the story

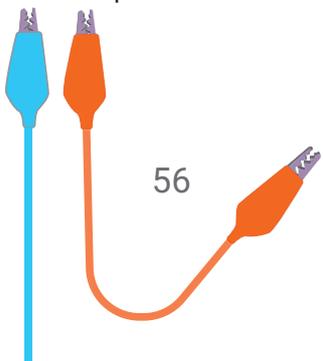
Imagination and creativity have to form part of the student development process. Progress in these skills will strengthen the capabilities of the students, preparing them to confront and to

NOTE: During the experimentation, it is important to ask questions and to give simple, concrete and sequential instructions. In this way, it will be easier for the students to follow the process properly.



3rd-year primary-school student:
"It seems to me to be a very dynamic fun project where the work is amusing and we learn English much better".

2nd-year primary-school student:
"I really liked it, because it is a different way of learning English and we played a lot of games".



resolve day-to-day problems more easily. In this sense, one proposal is that students change (fracture) the story, which will simultaneously let them go over the concepts that have previously been covered.

PREPARATION

TIMING

- 5 minutes to explain the different possibilities.
- 10 minutes to introduce the modifications.
- 5-7 minutes to share the proposals together.
- 25 minutes to invent your own story.
- 5-7 minutes to share the proposed stories together.

MATERIALS

- Photocopied worksheets with the mock-up of the comic or minibook.
- Pencils, pens, paints.

CONNECTION WITH THE UNITED NATIONS SUSTAINABILITY DEVELOPMENT GOALS

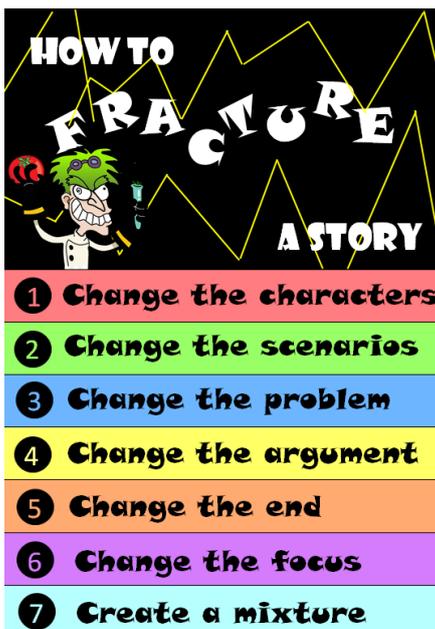
- Propose activities for inquiry and exploration that strengthen the awareness of students and their responsibility for a better planet.
- Play the videos that show the students what the actual situation of the planet is and what the relevance of the SDGs is.

TEACHING PLAN

DEVELOPMENT

Dividing up the story

Explain to the students the possible ways of fracturing a story. To do so, you can use the different parts of the story, reviewing the concepts previously worked upon and introducing them as new content (explained in depth in activity 7).





In this way, the students may select one or various elements to be modified, such as the characters, the scenery, the problem, the argument, the end, or the approach. During this process of creation, try to give very general guidelines that do not condition the development of their creativity and imagination.

It is important to remind the students that there are no incorrect responses, that all the modifications are valid provided that that they follow the rules on orthography and internal cohesion.

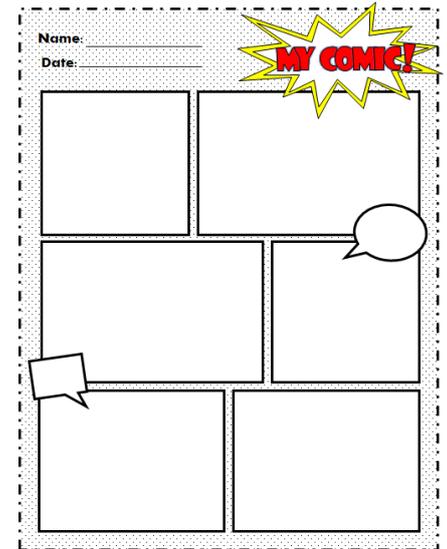
Once all the students have prepared their stories, they can be shared in the reading area of the classroom.

Creating a comic or minibook

Subsequently, based on the contributions of the students, invite them to reflect on the changes of state of different materials, because not all of them are found in a solid, liquid and gaseous state.

Invite them to work on a comic, using this template or another one of their own, in which the protagonist could be, for example, Choc, the chocolate traveler.

Another option, will be to create a minibook in which the design of the text will be similar to the comic when divided into comic strips, helping the students to structure their story and reflect it through drawings and illustrations.



4th EPO student: "I liked the activity because it explains the problem of plastic, for people who are bored so they won't be so bored."

Activity 18. Let's make Art!

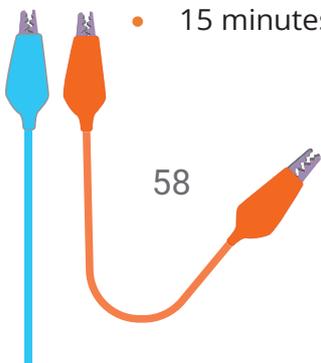
The completion of artistic activities is fundamental for working transversal aspects and capabilities such as creativity, concentration, coordination and fine motor skills, among others.

These sorts of activities do not have to be completed alone in the area of artistic education, but can be included in other areas to work the contents.

PREPARACIÓN

TIMING

- 15 minutes to search for the information to include.



- 10 minutes to share the ideas and make the design.
- 20 minutes to build the proposed design.
- 10 minutes to share the productions and explain them to the class.

NOTE: Allow each group to develop their own ideas, although you can show them some models that will serve as inspiration. Students should know that they do not have to copy that poster.



MATERIALS

- Pencil, rubber, markers, paints, brushes.
- Cardboard, recycled materials, images, drawings, stickers...
- Scissors, glue, ruler.

CONNECTION WITH RESPONSIBLE CITIZENSHIP

- Remind the students of the importance of respecting the norms of conviviality, in the school environment and family and social life.
- Use debates and role plays to present reality-based situations that raise student awareness, in relation to their responsibility for improving their physical and social environment. Ask them to propose actions to solve or to improve those situations.
- Set out visits and programs of shared events with local associations, so that the students collaborate in the search for solutions within their real environment.

TEACHING PLAN

DEVELOPMENT

We become artists

Divide students into small groups and explain what they should include in their poster. You need to tell them some basic and essential information that you necessarily want to appear, such as data on the amount of plastics in the oceans, the number of species that are affected by the pollution of the seas or ways to reduce marine pollution. However, it is also important that students have the freedom to inquire and include other data that are curious and of interest to them.



Some videos like the ones proposed here can help you:

- Here is all the plastic garbage that the Earth is throwing away–National Geographic.

<https://youtu.be/WhEERNrvDjl>

- How Plastic Waste Affects Animals in the Ocean.

<https://youtu.be/h9Lw2wpZEwE>

- What you don't know about plastic in the oceans.

https://youtu.be/tAK_YfnKkk

Taking into account these requirements, the students will propose ideas and designs that they will then create. You have to remind them to cooperate, work as a team and be respectful of their colleagues.

We explain our creations

When all groups have completed their creations, invite them to expose their peers to the process they have followed to build their design, as well as the data collected and proposals to reduce plastic consumption. Reassure them that they can ask questions of their peers.

Activity 19. The plastics of my life

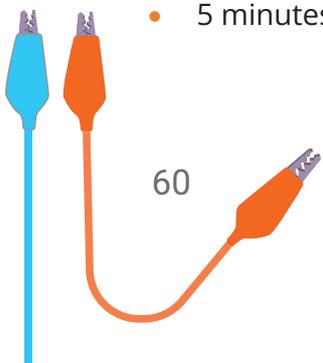
The process of reflection is fundamental to analyze our realization and know what we want to achieve, to know if it is possible and to know how we can achieve it. Thus, the setting of goals and objectives acquires great importance. In this sense, students should reflect on the products they use daily and how their excessive consumption detrimentally influences the natural development of the planet.

PREPARATION

TIMING

- 10 minutes to reflect and predict the daily use of plastics.
- 20 minutes to collect the information and create the graphics.
- 5 minutes to read and comment on real news.

NOTE: Making the graphics with the Microsoft Excel program will facilitate the students their editing and modification, being able to understand in a simpler way how the visualization of the bars is altered when changing the data of the corresponding table.



- 20 minutes to research and create graphs on the half-life of plastics.

MATERIALS

- Pencil, rubber, markers.
- Paper or digital device to make the graphics.
- Internet connection and digital device to project the news.

CONNECTION WITH INCLUSION

- Actively promote respect for student diversity.
- Identify possible (physical, social, cultural) barriers and take them into account when organizing the class.
- Offer the same opportunities to everyone, but move away from uniformity; the methodologies that we propose in this project will help you with this goal.
- Organize the students into heterogeneous groups in which they can develop their own capabilities and experience the possibility of helping their companions to develop both academically and personally.

TEACHING PLAN

DEVELOPMENT

How much plastic do we use?

NOTE: You can mention other types of charts and point out what each of them is used for. It is interesting to carry out the transformations from one to another, for example, from one bar chart to another of sectors, to show the students how the only thing that changes is the way in which it is visualized. For this type of explanation it is convenient to use digital applications such as Microsoft Excel.

Divide students into small groups and explain to them that they have to think about how much plastic they use each day, making predictions about the products and the quantities used. It is important to specify the activities to be analyzed, such as: food preparation, hygiene and travel.

Next, invite them to share their predictions and modify them if necessary. Remind them to respect speaking times and communicate respectfully.

Once the predictions are finished, it is time to check if they are true or not. To do this, it invites the students to write down, throughout a whole day, the utensils, products or all those plastics that they use.



You must remind them that all the data collected should be organized and exposed in a clear and simple way, leaving them free to investigate and decide what is the best way to do it.

Next, it will be time to visualize more clearly in which aspects the consumption of plastic is greater. To do this, it introduces the concept of a bar chart. It is important that you address the parts of it, establishing the differences between rows and columns, raises numerous examples and allows students to make their own contributions and questions.

Plastic News

Once students are a little more aware of the amounts they use, invite them to reflect on what these amounts will be like globally. Before giving you concrete data, allow students to talk to each other for a few minutes and present their opinions.

How long does a plastic live?

Once the data and the current situation are known, he invites the students to return to the book.

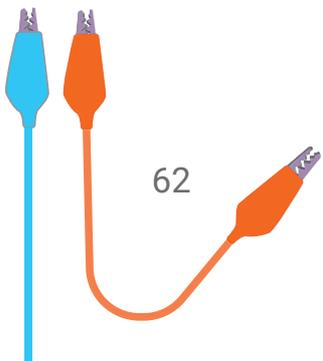
- Do plastics spend a lot of time at sea? How many years does it take until they biodegrade?
- Do all plastics take the same time? Why?

From the answers to these questions it allows students to create their own predictions about the half-life of at least four different types of plastic (they can remember them by going back to activity 14). Then they will look for information with which to contrast those initial hypotheses and create a bar graph in which the half-life of the selected plastics is exposed.

You can use the colors of the classification and include drawings that facilitate the visual understanding of the information.

Finally, invite students to discuss the impact of these figures. Ask them about what alternatives they can use to reduce their daily consumption of plastic, for which they can create a table following the areas of action initially established: food preparation, hygiene and travel.

NOTE: To boost the activity you can give each group a different news and that after reading, understanding and analyzing expose to the rest of the class, in a synthetic way and with their own words, what is mentioned in it.



Activity 20. Engineering power

In this activity, you will introduce the students to engineering design, a didactic method that brings the prototype design process to the classroom.

NOTE: The experiments will address three ways to create bioplastics: starch-based, gelatin-based, and tea-based. The organization of all of them coincides with that explained in this activity.

It is important to follow all the steps that have been established, connecting the learning and reflecting on the process that has been completed.

Remember that it is essential that they use their hands and offer your students the possibility of experimenting, making mistakes, and learning for themselves. Ask them questions and make them reflect on each phase of the process.

PREPARATION

TIMING

- 5-7 minutes to introduce the engineering design method.
- 5-7 minutes to raise the problem and the design to be made.
- The time of the experiment will be variable in each of the types of bioplastic.
- 15 minutes to present the process carried out and discuss what happened.

MATERIALS

Gelatin-based bioplastic:

- 240 ml of cold water.
- 48 g gelatin.
- 12 g glycerol.

CONNECTION WITH GENDER QUESTIONS

- Remember to incentivize student participation and motivation. Use positive language and reinforcement.
- Encourage students to participate during the classes and to assume responsibilities within the dynamics of the classroom.



- Create heterogeneous groupings organizing rotating roles in which the students and their companions have specific responsibilities.
- Include figures with female references in the explanations. Highlight their relevance and their involvement in their work.

TEACHING PLAN

DEVELOPMENT

The design of engineering

Explain to the students that they are going to design a prototype, but to do so they have to follow the engineering design steps. You can ask them questions that will help them to think about that process and in collaboration work out the different phases of the scientific method.

- When someone wishes to construct or to create something, what is the first step? And afterwards?
- Once an initial design has been constructed, what does the person do?

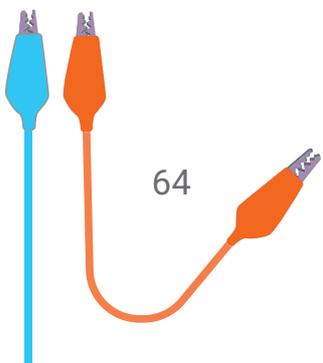
Once all the phases have been mentioned, repeat them in the corresponding order. You can complete rapid repetition games to complete the consolidation of those concepts. Likewise, you can use songs or visual schemes.

- When someone wants to build or create something new, what's the first thing they do? And then?
- Once you have a first design already built, what do you do?

Once all the phases have been mentioned, repeat them in the corresponding order. You can make quick repetition games to finish strengthening these concepts. You can also use songs or visual schemes.

Experimenting

As mentioned it is important to start from the reading book, so it will return to the moment in which the sirens order the garbage, posing the students questions that make them reflect on how



biodegradable bioplastics can be created that do not pollute the planet.

- What do you want to achieve? What ingredients do you need?
- What are the next steps?

The answers to these questions will help students define a research problem: How can a biodegradable bioplastic be created?

Then, divide the class into groups of four or five members who will work cooperatively and resuming the phases of engineering design students will know that it is necessary to imagine, plan and design the product you want to achieve. They will need to take into account the ingredients and utensils they need, as well as the procedure they need to follow.

To do this, invite them to brainstorm the type of bioplastic, letting them share their preferences and opinions about it.

Once a plan is established, it's time to start experimenting. It delivers to each group all those materials that they will need according to their plan, as well as a sequence of images with the phases of the process disordered, which must be ordered following the ordinal numbers that appear in them.

The experiment procedure, which is explained below, will allow you to work on the count and measurement scales and how they are used.

1. Mix the cold water and gelatin in a bowl.
2. Heat the mixture over low heat.
3. When liquid and uniform, add the glycerol and continue stirring on the fire.
4. Pour the mixture into a glass or aluminum mold with the desired shape.
5. Let dry for a week and unmold.

After completing the experiment, it invites students to evaluate the different recipes, which is a fundamental process of engineering design. To help each other and more easily visualize the differences

NOTE: If bioplastics are cooked too long they tend to crack because they lose too much water. To avoid this cooking over low heat and for 10-15 min, the rest of the water evaporates during drying.

3rd EPO student: "It was a lot of fun, I loved being able to do the experiment, although I had to wait a long time to see the result."

Student of 2ºEPO: "I really liked making a plastic, it has been very easy".



and properties of each of the options, you can organize the information in a table like the one proposed here.

Taking into account these properties and those of the object to be built, students must select the procedure and recipe that best suits them.

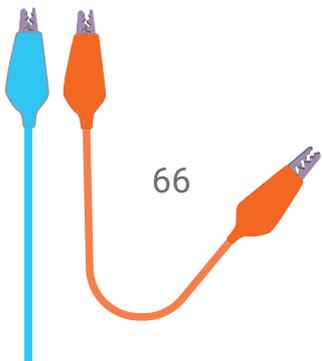
Finally, they must summarize what has happened in the experiment and explain to their colleagues the process they have followed and the result they have obtained.

- Why did they choose that kind of bioplastic? And that way? How did you get it?
- Which option did you like the most? Why is the texture different?
- Have there been disagreements? How did you reach a consensus?

<i>Properties</i>	<i>Starch</i>	<i>Gelatine</i>	<i>Tea</i>
<i>Impermeability</i>			
<i>Hardness</i>			
<i>Flexibility</i>			
<i>Elasticity</i>			
<i>Transparency</i>			
<i>Drying</i>			
<i>...</i>			

Activity 21. Letter to the author

Reading and writing are two processes that contribute to improving comprehension, reflection and concentration, while promoting the development of thought and language. Specifically, writing allows to focus attention on the information, allowing the celebrity to better evaluate the data, organizing them and building new ideas and concepts that will facilitate their memory.



PREPARATION

TIMING

- 10 minutes to read and comment on an interview with the author.
- 20 minutes to write the letter.
- 15 minutes to share the proposals.

MATERIALS AND INGREDIENTS

- Pencil, rubber, markers.
- Informative paper and poster.
- Interview with the author in paper format.

CONNECTION WITH RESPONSIBLE CITIZENSHIP

- Remind the students of the importance of respecting the norms of conviviality, in the school environment and family and social life.
- Use debates and role plays to present reality-based situations that raise student awareness, in relation to their responsibility for improving their physical and social environment. Ask them to propose actions to solve or to improve those situations.
- Set out visits and programs of shared events with local associations, so that the students collaborate in the search for solutions within their real environment.

TEACHING PLAN

DEVELOPMENT

Getting to know autor

Divide the students into groups of four or five members and give the interview to the author cut into fragments, so that they must order them as if it were a puzzle to have the full text. They have to take into account the connectors of the speech to place the paragraphs in the appropriate order, and read it to make sure that the text is coherent.

NOTE: You can find the interview at the following link.
<https://www.mundusmaris.org/index.php/es/encuentros/cientificos/2417-valu-es>

NOTE: So that the task is not too simple we recommend you copy the text of the interview all followed in a blank document and divide it into paragraphs of a similar length. In this way there will be no external elements such as drawings or shapes that make it easier to intuit the order of the text.



Once all the groups have ordered the text, invite them to read it carefully and highlight the information that they find most interesting. He mentions that they will then have to write a letter to the author, so that students can pay more attention to those data that they later want to include or about which they wish to ask.

Letter to the author

Before writing the letter, explain to the students the format they should organize them. You can show them a map as a visual support to clarify their organization, but it is important to remind them that they do not have to follow that structure strictly, but simply take into account the fundamental elements that can not be missing and how others are organized in an approximate way.

Finally, to end the activity, invite students to read aloud their essays and comment on the positive points and points to improve each contribution. It is important to make constructive criticism that contributes to learning.

Activity 22. To sing

In the same way as the rhythms of body percussion, the songs will make the teaching activity dynamic and fluid. In doing so, not only is the rhythmic part worked, but oral expression is also worked, improving intonation, pronunciation, rhythm... as well as bodily expression, completing controlled movements and facial expressions in accordance with the message that you wish to transmit.

Working these aspects at the same time as going over the content that was previously approached will be very beneficial to improve the oral expression of the students while the concepts are consolidated.

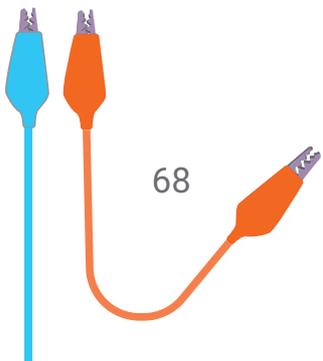
PREPARATION

TIMING

- Reproduction of the video as many times as wished.

NOTE: You can use the sandwich technique, which consists of providing negative feedback between two comments of positive feedback, that is, it begins with a compliment, continues with an aspect to improve, and ends with another compliment.

NOTE: The activity can be used as an ice breaker in the routine at different times. The more times they listen to the song, the more they will be familiar with it and, probably, the more they will participate.



MATERIALS

- Audiovisual device for playing back and listening to the video of the song.

CONNECTION WITH DIGITAL WORLD

- Create a blog with restricted access in which there are curiosities on the topics that are worked, proposals for additional activities and reinforcement exercises.
- Use digital platforms such as Padlet to strengthen the debate and the divulgation of ideas and opinions among the students.
- Strengthen the search for information in digital sources. It is fundamental to emphasize the importance of comparing data.
- Work on the positive aspects (sustainability, agility, etc.), but also on the negative aspects of the networks (cyber bullying, digital dependency, identity phishing, etc.) and propose, together with families, simple actions to minimize them.
- Include female reference figures in the explanations. Highlight their relevance and the involvement of their work.

TEACHING PLAN

DEVELOPMENT

Invite the students to get up from their chairs and randomly stand around the classroom.

Once all the students have found a place, play the video that you can find at the following link <https://youtu.be/AOvcW8l3RzE>. During the singing, invite the students to participate, singing those parts that they know and inventing a dance in harmony with the lyrics.

It is important that you also intervene, singing and dancing. Remember that you move around the classroom and that they must not imitate you, everyone has their own style and can freely move around provided they show respect and education.

2nd-year primary-school student: "I really liked it a lot, we have learnt the vocabulary that we never knew before".





Activity 23. It's time to act!

The recycling of products is essential to avoid the need to continue with their production, especially when it comes to non-biodegradable material, such as many plastics. In this sense, students will learn to give a second life to utensils and containers that they initially considered garbage to create a new, useful and reusable product.

PREPARATION

TIMING

- 10 minutes to go back to the book and reflect on recycling.
- 40 minutes to think, design and create new products.
- 5 minutes to share your proposals.

MATERIALS AND INGREDIENTS

- Recycled materials: plastic bottles, toilet paper rolls, bottle caps...
- Paints, markers, pencils, scissors, glue...
- Reading book.

CONNECTION WITH EVALUATION

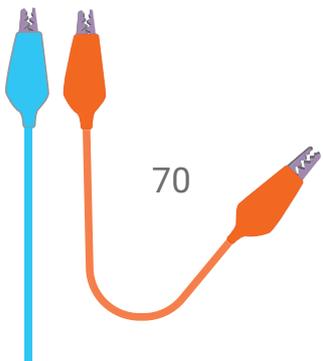
- Remember to use evaluative methods and instruments that are in accordance with the proposal for the development of competences and the active and collaborative methodologies that have been proposed. These frameworks will strengthen self-evaluation and involve the students in the evaluation process.
- It is important to carry out an initial evaluation, another one during the activities and a final one to perceive the progress of the students.

TEACHING PLAN

DEVELOPMENT

Reflecting on the story

Returning to the reading book, you will go back to the moment when Triton and Vanora build a raft with the plastic remains they



have been finding on the beach. It asks students questions that make them reflect on the importance of recycling and what materials they believe can be recycled.

- What is recycling? Why is it so important? Can everything be recycled? Why?
- What can be created with recycled materials? It's easy?
- Why aren't more products recycled? Do you recycle at home? And at school?

Building with recycling

Once they understand the importance of reusing and recycling materials, he invites students to make different crafts: pots made with plastic bottles, piggy banks designed from balloons and eggs, magazines that become wallets, caps that can be stamps, robots built with rolls of toilet paper ... There are many options that can be found on pages such as Pinterest, where looking for "recycled crafts" these and many other ideas appear.

Next, the creation of musical instruments is proposed:

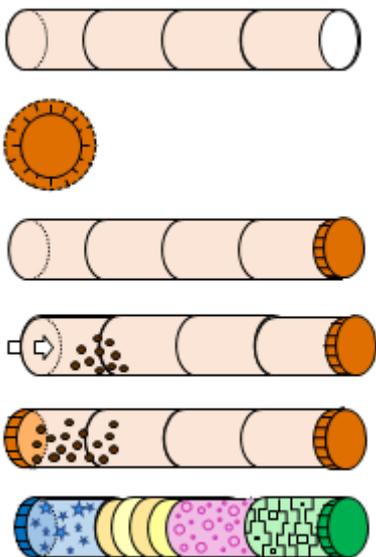
With recycled materials and everyday use, a rain stick will be built that recalls the sound of this phenomenon.

Materials:

- Toilet or kitchen paper rolls.
- Cardboard.
- Adhesive tape.
- Glue.
- Legumes such as lentils or rice.
- Material to decorate.
- Pencil and scissors.

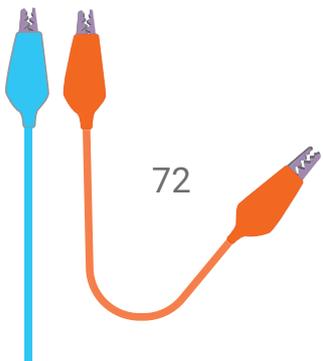
Procedure:

1. Join several rolls with the adhesive tape, obtaining a long tube so that the sound is better appreciated.
2. Trace the diameter of the end of the tube to the cardboard. Draw some tabs around it and cut it out. Repeat this process twice.





3. Glue one of the cutouts to one end of the tube and reserve the other trim.
4. Put a handful of legumes in the tube, cover the open end with your hand, move the tube and decide if you want to add more legumes until it sounds the way you want.
5. Paste the cutout you had reserved and check how it sounds.
6. Decorate your rain stick as you like: watercolor, paper mache, threads, stickers...



Evaluation

Preparation

Evaluation is a fundamental tool in the teaching-learning process. It has to be integrated in the daily activities of the classroom, because that is the only way it will be turned into a reference point for correcting and improving the educational process.

It is important that it is conceived from a global perspective, in which not only are the conceptual concepts taken into account, but also the procedural and the attitudinal contents. Likewise, it is recommendable to include a skills evaluation, taking into account the previously established objectives.

In this sense, the incorporation of all those elements must not be centered on mastery of the foreign language or the scientific contents that have been worked, but on their progress and learning with respect to the previous knowledge of each student.

Implementation in the classroom

Kahoot

The use of Kahoot is proposed.

It is a digital application with which you can create test-style competitions. The possibilities are numerous, because you can edit the questions and answers, modify the time and response options, and include photographs and videos.

Due to its ludic and dynamic nature, it will lower the stress levels of the students that are linked to the completion of conventional tests, such as exams, which will improve academic results.

PREPARATION

TIMING

- The time will vary in accordance with the number of questions and the time that is allowed for each answer. In

NOTE: In case of not having sufficient digital devices for all students, you can use Plickers, a similar application in which the selection of responses is done by turning a QR-type code and scanning it with a bar-code reader application installed on a smart phone with a camera.



the option that is proposed here, the maximum time will be 7 minutes.

MATERIALS

- Computer and projector to display the questions in the classroom.
- Digital device to select the answers.

CONNECTION WITH FAMILIES

- Send regular newsletters to the families detailing student progress and learning.
- Encourage family members to reinforce the activities within the classroom at home, which can stimulate curiosity and exploration.
- Prepare a folder with activities and proposals to work on at weekends.

TEACHING PLAN

DEVELOPMENT

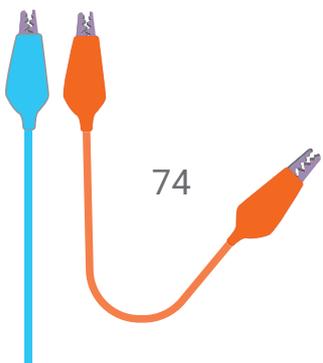
Each student or group of students will need a digital device such as a computer, tablet or smartphone to answer the questions. They can enter the application with a code and enter their nicknames with which they wish to play.

They can then start the course. The questions will appear one by one, and subsequently the possibilities for response, associated with a particular color.

Each student or group will choose a color that they think is the right answer with their device. Once everybody has answered or when the time has ended, they are told whether the answer is right or wrong and a ranking of positions with names of participants will be projected on the wall. The application summarizes the right answers for the ranking, but also the speed of the response.

The positions can be modified with each question, until arriving at the end of the course in which a podium for the three winning positions is displayed.

2nd-year primary-school student: "I liked it a lot, it was great fun, it was like being in a TV competition".



Evaluation rubrics

NOTE: It is essential that the students rely on them from the start, so that its use is to be effective. In that way they can know what their strengths are and which aspects they can improve.

The rubrics are documents in which the specific characteristics of a product, project or task are described at various levels of effort. In this way, they provide information on what is expected from the work of the student, which will make a more objective valuation possible, will facilitate feedback and will strengthen self-evaluation.

From this perspective, they constitute an instrument that facilitates the progressive evaluation of the teaching-learning process, because it provides detailed information on each criterion, indicating the degree to which it has been achieved. All these features make it both an evaluation and a learning tool, simultaneously.

With regard to their characteristics, it is important that they establish a quality-of-compliance grading of the standards, which have to be related with curricular content, and have to be coherent with the educational objectives and with the level of student development.

In what follows, some examples are proposed to complete self-evaluations, co-evaluations, evaluations of group members, and evaluations of both the learning process, and oral presentations.



SELF-EVALUATION

DATE

STUDENT

Evaluate your work drawing bottles of water under each ship.



Always



Sometimes



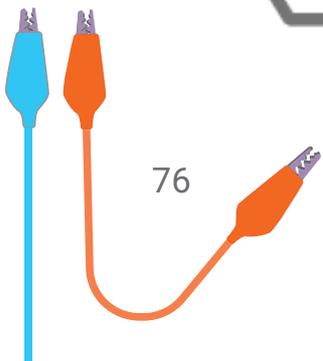
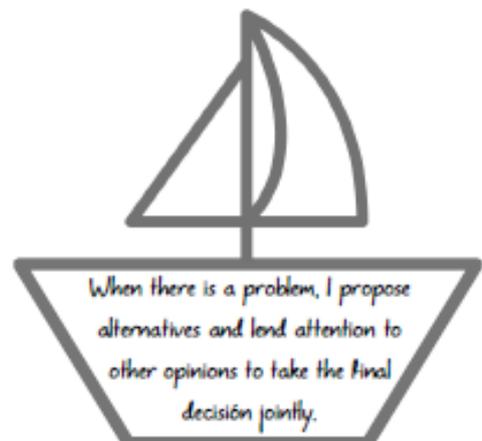
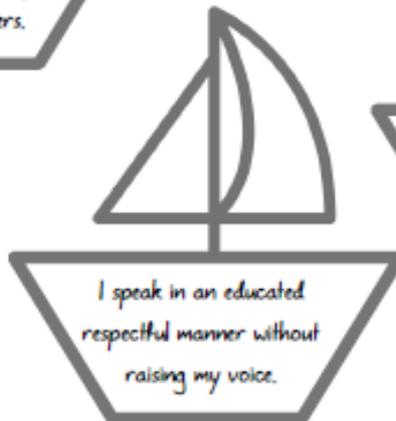
Often



Hardly ever

Total

/ 20



GROUP CO-EVALUATION

DATE

MEMBERS

GROUP

The team paints the garbage bag to evaluate the work jointly.

- 1 Hardly ever
- 2 Sometimes
- 3 Often
- 4 Always

TOTAL / 16

ATTITUDE

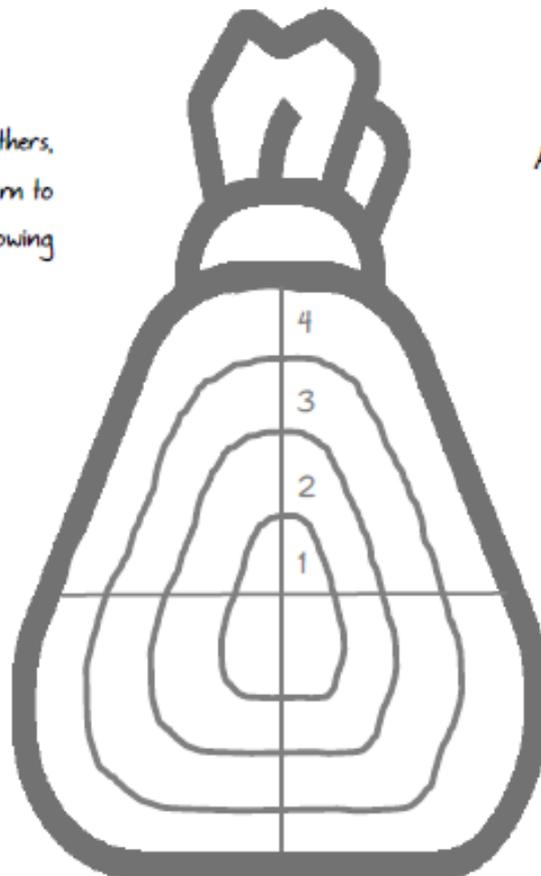
We listen to the others, respecting each person's turn to speak and without showing disrespectful attitudes.

COOPERATION

All the group has collaborated, working in a cooperative way to achieve the objective.

PARTICIPATION

The whole group has participated in the activities, giving ideas and suggestions to improve the work.



CONFLICT RESOLUTION

Whenever there have been problems, we have solved them among us all, talking and jointly finding a solution.



EVALUATION OF THE ORAL PRESENTATION

DATE

GROUP

The team paints the garbage bags to jointly evaluate the work.



- 4 Always
- 3 Often
- 2 Sometimes
- 1 Hardly ever

TOTAL



All group members participate in the presentation.



They speak slowly, clearly and loudly enough.



They use acceptable postures and gestures, and they are acting normally.



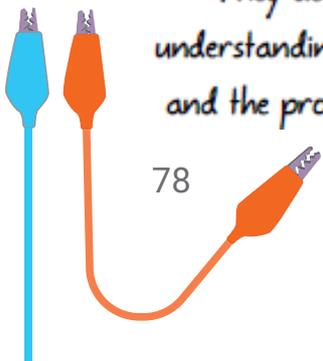
They demonstrate understanding of the topic and the process followed.



They use the specific vocabulary learnt during the activities.



They have learnt to respond to the questions that have been raised.



GROUP MEMBERS EVALUATION

DATE

WHAT HAVE WE DONE?

Write the name of each classmate on a plastic bag and evaluate their work.

1	2	3	4
---	---	---	---

Always

1	2	3	4
---	---	---	---

Sometimes

1	2	3	4
---	---	---	---

Often

1	2	3	4
---	---	---	---

Hardly ever

Total



He/she contributes ideas, listens to suggestions and respects the ideas of the other group members.

1	2	3	4
---	---	---	---

When there is a problema, he/she proposes alternatives and pais attention to other opinions to jointly take the final decision.

1	2	3	4
---	---	---	---

He/she makes an effort to work in a team helping other classmates when necessary.

1	2	3	4
---	---	---	---

He/she manages the time well and is organized so that the work is delivered on time.

1	2	3	4
---	---	---	---

Total



He/she contributes ideas, listens to suggestions and respects the ideas of the other group members.

1	2	3	4
---	---	---	---

When there is a problema, he/she proposes alternatives and pais attention to other opinions to jointly take the final decision.

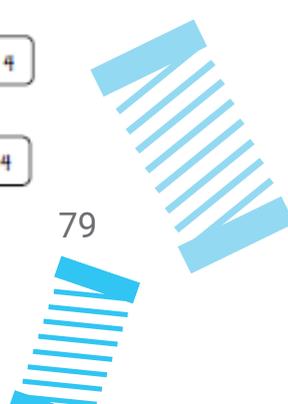
1	2	3	4
---	---	---	---

He/she makes an effort to work in a team helping other classmates when necessary.

1	2	3	4
---	---	---	---

He/she manages the time well and is organized so that the work is delivered on time.

1	2	3	4
---	---	---	---





[Empty dashed box for name]

Total / 16



He/she contributes ideas, listens to suggestions and respects the ideas of the other group members.

1 2 3 4

When there is a problem, he/she proposes alternatives and pays attention to other opinions to jointly take the final decision.

1 2 3 4

He/she makes an effort to work in a team helping other classmates when necessary.

1 2 3 4

He/she manages the time well and is organized so that the work is delivered on time.

1 2 3 4

[Empty dashed box for name]

Total / 16



He/she contributes ideas, listens to suggestions and respects the ideas of the other group members.

1 2 3 4

When there is a problem, he/she proposes alternatives and pays attention to other opinions to jointly take the final decision.

1 2 3 4

He/she makes an effort to work in a team helping other classmates when necessary.

1 2 3 4

He/she manages the time well and is organized so that the work is delivered on time.

1 2 3 4

[Empty dashed box for name]

Total / 16



He/she contributes ideas, listens to suggestions and respects the ideas of the other group members.

1 2 3 4

When there is a problem, he/she proposes alternatives and pays attention to other opinions to jointly take the final decision.

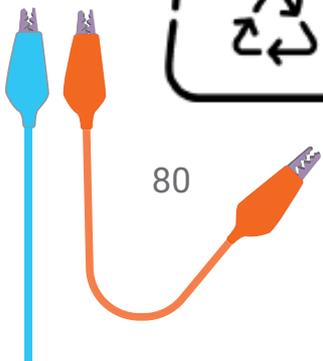
1 2 3 4

He/she makes an effort to work in a team helping other classmates when necessary.

1 2 3 4

He/she manages the time well and is organized so that the work is delivered on time.

1 2 3 4



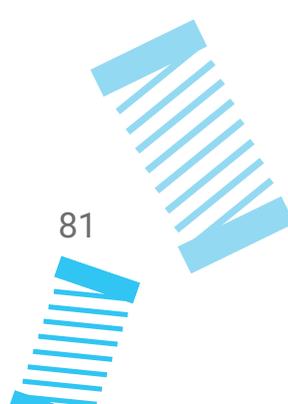
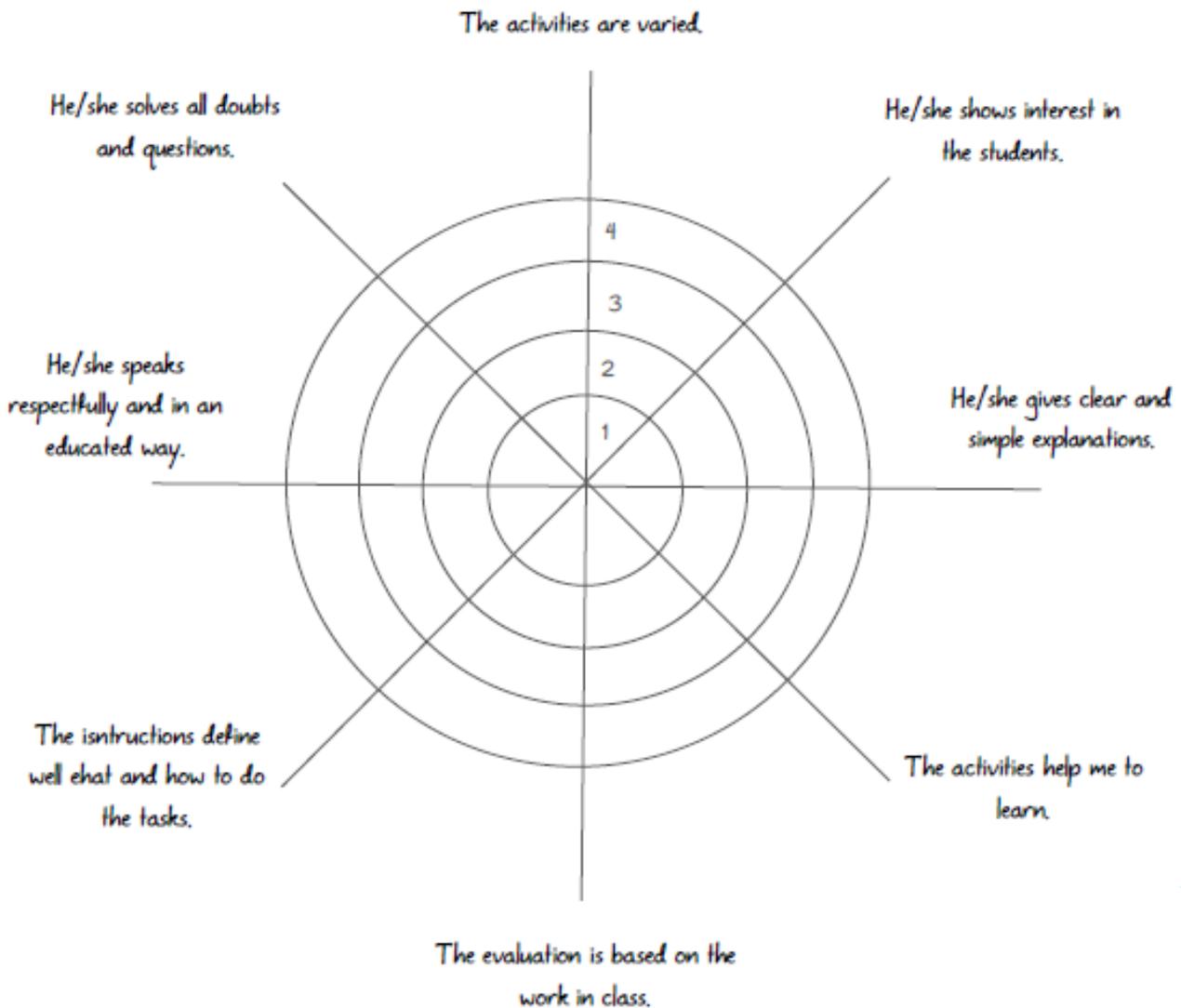
EVALUATION OF THE TEACHING PROCESS

DATE

Evaluate the learning process painting a drop of water on the corresponding line.

- 1 Hardly ever
- 2 Sometimes
- 3 Often
- 4 Always

TOTAL



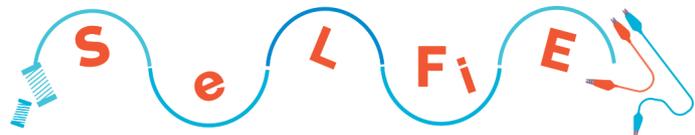


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