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FILM LITERACY GUIDE FOR TEACHERS

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INTRODUCTION

This guide contains guidelines on the methodology for training school students in the medium of film through specially designed didactic material for the production of short films that serve as didactic resources for the field and laboratory.

This guide is a pedagogical tool that will allow teachers to work with students in multiple film and theatre languages to create and read critically and to interact and participate with other people or communities in a real and/or virtual way.

The material will facilitate the creation of film introduction models in telematic classes, which will make it possible to express the conclusions obtained in the development of enquiry strategies through science film, contributing to the dissemination and awareness of different audiences.

FILM AND THEATRE IN EDUCATION

Cultural education is an important part of children's learning from the earliest stages of education, but it often depends on the competence and commitment of educators.

Film and drama are a popular medium, especially in the humanities. Educators focus mainly on analysing and interpreting the content, seeing them as a kind of teaching aid to accompany or even replace the textbook or reading in literature classes. Tutors, too, often use films and plays as a pretext for discussion, treating them as illustrations of issues related to mental states, social or educational problems.

This use of visual works aims to educate an informed spectator who is prepared to experience a film or a play and who adopts a critical attitude towards the work viewed. Hence, a frequent form of theatre and film education is class or school trips to the theatre or cinema, sometimes - in the best of cases - combined with participation in workshops or meetings with filmmakers. Another popular form of contact between pupils and cinema or theatre is, in the first case, the showing of a film during lessons and, in the second case, guest performances by touring theatres.

Many kindergartens and schools also put on pupil productions. Theatre workshops or selected pupils from a particular class prepare short dramatic and comic scenes to celebrate the end of the school year, end-of-year festivities and other school holidays. Depending on the type of institution, children have different degrees of subjectivity in the theatrical activity: the teacher can assign roles, delegate tasks and even force participation, but it is also possible to give children responsibilities within a framework set by the supervisor, from script preparation to artistic expression on stage.

The practical aspect of film education, i.e. the acquisition by pupils of the technical skills needed to create their own audiovisual material, is still underdeveloped in schools. Meanwhile, knowledge of film language and the ability to create it are essential to cope with the convergence of the media world, where the development of widely available broadband Internet and the digitisation of mass media have accelerated the blurring of the boundaries between the three basic technologies of the 20th century: the telephone, the television and the computer. In today's reality, dominated by audiovisual culture, the boundaries between the public, the media and the professional and amateur creators who co-produce content on different multimedia platforms are blurring, and thus also between play and work and/or study.

Young people are not only confronted with films and TV series, which place them in the role of passive viewers, but also interact daily with sites such as TikTok or YouTube, where they can easily become active users. With a simple home computer or smartphone, free software and the Internet, anyone can become a creator, whose possibilities are limited only by their own creativity and imagination.

Given the ubiquity of the medium of film in today's world, the myth that still persists among science teachers that the use of film or theatre as an educational and didactic tool is only justified in the humanities is surprising. On the contrary, these didactic media allow the educational process to go beyond the classroom, complementing other forms of learning such as experiments, field observations or interactive lessons.

Familiarisation from childhood with interactivity through the use of the web and computer games makes young people willing and ready to play an active role also in the learning process: "Contrary to social perception, this is not a generation of passive observers, but of active participants who expect to interact and engage fully with their culture"¹. Participation will be all the more valuable the better prepared the young filmmaker is for it, both in terms of acquiring the ability to think critically and apply the appropriate cognitive filters, and in terms of selecting the appropriate elements of film language: shots and framing, editing, light, sound, dialogue or narration. When shooting a short report, a documentary or a record of experiences, it is also important to take into account a clear division of tasks within the group, the preparation of the script and storyboard, and even the conditions of the subsequent screening.

Thus, this guide provides guidance on how, through various techniques, media and conventions of film and theatre, to create a useful audiovisual educational tool in schools.

¹ L. Proserpio, D.A. Gioia, "Teaching the Virtual Generation", w: Academy Management Learning and Education, vol. 6, nr 1, 2007, s.72.

THE FILM PRODUCTION PROCESS

The film production process can be summarised in the following stages:

1. Conceiving an idea and transforming it into a narrative.

What is the central theme of the film and what message does it seek to communicate?

2. Develop a script.

How can a set of words be turned into a coherent sequence of images and sounds?

3. Planning the shooting.

What, when and where to film? What equipment, techniques and personnel will be needed?

4. Capture footage (audio and video).

Make sure you have a clear understanding of what you are going to film and how to film it (angles, lighting, cameras, sounds, etc.) and do not conclude the filming session until you have obtained all the required shots.

5. Edit the material.

Select and combine the different shots that make up the film in a coherent way.

6. Distribute the film.

Once editing is complete, share the film online (via blogs, social media, websites, etc.) or coordinate screenings and distribution on different platforms.

THE LITERARY SCRIPT

Creating a script for an educational film with students can be an enriching experience involving creativity, collaboration and learning. However, it is important to carry out a number of steps beforehand to ensure that the creation process is efficient and effective:

1. Define the educational objective:

Before starting to develop a script, establish clearly what the educational objective of the film is. What concepts, themes or lessons do you want to convey to students through this film?

2. Select the topic and content:

Choose a topic relevant to the school curriculum or students' interests. Make sure the content is appropriate for the age and educational level of your audience. Encourage students to generate ideas on how to present the topic in an interesting and educational way. Encourage discussion and brainstorming to expand the story.

3. Research and gather information:

Research your chosen topic thoroughly. Gather information, data and resources to support the educational content you want to convey in the film.

4. Define the target audience:

Determine who will be the audience for the film - is it aimed at students of a specific age group, teachers, parents or other members of the educational community?

5. Establish the format and duration:

Decide whether the film will be a short film, documentary, animation or other format. Also determine the estimated length of the film.

6. Create a basic outline or script:

Before going into the details of the screenplay, create a rough outline of the film. Divide the plot into key sections and decide what information will be presented in each.

Next come the steps in the process of creating a literary script:

STEP 1: CREATION OF CHARACTERS AND SCENARIOS

- Develop characters that are relevant to the story and the educational message.
- It establishes the places and settings in which the plot will unfold.

STEP 2: STRUCTURE OF THE SCRIPT

- Introduction: Sets the scene, the characters and the problem to be addressed.
- Development: Divide the plot into different parts that present key educational information in a progressive manner.
- Climax: Reaches the climax of the story where the problem is solved or the main lesson is presented.
- Conclusion: Provides satisfactory closure and reinforces the educational message.

STEP 3: DIALOGUE AND NARRATIVE

- Develop realistic dialogue that advances the plot and conveys educational information in a natural way.
- Make sure the narrative flows coherently and is well-paced.
- If there is a voice-over, include narration and commentary to guide viewers' understanding.

STEP 4: CLEAR AND CONCISE SCRIPT

- The script should be easy to understand and follow. Use simple language and avoid technicalities that students may not understand.

STEP 5: REVISION OF THE SCRIPT

- Once you have a draft version of the script, ask the students to review it and give you feedback. This will help you identify possible problems or improvements.

THE TECHNICAL SCRIPT

In order to write a technical script for an educational school film, it is important to follow the following steps:

1. Read the screenplay. The screenplay is the first step in creating a film. It describes the story, characters and dialogue.

2. Analyse the educational objectives - what do you want students to learn from the film? Once you know what the objectives are, you can adapt the technical script to focus on them.

3. Write a shot list. For each shot, write down the following information:

- Scene: The scene number.
- Shot: The type of shot (general, medium, close-up, etc.)
- Location: To shoot a film, it is important to find a location that suits the story and the needs of the production. Once a location has been chosen, it should be visited beforehand to ensure that it is suitable. When visiting the location, the following factors should be taken into account:
 - Is a permit required to film at this location?
 - Will there be a fee for the use of the site?
 - Can all the scenes of the film be shot in the same place?
 - Is the natural light suitable for filming and will reflectors be necessary?
 - Is it possible to have access to the site for the time necessary for filming?
 - Will there be disturbing background noises that may interfere with the sound recording?
- Activity: The activity taking place at the scene.
- Actors: The actors who appear in the scene.
- Equipment: The equipment to be used in the scene (the necessary objects or props).
- Costume and make-up: Identification of costume and make-up requirements for each character and scene.

4. Add technical details. For each scene, write down the following information:

- **Lighting** - is a powerful tool that can be used to create a visual mood in a film. Light can be natural or artificial, and cinematographers must consider colour, temperature, placement of actors and other factors when setting up the lighting. The main goal is to illuminate the subjects and create an atmosphere that supports the story.
- **Camera movement** - it is important to determine the right camera angles, the best places to place the camera, and to test for visual problems such as reflective surfaces, distractions or flashes. The best way to do this is to place an object or volunteer where the actors will be. Camera movements are a powerful tool that can be used to control the perspective and pacing of a film. They can be used to create a sense of movement, emotion or realism. Camera movements fall into three main categories:
 - **Panoramic**: the camera rotates on its axis to show a wide environment.
 - **Travelling**: the camera moves in space to follow a character or an object.
 - **Zoom**: the camera zooms in or out of the framed subject to increase or decrease its importance.
- **Sound** - if there are specific sound effects or music, indicate these in the script.

5. To help visualise the story and plan the production, a storyboard should be prepared. A storyboard is a set of sketches that depict the scenes of a film or video. Storyboards serve the following purposes:

- **Visualise the story**: The storyboard allows the creative team to visualise the story and make sure everyone is on the same page.
- **Planning the production**: The storyboard helps plan the production, including location, actors, crew and budget.
- **Communicating the vision**: Storyboarding is a way of communicating the director's vision to the creative team.
- **Collect feedback**: The storyboard can be used to gather feedback from team members and producers.

Storyboards can be simple or complex, depending on the project. Simple storyboards usually consist of quick sketches depicting the basic action of the scene. Complex storyboards may include additional details such as lighting, camera movement and sound. There is no right or wrong way to create a storyboard. The process of creating a storyboard may be different for each person or team.

EXAMPLE OF A STORYBOARD PAGE

PROJECT NAME: _____

PAGE: _____

SCENE	SHOT	SHOT SIZE

SCENE	SHOT	SHOT SIZE

SCENE	SHOT	SHOT SIZE

SCENE	SHOT	SHOT SIZE

SCENE	SHOT	SHOT SIZE

SCENE	SHOT	SHOT SIZE

6. Prepare the recording schedule:

- Set a schedule for the recording of each scene.
- Take into account the availability of the actors and the production team.

7. Review the technical script with other professionals and educators. Once you have a draft version of the technical script, ask other professionals, such as a director or cinematographer, to review it and give you feedback. This will help you identify potential problems or improvements.

EXAMPLE OF A TECHNICAL SCRIPT FOR AN EDUCATIONAL SCHOOL FILM

Scene 1

Plan: General

Location: Classroom

Activity: Students are seated at their desks, listening to the teacher

Actors: Teacher, students

Equipment: Camera on tripod, microphone

Lighting: Natural light

Camera movement: Fixed shot

Sound: Teacher's voice

Scene 2

Level: Medium

Location: Science laboratory

Activity: Students are working on an experiment

Actors: Students

Equipment: Handheld camera, microphone

Lighting: Artificial light

Camera movement: Tracking and travelling shots

Sound: Noise from experiments

This is just one example, and the technical script may vary from film to film.

TEAM ROLES

We should not forget a very important element of the scriptwriting process (both literary and technical), i.e. the selection of the right students for certain roles. Assigning roles in a school film with students is a crucial part of the production process. Here is a guide to how to do it effectively:

1. Identifies learners' skills and strengths:

Before assigning roles, assess the individual skills of the students. Some may have acting experience, while others may excel in editing, writing or directing.

2. Explain the different roles:

Ensure that all students understand the responsibilities associated with each role, whether director, actor, cameraman, editor, sound designer etc.

3. Encourages choice and active participation:

Allow students to express their preferences. Ask who is interested in which roles and take their wishes into account whenever possible.

4. Balance roles according to skills and workload:

Distribute roles equally and make sure that there is not an overwhelming workload for one learner. For example, if someone is a lead actor, they may not have the same amount of time to take on another intensive role.

5. Offers learning and development opportunities:

Consider assigning roles so that students have the opportunity to learn and develop new skills. This can be a valuable way to broaden their horizons.

6. Encourages collaboration:

Some roles, such as director or editor, may require collaborative decisions. Encourage students to work together and build on individual strengths.

7. Consider availability and commitment:

Ensure that students who take on key roles are available throughout the production process and have the necessary commitment to carry out their tasks.

8. Monitor progress and provide support:

Maintain open communication with students throughout the production process. Ensure support and solutions if challenges arise.

9. Encourage role rotation:

If possible, consider rotating roles so that students can experience different aspects of filmmaking.

Remember that when assigning roles in a school film, it is not only about distributing tasks, but also about promoting learning, growth and collaboration among students.

GETTING TO KNOW THE CAMERA AND MICROPHONE

At this stage, teachers and students will gain a fundamental understanding of how to use the camera and microphone effectively in the production of school films. They will learn the basic functions of this equipment and how to apply technical principles to achieve optimum visual and sound quality in their projects.

ACTIVITIES

1. Introduction to the camera and the microphone:

- Exploration of the basic components of a camera and microphone.
- Discussion on the importance of visual and sound quality in film production.

2. Basic camera functions:

- Demonstration of how to turn the camera on and off.
- Explanation of focus, zoom and exposure settings.

3. Camera operation:

- Practice on how to hold and stabilise the camera correctly.
- Exercises to adjust composition and framing.

4. Microphone configuration:

- Introduction to different types of microphones and their applications.
- Demonstration of how to connect and position an external microphone.

5. Recording of single scenes:

- Assigning pairs of students to make short recordings.
- Practice of capturing video and audio in a synchronised manner.

6. Review and analysis:

- Playback of the recordings made to assess the visual and sound quality.
- Feedback on the effectiveness of camera and microphone settings.

7. Problem solving:

- Identification and discussion of possible technical problems that may arise when using the camera and microphone.
- Exploration of solutions to minimise unwanted noise and improve sound clarity.

8. Reflection and discussion:

- Discussion on what has been learned and how to apply this knowledge in future productions.
- Exchange tips and tricks for professional results.

Expected result:

By the end of this stage, students will have a solid understanding of how to operate the camera and microphone effectively. They will be better prepared to capture quality images and sounds in their school film projects, which will contribute to the overall improvement of audiovisual production.

DSLR AND SMARTPHONE RECORDING

In this stage, teachers and students will learn how to use both a DSLR camera and a smartphone to shoot school films. They will explore the differences and similarities between the two options, understanding how to make the most of the technical capabilities of these devices to create powerful visual content.

ACTIVITIES

1. Introduction to recording tools:

- Description of the features and advantages of DSLR cameras and smartphones for film recording.
- Discussion on when and why to choose one or the other device according to the needs of the project.

2. Basic functions of a DSLR:

- Explanation of the essential controls of a DSLR camera, such as focus, aperture and shutter speed.
- Demonstration of how to adjust these parameters to obtain desired results.

3. Effective use of a smartphone:

- Introducing the high quality recording features available on modern smartphones.
- Examples of applications and settings to optimise recording with mobile phones.

4. Practice recording with DSLR:

- Assignment of scenarios and filming situations to apply the concepts learned.
- Practical experience with the use of a DSLR camera to record scenes with different settings.

5. Practice recording with a smartphone:

- Practical recording activities using smartphones, focusing on stability and composition.

6. Comparison of results:

- Playback of recordings made with both tools.
- Analysis of picture and sound quality, as well as the possible advantages and disadvantages of each option.

7. Editing of recorded material:

- Introduction to basic video editing using accessible software.
- Editing of recorded sequences to create a coherent narrative.

8. Criação de uma curta-metragem:

- Organising groups of students to work together to produce a short film using both DSLR and smartphones.

9. Presentation and analysis:

- Screening of the short films created by the groups.
- Class analysis of the technical choices, production quality and visual impact of each film.

Expected result:

At the end of this stage, students will be able to take full advantage of the recording capabilities of a DSLR camera and a smartphone. They will have the ability to decide which tool is most suitable for different situations and will be better equipped to create high quality visual content for their school projects.

HERE ARE SOME TIPS FOR ACTING, REHEARSAL AND SET PREPARATION IN SCHOOL FILMS

- Make students feel comfortable: It is important that students are comfortable performing in front of the camera. To do this, you can create a relaxed and supportive atmosphere.
- Exercise students: Students need to practise their scenes to make them believable. You can organise regular rehearsal sessions so that students have the opportunity to improve their performances.
- Give pupils creative freedom: Encourage pupils to be creative and improvise. This will help them to develop their own performance style.
- Choose a suitable setting: The setting should be appropriate for the story and the characters in the film. It should be a place where the pupils feel comfortable and where they can act in a natural way.
- Involve students in the preparation: Pupils can help in the preparation of the set, learning about the different tasks and responsibilities involved. This will give them a greater understanding of the filmmaking process.

Acting, rehearsal and set preparation are exciting stages in the process of creating a school film. They are opportunities for pupils to develop their creative and technical skills and to work as a team to create a high quality film.

THE DAY OF RECORDING

Shooting day is an exciting day in the process of creating a school film. It is the day when students put into practice everything they have learned and worked on so far.

The shooting day usually begins with a production meeting to discuss the shooting plan. The film director will go over the script, shots and schedules. He or she will also assign tasks to the technical crew.

Once the production meeting has been completed, the students prepare for filming. The actors put on their make-up and costumes, and the technical crew checks the equipment.

Filming begins with the first scene. The director directs the actors and technical crew. The students can help with the filming, learning about the different tasks and responsibilities involved.

Filming can take hours or days, depending on the length of the film. Students should be prepared to work hard and be patient.

At the end of the day's filming, the students may be tired, but they are also excited about the work they have done. They have learned a lot about acting, production and filmmaking.

HERE ARE SOME TIPS FOR THE DAY OF FILMING SCHOOL FILMS

- Arrive early: It is important to arrive early on set so that you have time to prepare and relax.
- Be flexible: Things don't always go according to plan, so be flexible and adaptable.
- Listen to instructions: Follow the instructions of the director and the technical team.
- Have fun: Filming should be a fun experience, so enjoy the process.

The filming day is a unique opportunity for students to learn and experience the process of making a film. It is a day they will never forget.

EDITING AND POST-PRODUCTION

Editing and post-production are the final stages in the process of creating a school film. At this stage, the film editor is in charge of putting together the different shots filmed to create a coherent story. He or she is also in charge of adding visual effects, music and sound.

Editing is a complex process that requires a lot of creativity and technique. The editor must have a good knowledge of the story and characters, and must be able to use film language to create an effective narrative.

IN POST-PRODUCTION, OTHER PROCESSES ARE ALSO CARRIED OUT

- Colour correction: the colour of images is adjusted to make them look more natural or to create a specific effect.
- Visual effects: images or elements that were not filmed are added, such as explosions, creatures or imaginary scenery.
- Sound: sound effects, music and dialogue are added.

Post-production is a crucial stage in the creation of a school film. It is at this stage that the film takes its final form and becomes a complete work of art.

HERE ARE SOME TIPS FOR EDITING AND POST-PRODUCTION OF SCHOOL FILMS

- Start editing the film as early as possible: this will allow you to see how the story develops and make changes if necessary.
- Don't be afraid to experiment: try different editing techniques to see what works best for your film.
- Take care of the details: visual effects and sound must be of high quality for the film to be credible.

Editing and post-production are exciting stages that allow students to unleash their creativity and see their film take shape. It is an opportunity to learn about film language and to develop their technical skills.

DISTRIBUTION OF THE FILM

Once the editing process has been completed, the crucial moment of distribution of the film comes. This phase involves sharing the audiovisual work in a way that reaches the intended audience and maximises its educational impact. There are various strategies and options for this distribution.

- Share online:

One of the most effective ways is to share the film online, taking advantage of platforms such as blogs, social media and websites. These media offer wide visibility and allow the content to be accessible to a global audience. Posting the film on online video platforms, such as YouTube or Vimeo, is an excellent way to reach a wide and diverse audience. In addition, you can create social media profiles for the film and use relevant hashtags to increase its visibility.

- Screenings and presentations:

Another option is to organise screenings and presentations in the school environment and beyond. Special events can be scheduled at school, inviting classmates, teachers and parents to attend an exclusive screening of the film. You can also explore opportunities to present the film at community events, school festivals or local conferences related to the film's theme.

- Participation in calls for proposals and competitions:

In addition to the options mentioned above, an exciting opportunity is to participate in calls for proposals and competitions that allow the film to be made known to a wider audience and to gain recognition for the effort made. One example is the campus call for entries “Climántica Virtual Youth Congress”, available on the website <http://congresovirtual.climantica.org/finalidades-de-la-convocatoria/> . This virtual congress provides a platform to show the film and share the students’ perspective on environmental issues. Participating in such events not only broadens the audience, but also fosters engagement and connection with a community interested in the issue.

- Interaction and feedback:

During distribution, it is important to encourage interaction with the audience. Comment sections can be set up on online platforms for audiences to share their opinions and reflections on the film. Q&A sessions can also be organised after screenings to get direct and enriching feedback.

In short, the distribution stage is crucial for the school film to reach its full potential. By using online strategies, screenings, participation in calls for entries and competitions, as well as encouraging audience interaction, students can make their film reach a wider audience and have a positive impact on society and the environment.

SCHOOL THEATRE

Theatre, like film, is a powerful educational tool that can be used effectively to address environmental issues with secondary school students. By combining creativity and artistic expression with environmental awareness, theatre offers a unique way to convey messages and generate deep reflections on the importance of caring for our environment. In this chapter, we will explore how to use theatre as an environmental communication tool in the classroom, providing tips and practical examples for teachers.

1. Selection of the environmental theme

The first step is to choose an environmental issue that is relevant and meaningful to the students. It could be water conservation, deforestation, climate change or any other topic you wish to address. It is important that the topic is appropriate to the level of understanding and sensitivity of the students.

2. Research and awareness-raising

Before starting the creative process, encourage students to thoroughly research and understand their chosen topic. Provide resources such as articles, videos and data to familiarise students with the scientific and social aspects of the topic. Fostering awareness is essential for students to be able to represent authentically and accurately in their performances.

3. Creation of the script

Divide the students into groups and ask them to work together to create short theatre scripts based on the chosen topic. The scripts should address different perspectives and situations related to the environmental issue. This can include characters representing the community, scientists, politicians and environmental advocates.

4. Character and scene development

Each group should focus on developing authentic characters and realistic scenes that reflect everyday situations related to the topic. Encourage creativity and encourage students to use dialogue and interactions to convey key messages effectively.

5. Practices and trials

Once the scripts are ready, guide the groups through practice and rehearsals. Encourages collaboration and constructive feedback among group members. Encourages students to work on intonation, facial expression and stage movements to improve their performances.

6. Set and costume design

It helps students to design simple but effective settings that enrich the narrative. It also encourages students to select appropriate costumes that reflect the characters and setting of the play.

7. Presentation and reflection

Organise theatrical performances in the classroom or at school events. After the performances, encourage discussion and reflection on the messages and lessons conveyed. Ask students how they felt about playing the characters and how they related to the environmental issue.

8. Extending the impact

Encourage students to take their performances to a wider audience. This could include performances at school assemblies, cultural festivals or community events related to the environment. The wider the audience the performance reaches, the greater its educational impact.

9. Interdisciplinary integration

Take the opportunity to link theatre with other subjects, such as science, literature, communication, but also music, as we did in the e-InnoEduCO₂ project, creating musical theatre during the One Health Campus in Aveiro in September 2022: <https://www.innoeduco2.org/presentacion-de-productos-en-directo-del-campus-internacional-de-iniciacion-a-la-investigacion-y-comunicacion-one-health-aveiro-2022/>

This will enrich the learning experience and allow students to see how environmental issues are interconnected in various fields.

Theatre not only gives students the opportunity to be creative and expressive, but also allows them to connect emotionally with environmental issues and make a lasting impact on the community. By guiding students through this process, teachers can empower the next generation of environmental advocates through art and education.

VIEWING OF COMPLETED FORMATS

Several films were produced during the Erasmus+ e-InnoEduCO2 project:

1. Related to the project:

<https://www.innoeduco2.org/innoeduco2-tv/>

2. Related to the call for the virtual youth congress CLMNTK22-InnoEduCO2:

<http://congresovirtual.climantica.org/>

(which can be used by teachers in the classroom at their discretion).

CLASS PLANS RELATED TO THE E-INNOEDUCO2 PROJECT

The Erasmus+ e-InnoEduCO2 project meets the need to provide didactic support to teaching and learning processes linked to experiential curricular models with STE(A)M approach in school education and to provide content on marine science and global change linked to bivalve shellfishing, and its relationship with public health guided by the WHO's One Health approach to environment and health.

Below are 3 lessons based on the films made during the project, which teachers can use to introduce their students to the themes of the e-InnoEduCO2 project.

Lesson 1

Theme: The importance of seagrass meadows

Class duration: 90 minutes

Objectives:

- Introducing the e-InnoEduCO₂ project
- Understand the importance of seagrass in the ecosystem
- Analyse the factors that threaten the existence of seagrass meadows
- Explore conservation measures and their relationship to climate change mitigation
- Create an information poster on the importance of seagrass meadows

Classroom material:

- The project website:
 - <https://www.innoeducoco2.org/>
- The video by Fernando Valladares, Professor of Ecology at the University of Vigo:
 - <https://www.innoeducoco2.org/la-importancia-de-las-praderas-marinas-fernando-valladares/> - Video duration: 1:58 minutes
- Student telephones
- A slide with questions related to the video
- Large paper for each group, markers, coloured pencils, pictures related to the theme

Script:

Introduction (10 minutes)

1. The teacher introduces the topic and briefly explains what seagrasses are and their relevance in the marine ecosystem.
2. The teacher introduces the e-InnoEduCO₂ project using the project website and invites students to search for key information about the project using their mobile phones.

Exploration of the video by Fernando Valladares (20 minutes)

3. Playing the video of Fernando Valladares - show the video for students to get information directly from the expert. If necessary, the teacher shows the film twice.

4. The teacher shows a slide with the following questions based on the video and invites students to answer the questions in small groups:

- What factors are affecting seagrass meadows?
- What is the function of blue carbon?
- Why is it important to sequester CO₂ from the atmosphere?
- What is needed to prevent the deterioration of the lagoons?
- What measures can be taken to conserve seagrass meadows?
- How can seagrasses contribute to climate change mitigation?
-

Discussion and analysis (15 minutes)

5. Review of the answers to the comprehension exercise.

6. Group discussion on the importance of seagrass meadows and possible actions to be taken for their conservation.

Creative task: Creating a poster (30 minutes)

7. Explanation of the task: Students should create an information poster highlighting the importance of seagrasses, the factors that threaten them and conservation measures.

8. Group work: Divide students into small groups to design and create their posters.

9. Preparation of presentations: Each group will prepare a short presentation to share their poster and explain its key points.

Presentation and closing (15 minutes)

10. Poster presentation: Each group presents its poster and shares its ideas with the class.

11. Final reflection: Discussion on what they have learned and the importance of seagrass conservation.

Lesson 2

Theme: School-science research model

Class duration: 90 minutes

Objectives:

- Understand the steps of a scientific-scholarly research model
- Analyse the elements that influence the benefits of a marine ecosystem
- Explore the importance of observation, questions and hypotheses in research
- Carry out a practical exercise based on the information in the video

Classroom materials:

- The video:
 - <https://www.innoeduco2.org/modelo-de-investigacion-cientifico-escolar-en-el-oceano-atlantico/> - Video duration: 18 minutes
- A slide with questions related to the video

Script:

Introduction (10 minutes)

1. Presentation of the topic: Explain the importance of scientific research and how it is applied in school contexts.

Exploring the video (15 minutes)

2. Play Fernando Valladares' video: Show the video for students to learn about scientific research in a marine ecosystem.

Comprehension exercise (20 minutes)

3. The teacher shows a slide with the following questions based on the video and invites students to answer the questions in small groups:

- What is the aim of the research in the video?
- What are the two factors that condition the benefits of an ecosystem?
- How can samples be taken at different levels of the ecosystem?
- What steps are mentioned in the school-science research model?
- Why is it important to assign codes to samples in an experiment?

Discussion and analysis (15 minutes)

4. Review of the answers to the comprehension exercise.

5. Group discussion on the importance of observation, questions, hypotheses and order in scientific research.

Practical exercise (30 minutes)

6. Explanation of the practical exercise: Students will conduct an experiment that they will design with the teacher based on the model mentioned in the video, depending on the region in which the school is located. It is necessary to:

- Select a factor to investigate.
- Ask a question and make a hypothesis.
- Assign codes to the cups to identify each sample.
- Conduct the experiment, taking data and observations.
- Record the results obtained using the CESGA application:
<https://www.innoeduco2.org/app/> and record the experiment.

OTHER CLASSROOM IDEAS

1. The issue of the Baltic Sea problems:

<https://www.youtube.com/watch?v=czevtq76L8c>

2. The issue of Black Sea problems:

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

3. The issue of eutrophication:

<https://www.youtube.com/watch?v=P3lExwtmJOQ>

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