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Learning Scenario Template

The creationand submission of a Learning Scenario on ocean-related topic(s) is one of the requirements to complete the course and be awarded a certificate of participation to the MOOC. The primary goal of this activity is to help you integrate what you have learnt in the last weeks into a comprehensive lesson plan, which can serve as a solid basis to prepare your application for the European Blue School certification. Make sure to plan your lesson well, so it can be connected to the *Find the Blue*challenge and become an impactful blue project!

Title

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Guardians of the Ocean

Author

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Summary

Kindergarten students will explore the importance of protecting the ocean and marine life through a project-based learning approach. The lesson aims to instill a sense of environmental responsibility, promote cooperative learning, integrate STEM concepts, and incorporate game-based elements for an interactive experience

Keywords

Kindergarten, Ocean, STEM, Ocean Literacy

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Overview

Subject(s)	The scenario involves all learning areas of the curriculum, following an interdisciplinary approach with particular emphasis on science and environmental studies.
Topic(s)	Biodiversity of the ocean, Protection of the ocean. Marine pollution
Age of students	4-6
Preparation time	How many hours, per subject, are needed to prepare the Learning Scenario.
Teaching time	1-2 per subject
Online teaching material	https://www.canva.com/el_gr/ https://kahoot.it/challenge/71f9138d-7949-46f2-b4dd-71dcf1aa4bad_1585573736514
Offline teaching material	Pictures, books, scissors, paints, various useless materials, paper, glue, large plastic transparent container, water, small stones, figures of ocean animals, toys ships, bottle, cocoa powder, vegetable oil, cotton, sponge, spoon





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Aims

- To be able to communicate effectively about the ocean in a meaningful way.
- Make informed and responsible decisions about the ocean and its resources.
- to cultivate environmentally aware and informed citizens
- To acquire the knowledge and skills needed to address the environmental challenges of our time.
- To highlight the importance of the oceans in shaping climate, supporting biodiversity and sustaining life on Earth
- instil in them a sense of responsibility and environmental stewardship
- to enable them to make informed decisions on the conservation and protection of ocean resources

The importance of the topic is reflected in the need to educate students about the protection and sustainable management of this precious natural resource, preparing them to face the challenges facing the ocean today and act as informed citizens for the future of our planet

Outputs

A Lesson Rich in Experiences for Young Learners

The ocean lesson for kindergarten students opens the gates to a world of discovery and surprises. Through activities and games, young learners develop important skills and discover the role the ocean plays in their lives. The results of this lesson highlight the students' interesting learning and the outcomes of the educational process. One tangible outcome of the course is the creation of handmade finished products. The young creatives are faced with the challenge of making fish, boats and other sea creatures with paints and materials. The creative process of making them enhances students' imagination and motor skills, along with developing their sense of art. Another important outcome is raising children's awareness of the importance of nature and environmental conservation. Through discussions, role-plays and environmental awareness activities, students understand how the ocean is connected to their lives and how they can contribute to its conservation. In addition, studying the ocean teaches children the importance of teamwork. Activities that foster cooperation, such as painting an underwater landscape together or building a recreational game together, help children develop social and communication skills. Finally, learning about the ocean paves the way for fostering an interest in science. Young explorers discover the world of fish, coral reefs and marine plants, encouraging their curiosity and enhancing their scientific understanding. Overall, teaching kindergarten students about the ocean creates a rich learning environment that fosters creativity, social cooperation, environmental awareness and interest in science. These outcomes are assets that will accompany young learners on their multifaceted journey of learning and development.

Integration into the curriculum

The Greek kindergarten curriculum plays a crucial role in shaping the educational experience of young learners. The integration of a teaching scenario on the ocean opens up new perspectives on the diversity and pedagogical scope of education. So how does this scenario fit into the curriculum? First of all, the ocean theme is integrated into the curriculum as part of the broader context of science. Through the ocean, students are introduced to biodiversity, water cycles, marine ecosystems and the importance of environmental conservation. In this context, the teaching scenario is designed to enhance students' understanding of the connection between themselves and





the natural world. Activities include observing marine organisms, creating marine artworks and discussing marine life and environmental protection. In addition, the teaching scenario promotes the development of social cooperation skills. Through group activities and role-playing, students learn to work together to solve ocean-related problems. In addition, the teaching scenario contributes to the development of language skills through the use of new terms and concepts related to the marine environment. Students express their thoughts and experiences in relation to the topic, enhancing their linguistic indulgence. Overall, the teaching scenario on the ocean is integrated into the Greek kindergarten curriculum as a multidimensional educational tool. It offers diverse opportunities to educate children in a holistic learning environment, enhancing their knowledge, social skills and love for nature.

Methodology

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Project-Based Learning: students get fact-based tasks, problems to solve and they work in groups. This kind of learning usually transcends traditional subjects.

Collaborative Learning: a strong focus on group work.

Game Based Learning & Gamification: learning is mixed with games or with game mechanisms STEM Learning: Increased focus on Science, Technology, Engineering, Mathematics subjects in the curriculum Student Centered Learning: students and their needs are at the centre of the learning process.

Outdoor Education: learning outside of the school building in the "real" environment

Green Competences	
Area 1: Embodying sustainability values	Justification for the competence(s) chosen
□Valuing sustainability	Teaching students about sustainable fishing practices, reducing plastic pollution, and conserving marine habitats instills a sense of responsibility towards maintaining the health and integrity of the ocean ecosystem. To support equity and justice for current and future
□Supporting fairness	Through understanding issues of social justice and equity, students can advocate for policies and initiatives that prioritize fairness and inclusivity in ocean governance. To acknowledge that humans are part of nature;
□Promoting nature	and The ocean is teeming with diverse forms of life, from microscopic plankton to majestic whales. Encouraging an appreciation for the beauty and complexity of nature fosters a sense of wonder and connection with the ocean environment. By engaging students in hands-on experiences such as field trips to coastal ecosystems, wildlife observation, and citizen science projects, educators can instill a deeper understanding of the interdependence between humans and the natural world. Promoting nature also involves nurturing a sense of stewardship and respect for all living beings, inspiring students to become advocates for conservation and biodiversity preservation.
Area 2: Embracing complexity in sustainability	Justification for the competence(s) chosen
□ Systems thinking	To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems
□ Critical thinking	To assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions.
Area 3: Envisioning sustainable futures	Justification for the competence(s) chosen
Futures literacy Adaptability	To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future. To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity
	and risk. To adopt a relational way of thinking by exploring



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	and linking different disciplines, using creativity and
	experimentation with novel ideas or methods.
Area 4: Acting for sustainability	Justification for the competence(s) chosen
Collective action	To act for change in collaboration with others.
Individual initiative	To identify own potential for sustainability and to actively
	contribute to improving prospects for the community
	and the planet.

Sustainable Development Goals

4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

13. Take urgent action to combat climate change and its impacts

14. Life below water

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Collaboration with local partners

Nothing is more exciting than immersing yourself in the world of the sea, discovering the secrets of the oceans and seas. And what's better than sharing that excitement with your kindergarten kids? Partnering with an ocean and marine advocacy organization can be an amazing opportunity to inspire our children and educate them about the importance of protecting the environment. Through activities such as presentations by expert scientists and on-site educational experiences on beaches, children can learn a lot about marine life, the importance of the oceans to life on Earth, and how they can help to conserve them. We can also create joint educational projects that incorporate marine themes in the kindergarten setting, such as storytelling, painting, arts and crafts or even music. In this way, children will be able to express their imagination and join in an original environmental educational experience. In addition, such a partnership can encourage the creation of small conservation projects by the children themselves, such as collecting plastic litter on beaches or creating recyclable artworks. Overall, this collaboration will not only enhance our children's knowledge of the sea and oceans, but will also provide them with the opportunity to develop an emotional connection and respect for the environment. In this way, we can inspire future generations to take action to conserve and protect our seas and oceans.

https://www.helmepa.gr/

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STEM Strategy Criteria			
Elements and criteria	How is this criterion addressed in the Learning Scenario		
Instruction			
Personalization of learning	Personalising learning about the oceans is critical to gaining a deeper understanding and emotional connection to the subject. Each child has different preferences, interests and educational needs, so tailoring learning to these different pathways is essential. This can include educational programmes that offer interactive experiences, educational materials that engage curiosity and imagination, and activities that allow for individual expression and creativity. In this way, each child can develop a personal relationship with the oceans and become an agent of their protection.		
Problem and project- based learning (PBL)	Problem and project-based learning (PBL) is an excellent approach for teaching children about the oceans. Through this method, children can take an active role in exploring and understanding ocean-related problems such as overfishing, pollution and biodiversity loss. By analysing these problems and creating solutions through practical projects, children develop critical thinking, collaborative skills and autonomy. In addition, involvement in projects related to ocean conservation and protection fosters a sense of responsibility and environmental awareness in each child. In this		



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Elements and criteria	How is this criterion addressed in the Learning Scenario
	way, PBL not only provides knowledge but also encourages action and change to conserve our oceans.
Inquiry-Based Science Education (IBSE) Επιστημονική Εκπαίδευση Βασισμένη σε Διερεύνηση (IBSE)	Investigation-based science education about the oceans is an exciting approach for kindergarten students. Through this method, children are invited to become little scientists and explore the secrets of the oceans. Through games, observations and experiments, they discover marine life, the different species and ecosystems that exist in the oceans. Through this process, they not only gain knowledge but also develop curiosity, discovery and exploration, while strengthening their skills in observation, experimentation and data collection. In this way, science education becomes an inspiring and fun experience for our young researchers.
Curriculum implementati	on
Emphasis on STEM topics and competencies	In the kindergarten classroom, the emphasis on STEM topics and skills related to the ocean provides a valuable opportunity for the development of young learners. Through activities such as creating ocean models, observing and analyzing samples of marine life, and investigating the physical processes that occur in the ocean, children develop basic skills in the areas of science, technology, engineering, and mathematics. In addition to becoming familiar with the ocean, students develop skills such as observation, analysis, reconstruction and construction, preparing them for future scientific and engineering challenges. In this way, children develop a deep understanding of and connection to the ocean, making them become agents of environmental protection and sustainable development from a very early age.
Interdisciplinary instruction	Interdisciplinary teaching about the ocean is an excellent approach for kindergarten students, as it combines different scientific disciplines to understand the complex ocean ecosystem. Through this approach, children have the opportunity to explore the scientific principles that underlie the oceans, such as natural processes, marine life, water chemistry, and ocean geology. In addition, through activities such as making hydrographic maps, observing marine organisms and creating marine ecosystems in special aquariums, children apply their knowledge from different fields and develop the skills of integrating and synthesising information. In this way, interdisciplinary teaching creates a rich learning environment that encourages curiosity, exploration and the development of children's skills in many areas of science and technology.
Contextualization of STEM teaching	Contextualization of STEM teaching in a Kindergarten classroom about the Oceans is a powerful approach to engage young learners in meaningful exploration and understanding of the marine world. By integrating Science, Technology, Engineering, and Mathematics (STEM) concepts within the context of the oceans, children can connect their learning to real-world phenomena. Through hands-on activities such as building model ocean habitats, observing marine life specimens, experimenting with water properties, and designing simple engineering solutions to ocean-related challenges, students not only develop foundational STEM skills but also foster a deeper appreciation for the oceans and their importance to our planet. Contextualizing STEM education in this way encourages curiosity, critical thinking, and problem- solving skills, laying a strong foundation for future scientific inquiry and environmental stewardship among young learners.
Assessment Εκτίμηση	
Continuous assessment	The assessment is continuous, as the young students express what they learn through drawings related to the topic.
Personalized assessment	The importance of assessing students' progress in understanding ocean-related topics highlights the need for a variety of assessment methods, including formative and summative approaches, tailored to reflect students' different engagement and learning







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Elements and criteria	How is this criterion addressed in the Learning Scenario
Professionalization of st	styles. These methods may include observations, discussions, quizzes, presentations, and creative tasks, all designed to assess students' mastery of ocean-related learning objectives. Using a comprehensive assessment framework, teachers can effectively measure students' understanding and proficiency in ocean-related content, guiding further instruction and promoting continued growth in this critical area of study.
Frolessionalization of st	
Highly qualified professionals	First and foremost, highly qualified kindergarten teachers are equipped with a deep understanding of child development principles, educational theory, and instructional strategies tailored to the unique needs of young learners. They create nurturing and stimulating environments that foster curiosity, exploration, and meaningful learning experiences. These professionals recognize the importance of play-based learning in early childhood education and integrate developmentally appropriate activities into their curriculum to promote cognitive, social, emotional, and physical development.
Existence of supporting	No
Professional development	Moreover, these professionals collaborate with colleagues, families, and community partners to create a supportive network that enriches the learning environment and promotes positive outcomes for children. They engage in reflective practice, seeking feedback and continuously evaluating their teaching approaches to ensure they meet the diverse needs of all learners. In summary, highly qualified professionals in kindergarten are dedicated educators who are committed to the well-being and development of young children. Through their expertise, passion, and ongoing professional development efforts, they create inclusive, engaging, and meaningful learning experiences that lay the foundation for lifelong learning and success.
School leadership and c	ulture
School leadership	Cooperation with the school leadership about the subject.
High level of cooperation among staff	the school leadership, facilitating the educational process, with the necessary actions, such as communication with the organizations and the strengthening of the program
Inclusive culture	By fostering an inclusive ocean culture that embraces diversity and equity, we can create a more sustainable and resilient future for our oceans and communities. Through collaborative efforts and intentional action, we can empower individuals from all backgrounds to connect with, learn from, and protect our planet's greatest resource—the ocean
Connections	
With industry	
With parents/guardians	By engaging parents/guardians through communication channels such as newsletters, parent-teacher meetings and workshops, educators can share information about ocean-related activities and encourage families to engage in learning experiences together.
With other schools and/or educational platforms	Collaboration with other schools and educational platforms allows for the sharing of resources, ideas and best practices in ocean education, improving the quality of instruction across institutions
With universities and/or	
With local communities	Collaboration with local communities through initiatives such as beach clean-ups, guest lectures by marine experts not only enriches students' learning experiences, but also instills a sense of environmental stewardship and community involvement.







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Elements and criteria	How is this criterion addressed in	the Learning Scenario
School infrastructure		
Access to technology and equipment High quality instruction classroom materials	 gy Access to technology and equipment in school is essential for providing students with opportunities to explore, innovate, and engage in meaningful learning experiences. on High-quality teaching materials in the Kindergarten classroom include a variety of educational tools and resources, such as games, books, computer, pre-school activities and experimental programmes, which promote fun and effective learning for young 	
Activitics	learners.	
Activities	evelope the importance of protecting the second or	d marine life through a project based
learning approach. The les integrate STEM concepts,	and incorporate game-based elements for an inter-	nsibility, promote cooperative learning, active experience.
Name of activity	Procedure	Duration
I am the ocean	Ct Starting with a discussion on the importance of the oceans and their role in the health of the planet. Showing images and videos that highlight the beauty of marine life and the challenges they face due to pollution. Using thinking routines, young learners express their views on a corresponding worksheet. What I see, what I think, what I feel The master plan is presented: "The guardians of the sea". Explain to students that they will work together to find creative solutions to help the oceans and their inhabitants.	30 minutes
Reading of a fairy tale	Celia loved plastic (*) Through the story of the little seal, students understand how plastics negatively affect marine life Through the story of the little seal, students understand how plastics negatively affect marine life This is followed by a discussion with students in plenary and they are asked to record their thoughts on a worksheet. What the little seal thinks, sees, feels and does	45 minutes
Project-based learning	Divide students into small groups and present a fact-based project: "How can we help help the ocean?". Each group is responsible for brainstorming ideas and proposing a solution. Provide materials and encourage students to create visual representations of their ideas using recycled materials. For example, they could build a model of a garbage-collecting robot or design posters that promote ocean conservation. Facilitate group discussions by guiding students to consider the impact of their	45 minutes



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Nome of activity	Procedure	Durotion
Name of activity	proposed solutions and how they can make	
	a difference	
Experiential Group game	Spread a large blue cloth on the classroom	20 minutos
Experiential Group game	floor inside we place sea animals and	20 minutes
	organisms that the children have made We	
	also place waste materials such as plastic	
	and metal bottles etc. The children are	
	asked to solve the pollution by removing	
	litter from the sea	
Outdoor activity	On arrival we notice what is happening in	45 minutes
,	the sea of our city, as there is garbage in	
	the water. The students observe what is	
	happening and the kindergarten teacher	
	records their opinions. When we return to	
	school, we discuss what we can do and the	
	children suggest that we write a letter and	
	send it to the authorities of our town.	
The blue color of the	Students are divided into groups. One group	
ocean	will create a poster entitled: the blue colour	
	of the ocean, which will be sent to the	
	parents of the school and the local	
	community. The other group will create a	
	video, in which the children's drawings	
	become clipart and express their opinions,	
	like little fish, what they want for their life in	
	the sea (** youtube video at Annex)	
Ocean Pollution	Materials: Large plastic transparent	45 minutes
Experiment	container. Water, blue paint colour, small	
	stones, ligures of ocean animals, toys snips,	
	bollie, cocoa powder, vegelable oli, collon,	
	The experiment began by setting up a	
	simulation of ocean pollution using rocks	
	ocean figures water and blue paint to	
	represent the ocean Various toys and	
	vessels were added to mimic marine	
	activity A separate bottle contained cocoa	
	powder and vegetable oil to simulate an oil	
	spill. Initially, the students admired the	
	setup, observing ocean life in the clear	
	water. When the oil was introduced to the	
	toy ships, it spread rapidly, illustrating the	
	difficulty of containing and cleaning up oil	
	spills. Young students brainstormed	
	methods to remove the oil, trying tools like	
	spoons, cotton balls, and sponges. Despite	
	their efforts, they noted that the oil seemed	
	to dissolve and spread further each time	
	they attempted to remove it. Ultimately, the	
	experiment highlighted the challenges and	
	complexities involved in cleaning up ocean	
	pollution, particularly oil spills.	



Assessment

During the evaluation, a game of questions is created in kahoot

Quiz: "Let's help the ocean "
Question 1:
Which of the following items should not be thrown in the trash can to avoid ending up in the ocean?
α) Paper
b) Plastic bottle

c) Banana

Question 2:
How can we help fish and other marine animals?
α) By throwing plastic into the sea
b) Participating in beach clean-ups

c) By throwing waste fish back into the ocean

Question 3:
What should we do when we go to the beach to protect the ocean?
α) Leave our trash on the sand
b) Throw our plastic into the ocean
c) Pick up our garbage and throw it in the appropriate places

Question 4:
Why should we take care of fish and the ocean?
α) It is simply a matter of appearance
b) To protect the environment and maintain the balance in the ocean

c) It doesn't matter what we do

Question 5: How can we reduce our use of plastics to help the ocean? α) By dumping plastics in the rivers

b) By using plastic cups and plates

c) Using reusable cups and plates

Student feedback

For kindergarten students, it is important to create a method of feedback and discussion that is engaging, ageappropriate and encourages the active participation of young learners.

1. Visual aids: using visual aids such as pictures, posters or drawings of marine animals, plants and ecosystems to stimulate discussion. Ask open-ended questions such as "What do you see in this picture?" or "Can you tell me about the animals that live in the ocean?" This encourages students to observe, describe, and share their thoughts. 2, Group activities: Organizing group activities that promote cooperation and discussion, such as sorting pictures of ocean animals or participating in a simple game related to ocean habitats. We encourage students to work together, share ideas and listen to each other's views. We provide guidance and support as needed to facilitate constructive dialogue.

4. Creative Expression: Students express their thoughts and feelings through creative activities such as painting, coloring, or crafts. Provide ocean-themed art materials and ask questions such as "Can you draw your favorite sea creature?" Or "What colors would you use to paint the ocean?" This gives students the opportunity to communicate their understanding and feelings in a non-verbal way.

5. Role Play: Engage students in role-playing activities where they can pretend to be different ocean creatures or characters from a story. We encourage them to act out scenes or situations relevant to the lesson and ask



interactive and creative methods, teachers can foster curiosity, exploration, and a love of learning about the natural world. Teachers' remarks Ocean Education Results: Children's Wonder and Love for the Marine World As we complete an ocean-themed educational program in our kindergarten, I am delighted to see the positive results that have emerged. The children's curiosity and love for the marine environment developed strongly during the activities and lessons conducted. The children expressed interest in ocean life and were excited to learn about

This encourages empathy and perspective taking while promoting discussion.

results that have emerged. The children's curiosity and love for the marine environment developed strongly during the activities and lessons conducted. The children expressed interest in ocean life and were excited to learn about the different species of marine creatures, from small fish to huge whales. Through observation, storytelling and creative activity, they were able to gain a deeper understanding of the importance of the ocean for life on Earth. One of the most important observations was the interaction we saw between the children and the environment. The children showed an interest in ocean conservation and the protection of marine creatures. Even at this early age, they understood the need to take care of the environment and respect the animals that live in the ocean. As we complete this educational adventure about the ocean, I am pleased to see that our students have developed an enduring curiosity and respect for our planet and our marine friends. It is encouraging to see the impact that education can have on developing environmental awareness from an early age.

questions such as "How do you think the fish in the ocean feels?" or "What would you do if you were a dolphin?"

6. Show and Tell: Allow students to bring in ocean-related objects or items to share with the class. This could be shells, coral fragments, sea animal toys, or books about the ocean. Encourage students to describe their item and explain why it is special to them. This promotes active participation and gives students a sense of ownership of

Overall, the key is to create a supportive and inclusive environment where Kindergarten students feel comfortable sharing their thoughts, asking questions, and engaging in discussions about the ocean. Using a variety of

About the European Ocean Coalition (EU4Ocean) and Scientix

The **EU4Ocean coalition** is a European Union initiative dedicated to advancing ocean literacy and fostering a deeper understanding of the vital role oceans play in our lives. It brings together diverse stakeholders, including policymakers, educators, scientists, and citizens, to promote ocean awareness and action. By organising various activities, such as educational programs and outreach efforts, the coalition strives to empower individuals and communities to make informed decisions and take proactive measures to safeguard our oceans and combat climate change, ultimately contributing to the sustainable management of marine ecosystems in the EU and beyond.

Scientix, the community for Science Education in Europe, promotes and supports a Europe-wide collaboration among STEM (Science, Technology, Engineering and Mathematics) teachers, education researchers, policymakers, and other STEM education professionals. If you need more information, check the <u>Scientix portal</u>, or contact either the Scientix National Contact Point or Scientix Ambassadors <u>in your country</u>.

Annex(es)

their learning.

Images and worksheets created for the project that respond to Kindergarten students

https://www.canva.com/design/DAF8YfxjwVE/i1n3HnI3B0rjNG2b_JkVxA/edit?utm_content=DAF8YfxjwVE&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

(*) Fotoula loved plastics / Celia Loved Plastic Author Andricopoulos Nikolas Publications Pataki

(**) <u>https://youtu.be/s5gilphJYh0?si=EKTW10LvQonAmJnC</u>



