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TeachBlue: Teacher's Educational Activities Guide

Marine and Ocean Literacy for Early Childhood Education

Edited by
Theodoros Kevrekidis
Democritus University of Thrace

Alexandroupolis, Greece, 2025

https://teachblue.eu/

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TeachBlue: Teacher's Curriculum and Handbook

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Consortium of the project

The project involves universities, research Institutes and non-governmental organizations from 4 European Union countries - Poland, Greece, Cyprus and Portugal.

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University of Environmental and Life Sciences in Wrocław, Poland

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Preface

The TeachBlue **Teacher's Educational Activities Guide** is an integral part of the TeachBlue **Educational Toolkit**. TeachBlue is an Erasmus+ project, aiming to contribute to the promotion of ocean literacy.

This **Erasmus+ project** is the result of the collaboration of six organizations from four European countries (**Poland, Greece, Cyprus and Portugal**), each one contributing from their own point of expertise.

The TeachBlue **project aim** is in alignment with important United Nations' initiatives, including the **2030 Agenda** for Sustainable Development and the **Decade of Ocean Science** for Sustainable Development (2021-2030); these initiatives support efforts to reverse the decline in ocean health and prioritize the promotion of Ocean literacy for people to understand the **essential principles and fundamental concepts about the ocean**, who can communicate about the ocean in a meaningful way, and are able to make informed and responsible decisions regarding the ocean and its resources.

In particular, given that the **early childhood education** is considered to be a significant contributor to the Education for Sustainable Development, the TeachBlue project aims to **support early education teachers'** initial and continuous professional development by providing all the knowledge, skills, and key competences needed to teach students from a very early age about Ocean literacy.

A key objective of theTeachBlue project is the **development of an innovative future-oriented Ocean literacy Toolkit** for early education teachers to develop young children's ocean literacy.

This **Toolkit** includes a Teacher's Curriculum & Handbook, the present Teacher's **Educational Activities Guide**, a **Board Game**, and **360º underwater videos**.

The Teacher's Educational Activities Guide aims to **empower early childhood educators** to bring the wonders of our ocean into the classroom through developmentally appropriate, engaging experiences.

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I would like to **thank all the partners** in the TeachBlue project for their contribution to the development of the present educational guide.

Especially, I would like to thank my collaborator **Theodora Boubonari**, Democritus University of Thrace , **Helena Barracosa**, *Centro de Ciencias do Mar do Algarve*, **Maria Santos**, C*entro de Ciencias do Mar do Algarve*, **Monica Andreou**, *Cyprus Marine and Maritime Institute*, **Panagiota Photiou**, Cyprus Marine and Maritime Institute, **Andromachi Gkoulia**, *Cyprus Marine and Maritime Institute*, **Merve Buba**, *STANDO LTD*, & **Anna Nicolaou**, *STANDO LTD*, for their contribution to the writing of this guide, as well as **Cristina Morar**, *Dracon Rules Design Studio* for artwork and layout.

Theodoros Kevrekidis
Professor, Democritus University of Thrace

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Introduction

The TeachBlue Teacher's Educational Activities Guide **empowers early childhood educators** to bring the wonders of our ocean into the classroom through developmentally appropriate, engaging experiences.

The TeachBlue **Educational Activities Guide** contributes to:

- Worldwide sustainability initiatives by aligning with **UNESCO's Ocean Literacy Framework**
- The UN Sustainable Development **Goal 14 (Life Below Water)**
- The UN Decade of **Ocean Science for Sustainable Development** (2021-2030)

By nurturing ocean awareness in our youngest learners, we lay the groundwork for a generation that understands and values our blue planet. This comprehensive resource transforms Ocean Literacy concepts into **accessible learning adventures for young children aged 4-8**, fostering a foundation for lifelong ocean stewardship.

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TeachBlue integrates Ocean Literacy principles into Early Childhood Education and Care (ECEC) through:

Child-centered learning experiences that honor young children's natural curiosity and ways of learning

↓

Play-based discovery that makes complex ocean concepts accessible through familiar materials and activities

↓

Multi-sensory explorations allowing children to see, touch, create, and imagine ocean environments

↓

Inclusive approaches ensuring all children, regardless of background or ability, can engage with ocean learning.

This guide offers educators:

- Ready-to-implement **lesson plans** requiring minimal preparation and using accessible materials
- Flexible **teaching strategies** adaptable to diverse learning environments and student needs
- Authentic **assessment tools** capturing young children's developing understanding through observation and documentation
- **Digital and hands-on resources** including our specialized board game and immersive 360° video experiences
- **Cross-curricular connections** integrating ocean concepts with language, math, art, movement, and social development

Guide Organization

Section 1: Understanding Ocean Literacy

It introduces the fundamental principles of Ocean Literacy and their relevance to early childhood development, explaining key concepts in accessible language for educators new to the field.

Section 2: Ocean Literacy Competencies for Early Childhood

It outlines developmentally appropriate expectations for young learners, organized by cognitive, social-emotional, and physical domains to support whole-child development through ocean exploration.
development, explaining key concepts in accessible language for educators new to the field.

Section 3: Authentic Assessment Approaches

It provides practical tools for observing, documenting, and celebrating children's growing understanding of ocean concepts through portfolio assessment, and observation frameworks.

Section 4: Interactive Lesson Collection

It is organized in seven modules aligned with the seven principles of the Ocean Literacy Framework and it features engaging, classroom-tested activities, each including learning objectives, material lists, step-by-step instructions, and extension ideas.

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SECTION 1

Understanding Ocean Literacy

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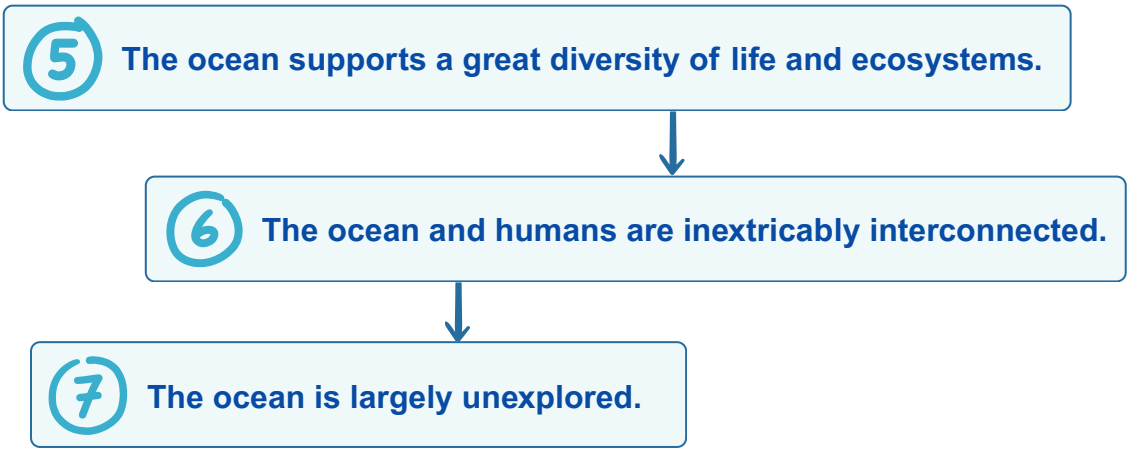
The Ocean Literacy movement is a broad effort by scientists and educators that began in the US in 2002, with the aim of **including Ocean Sciences in school curricula**. The knowledge that citizens must acquire by the end of high school **(Grade 12)** in the US was identified so that they would be considered **ocean literate**, and the "**Ocean Literacy Framework**" was developed.

The Ocean Literacy Framework includes the "**Ocean Literacy Guide**" and the complementary **"Ocean Literacy Scope and Sequence for Grades K-12**". The "Ocean Literacy Guide" describes the definition of ***Ocean Literacy*** ("the understanding of the ocean's impact on us and our impact on the ocean"), the definition of an ***ocean literate person*** ("a person who understands the basic principles and fundamental concepts about the ocean, can communicate about the ocean in a meaningful way, and is able to make informed and responsible decisions about the ocean and its resources") and the **7 Essential Principles and 45 Fundamental Concepts of Ocean Literacy** that all students in the U.S. should understand by the end of high school.

The **45 Fundamental Concepts of Ocean Literacy** specialize the 7 Essential Principles. **The 7 Essential Principles of Ocean Literacy** are presented below, while the 45 Fundamental Concepts of Ocean Literacy can be obtained from the website **https://oceanliteracy.wp2.coexploration.org/ocean-literacy-framework/**.

The 7 Essential Principles of Ocean Literacy are:

1. **The Earth has one big ocean with many features.**
2. **The ocean and life in the ocean shape the features of Earth.**
3. **The ocean is a major influence on weather and climate.**
4. **The ocean made the Earth habitable.**



The complementary "**Ocean Literacy Scope and Sequence for Grades K-12**" shows, graphically,

- the **science concepts** underlying the Principles and how they are connected;
- **developmental appropriateness** - what students need to know to help them understand the higher-level concepts; and
- how **instruction** of the concepts might "flow".

In particular, the Ocean Literacy Scope and Sequence is comprised of **28 conceptual flow diagrams.** There is one conceptual flow diagram for each principle for each grade band **(K-2, 3-5, 6-8, and 9-12)**.

Each **flow** represents one possible way of breaking down and organizing the major concepts and supporting ideas for each principle for a grade band. They can be used as a suggested instructional sequence, organizer of ideas, and/or indicator of learning progression.

The "**Ocean Literacy Scope and Sequence for Grades K-12**" can be obtained from the website https://oceanliteracy.wp2.coexploration.org/ocean-literacy-framework/.

In the **second section of the present handbook**, the conceptual flow diagrams for the grade band K-2 are presented, accompanied by synoptic texts providing the necessarily content knowledge.

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SECTION 2

Ocean Literacy Competencies for Early Childhood

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Ocean literacy in early childhood education creates the foundation for lifelong ocean appreciation and stewardship. These developmentally appropriate competencies recognize young children's natural curiosity and ways of learning while introducing them to our ocean world through playful, sensory-rich experiences.

01 Awareness of the Ocean

Helping children recognize that the **ocean exists and there is only one**, understand its significance, and identify its basic features (e.g., waves, beach, marine life).

02 Exploration and Discovery

Encouraging curiosity about the ocean through **hands-on activities**, such as experiments, beach walks, water play, and observations of marine animals (like fish, crabs, and sea turtles).

03 Connection to Nature

Fostering a sense of **wonder and appreciation for nature**, teaching children to observe and respect the ocean, as well as other marine ecosystems, and its inhabitants.

04 Basic Ecosystem Understanding

Introducing simple concepts about marine life and ecosystems, such as **food chains and the roles** of different organisms (e.g., **plants, fish, and mammals**).

05 Human Impact Awareness

Teaching young children about how **human actions can affect the ocean**, such as pollution and littering, in an age-appropriate manner.

06 Cultural Significance

Sharing **stories** and **traditions** related to the ocean from various cultures, emphasizing the **ocean's role** in different **communities**.

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07 Creative Expression

Encouraging children to **express** their understanding of the ocean through **art, music, and storytelling,** helping them to connect emotionally with the topic.

08 Environmental Stewardship

Instilling **values of caring** for the environment, promoting actions like **recycling** and **respecting nature**, even at a young age.

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SECTION 3

Authentic Assessment Approaches

Assessing ocean literacy in early childhood education can be approached through the following tools and methods that are engaging and appropriate for young learners:

01 Observation Checklists

Educators can use **checklists** to observe children's interactions with ocean-related activities, noting their curiosity, engagement, and understanding of concepts related to the ocean.

02 Portfolios

Collecting **children's work** overtime, such as **drawings**, **crafts**, and **written** reflections about the ocean, can provide insights into their learning and development in ocean literacy.

03 Storytelling and Role Play

Encouraging children to **tell stories** or engage in **role play** related to ocean themes allows educators to assess their understanding and ability to express ocean concepts creatively.

04 Interactive Games

Utilizing **games** that incorporate ocean themes, such as matching marine animals to their habitats or sorting waste to understand recycling, can be both fun and informative for assessing knowledge.

05 Art Projects

Assessing children's art projects inspired by ocean themes can reveal their understanding of marine life and ecosystems, as well as their **creativity** and **expression**.

06 Group Discussions

Facilitating group discussions or circle time where **children share** what they know about the ocean can help educators gauge their understanding and ability to articulate their thoughts.

07 Questionnaires or Surveys

Simple, illustrated questionnaires can be designed for young children to express what they've **learned about the ocean**, using pictures or symbols to represent their ideas.

These **tools** can be adapted to fit the specific context and **age group**, ensuring that assessments are meaningful and supportive of children's ongoing development in ocean literacy.

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SECTION 4

Interactive Lesson Collection

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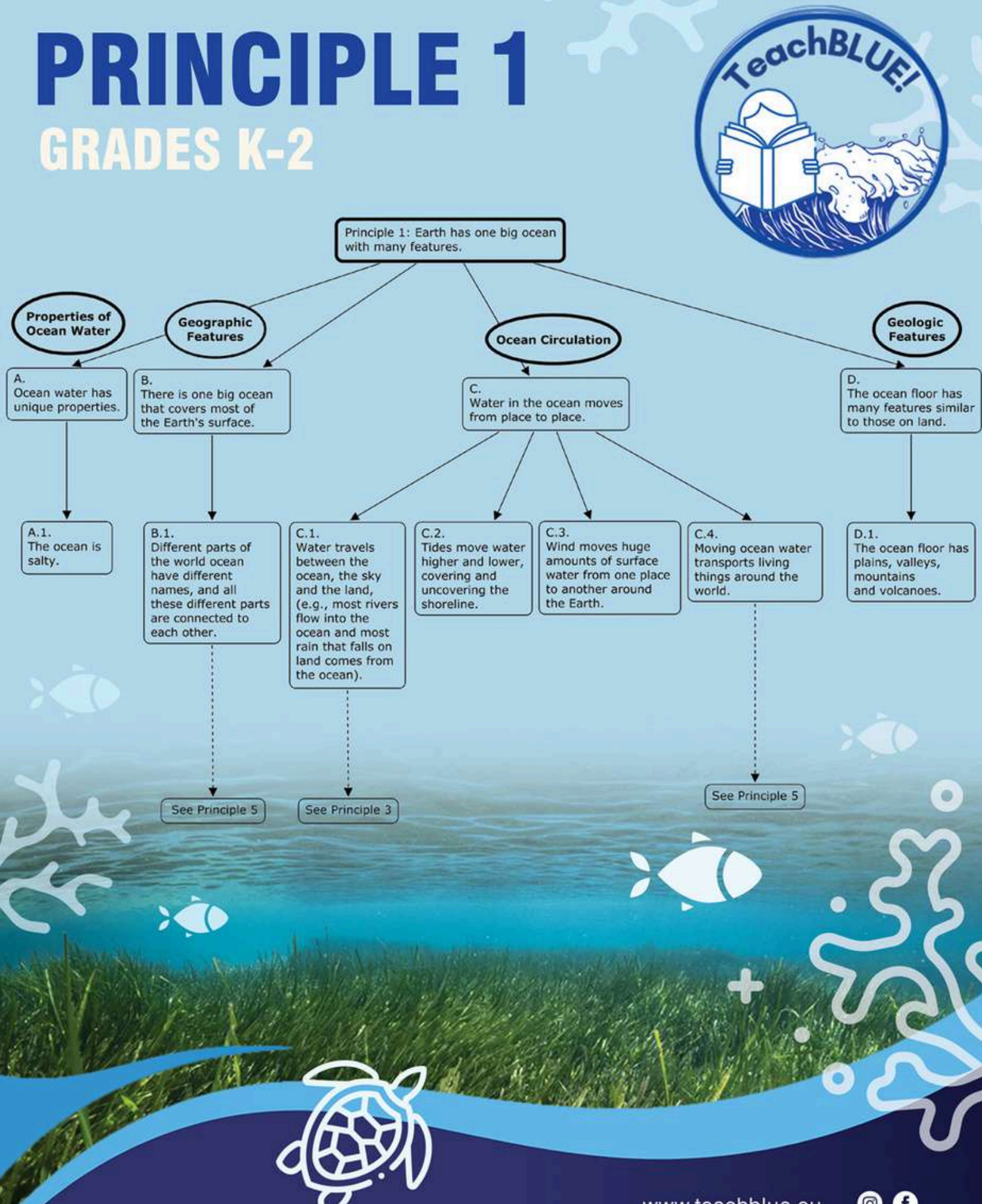
Module 1:

The Earth has one big ocean with many features.

The expected learning outcomes for Module 1 according to the Scope and Sequence are the following:

Students should be able to:	• identify that most of the planet is covered by seawater (B1). • locate and map continents and ocean basins (B1). • report that seawater is salty (A1). • describe how waves and sea currents are created (C3, C4). • recognize and name the geological features of the seabed (D1). • start to realize the processes of scientific investigation and conduct, communicate about, and evaluate such investigations.

Conceptual flow diagram for Grades K–2 for Principle 1:



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A 3-Part Lesson plan Series:
"Exploring Our Ocean Planet"

Overview	This comprehensive lesson series combines discovery-based learning with hands-on activities to help early childhood learners understand that most of our planet is covered by oceans, to identify major ocean basins and continents understand basic properties of ocean water. The three-part series builds knowledge progressively while maintaining engagement through varied activities. It flows from initial discovery to hands-on creation and finally to scientific exploration. Each 45-minute session has a specific focus but reinforces the same core learning objectives about our planet being mostly covered by oceans.
Total Duration	3 sessions of 45 minutes each
Key Learning Objectives:	By the end of this series, students will be able to: • recognize that most of Earth is covered by seawater (B1) • identify and locate major ocean basins and continents (B1) • understand basic properties of ocean water (B1)
Core Competencies	• Ocean awareness • Exploration and discovery • Creative expression • Sensory engagement • Collaborative learning

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LESSON PLAN 1: "Finding the Oceans"

LEARNING objectives

- Identify that most of Earth is covered by seawater
- Locate and name the major ocean basins

MATERIALS needed

- inflatable or beach ball globe
- Large world map (preferably laminated)
- Blue washable marker
- Labels with names of oceans
- 360° ocean video

LESSON flow

Opening activity (5 minutes)

- Begin with the 360o ocean video
- Gather in a circle, discuss on the video and ask: "Who has been to the ocean? What did you see/hear/smell?"

Exploration phase (15 minutes)

1. **Globe Investigation**
   - Children sit in a circle and toss an inflatable globe. When they catch it, note if their thumbs are on water (blue) or land (green).
   - After several rounds, discuss: "Did your thumbs land more on blue or green? Why?"
   - Ask children to observe the colors of the globe.
   - Ask: "What do you think the blue parts represent? And the green/brown parts?"
   - Introduce vocabulary: "ocean" and "land/continent"
   - Help children reach the key concept: "Most of our planet is covered by water - the oceans!"

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LESSON flow

Discovery (20 minutes)

1.World Map Exploration

- Gather around the classroom map
- Use a blue washable marker to trace ocean outlines together.
- Guide children to point out: "The ocean is one big connected body of water"
- Add that we give different areas of the ocean special names.
- Point to and name each ocean basin with a simple fact:
  - Pacific Ocean (largest and deepest)
  - Atlantic Ocean (between Americas and Europe/Africa)
  - Indian Ocean (named after India)
  - Arctic Ocean (cold, near North Pole)
  - Southern Ocean (surrounds Antarctica)
- For each ocean, do a physical movement (make waves with arms for Pacific, shiver for Arctic, etc.)

2.Interactive Labeling Activity

  - Select volunteers to place labels on the correct ocean locations
  - For younger children, guide their hands to the correct location
  - Encourage the class to repeat each ocean name together

Closing (5 minutes)

- Review key learning: "Who can tell me which covers more of Earth - land or water?"
- Preview next session: "Next time, we'll make our own mini-globes!"

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LESSON PLAN 2: "Creating Our Own Globes"

LEARNING objectives

- Reinforce understanding that most of Earth is covered by oceans
- Practice locating continents and ocean basins

MATERIALS needed

- Blue balloons (one per student)
- Printed continent outlines on paper
- Scissors (child-safe)
- Glue sticks
- Markers
- Sample completed balloon globe

LESSON flow

Opening phase (5 minutes)

- Review previous lesson: "Who remembers what we learned about Earth?"
- Show the sample balloon globe: "Today we're making our own Earth models!"

Creation (30 minutes)

1. **Continent Preparation**
   - Distribute continent outlines to each student
   - Guide students in coloring the continents (green/brown)
   - Help with cutting out the shapes as needed
2. **Globe Assembly**
   - Distribute blue balloons (pre-inflated and tied)
   - Demonstrate how to apply glue to continent shapes
   - Help students position continents correctly on their balloons
   - Ask children: "What does the blue balloon represent? What do we add?"
3. **Ocean Identification**
   - Once continents are attached, have students locate the spaces between continents
   - Help them identify: "This space between North America and Europe is the Atlantic Ocean"
   - Have students point to different oceans on their balloon globes

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LESSON flow

Sharing (10 minutes)

- Gather in a circle with balloon globes
- Ask volunteers to show their globe and name one ocean
- Reinforce: "Notice how much more blue (ocean) there is than green (land)!"

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LESSON PLAN 3: "Exploring Ocean Characteristics"

LEARNING objectives

- Understand that ocean water is salty
- Reinforce that oceans cover most of Earth's surface

MATERIALS needed

- Clear plastic water bottles (one per group)
- Sand
- Blue food coloring
- Water
- Small measuring cups
- Plastic sheets
- Samples of salt water and fresh water
- Black construction paper

LESSON flow

Opening phase (5 minutes)

- Review previous lessons: "What have we learned about our planet so far?"
- Introduce today's activities: "Today we'll discover what makes ocean water special!"

Part 1: Earth in a Bottle (20 minutes)

1. **Setup**
   a. Divide class into small groups of 4 students
   b. Distribute materials to each group
2. **Earth Bottle Creation**
   a. Draw a line at 1/4 of the bottle height
   b. Guide students to fill to the line with sand ("This is like the land")
   c. Help them add blue-colored water to fill the remaining 3/4 ("This is like the ocean")
   d. Secure caps tightly

3. **Discussion**
   a. Have groups observe their bottles
   b. Ask: "Which takes up more space - the sand or the water?"
   c. Connect to the globe: "This shows us how most of Earth is covered by oceans!"

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LESSON flow

Part 2: Salty Ocean Discovery (15 minutes)

1. **Water Comparison Setup**
   - Place black construction paper under plastic sheets
   - Put several drops of salt water on one sheet and fresh water on another
   - Place in a sunny spot or near a heater
2. **Observation and Prediction**
   - Ask: "What do you think will happen to the water drops?"
   - Check sheets periodically as water evaporates
3. **Discovery Discussion**
   - Observe salt crystals left behind
   - Explain: "Ocean water contains salt that stays behind when water dries up"
   - Connect to the senses: "This is why ocean water tastes different from tap water"

Closing (5 minutes)

- Review key learnings from all three lessons
- Ask students to share one new fact they learned about oceans
- Display balloon globes and bottle models in classroom as reminders

ASSESSMENT

- Observe student participation in activities
- Check accuracy of ocean identification during labeling
- Review balloon globes for appropriate continent placement
- Listen for use of new vocabulary (ocean names, continent, etc.)

EXTENSIONS

- Create an ocean-themed reading corner
- Create a class book about oceans with student drawings

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LESSON PLAN 4:
"How Waves and Currents are made!"

OVERVIEW

This hands-on, discovery-based lesson introduces young learners to the fundamental forces that move oceans. Through two engaging experiments, students will observe, predict, and explain how wind generates waves and how temperature differences drive ocean currents.

Throughout the lesson, guided questioning encourages scientific observation and connection-making between classroom models and real ocean phenomena. By integrating visual, auditory, tactile, and kinesthetic learning approaches, this lesson makes complex oceanographic concepts accessible and memorable for early childhood learners while building foundational science skills.

DURATION

45-50 minutes

LEARNING objectives

- Describe how waves are created by wind (C3)
- Observe and explain how temperature differences create ocean currents (C4)
- Connect classroom models to real-world ocean phenomena

CORE Competencies

- Ocean awareness
- Exploration and discovery
- Sensory engagement
- Collaborative learning
- Scientific observation and prediction

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MATERIALS

For Wave Activity:

- White plastic plates (one per small group)
- Drinking straws (one per student)
- Water
- Dried oregano
- Pictures of ocean waves (calm and stormy)
- Ocean wave sounds (audio)
- Blue fabric or paper strips (for movement activity)

For Currents Activity:

- See-through plastic container
- Room temperature water
- Blue ice cube (colored with blue food coloring) in small cups
- Small bottle of warm red water (colored with red food coloring)
- World map showing major ocean currents

LESSON *flow*

Introduction (5 minutes)

- Gather students in a circle and play ocean wave sounds
- Show pictures of ocean waves and ask: "What makes the water move like this?"
- Introduce the concept: "Today we're going to discover how waves and currents move ocean water!"

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LESSON flow

Wave Investigation (20 minutes)

Setup and Prediction (5 minutes)

- Divide students into small groups (3-4 students)
- Distribute plates filled with water to each group
- Before adding oregano, ask: "What do you think will happen if we blow across the water?"
- Have students draw their predictions

Exploration (10 minutes)

1. Demonstrate sprinkling oregano on water surface (explaining it helps us see the water movement)
2. Show how to gently blow across the surface with a straw
3. Guide student observations:
    - "What happens to the water when you blow softly?"
    - "What happens when you blow harder?"
    - "Watch the oregano - where does it move?"

Movement Break and Connection (5 minutes)

- Have students stand in a circle with blue fabric/paper strips
- When you say "gentle breeze" - students sway strips gently
- When you say "strong wind" - students wave strips vigorously
- Connect: "The wind makes waves in the ocean just like your breath made waves in the plate!"

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LESSON flow

Current Investigation (20 minutes)

This activity should be demonstrated by the teacher for safety reasons.

Setup and Prediction (5 minutes)

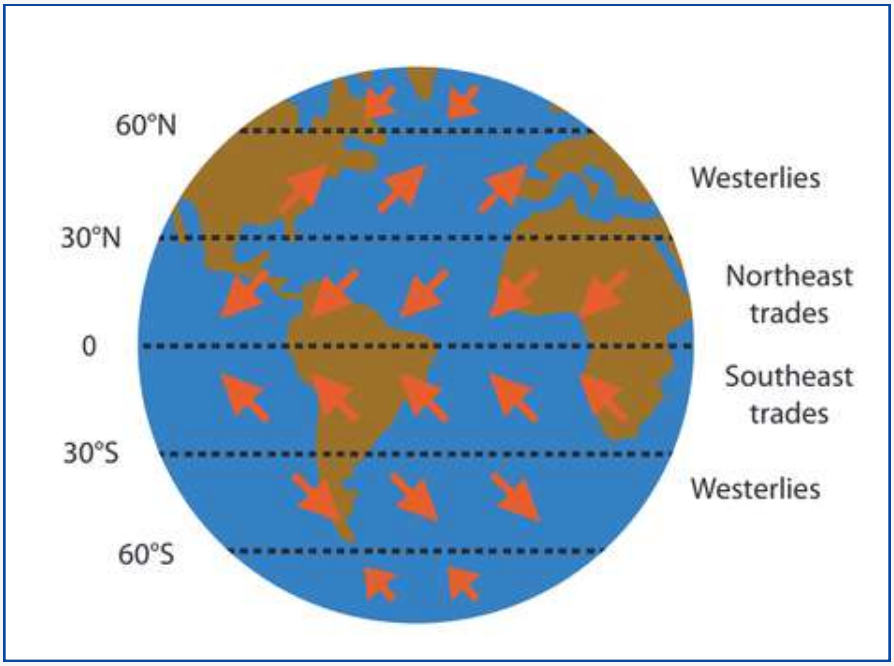
- Gather children in a circle
- Present the see-through container with the room temperature water
- Ask: "What do you think will happen when we add very cold blue water to one side and warm red water to the other side?"
- Have students draw predictions

Exploration (10 minutes)

1. Carefully add blue ice cube to one side of each container
2. Add the open bottle with the red water in the container
3. Have students observe carefully, noting:
    - How the colors move
    - Which direction they travel
    - Whether they mix or stay separate

Discussion and Connection (5 minutes)

- Gather in circle to share observations
- Show simple map of ocean currents (for older children)



LESSON flow

- Explain: "In the ocean, cold water from the poles and warm water from the equator create currents - underwater rivers that move around the world!"
- Compare the container to the ocean: "Your blue cold water is like water from the North Pole, and red warm water is like water from hot places near the equator."

Closing (5 minutes)

- Review key concepts: "What creates waves? What creates currents?"
- Connect to the real world: "Next time you see waves at the beach or in a pool, remember what's making them move!"
- Optional: Have students do a quick drawing of waves and currents

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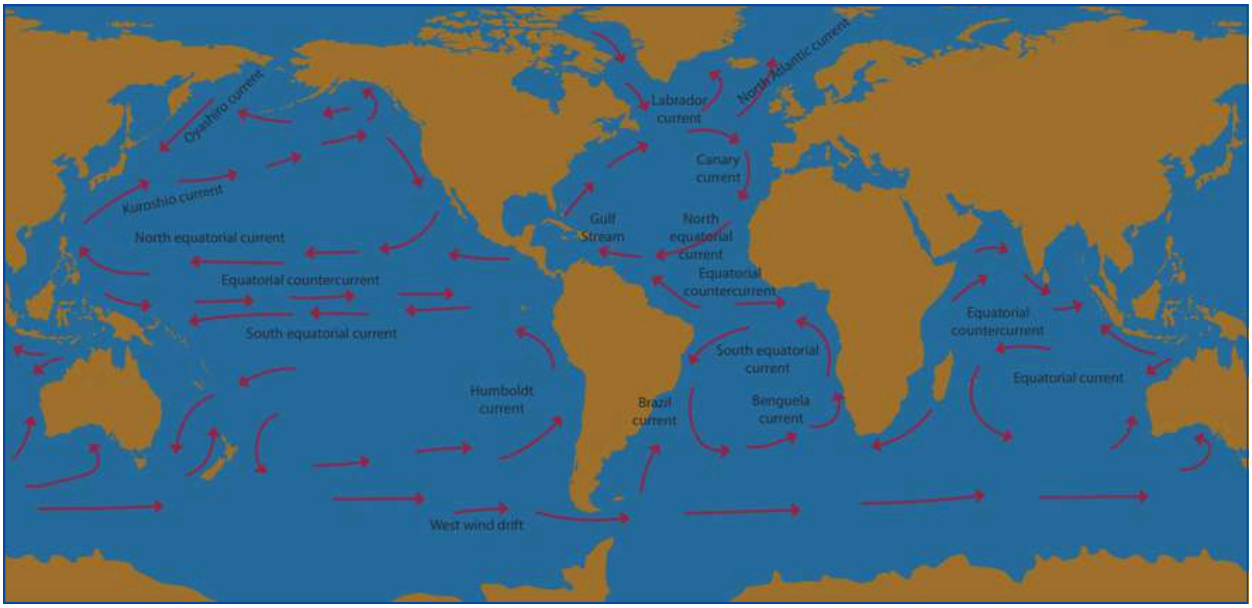
EXTENSIONS

- Create a classroom "wave jar" (water, oil, and blue food coloring in a sealed jar)
- Make wave bottles (water, oil, blue food coloring in sealed water bottles)
- Add ocean current study to a world map activity (for older children)



ASSESSMENT *Strategies*

- Listen for scientific vocabulary during discussions (waves, currents, temperature)
- Observe accuracy of student predictions and explanations
- Have students demonstrate with their bodies how waves and currents move
- Ask students to explain what causes waves and currents in their own words

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LESSON PLAN 5: "Let's Create Our Own Ocean Floor!"

OVERVIEW

This hands-on, creative lesson introduces young learners to ocean floor topography through sensory exploration and model building. Students discover that, contrary to what they imagine, the ocean floor isn't flat but contains mountains, valleys, trenches, and plains similar to land formations.

Throughout the activity, students develop spatial reasoning skills and scientific vocabulary while engaging their creativity and fine motor skills. This multi-sensory approach makes abstract geographical concepts tangible and memorable for young learners while fostering ocean awareness and scientific curiosity.

DURATION

45-50 minutes

LEARNING objectives

Students will be able to:

- Recognize and name key geological features of the ocean floor/seabed (D1)
- Understand that the ocean floor has varied terrain similar to land
- Create a 3D model demonstrating understanding of ocean floor topography

CORE Competencies

- Ocean awareness
- Exploration and discovery
- Creative expression
- Collaborative learning
- Spatial reasoning

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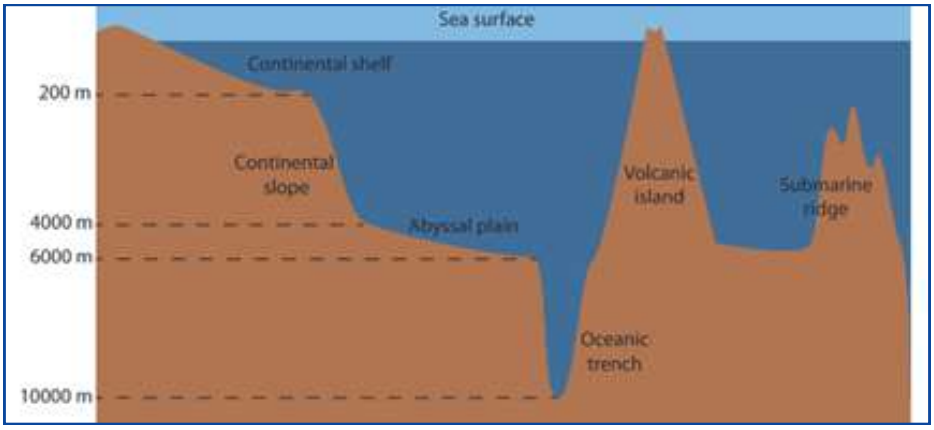
MATERIALS

For Each Small Group:

- See-through plastic container (shoebox-sized)
- Modeling clay (enough for each student to work with)
- Blue food coloring
- Water pitcher
- Paper towels for cleanup
- Small labels or toothpick flags to mark features
- Clay tools (plastic knives, popsicle sticks)

For Teacher:

- Large visual diagram of ocean floor features (labeled)
- Pre-made example of ocean floor model
- Underwater 360o video



Vocabulary Focus

- Continental shelf
- Continental slope
- Abyssal plain
- Oceanic trench
- Volcanic island
- Submarine ridge

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LESSON flow

Introduction (10 minutes)

- Gather students in circle and show underwater video and the picture of the ocean floor
- Ask: "What do you think the bottom of the ocean looks like? Is it all flat?"
- Introduce vocabulary using the picture: "The ocean floor has mountains, valleys, and plains just like on land!"
- Show pre-made example and point out key features
- Explain: "Today we're going to create our own ocean floor models!"

Exploration Phase (10 minutes)

- Display large image of ocean floor features
- Demonstrate how to create each feature with clay:
  - Continental shelf (gradual slope)
  - Deep ocean trench (steep valley)
  - Volcanic island (underwater mountain)
  - Abyssal plain (flat area)
  - Submarine ridge (long mountain range)
- Practice vocabulary together, using hand motions to represent each feature
- For younger children you can focus on less features

Creation Phase (20 minutes)

1. Divide students into small groups (3-4 per group)
2. Distribute containers and clay to each group
3. Guide students step-by-step:
   - First, create the container bottom features together
   - Ensure each group includes at least 3 different ocean floor features
   - Encourage children to work together to connect their individual creations
   - Help them add small labels or flags to identify each feature they create
4. Circulate and ask guiding questions:
   - "What feature are you creating?"
   - "Is your ocean trench deep or shallow?"
   - "Where would fish or other sea creatures live in your ocean?"

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LESSON flow

Reveal Activity (10 minutes)

- Gather students around a demonstration table
- Slowly pour blue-tinted water into each container
- Ask students to observe how the water changes the appearance of their creation
- Encourage each group to point out and name the features in their ocean floor
- Take photos of each completed model for classroom display

Reflection and Closure (5 minutes)

- Gather in a circle and review key vocabulary
- Ask: "What was your favorite ocean floor feature to make?"
- Connect to the real world: "Scientists use special submarines to explore the real ocean floor!"

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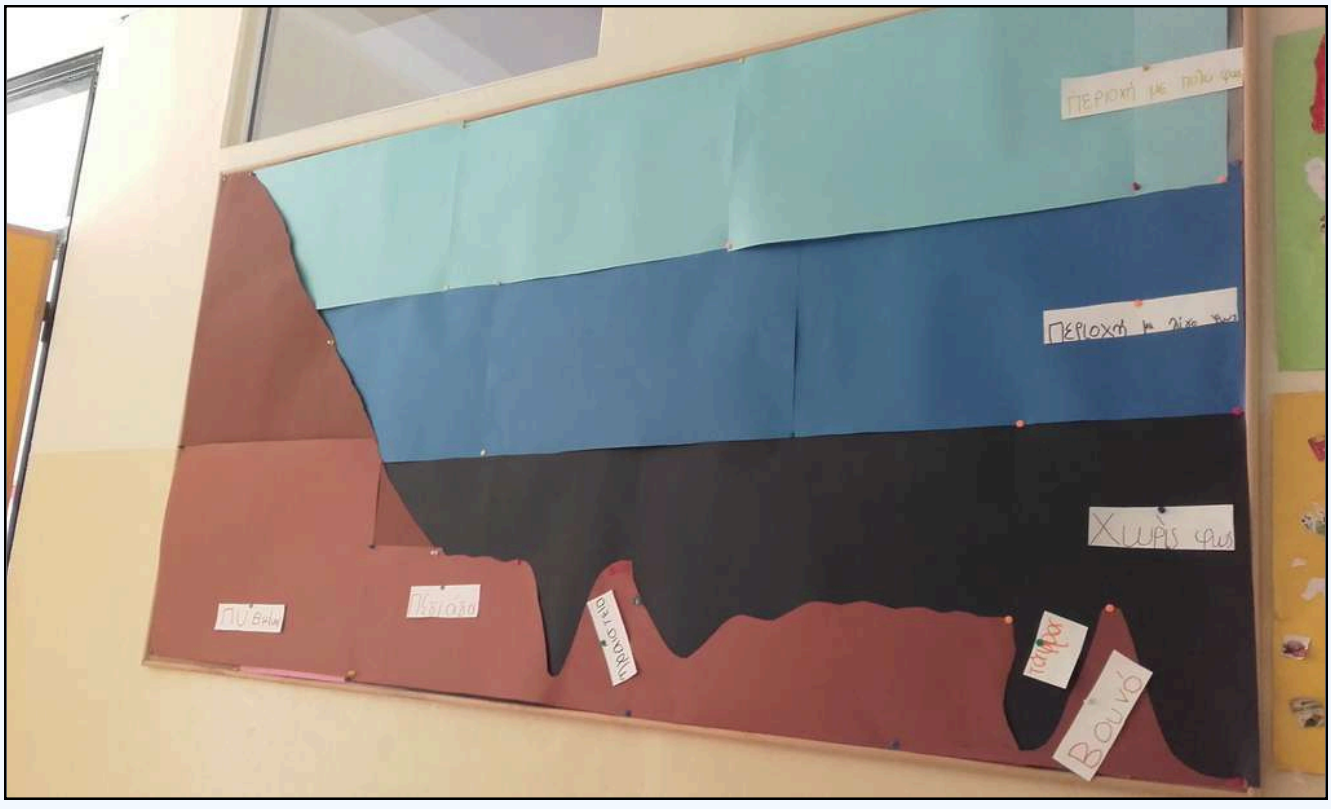
EXTENSIONS

- Create a classroom display of ocean floor models with labeled features
- Add small plastic sea creatures to the models in appropriate habitats
- Read books about deep ocean exploration in reading corner

ASSESSMENT *Strategies*

- Listen for correct use of vocabulary during creation phase
- Observe accuracy of feature creation in models
- Have students point to and name features in completed models
- Create a simple poster for ocean floor features



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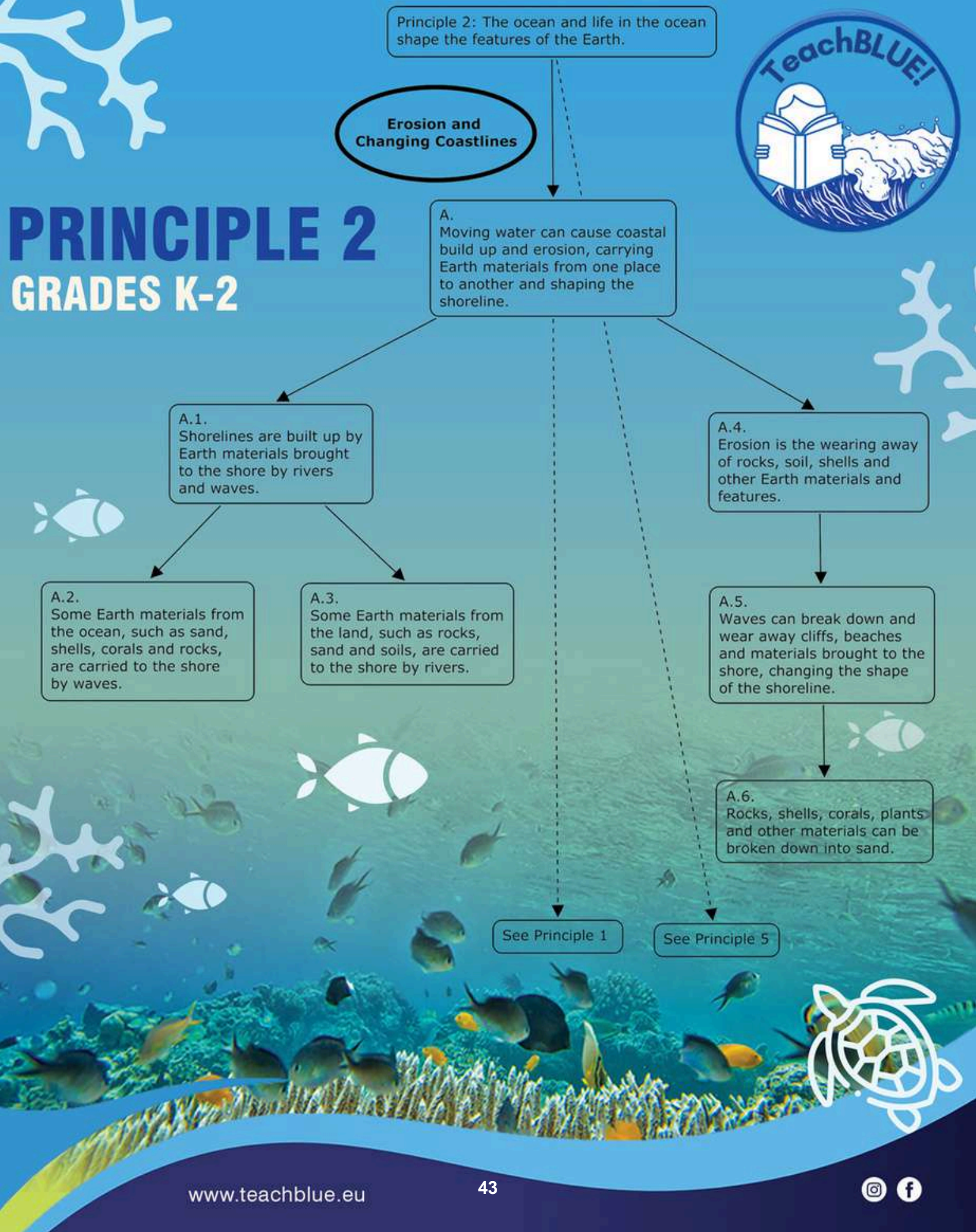
Module 2:

The ocean and life in the ocean shape the features of Earth.

The expected learning outcomes for Module 2 according to the Scope and Sequence are the following:

Students should be able to:	• **recognize that river water can change the shape of land** through erosion and deposition processes. • **describe how waves move sand on beaches and affect their structure.** • **recognize that sand comes from rocks and shells** that have been broken down by ocean waves.

Conceptual flow diagram for Grades K–2 for Principle 2:



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LESSON PLAN 1:

River Meets the Sea (also aligned with principle 6_C21)

OVERVIEW

This lesson introduces young learners to the concept of how rivers and oceans interact to shape Earth's landforms, specifically focusing on delta formation. Through hands-on investigation, students will observe how moving water carries and deposits materials, creating new landforms where rivers meet the sea.

Students will engage with real-world images, conduct a model river delta experiment, and connect their observations to coastal landforms. This interactive approach helps young children build foundational understanding of how water shapes our planet's surface through processes they can see and describe.

DURATION

60 minutes

LEARNING *objectives*

Students will be able to:

1. Recognize that rivers flow into the ocean and create special landforms called deltas (A1, A3)
2. Observe how moving water can carry and deposit materials (A1, A3)

CORE *Competencies*

- Exploration and discovery
- Creative expression
- Connectedness to the ocean
- Collaborative learning

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MATERIALS

- Plastic containers with gradient (one per small group)
- Soil or sand
- Small rocks and pebbles
- Small pieces of leaves or twigs
- Water bottles
- Aerial images of river deltas from around the world
- Chart paper and markers
- Hand lenses (magnifying glasses)
- Crayons or colored pencils

VOCABULARY

- Delta
- River
- Sediment
- Erosion

LESSON *flow*

Opening activity (10 minutes)

1. **Circle Time Discussion:**
   - "What happens to water in streams and rivers?"
   - "Have you ever seen a river? Where was the water going?"
2. **Image Study:**
   - Show students aerial images of river deltas
   - Ask: "What do you notice about where the river meets the ocean?"
   - Point out the fan-shaped area where rivers meet the sea
   - Invite students to use descriptive words for what they see

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LESSON flow

Exploration phase (25 minutes)

Setup Instructions:

1. Divide students into small groups (3-4 students per group /work as a whole class for the demonstration)
2. Distribute materials to each group:
   - Plastic container with gradient
   - Soil/sand
   - Small rocks and pebbles
   - Small leaves/twigs
   - Water bottle

Procedure:

1. Guide students to set up their model:
   - Place soil/sand on the higher end of the container
   - Use fingers to create a river channel
   - Position rocks and leaves along the riverbank
   - Pour water into the lower end to create the "sea"
2. Investigation:
   - Have students slowly pour water at the top of their river channel
   - Direct them to observe what happens as water carries materials downhill
   - Ask: "Where do the rocks and leaves go?"
   - "What shape forms where the river meets the sea?"
   - Encourage use of vocabulary: "The water is depositing materials in the sea"

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LESSON flow

Explanation phase (15 minutes)

- Gather students back together
- Ask each group to share one thing they observed
- Explain: "The place where a river meets the ocean is called a delta"
- "The river carries soil, sand, and other materials downstream"
- "These materials are deposited where the river slows down as it meets the ocean"
- "Over time, these deposits build up and create new land"
- Draw a simple diagram showing river flow and delta formation
- Use hand motions to show how water slows down and drops materials

Extension (10 minutes)

Delta Drawing Activity:

- Provide students with paper and crayons/colored pencils
- Have them draw their own river delta
- Encourage them to label parts: river, ocean, delta

ASSESSMENT

- Observe student participation during the activity
- Listen for use of vocabulary terms during discussions
- Ask students to complete the sentence: "A delta forms when..."
- Have students draw one thing they learned about how rivers shape the land
- Create artwork using natural materials to represent a delta

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LESSON PLAN 2:

"The Disappearing Beach: How Waves Change Our Coasts"

OVERVIEW

The lesson uses developmentally appropriate materials and vocabulary to help young learners understand how water shapes land over time. Through prediction, observation, and discussion, students build early science skills while exploring an environmental concept that affects coastal communities.

The experiment's dramatic visual results (disappearing sand and tipping toys) create memorable learning moments that help establish foundational understanding of erosion processes.

DURATION

45-60 minutes

LEARNING *objectives*

Students will be able to:

- describe how waves cause erosion on beaches
- make predictions and record observations concerning beach erosion
- understand that water can change the shape of land over time
- connect their experiment to real-world coastal changes

CORE *Competencies*

- Awareness of the Ocean
- Exploration and discovery
- Connectedness to the nature
- Creative expression
- Collaborative learning

PREPARATION

1. Set up stations with materials for each small group
2. Display coastal erosion images for reference

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MATERIALS

- Plastic containers with a Awareness of the Ocean
- Exploration and discovery
- Connectedness to the nature
- Creative expression
- Collaborative learning
- gradient (one per group)
- Sand or soil
- Small toys (umbrella, table, chair) for each group
- Water
- Plastic spatulas
- Student observation sheets (with simple "before" and "after" drawing spaces)
- Pencils and crayons
- Images showing coastal erosion "before" and "after"

LESSON *flow*

Introduction (10 minutes)

1. Gather students in a circle and show them the "before" and "after" coastal images.
2. Ask: "What do you notice is different between these pictures?"
3. Ask: "What do you think made these changes happen?"

Exploration phase: The Disappearing Beach Experiment (25-30 minutes)

1. **Predict:**
   - Show students the materials for the experiment.
   - Ask: "What do you think will happen to our beach and toys when waves come?"
2. **Experiment:**
   - Guide students to create their beach scene:
     - Put sand on the gradient side of the container
     - Place the umbrella, table, and chair on the "beach"
     - Add water to the non-gradient side to create the "sea"
   - Demonstrate how to use the spatula to create gentle waves
   - Have students take turns making waves in their groups
   - Encourage students to observe closely what happens to the beach and toys
3. **Observe:**
   - After several minutes of wave-making, ask students what they see now
   - Ask guiding questions: "What happened to the sand? What happened to the umbrella/toys? Where did the sand go?"

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LESSON flow

Reflection and Connection (10 minutes)

1. Gather students back together and discuss:
   - "What happened to your beach when the waves came?"
   - "Did anything surprise you?"
   - "How is this like the real beach pictures we looked at?"
2. Create a simple cause-and-effect chart together:
   - "Waves hit the beach" → "Sand moves away" → "Toys fall over or get buried"

Extension/Conclusion (5 minutes)

1. Ask students: "What could people do to protect beaches from washing away?"
2. Share that some beaches have special walls or plants to help hold the sand in place.
3. Have students complete a sentence frame: "I learned that waves can _____."

ASSESSMENT

- Observation of student participation
- Completed before/after drawings
- Verbal responses during discussions

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LESSON PLAN 3:

"Sandy Secrets: Exploring Beach Materials"

OVERVIEW

This 60-minute lesson introduces K-2 students to ocean literacy through hands-on investigation of beach sand. Students will examine sand samples using magnifying glasses, categorize beach materials as natural or human-made, and develop hypotheses about sand origins.

The lesson builds observational skills, introduces environmental awareness about ocean pollution, and helps students understand that beaches contain both natural elements and human impacts. Through collaborative group work and guided inquiry, students will develop classification skills while gaining appreciation for ocean environments.

DURATION

60 minutes

LEARNING objectives

Students will be able to:

- describe properties of beach sand using scientific tools
- Students will classify beach materials as natural or human-made
- Students will develop hypotheses about where sand comes from
- Students will understand that human activities impact beach environments

CORE Competencies

- Awareness of the Ocean
- Exploration and discovery
- Connectedness to the nature
- Creative expression
- Collaborative learning

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MATERIALS

- Sand samples collected from beach (one sample per group)
- Magnifying glasses or simple stereoscopes
- White paper sheets
- Sorting trays or paper plates
- Pictures showing different sand grain sizes (fine/small vs. coarse/large)
- Pictures showing different sand grain shapes (round/smooth vs. angular/rough)
- Chart paper and markers
- "Beach Detective" observation worksheets

PREPARATION

1. Prepare sand samples for each group
2. Set up observation stations with magnifying glasses
3. Print observation worksheets with pictures for comparison
4. Create a sorting chart with "Natural" and "Human-made" categories

LESSON *flow*

Introduction (10 minutes)

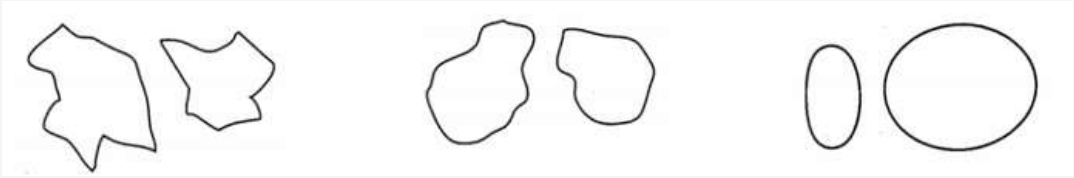
1. Gather students in a circle and show pictures of different beaches
2. Ask: "What do you think beaches are made of?" and record responses
3. Introduce the idea that beaches contain many different materials
4. Tell students: "Today we are going to be beach detectives and discover what's really in beach sand!"
5. Introduce vocabulary: "natural" (from nature) and "human-made" (made by people)

Activity 1: Sand Under the Magnifying Glass (20 minutes)

1. Divide students into small groups
2. Distribute materials: sand sample, white paper, magnifying glass
3. Model how to:
   - Place a small amount of sand on white paper
   - Spread it gently
   - Use magnifying glass to observe carefully
4. Guide observation with questions:
   - "What colors do you see in the sand?"
   - "Are all the pieces the same?"

5. Have students complete their observation sheet:
   - Circle the picture that shows the size of their sand grains (big or small)

   - Circle the picture that shows the shape of their sand grains (round/smooth or angular/rough)



   - Draw the squares with the colors of the grains. Use one color for each square.

6. Ask: "If your sand has big/small grains, what do you think the beach would feel like to walk on?"

Activity 2: Natural vs. Human-made Beach Materials (15 minutes)

1. Have students continue examining their sand samples
2. Introduce sorting categories: "Things from nature" and "Things made by people"
3. Ask students to sort any visible items they find in their sand
4. Have groups record their findings on a simple t-chart
5. Share findings with the class:
   - What natural things did you find? (shells, pebbles, seaweed)
   - What human-made things did you find? (microplastics, tiny pieces of paper, etc.)

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LESSON flow

Activity 3: Where Does Sand Come from? (10 minutes)

1. Ask students: "Where do you think sand comes from?"
2. Record their hypotheses on chart paper
3. Share simple explanations suited for K-2 students:
   - Sand can come from rocks being broken down by waves
   - Sand can come from shells being crushed over time
   - Sand can be different colors because it comes from different materials
4. Have students draw a picture showing where they think their sand sample came from.

Conclusion and Reflection (5 minutes)

1. Bring students back together to discuss:
   - "What surprised you about the sand?"
   - "Why do you think we found human-made things in our beach sand?"
   - "How might these human-made things affect ocean animals?"
2. Create a class statement: "Our beach contains both natural and human-made materials. We can help keep beaches clean by..."

ASSESSMENT

- Completed observation worksheets
- Participation in sorting activities
- Verbal responses during discussions about sand origins

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Module 3:

The ocean is a major influence on weather and climate.

PRINCIPLE 3
GRADES K-2

Principle 3:
The ocean is a major influence on weather and climate.

Weather and Water Cycle

A.
Local weather, including precipitation, fog and wind, can be caused by the ocean—no matter where you live.

A.1.
Most precipitation on Earth comes from water that evaporated from the ocean.

A.2.
When water evaporates and condenses, clouds form, which can lead to precipitation.

A.3.
Most of the water in lakes, ponds, rivers and the ground comes from water that evaporated from the ocean and fell to the land as precipitation.

A.4.
Most of the water from land and in the atmosphere eventually returns to the ocean as runoff from rivers, or precipitation.

See Principle 1: C1
See Principle 6: A6

See Principle 6: A3

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LESSON PLAN:

"Water's Amazing Journey: From Ocean to Sky and Back Again"

OVERVIEW

This engaging lesson introduces children to the water cycle and the ocean's vital role within it. Through storytelling, hands-on experimentation, and movement activities, students will discover how water continuously moves between the ocean, atmosphere, and land.

The lesson emphasizes three key stages of the water cycle: evaporation (water rising from oceans), condensation (forming clouds), and precipitation (rain returning to Earth). Students will understand that oceans are the primary source of water in this never-ending cycle.

DURATION

30-45 minutes (adaptable for multiple sessions)

LEARNING *objectives*

By the end of this lesson, students will be able to:

- Identify the basic stages of the water cycle (evaporation, condensation, precipitation)
- Recognize that oceans are a major source of water in the water cycle
- Understand that water is always moving between the ocean, air, and land

CORE *Competencies*

- Awareness of the Ocean
- Exploration and discovery
- Connectness to the nature
- Creative expression
- Collaborative learning

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MATERIALS

- Chart paper and markers
- Blue tarp or paper (for ocean)
- Clear jars with tight-fitting lids
- Hot water
- Ice cubes in plastic bags
- Small blue paper cutouts (water droplets)

LESSON *flow*

Introduction (5-7 minutes)

1. **Opening Question:** "Where do you think rain comes from?" Allow students to share their ideas.
2. **Connect to Prior Knowledge:** "Have you ever seen puddles disappear after it rains? Where do you think the water goes?"

Activity 1: The Water Cycle Story (8-10 minutes)

- Read a simple picture book about the water cycle
- Use hand motions to represent different parts of the water cycle:
  - Arms rising up for evaporation
  - Fingers wiggling above head for clouds/condensation
  - Fingers fluttering down for precipitation
  - Arms flowing in wave motion for returning to ocean

Activity 2: The Water Cycle in a Jar Experiment (10-12 minutes)

1. In small supervised groups, carefully pour hot water into clear jars (about 1/3 full)
2. Explain that the hot water represents the warm ocean
3. Quickly close each jar with a tight-fitting lid
4. Have students observe the immediate formation of a vapor cloud in the jar
   - Explain: "This is evaporation - water turning into vapor, just like when the sun warms the ocean"
5. Place a plastic bag with ice cubes on top of each jar (optional)
6. Ask students to observe water droplets forming on the inside of the jar lid
   - Explain: "This is condensation - water vapor cooling and turning back into liquid, just like how clouds form"

8. Ask children to describe and justify what they see during each phase:
    - "What do you notice happening inside the jar?"
    - "Why do you think water droplets are forming on the lid?"
    - "How is this like the real water cycle in nature?"

9. Connect back to oceans: "Most of Earth's water is in our oceans, and this is how water moves from oceans to sky and back again"

Activity 3: Moving Like Water Droplets (7-8 minutes)

- Create a "human water cycle" where students move around the classroom:
    - "Ocean" area (blue tarp or paper on floor)
    - "Sky" area (higher elevated space)
    - "Land" area (another designated space)
- Students role-play being water droplets moving through the cycle
- When teacher says "sun is heating the ocean," students move from ocean to sky
- When teacher says "clouds are full," students "rain" down to land or ocean
- When teacher says "rivers flow," student droplets flow back to ocean

Conclusion (5 minutes)

- Create a class water cycle diagram on chart paper
- Have students place blue water droplet cutouts on different parts of the cycle
- Review key vocabulary: evaporation, condensation, precipitation, water cycle
- Emphasize how the ocean is the biggest source of water in our water cycle
- **Water Cycle Diagram Discussion:**
    - Use the water cycle diagram to review the main components with students:
        - Point to the ocean and explain it contains most of Earth's water
        - Trace the path of water as it evaporates from the ocean
        - Show how water vapor forms clouds (condensation)
        - Follow the raindrops as they fall back to Earth (precipitation)
        - Explain how water flows back to the ocean through rivers
    - Ask students to identify each stage as you point to it
    - Emphasize that water is constantly moving in this cycle
    - Ask: "What would happen if we didn't have oceans?" to reinforce the ocean's importance

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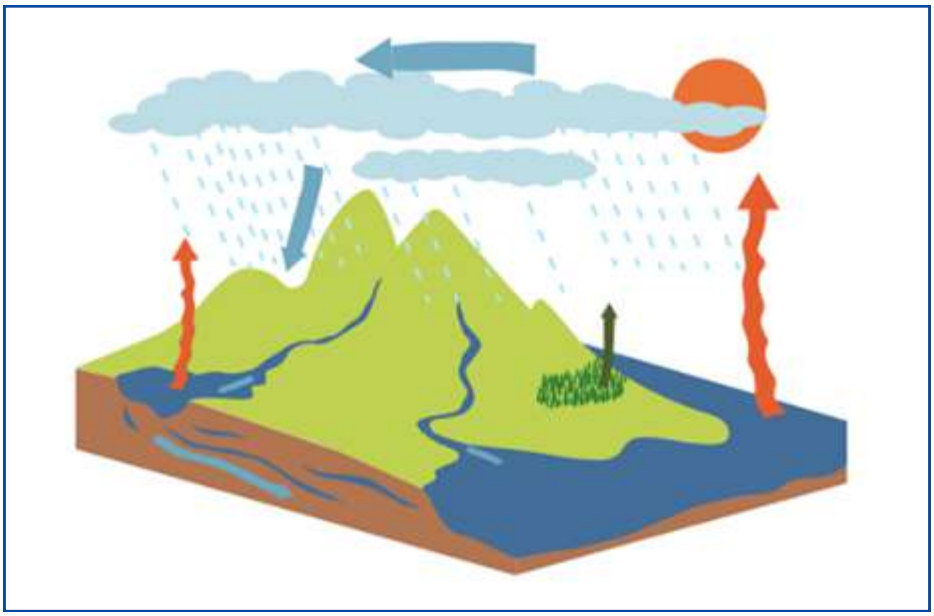
LESSON flow



ASSESSMENT

- Observe student participation in activities
- Ask students to explain in their own words how water moves from ocean to sky and back
- Have students draw simple water cycle diagrams showing the ocean's role

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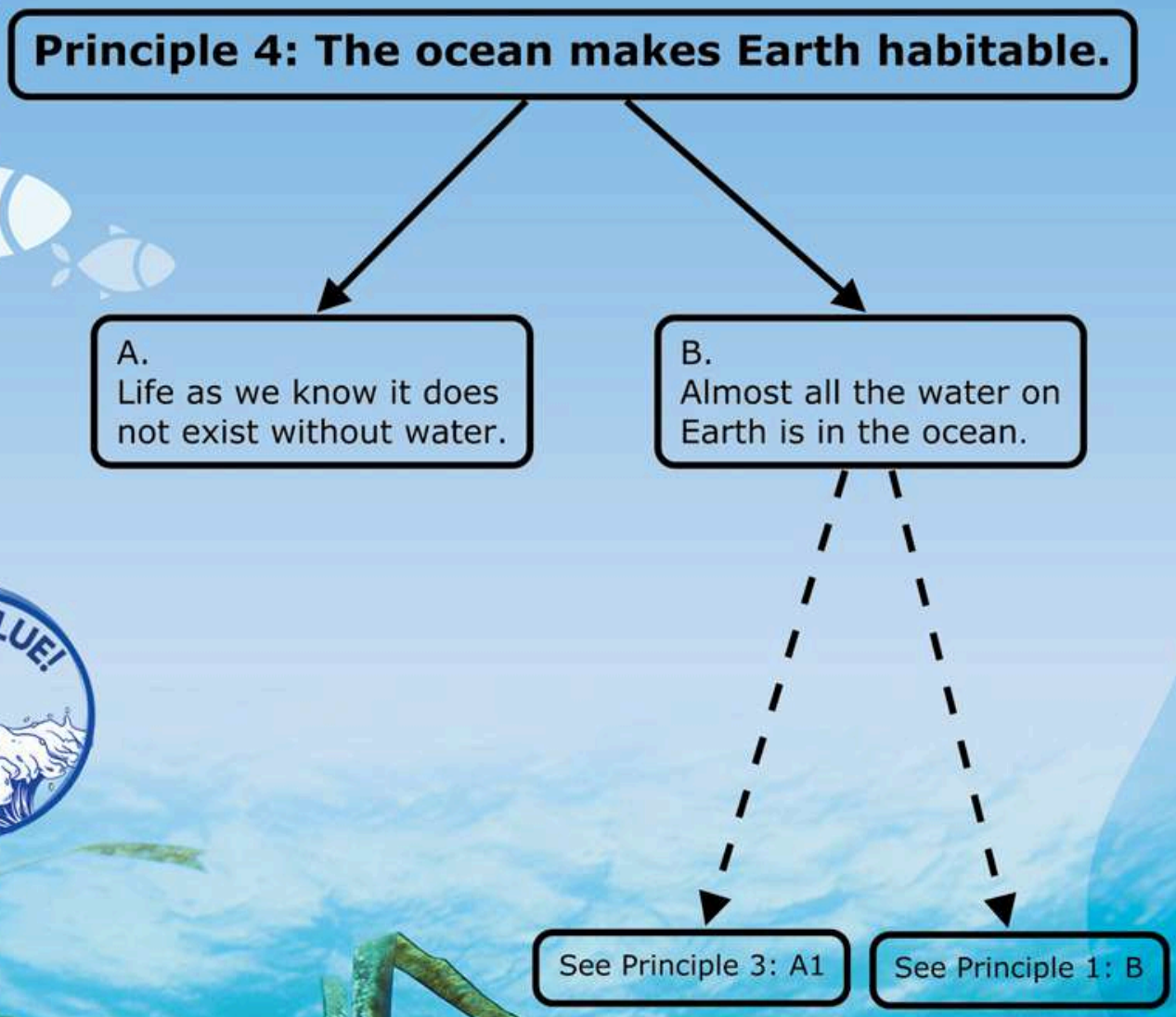
Module 4:

The ocean made the Earth habitable.

PRINCIPLE 4

GRADES K-2



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LESSON PLAN:

"Our Ocean: Where Earth's Water Lives"

OVERVIEW

This engaging lesson introduces young learners to the 4th Principle of Ocean Literacy. Through simple demonstrations, hands-on activities, and visual aids, students will discover the critical relationship between the ocean's vast water supply and the existence of life on our planet.

DURATION

30 minutes

LEARNING objectives

By the end of this lesson, students will be able to:

- Understand that all living things need water to survive
- Recognize that most of Earth's water is found in the ocean
- Make connections between ocean water and life on Earth
- Develop appreciation for the ocean as Earth's main water source

CORE Competencies

- Awareness of the Ocean
- Exploration and discovery
- Connectedness to the nature
- Creative expression
- Collaborative learning

MATERIALS

- Globe or world map
- Clear pitcher of water
- Small clear cups (one per student)
- Eyedropper
- Blue food coloring
- Pictures of different animals and plants
- Chart paper and markers
- Blue construction paper
- Drawing/coloring supplies

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LESSON flow

Introduction (5-7 minutes)

1. **Opening Question:** "What would happen if you didn't drink any water for a whole day?" (Accept all answers)
2. **Connect to Experience:** "How does your body feel when you're very thirsty?" (Dry mouth, tired, etc.)
3. **Visual Hook:** Show globe/map highlighting the blue ocean areas
    - "Look at all this blue! Our Earth is mostly covered by water, and almost all of that water is in our oceans!"

Activity 1: "Water is Life" Exploration (8-10 minutes)

1. Gather students in a circle and ask: "Who needs water to live?"
2. Show pictures of different plants and animals (including humans)
3. For each picture ask: "Does this need water to live?" (Yes for all!)
4. Conclude: "Without water, there would be no life on Earth"

Activity 2: "Where's Earth's Water?" Demonstration (10-12 minutes)

1. Show clear pitcher filled with blue-tinted water
    - "This represents ALL the water on Earth"
2. Use eyedropper to place ONE drop in each student's cup
    - "This tiny drop represents all the freshwater in lakes and rivers"
3. Keep the pitcher nearly full
    - "Almost all of Earth's water - about 97% - stays in the ocean!"
4. Have students observe the difference between their drop and the pitcher
5. Ask students:
    - "Where is most of Earth's water?" (In the ocean)
    - "Why is it important to take care of our oceans?" (They hold most of our water)
6. Explain that the ocean is like a giant water storage tank for Earth

Conclusion (5 minutes)

- Create a class "Water Facts" chart:
    - "All living things need water"
    - "Most of Earth's water is in the ocean"
    - "Without the ocean's water, Earth couldn't have life"
- Have students complete the sentence: "The ocean is important because..."

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EXTENSION ACTIVITY

- "No Water Day" - Imaginary story about what would happen without water for a day
- Home connection: Count how many times they use water in one day

ASSESSMENT

- Listen to student explanations during activities
- Check for understanding with simple questions:
  - "Where is most of Earth's water?" (In the ocean)
  - "Can living things survive without water?" (No)
  - "Why is the ocean important for all living things?" (It holds most of Earth's water)

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Module 5:

The ocean supports a great diversity of life and ecosystems.

The expected learning outcomes for Module 5 according to the Scope and Sequence (K-2) are the following:

Diversity of Life-A

- Identify that the ocean has a greater diversity of organisms than terrestrial environments. (A1)
- Recognise that some organisms exist exclusively in the marine environment. (A2)
- Compare marine organisms based on their size, from microscopic to very large. (A3)
- Understand that marine organisms have characteristics (structures and behaviours) adapted to life in the ocean. (A4)

Diversity of Ecosystems-B

- Explore different types of marine habitats (coastal zone, reefs, deep sea, surface) and recognise their diversity. (B1) and
- Relate the adaptations of marine organisms to the different types of habitats in which they live. (B2)

PRINCIPLE 5
GRADES K-2

Principle 5:
The ocean supports a great diversity of life and ecosystems.

Diversity of Life

A.
There is a great diversity of organisms in the ocean.

A.1.
More different kinds of organisms are found in the ocean than on land.

A.2.
Many groups of organisms exist only in the ocean.

A.3.
Ocean life ranges in size from the tiniest organisms to the largest animal on Earth.

A.4.
Ocean organisms have a variety of different structures and behaviors that help them to survive in the ocean.

Diversity of Ecosystem

B.
The ocean holds a great diversity of unique environments and habitats where organisms live.

B.1
There are distinct and unique ocean habitats throughout the ocean and on the coast, off shore, in the deep ocean and at the surface.

B.2.
Organisms living in different kinds of places in the ocean have different adaptations in structure and behavior, which help them to survive in their habitat, e.g., to find and capture prey.

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Core Competencies

Sensory engagement	Using the senses (seeing, hearing, touching) as a gateway to understanding marine ecosystems, making learning more tangible and memorable.
Emotional engagement / Affective awareness	Fostering an emotional connection to the ocean through meaningful and empathetic experiences, helping to nurture care, respect, and a desire to protect the marine environment.
Ocean awareness	Developing in children an understanding that the ocean is a living, vast, and essential space for life on Earth, including the diversity of organisms that inhabit it.
Exploration and discovery	Stimulating children's natural curiosity to explore the marine world, encouraging active observation, investigation, and the joy of discovering new life forms and environments.
Inquiry and reflection	Exploring what children already know or think about the ocean, encouraging them to ask questions, test ideas, and reflect on their learning and discoveries.
Creative expression	Encouraging children to express their ocean-related learning through art, symbolic play, storytelling, and the creation of models or imaginative representations.
Collaborative learning	Promoting group-based learning, encouraging the sharing of ideas, respecting others' contributions, and building knowledge and solutions together.

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The expected learning outcomes for Module 5 according to the Scope and Sequence (K-2) are the following:

Diversity of Life-A	• Identify that the ocean has a greater diversity of organisms than terrestrial environments. (A1) • Recognise that some organisms exist exclusively in the marine environment. (A2) • Compare marine organisms based on their size, from microscopic to very large. (A3) • Understand that marine organisms have characteristics (structures and behaviours) adapted to life in the ocean. (A4)
Diversity of Ecosystems-B	• Explore different types of marine habitats (coastal zone, reefs, deep sea, surface) and recognise their diversity. (B1) and • Relate the adaptations of marine organisms to the different types of habitats in which they live. (B2)

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Diversity of Life-A

Overview

These four sessions are aimed at children aged 4 to 8 and explore the diversity of marine organisms in a practical and playful way. Through games, role-plays, building graphs and visual comparisons, children are led to recognise the variety of life forms present in the ocean, as well as their specific adaptations to the marine environment.

Total Duration

4 sessions of 45 minutes each (plus 10 minutes in A1)

Key Learning Objectives

By the end of this series, students will be able to:

- Identify that the ocean has a greater diversity of organisms than terrestrial environments. (A1)
- Recognise that some organisms exist exclusively in the marine environment. (A2)
- Compare marine organisms based on their size, from microscopic to very large. (A3)
- Understand that marine organisms have characteristics (structures and behaviours) adapted to life in the ocean. (A4)

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LESSON PLAN 1: "A1 - Who Lives Where?"

LEARNING objectives

Students will be able to:

1. Recognize that rivers flow into the ocean and create special landforms called deltas (A1, A3)
2. Observe how moving water can carry and deposit materials (A1, A3)

MATERIALS

- Cards with images of marine and terrestrial organisms (minimum 20, laminated) - for example: starfish, jellyfish, octopus, crab, sea sponge, clownfish, seaweed, sea urchin, seahorse, sea grass, coral, shark.

Note: For all sessions you can use free platforms with high-quality images/videos and free use:

  - Pixabay
  - Pexels
  - Unsplash

- 2 large boxes or baskets labelled with images: "EARTH" and "OCEAN"
- Globe or world map with ocean areas clearly visible
- Large card for recording the results
- Coloured pencils, A4 paper for free drawing

LESSON flow

Opening Activity (10 minutes)

1. The educator shows a globe and points to the blue areas, asking: "Do you know what this is?"
2. He explains that it's the ocean and that it covers almost the entire planet.
3. He shows images of marine and terrestrial organisms and asks: "Where do you think they live? In the ocean or on land?"

→ Possible answers: "In the water!", "On the rocks in the sea!", "In the sand on the beach!", "In the trees!"

  - Introduce the concepts of *habitat* and organism (see children's glossary)
  - Example explanation: "The sea urchin is a tiny organism that lives at the bottom of the sea and has spikes."

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LESSON flow

Exploration Phase (15 minutes)

1. Hand out cards with pictures of organisms (e.g. jellyfish, dog, seahorse, tree, octopus, mushroom, fish, turtle, worm, starfish, etc.).
2. Each child, individually or in pairs, says the name of their organism and chooses one of the boxes (OCEAN or EARTH).
3. After each choice, the teacher can ask exploratory questions: "How do you know it lives in the ocean?", "Does it need salt or fresh water?"
→ Possible mistakes: putting the turtle on land - make room to explain that some live in the sea, others on land.
4. Verbalise in simple language: "The seahorse lives in the ocean and clings to sea plants with its tail."

Discovery Phase (10 minutes)

1. Count the cards in each box with the children.
2. Visually record the results on a card (draw the ocean with waves and the land with trees and count the organisms).
- Lead a conversation: "Did you notice where there are more different organisms? Why?" "Which ones did you know? Which ones were new?"
→ Expected answers: "I've never seen that one!", "There are lots of them from the sea!", "That one looks like a plant but it's from the sea!"
3. Emphasise that the ocean has thousands of organisms and many have not yet been discovered.

Additional Activity: Building a Visual Graph (10 minutes)

1. After counting how many cards have been placed in the "OCEAN" box and how many in the "LAND" box, the teacher invites the children to represent the data with a visual graph.
2. Use a piece of cardboard divided in half with the titles "Organisms of the Ocean" and "Organisms of the Earth".
3. For each organism, stick a square of coloured paper (e.g. blue for ocean, green for land).
4. At the end, the children observe which column is higher.
- The teacher can ask: "What does this bigger column mean?" and reinforce: "The ocean has more different organisms!"
→ Possible comments from the children: "Wow, there are lots of sea creatures!", "The one from the sea won!", "The one from the sea is taller!"

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LESSON flow

Closing Activity (5 minutes)

1. The children draw their favourite marine organism and present it to the group.
2. Each child shares the name and *habitat of* the organism. The teacher reinforces the word "ocean".
- Example: "Maria drew the jellyfish and its long tentacles. It lives in the ocean and looks transparent.

ASSESSMENT

- Continuous observation during the activity: whether the children classify correctly, whether they use appropriate vocabulary.
- Informal recording of oral participation.
- Evaluation of the final explanation in the drawing: "This is my clownfish. He lives in the sea because he swims very well."

EXTENSION Activities

- Create a collective mural with the drawings.
- Listen to the sounds of the sea and marine animals (ambient audio) during a relaxation session (after the session)

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LESSON PLAN 2: A2 - "Only at Sea!"

OVERVIEW

In this lesson, children will discover that many organisms only exist in the ocean. Through association and observation games, they will be encouraged to distinguish organisms that live exclusively in the marine environment, exploring the notion of exclusivity and adaptability of the aquatic environment.

DURATION

45 minutes

LEARNING objectives

- Recognise organisms that live exclusively in the ocean.
- Correctly classify organisms based on their habitat.
- Develop attention and awareness of marine diversity.

MATERIALS

- Cards with images of exclusively marine organisms (e.g. jellyfish, starfish, coral, sea sponge, seahorse)
- Cards with images of terrestrial and freshwater organisms
- Board or panel divided into three columns: "Ocean Only", "Land Only", "Both"
- Glue or Velcro to stick the cards together
- Children's book about life in the ocean or 360º video

LESSON flow

Opening Activity (10 minutes)

1. Start with an open question: "Are there organisms that only live in the sea or only on land?"
2. Show images of different organisms and listen to hypotheses.

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LESSON flow

Exploration Phase (15 minutes)

1. Present the cards with different organisms.
2. As a group, decide where to place each card on the board: "Only in the Ocean", "Only on Land", or "Both".

- Encourage discussion between pairs: "Why do you think this one lives only in the sea?"

→ Possible answers: "Because it has tentacles!", "Because it has a shell and is always in the water."

Discovery Phase (10 minutes)

1. Review all the group classifications.
2. Correct and reinforce the concepts: "These organisms only survive in the sea because they need salt water."
3. Reinforce vocabulary: exclusive, marine, ocean (see children's glossary)

Closing Activity (5 minutes)

1. Each child chooses an organism from the panel and tells why it lives in the sea.
2. Invite the students to clap when they hear their classmates' explanations.

ASSESSMENT

- Observe whether the children correctly identify organisms unique to the ocean.
- Participation in discussions and justifications.
- Checking that they use appropriate vocabulary (e.g. ocean, lives in the sea, doesn't live on land).

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LESSON PLAN 3: "A3 - Sizes of Marine Organisms

OVERVIEW

In this practical and sensory lesson, the children will explore the differences in size between marine organisms, from the microscopic phytoplankton to the giant blue whale. There will be experimental activities with ropes, measuring tapes and body comparisons to understand the wide variation in sizes in the ocean.

DURATION

45 minutes

LEARNING objectives

- Understand that marine organisms vary greatly in size.
- Sort organisms from smallest to largest.
- Relate the structure of organisms to their environment.

MATERIALS

- Cards with images of marine organisms in different sizes (phytoplankton, shrimp, clownfish, turtle, shark, blue whale...)
- Clips or tape
- Strings or ribbons of different lengths to represent the size of organisms
- Paper ruler (2 metres) or tape measure
- Adhesive tape to mark the floor
- Loupes (optional)

LESSON flow

Opening Activity (10 minutes)

1. Ask: "What do you think is the biggest organism in the ocean? And the smallest?"
2. Show images and hypothesise. Introduce the term phytoplankton as something microscopic and essential to marine life.

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LESSON *flow*

Exploration Phase (15 minutes)

1. Hand out ropes of different lengths with a label with the name/image of each organism (use paper clips or tape)
2. Hand out cards with pictures of organisms (as many as there are children) and ask the children to sort them from smallest to largest.
3. "Measure on the floor" activity: stick ropes to the floor with adhesive tape and ask them to walk on them.
→ Example: "This rope is the prawn... this giant is the blue whale!"
4. Use the ruler (or tape measure) to measure how many children "fit" next to the whale.
5. Repeat with other organisms.
→ Possible comments: "Wow, I'm really small!", "The whale is bigger than the room!"

Discovery Phase (10 minutes)

1. Compare the measurements and discuss what changes with size: "Do the small ones hide better? What about the big ones?"
2. Associate some characteristics with organisms (long tentacles, flattened body, long leaves, etc.).

Closing Activity (5 minutes)

1. Each group draws the organism that surprised them the most (choose one from the cards available) and explains why (referring to size).
2. The drawings are placed on a "Big and Small of the Sea" board.

ASSESSMENT

- Observing the correct organization of organisms by size.
- Actively participating in comparisons and measurements.
- Recording spontaneous verbalizations and correct use of vocabulary ("greater than", "less than", "equal to").

EXTENSION *Activities*

- Create a paper chart with the children's heights compared to the organisms.
- Use magnifying glasses to look at images of phytoplankton or zooplankton.

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LESSON PLAN 4: A4 - How do you survive in the ocean?

OVERVIEW

In this interactive lesson, children will explore how marine animals have developed structures/behaviors that help them survive in the ocean environment. Through role-play, manipulation of objects and observation, students will discover adaptations such as shells, tentacles, camouflage, and specific movements.

DURATION

45 minutes

LEARNING objectives

- Identify the physical and behavioral adaptations of marine animals.
- Relate these adaptations to survival functions (protection, locomotion, feeding).
- Taking part in dramatizations and symbolic games.

MATERIALS

- Illustrated cards with different adaptations (tentacles, shells, sharp teeth, big eyes, fins)
- Accessories for role-playing: blue cloths, gloves with "tentacles", shells, paper tubes, diving goggles
- Posters with questions: "How do I hide?", "How do I eat?", "How do I move?"
- Mirror (for body observation and staging)

LESSON flow

Opening Activity (10 minutes)

1. Show pictures of marine animals and ask: "How do they manage to live at the bottom of the sea?"
2. Explain that many have special tricks and ways called adaptations (see children's glossary).

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LESSON flow

Exploration Phase (15 minutes)

1. Each group receives cards with adaptations and symbolic objects.
2. The children try their hand at acting: curling up like an octopus, hiding like a crab, opening their "arms" like a starfish.
- Alternate between mime and verbal explanation: "I'm a jellyfish and I use my tentacles to protect myself."
→ Expected comments: "I have a hard shell!", "I run away fast!", "I'm transparent so you can't see me!"
3. Use the mirror to reinforce body perception: "How do you look when you hide?"

Discovery Phase (10 minutes)

1. Game: the educator describes a function and the children imitate an organism with that adaptation.
2. Example: "Who can grab the food with their tentacles?" - the students who imitate the octopus get it right.
3. Reflect together on the reason for these structures in the ocean: protection, hunting, movement.

Closing Activity (5 minutes)

1. Each child completes the sentence: "In the ocean I am... and I survive because..."

ASSESSMENT

- Evaluation by observing participation in the dramatisations.
- Verification of understanding of the concept of adaptation through verbal explanations.
- Recording exploratory behaviour and cooperation between peers.

EXTENSION Activities

- Create a mural with collages of organisms' adaptations ("Tentacles, Shells and Company").

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Diversity of Ecosystems-B

Overview

These two sessions aim to deepen the knowledge of children aged 4 to 8 about marine habitats/ecosystems and the adaptations of organisms to these environments. Through immersive, creative and experiential activities, students will explore the zones of the ocean (coastal zone, reefs, deep sea, surface) and understand how the physical and behavioural characteristics of marine organisms help them survive in such different environments.

Total Duration

2 sessions of 45 minutes each

Key Learning Objectives

By the end of this series, students will be able to:

- Explore different types of marine habitats/ecosystems (coastal zone, reefs, deep sea, surface) and recognise their diversity. (B1)
- Relate the adaptations of marine organisms to the different types of habitats in which they live. (B2)

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LESSON PLAN:
B1 and B2 - Journey through the Habitats of the Ocean

OVERVIEW

In this lesson, children will explore the different marine habitats and realise that different organisms live in different places. An immersive experience will be created with corners of the room representing habitats such as the coral reef, deep sea, coastal zone and open ocean.

DURATION

45 minutes

LEARNING objectives

- Identify different ocean habitats.
- Relate habitats to types of marine organisms.
- Explore marine environments in a sensory and participatory way.

MATERIALS

- Symbolic elements of habitats (sand, stones, blue fabrics, nets, shells, images)
- Corners of the room identified as habitats: coral reef, seabed, open sea, rocky coast, coastal lagoon)
- Cards with organisms typical of each habitat/ecosystem
- Symbolic passports (A5 paper) to be stamped at each corner

LESSON flow

Opening Activity (10 minutes)

1. Show 360º images/videos of different ocean ecosystems: "Do you know that there are places in the sea that are very different from each other?"
2. Introduce/reinforce the concepts of habitat and Ecosystem (see children's glossary)

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LESSON flow

Exploration Phase (25 minutes)

1. Organise the room into 4 different corners representing marine habitats/ecosystems.

Ocean Exploration Stations

- **Lagoon or coastal zone**

🌱 Sea herbs (Zostera, Cymodocea)
🌿 Green algae (Ulva), Brown algae (Fucus)
🐚 Oysters, seahorses, cuttlefish

- **Coral Reef**

Calcified algae (Corallina, Halimeda)
Tropical green algae (Caulerpa)
🐠 Clownfish, shrimps, sponges, anemones

- **Open Sea Zone (Surface)**

🌾 Floating sargassum
🔬 Phytoplankton (invisible to the naked eye)
🐬 Dolphins, turtles, jellyfish, tuna

- **Ocean depths**

🌋 Chemosynthetic bacteria
🦑 Giant squid, lantern fish, sleeper sharks
⭐ tube worms, abyssal eels

2. In small groups, the children explore each corner and observe the elements.
3. Educators stamp or sign each group's "passport" as they pass through each habitat.

Discovery Phase (10 minutes)

1. Return to the circle. Guided conversation about what they saw and felt in each space.
2. Ask: "Which habitat had light? Which was dark? Where did we see more fish?", "Where did we find algae or plants?", "Are there plants or algae in the ocean depths?"
3. Relate the organisms to where they live and why.

Closing Activity (5 minutes)

1. Share favourite habitats with the group: "I liked the reef because it was colourful!"
2. Invite other classes to visit the Ocean Exploration Stations

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ASSESSMENT

- Observing the correct association of organisms with habitats.
- Active participation in singing and group discussions.
- Ability to name and describe at least one habitat and its organisms.

Glossary for educators (child-friendly definitions)

Organism	A living thing like a fish, a plant, or a person.
Habitat	The place where an animal or plant lives.
Adaptation	A special part or behaviour that helps a living thing survive.
Microscopic	So tiny that you need a magnifying glass or microscope to see it.
Ecosystem	A natural home where plants, animals, and the environment live and work together.
Marine	Something that lives in or comes from the ocean.
Diversity	Having many different kinds of things together.
Coast	Where the land meets the sea.
Reef	A place in the ocean made of rocks or coral where fish live.
Deep sea	The very deep and dark part of the ocean.
Surface	The top of the water in the ocean.
Exclusive	Something that only belongs to one place, like an animal that lives only in the sea.

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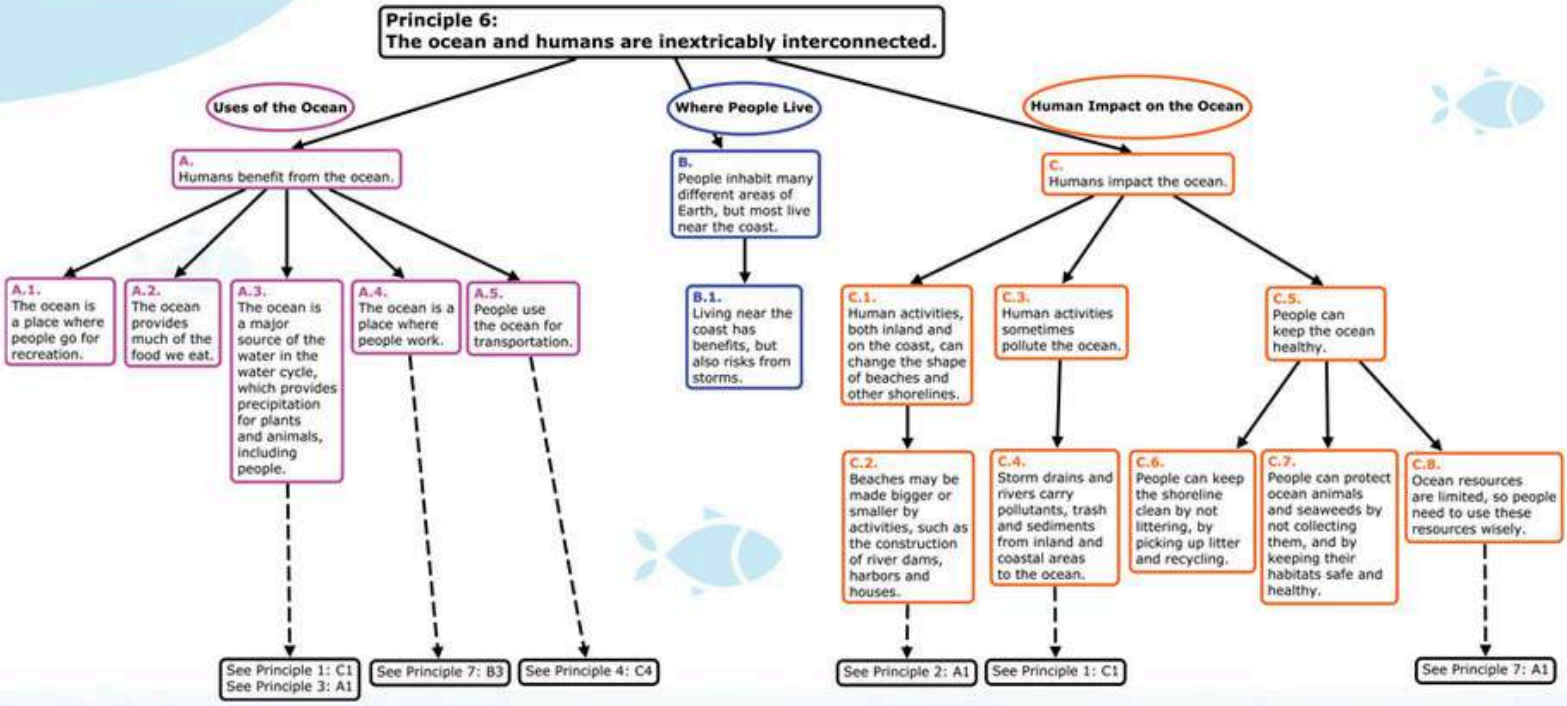
Module 6:

The ocean and humans are inextricably interconnected.

Conceptual flow diagram for Grades K–2 for Principle 6:

PRINCIPLE 6
GRADES K-2



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Series Scope

This module introduces young learners to the concept that the ocean is not something "out there" - it is a vital part of their daily lives. Through story, hands-on exploration, and reflection, children will discover:

- The ocean's role in their weather, oxygen, food, and culture
- The impact of human actions on the ocean and marine life
- The importance of caring for the ocean, both individually and together

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Series Learning Objectives (aligned with Fundamental Concepts)

Fundamental Concept	Learning Objective
6a: The ocean supplies rain and oxygen	Understand that the ocean plays a vital role in producing most of Earth's rainwater and oxygen, supporting life on the planet.
6b: The ocean provides resources	Recognize the ocean as a source of food, medicine, energy, and materials that support communities and economies.
6c: The ocean as inspiration and culture	Appreciate the ocean as a place of inspiration, recreation, discovery, and cultural heritage.
6d: Humans affect the ocean	Identify how human activities, such as pollution, overfishing, and development, can negatively impact ocean ecosystems.
6e: Ocean change impacts life	Understand that changes in ocean temperature and chemistry affect marine organisms and biodiversity.
6f: Coastal vulnerability	Recognize that many people live in coastal areas and are affected by natural hazards like storms, flooding, and sea level rise.
6g: Everyone has a role	Develop a sense of personal and collective responsibility to care for the ocean through everyday actions and choices.

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LESSON PLAN 1: "Uses of the Ocean "

OVERVIEW

Children explore how the ocean sustains life on Earth by providing essential resources, including rainwater and oxygen. Through hands-on sensory activities, storytelling, and guided discussion, they begin to understand the ocean's essential role in our daily lives.

This lesson also introduces the various ways people benefit from the ocean, including food, medicine, transportation, employment opportunities, and cultural inspiration. By recognising these vital contributions, children develop a sense of appreciation and connection to the ocean as a life-giving and enriching force.

DURATION

60 minutes

LEARNING objectives

- **Understand** that the ocean drives the water cycle and produces much of Earth's oxygen, supporting life on the planet. (6a)
- **Identify** key ocean resources, including food, materials, energy, transportation, and employment. (6b)
- **Recognise** the cultural, emotional, and recreational significance of the ocean in human life. (6c)

CORE Competencies

- Ocean awareness
- Exploration and discovery
- Cultural significance
- Creative expression

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MATERIALS

- Globe or large world map (child-friendly)
- Blue scarf or fabric (for ocean role-play or movement activity)
- Blue spray bottle (to simulate rain)
- Small metal pot or pan (to represent the ocean)
- Portable heat source (e.g., camping stove – adult use only)
- Water (to fill the pot)
- Flat glass or metal surface (e.g., mirror, tray – simulates cool sky)
- Blue construction paper or cardboard (to collect water droplets)
- Tongs or oven mitts (for safe handling of heated materials)
- Basket or bag labelled “Ocean Gifts”
  - Toy fish or fish cutout
  - Toy sponge or sponge image
  - Small bottle labeled “medicine”
  - Toy boat or ship image
  - …
- Large, printed map with labeled use categories: “Food,” “Transport,” “Jobs,” “Energy,” etc.
- Velcro dots, magnets, or tape (for attaching items to map)
- Ocean-themed storybook or cultural poem
- A4 paper (one per child)
- Crayons, markers, or colored pencils
- Glue sticks (optional – for attaching decorations to drawings)
- Wall or board space for displaying artwork
- Stickers, stamps, or small participation tokens (optional)

LESSON *flow*

Opening Activity (15 min)

- Mist water into the air using the spray bottle: “Where does rain come from?”
- Show the globe, point to the blue oceans.

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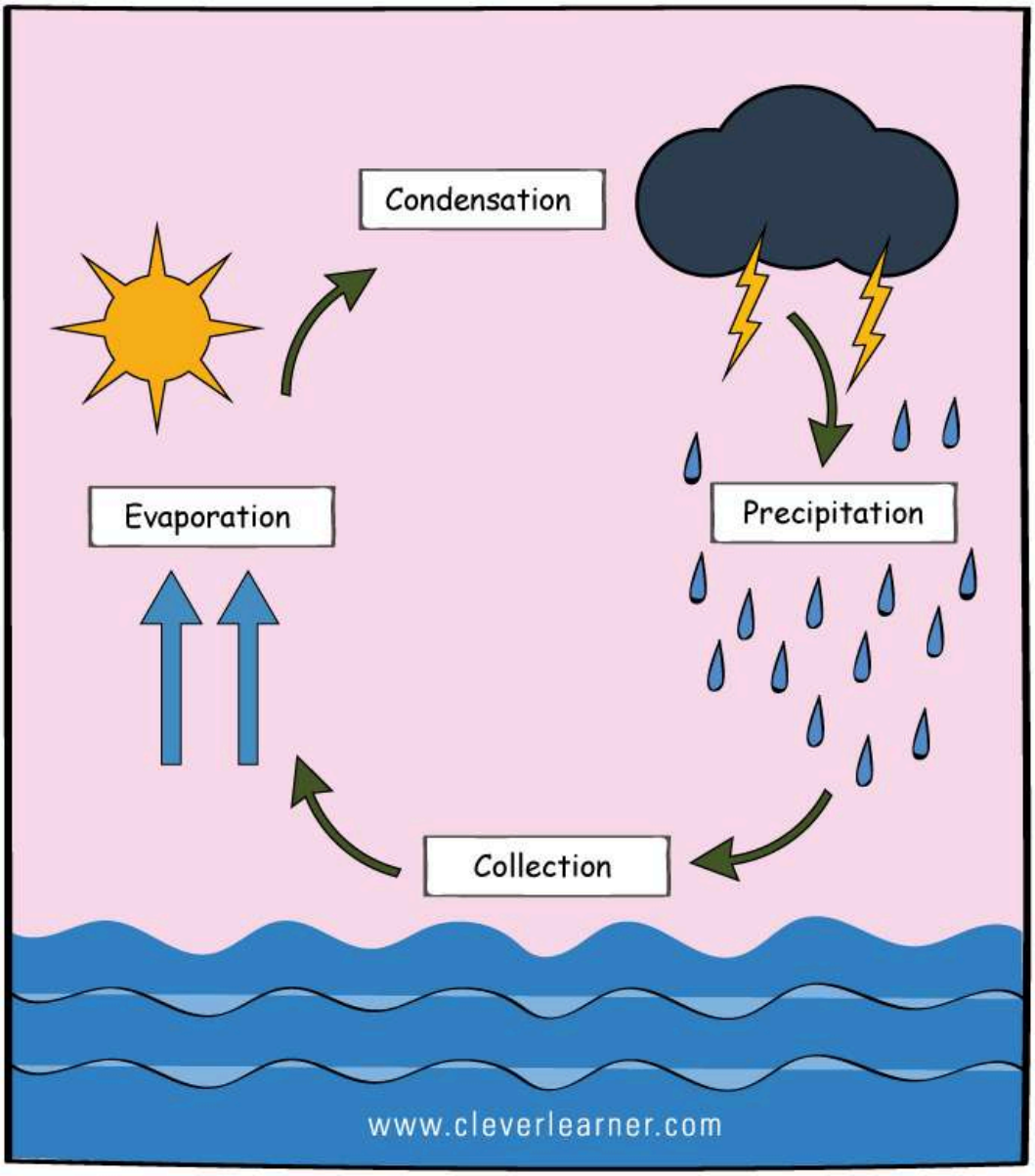
LESSON flow

The Water Cycle

Talk about the picture



- Demonstrate a simple water cycle model:
  a. Heat a small pot of water using a safe camping stove (adult only).
  b. Hold a glass or metal surface at an angle over the pot to collect steam condensation.
  c. Let droplets drip onto blue construction paper underneath the setup.

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LESSON *flow*

- **Show the paper** with droplets to the group and invite observations of the drops as rain.
- **Use simple analogies** to connect the parts of the experiment:
  - The **flame** = the Sun
  - The **water** in the pot = the ocean
  - The **glass/metal** = the cool sky
  - The **drops** = rain that falls from clouds
- **Ask**: "What else do you think we get from the ocean?"

Exploration Phase (15 minutes)

- Introduce and pass around objects from the "ocean gift basket."
- For each item, ask: "Do we get this from the ocean? How does it help us?"
- Play a simple group game: Match each ocean gift to its use (e.g., fish → food, ship → travel). Use a world map with labelled categories such as "Food," "Transport," "Jobs," and "Energy" to help guide discussion and placement.

Discovery Phase (20 minutes)

- Read or tell a story (e.g., a cultural tale involving the sea).
- Ask: "What do you feel when you think about the ocean?"
- Art activity: draw something the ocean gives you - it could be food, a feeling, or something you see.

Closing Activity (10 min)

- Share drawings and respond: "The ocean gives me _____."
- Reinforce vocabulary: ocean, rain, air, fish, jobs, fun

ASSESSMENT

- Observe student responses and sorting accuracy during the basket activity
- Listen for vocabulary use and emotional/cultural reflections in discussion and drawings

EXTENSION *Activities*

- Create a class mural titled "Gifts from the Ocean"
- Introduce ocean-related music from around the World

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LESSON PLAN 2: "Where people leave"

OVERVIEW

This lesson helps children understand that many people live in coastal areas, close to the ocean. While these locations offer beauty and benefits, they also face risks from natural hazards, such as storms, flooding, and rising sea levels.

Children will explore how the ocean changes due to warming and pollution, how these changes affect marine life, and how people prepare for and adapt to these environmental challenges.

DURATION

60 minutes

LEARNING objectives

- **Understand** that ocean changes (e.g., warming or pollution) affect marine life and coastal communities (6e)
- **Identify** that many people live near coasts and must prepare for natural hazards such as storms and flooding (6f)

CORE Competencies

- Environmental awareness
- Social understanding
- Scientific observation
- Problem-solving

MATERIALS

- Toy houses and sea animals
- World map showing coastal cities
- Two jars of water (clean vs “polluted”)
- Coloured ice cubes (to simulate warm vs. cold water)
- Photos of floods or coastal storms
- Safety symbol flashcards (e.g., sandbags, evacuation)

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LESSON flow

Opening Activity (15 min)

- Display the world map and point out major coastal cities.
- Ask **guiding questions**:
  - "Who lives near the ocean?"
  - "What do you think it's like to live near the sea?"
  - "What happens when there are big waves or strong winds?"
- Emphasise that many people live near the coast and love it, but they also need to stay safe.

Exploration Phase (15 minutes)

Activity 1: Clean vs. Polluted Water

- Show two jars: one filled with clean water and one with pollution (bits of trash, plastic, or food colouring).
- Place toy sea animals in both and ask:
  - "Which water would you like to swim in?"
  - "How do you think sea animals feel in dirty water?"
- Guide a discussion about pollution and how it affects both ocean life and people who live nearby.

Activity 2: Ocean Warming Demonstration

- In two shallow trays or bowls filled with room-temperature water, place one blue ice cube and one red ice cube.
- Observe and compare how fast each melts. Ask:
  - "What do you think happens to cold water in the ocean when it gets warmer?"
  - "Why do you think this matters to sea animals?"

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LESSON *flow*

Discovery Phase (20 minutes)

Activity 3: Coastal Storm Role-Play

- Show images of coastal floods, high waves, and storms.
- Ask: “What can people do to stay safe near the ocean?”
- Use toy houses and blocks to build a “coastal town” next to a blue cloth (ocean).
- Add features like “sandbags” (small blocks or rolled paper) and raise a storm warning card.
- Simulate a storm surge by gently pouring water from a jug into the tray or around the setup (teacher-controlled).
- Children respond with action: moving figures, adding barriers, etc.
- Emphasise teamwork and preparedness: “We can be ready and safe!”

Closing Activity (5 min)

- Group reflection:
  - “What did you learn about living near the ocean?”
  - “How can we help protect people and animals when the ocean changes?”
- Group gesture of appreciation: Everyone says together,
- **“Thank you, ocean! We will take care of you!”**

ASSESSMENT

- Observe how students apply cause-and-effect reasoning during the demonstrations
- Listen to the use of new vocabulary: pollution, warm water, flooding, protection, storm
- Watch for collaboration and safety awareness during role-play

EXTENSION *Activities*

Art: “My Safe Ocean Home”

- Children draw or build a safe house near the ocean. Encourage the inclusion of features such as sandbags, stilts, or warning signs.

Weather Corner

- Set up a weather tracking area where children “report” sea conditions or track pretend weather on a wall chart with clouds, waves, and temperature symbols.

Game: “Safe or Not Safe?”

- Use flashcards with images and have children sort them:
  - Safe coastal activity (e.g., sandbags, evacuation plan)
  - Not safe (e.g., trash in the ocean, no warning system)

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LESSON PLAN 3: "Human Impact on the Ocean"

OVERVIEW

This lesson examines the impact of human activities, including pollution, plastic waste, and overfishing, on ocean ecosystems. Children participate in a hands-on cleanup simulation to experience how trash affects marine life and reflect on their personal role in helping the ocean. Through discussion, art, and collective reflection, they begin to understand that everyone can make a difference, from the river to the sea.

DURATION

60 minutes

LEARNING objectives

- **Identify** how human actions like pollution and overfishing affect the ocean (6d)
- **Demonstrate** personal and group actions to help the ocean (6g)

CORE Competencies

- Environmental stewardship
- Empathy development
- Social responsibility
- Collaboration

MATERIALS

- Water tray/bin filled with simulated trash (e.g., paper scraps, plastic wrap, bottle caps)
- Tongs or child-sized gloves (one per student or group)
- Toy sea animals (e.g., fish, turtle, whale)
- Ocean photo cards: healthy reef vs. polluted environment
- Pledge cards: “I will help the ocean by…” (blank area for drawing/writing)
- Large “Hurt or Help?” classroom chart/poster
- Markers, crayons
- Blue cloth or paper strip (to visually represent the ocean from river to sea)
- Optional: “Ocean Helper” badge or stickers

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LESSON flow

Opening Activity (15 min)

- Show contrasting images: one of a clean ocean and one with pollution (focus on a sea turtle or fish).
- Ask **open-ended questions**:
  - "What do you notice in these two pictures?"
  - "How might the turtle feel in each picture?"
  - "Do you think we have anything to do with this?"
- Briefly explain how trash and chemicals can travel through rivers and streams into the ocean.
- Introduce today's focus: helping the ocean by understanding and changing our actions.

Exploration Phase (20 minutes)

Activity: "Clean the Ocean" Simulation

- Set up the "ocean" bin with toy animals and trash items.
- Children use tongs/gloves to gently remove debris.
- As they clean, prompt reflection:
  - "How do you think the fish felt with all that trash around them?"
  - "Where might this trash have come from?"
- After cleanup, sort collected items into **'Trash' vs 'Recycle'** bins.
- Use a blue cloth on the floor to show water flowing from land to the ocean:

"Trash that starts here… can travel all the way to the sea!"

Discovery Phase (20 minutes)

Activity 1: "Hurt or Help?" Chart

- As a group, brainstorm examples of actions that hurt the ocean (e.g., littering, using too much plastic) and actions that help (e.g., picking up trash, turning off lights).
- Write or draw ideas on a large two-column chart.

Activity 2: Pledge Cards

- Each child creates a pledge card:
- **"I will help the ocean by…"**
  - Younger children draw, older ones may add a sentence.
  - Offer examples if needed: "I will use less plastic," "I will recycle," "I will tell my family not to litter."
- Collect all pledges for a group display.

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LESSON flow

Closing Activity (10 minutes)

- Invite a few children to share their pledges aloud.
- Place pledge cards on a wall or board titled:

“We Help the Ocean - From the River to the Sea”

- End with a group chant or affirmation:

“The sea begins with me - I help from the river to the sea!”

- Optional: Give each child an “Ocean Helper” badge or sticker.

ASSESSMENT

- Observe how children interact with the cleanup simulation
- Listen for use of problem-solving and vocabulary (pollution, recycling, ocean, help, protection)
- Review pledge cards for understanding and personal connection

EXTENSION Activities
(Optional)

- **Story time** with a conservation-themed book (e.g., *Somebody Swallowed Stanley*)
- **Outdoor walk** to find and safely collect litter
- **Poster-making project**: “Protect the Ocean” awareness art for the classroom or hallway
- **Ocean cleanup relay**: Playful game with teams collecting floating "trash" in a timed challenge

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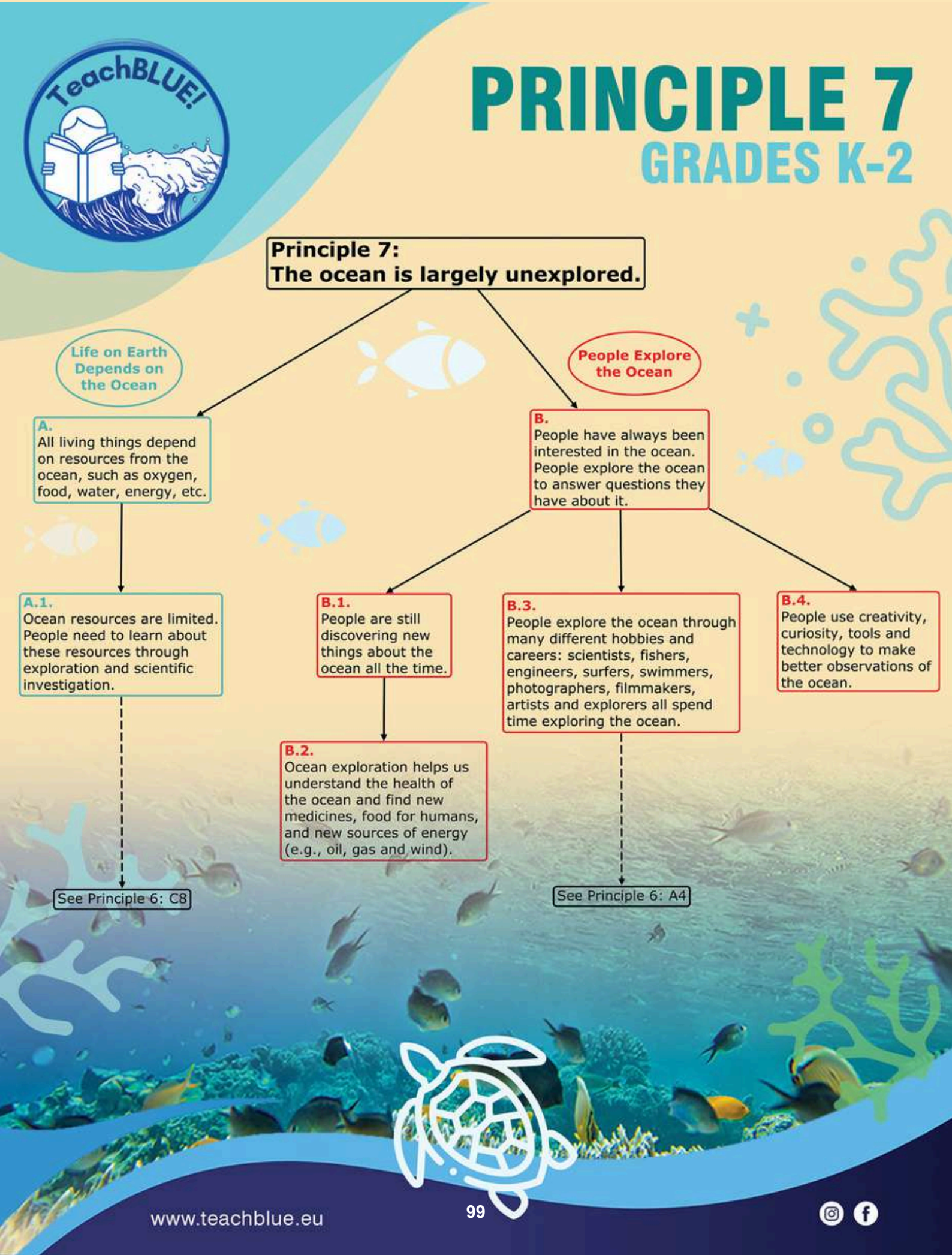
Module 7:

The ocean is largely unexplored.

Conceptual flow diagram for Grades K–2 for Principle 7:



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LESSON PLAN 1:
"Discovering the Unknown Ocean"

OVERVIEW

This imaginative, multi-sensory lesson introduces young learners to the concept that much of the ocean is still unexplored. Through hands-on simulations, role play, and creative expression, children take on the role of ocean explorers using scientific tools to discover mysterious deep-sea creatures and habitats.

The lesson builds curiosity and wonder, while developing early scientific thinking and communication skills.

DURATION

45–50 minutes

LEARNING *objectives*

Students will be able to:

- Understand that large parts of the ocean remain unexplored (A1)
- Describe how scientists use tools to explore the deep ocean (C1)

Imagine and create their own deep-sea discoveries (B1, E1)

CORE *Competencies*

- Ocean awareness
- Exploration and discovery
- Creative expression
- Scientific observation
- Storytelling and communication

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MATERIALS

For whole group:

- A globe or large world map
- Images of deep-sea creatures (e.g., anglerfish, dumbo octopus, hydrothermal vents)
- Pictures of submarines, ROVs (remotely operated vehicles), and ocean explorers
- Blue drapes or fabric to simulate underwater world
- Flashlights or glow sticks

For each child or group:

- “Mystery Ocean Box” (shoebox with a hole cut in it and filled with ocean items or textured materials)
- Drawing paper and crayons/markers
- Cardboard tubes or boxes to simulate "submarine viewers"

Stickers or stamps for decorating their discoveries

LESSON *flow*

Opening (5–7 minutes)

- Gather students around the globe or map. Ask: “What do we know about the ocean?” and “Do we know everything that lives in the ocean?”
- Show images of strange deep-sea creatures and ask: “Have you seen these before?”
- Introduce the idea: “The ocean is so big and deep, there are places no one has ever seen!”

Exploration Phase (10–12 minutes)

- Set up a “deep-sea exploration tunnel” with blue fabric and turn off main lights. Children take turns entering with flashlights to search for hidden ocean animal cards and unusual textures (sponges, shells, etc.).
- Talk about how it feels: “Was it easy to see everything?”
- Show a short video or image of ROVs/submarines and explain how scientists use them.

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LESSON *flow*

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Discovery Phase (20 minutes)

- Give each child a Mystery Ocean Box with unknown objects inside. They feel inside and guess: “What do you think this is?”
- After revealing the objects, prompt students to draw their own imagined deep-sea creature or mystery discovery.
- Encourage them to name it and describe how it moves, eats, and lives.
- Ask: “Why might we find something like this deep in the ocean?”

Closing (5–7 minutes)

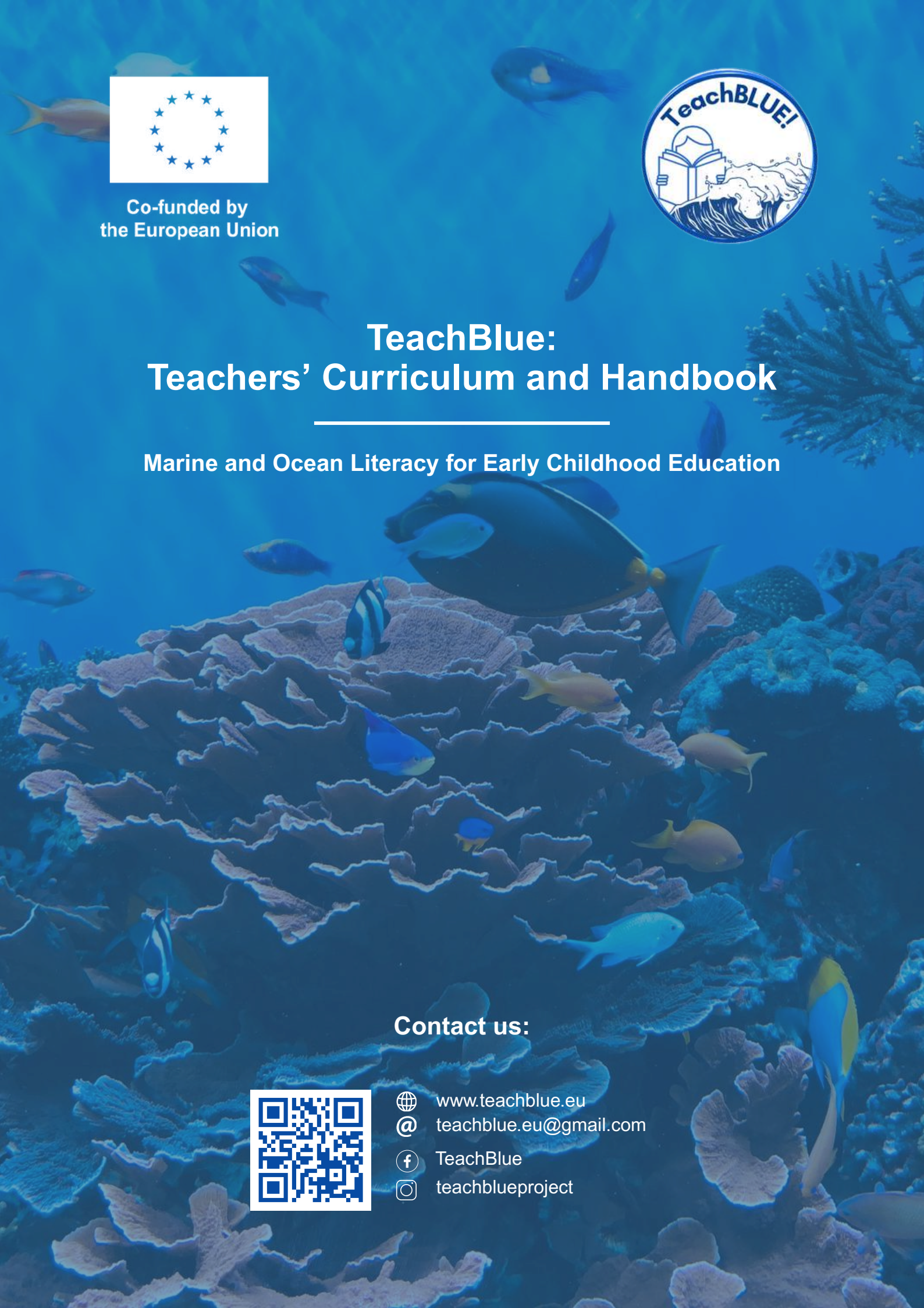
- Have a few students share their drawings with the group in a circle.
- Ask: “What do you think is still hiding in the ocean?”
- Reinforce: “Most of the ocean has never been explored. Maybe one of you will discover something new someday!”

ASSESSMENT *Strategies*

- Observe children’s use of vocabulary during exploration (“deep sea,” “submarine,” “explore”)
- Note children’s ability to describe unknown ocean spaces and creatures
- Collect drawings and listen to their creature explanations for creativity and concept understanding

EXTENSIONS

- Create a classroom “Ocean Discovery Wall” with their creature drawings
- Read a book like The Darkest Dark by Chris Hadfield or The Secret Pool by Kimberly Ridley
- Invite children to design their own ocean exploration vehicles using recycled materials



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TeachBlue:
Teachers' Curriculum and Handbook

Marine and Ocean Literacy for Early Childhood Education

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