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STEAM into Nature

Lesson Plan Book

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MATH & NATURE: MEASURING WHAT WE FIND

Class / Grade	2nd–4th grade
Subject	Mathematics, Environmental Studies
Related Game	Nature Engineers – The Measurement Mission
Duration	45 minutes

LEARNING OBJECTIVES

- Understand the basic concepts of estimation and measurement.
- Learn how to use natural materials to measure real-world objects.
- Develop spatial awareness, problem sensitivity, and cooperation skills.
- Reflect on how these skills help in observing and protecting nature.
- Prepare their thinking for an outdoor, playful learning experience.

METHODS

- Inquiry-based learning
- Discussion
- Group work
- Project-based learning

MATERIALS

- Natural objects in the environment (sticks, leaves, stones, etc.)
- Paper and pencils (for notes or sketches)
- Measuring tape (for teacher reference or optional verification)
- Question or challenge cards (optional)

DIFFERENTIATION

- Visual aids or preselected tools for slower learners
- Extra challenges for fast finishers: complex objects (e.g., tree circumference), comparison of estimation methods
- Role rotation in groups (observer, measurer, recorder, speaker) to engage diverse strengths

STUDENT'S ACTIVITIES

- Brainstorming natural measuring tools
- Estimating and measuring real objects
- Working in teams outdoors
- Reflecting on experience and tools used

Lesson structure	Time Frame	Description
Introduction	5 minutes	• The teacher presents a simple natural object (e.g., a stick or a leaf) and asks: • *"How could we tell how long this is if we don't have a ruler?"* • Students offer ideas: *"We estimate it," "We compare it to something," "We measure it with steps."* • Then comes the key question: *"What does it mean to estimate?"* – The class defines it together, followed by short examples (e.g., "How tall do you think this tree is?"). • Objective: Help students realize that measurement is not always tool-based.
Main part	10 minutes	In small groups, students collect 3–5 ideas of what natural materials could be used for measurement (e.g., leaf, stick, handspan, step, stone). Then they have a short class discussion: which tools might work best, what are their pros and cons. The teacher can show 1–2 diagrams as examples (e.g., "This stick = 10 cm"). **Objective:** Activate prior knowledge, spark creativity, and develop the idea of improvised tools.

Main part	23 minutes	**Exploratory Walk – Estimation in Practice** • Students go outside (schoolyard, garden, or park). • Each group receives a simple task or question (e.g., "Find a tree and estimate its height using a chosen natural tool"). • They observe the object, choose a tool (e.g., step, stick), make their estimate, and if available, check with a tape measure. • Teacher's role: facilitate, encourage, ask guiding questions (*"Why did you choose this tool?", "How accurate do you think it is?").* **Objective:** Experiential learning and problem-solving. **Sharing Experiences – Reflection & Interpretation** Back in a circle, each group shares which object they chose, how they estimated, what tool they used, and how accurate they were. • The teacher guides self-reflection with questions: *"What was difficult?"*, *"What worked well?"*, *"In what other situations could you use this?"* **Objective:** Consolidate knowledge, encourage collaborative reflection and peer learning.
Conclusion	7 minutes	The teacher wraps up by summarizing what estimation and measurement mean, and how natural objects can serve as useful tools. Transition to the upcoming game: *"Next time, you'll become eco-engineers in an exciting mission-based game where you'll apply these skills!"* The teacher may share a teaser (e.g., "Who can measure a whole bush using just a leaf?"). **Objective:** Reinforce learning, maintain motivation and curiosity.

NATURAL TIMEKEEPING AND THE SIGNS OF SPRING

Class / Grade	2nd–4th grade
Subject	Mathematics, Environmental Studies
Related Game	Nature's Clock: The Seasonal Detectives of the school
Duration	45 minutes

LEARNING OBJECTIVES

- Learn how seasonal changes are observed through nature
- Understand the idea of phenology: how natural signs mark time
- Build awareness of how climate and human behavior can disrupt seasonal patterns.
- Practice basic categorization, vocabulary, and sensory description.

METHODS

- Inquiry-based learning
- Group discussion
- Outdoor experiential learning (if available)
- Visual thinking

MATERIALS

- Whiteboard or flipchart
- Visuals of seasonal signs (print or digital)
- Observation worksheet (with "I see / I hear / I feel" prompts)
- Pencils or crayons
- Nature items (optional)

DIFFERENTIATION

- Use picture cards or sentence starters for students with language needs
- Allow drawing or verbal answers as alternatives to writing
- Pair stronger readers with those who need support
- Advanced learners can research one species' seasonal pattern (e.g., robin, daffodil)

STUDENT'S ACTIVITIES

- Brainstorming and class discussion
- Sensory listing and categorization
- Observation outdoors or via images
- Drawing or writing simple reflections
- Connecting seasonal change to environmental responsibility

Lesson structure	Time Frame	Description
Introduction	5 minutes	• The teacher asks: *"What season is it now?" and "How do we know?"* • Then, the key question: *"Does nature have its own clock? If so, how does it show time?"* • Students respond: *"buds are growing", "birds come back", "it's warmer", etc.* • The teacher shows 2–3 seasonal nature photos (e.g. budding trees, returning birds). **Objective:** Spark curiosity, activate prior knowledge, engage emotionally.
Main part	10 minutes	**Signs of Spring:** In pairs or small groups, students discuss: • *"What did you see, hear, or feel recently that tells you spring is coming?"* Each group writes down keywords or the teacher records them on the board: • *"I saw → "buds, sunlight, insects"* • *"I heard → "birdsong, raindrops"* • *"I felt → "warm sun, soft grass"* **Objective:** Focus on sensory awareness and observing seasonal change.

Main part	25 minutes	**Short Outdoor Walk or Image-Based Task (around 15 minutes)** If possible, students go out to the schoolyard or nearby green space. **Task:** each student finds at least 3 signs of spring and records them using a simple observation sheet: *"I saw...", "I heard...", "I felt..."* **Indoor alternative:** students use nature photo cards or a projected image walkthrough. **Teacher role:** facilitate, ask reflective questions: • *"Why do you think this sign appears in spring?",* • *"Does it happen every year?"* **Objective:** Experiential learning, building observation skills for the game. **What Does Nature Tell Us? (around 10 minutes)** Teacher facilitates a discussion: • *"What was the most surprising thing you noticed?"* • *"What if these signs didn't appear in spring?"* They explore how climate change or pollution could disrupt natural rhythms (e.g. early blooming, late bird migrations). Link to students' lives: allergies, crops, animals' survival. **Objective:** Introduce critical thinking and awareness of ecological impact. es)
Conclusion	5 minutes	• Teacher asks students to draw or write one observation that stood out. • Optionally, they receive a sticker or badge (e.g. "Spring Watcher Trainee"). • Then the teacher introduces the next session: *"Next time, you will become real Seasonal Detectives! We'll play a game where you'll explore nature's clock and complete missions based on the signs of spring you discovered today."* **Objective:** Reinforce learning, spark motivation and curiosity for the game.

LET'S COUNT WITH WATER! – MATHEMATICS AND ENVIRONMENTAL PROTECTION

Class / Grade	3rd–4th grade
Subject	Mathematics, Environmental Studies
Related Game	The Mathematical Guardians of Water
Duration	45 minutes

LEARNING OBJECTIVES

- Understand and apply basic volume measurements (liter, milliliter)
- Estimate and calculate water use in daily life
- Reflect on water waste and saving strategies
- Connect mathematics to real-world environmental issues
- Be prepared to apply their knowledge in a mission-based learning game

METHODS

- Inquiry-based learning
- Group work and cooperative problem-solving
- Guided discussion
- Experiential and visual learning

MATERIALS

- 1-liter water bottle, measuring cap (~5 ml), empty container
- Water Use Scenario Cards (e.g. brushing teeth, showering)
- Whiteboard or projector
- Simple worksheet for calculations
- Bar chart template or poster paper (optional)

DIFFERENTIATION

- Support for struggling students: prepared data tables, step-by-step conversion prompts
- Challenge for advanced learners: multi-step conversions, weekly/monthly consumption comparison
- Pair or group learners heterogeneously for peer support
- Accept both verbal and written contributions for flexible expression

STUDENT'S ACTIVITIES

- Estimating and calculating using standard units
- Working with real-life water use scenarios
- Collaborating in groups
- Reflecting on responsible water consumption
- Preparing for a game-based learning mission

Lesson structure	Time Frame	Description
Introduction	5 minutes	The teacher shows a 1-liter water bottle, a small cap (~5 ml), and an empty container. Asks: *"How many caps of water do you think are in this bottle?"* Students make guesses. Then, the teacher writes: 1 liter = 1000 milliliters and gives a short explanation. **Objective:** spark curiosity, activate prior knowledge, engage students in thinking about volume.
Main part	10 minutes	**Units of Measurement:** Short explanation of liter, deciliter, milliliter, and conversions. Students answer quick mental math questions aloud: *"How many ml is 3 dl?", "How many liters is 2500 ml?"* Then, in pairs, they solve 3–5 short estimation or calculation tasks on a worksheet. **Objective:** strengthen understanding of basic units and real-life conversions.

Main part	25 minutes	**Estimating Water Use in Daily Activities (around 15 minutes)** Students work in small groups (3–4 students). Each group receives a Water Use Card (e.g. “showering”, “car washing”, “toilet flush”, “brushing teeth”). **Tasks:** 1. Estimate how much water is used per activity 2. Calculate weekly usage if repeated daily 3. Compare to actual data (provided by teacher) Optional: plot the data on a bar chart or poster. **Objective:** apply math in realistic context, link to sustainable practices. **Discussion – Waste or Save? (around 10 minutes)** Each group presents their results: “What surprised you?”, “Was your estimate close?” Guided classroom discussion: • *“Where do we waste the most water?”* • *“How could we reduce consumption at home or school?”* • *“What happens if we run out of clean water?”* Teacher links to SDGs (Sustainable Development Goals) or water scarcity issues. **Objective:** encourage critical thinking and environmental responsibility.
Conclusion	5 minutes	Teacher announces: • *“Next time, you will become the Mathematical Guardians of Water!”* • *“You will go on a mission where your math skills and smart choices will help protect nature.”* • Teaser question: *“Do you think numbers can save the planet?”* • Optionally, show part of the game map or introduce a character from the game. **Objective:** maintain motivation, create anticipation, connect theory to the upcoming game.

THE JOURNEY OF WATER – FOLLOWING THE CYCLE

Class / Grade	4th-5th grade
Subject	Environmental Science / Natural Science
Related Game	The Ways of Water
Duration	45 minutes

LEARNING OBJECTIVES

- Identify the key stages of the water cycle (evaporation, condensation, precipitation, surface and groundwater flow)
- Understand how water moves continuously in a closed system
- Recognize how human activities can disrupt natural water processes
- Conduct a hands-on experiment to visualize condensation and evaporation
- Reflect on the importance of water for ecosystems and sustainability

METHODS

- Visual learning
- Hands-on experiment
- Paired or small-group discussion
- Student-created diagrams
- Gamified transition

MATERIALS

- Poster or animation of the water cycle
- Paper and colored pencils
- Mason jars or containers, water, soil, plants, plastic wrap
- Whiteboard or digital presentation
- Optional: teaser materials from the game

DIFFERENTIATION

- Provide labeled diagrams or templates for students who need more structure
- Allow drawing or speaking answers instead of writing for language learners
- Pair students strategically for support
- Challenge advanced learners to explain or redesign the water cycle in a polluted or urban context

STUDENT'S ACTIVITIES

- Brainstorming and inquiry
- Drawing the water cycle
- Participating in or observing a scientific model
- Discussing human impact on ecosystems
- Preparing for game-based learning

Lesson structure	Time Frame	Description
Introduction	5 minutes	The teacher shows a glass of water and asks: *"Where does the water go when it evaporates?"* or *"Could the same drop of water return to your cup one day?"* Students share ideas, make guesses. **Objective:** spark curiosity, activate prior knowledge.
Main part	10 minutes	**Theory – Visualizing the Water Cycle:** The teacher presents a diagram or animation of the water cycle: • Evaporation • Condensation • Precipitation • Runoff • Infiltration/Groundwater Students draw their own simple cycle with arrows and keywords. **Objective**: build conceptual understanding through visual note-taking.

Main part	25 minutes	**Experiment – Mini Water Cycle in a Jar (around 15 minutes)** Students create a mini "greenhouse" in a sealed jar: water + soil + small plant + plastic wrap → place under light. They predict: *"What will happen overnight?"* Alternative: teacher-led demonstration if not enough materials. **Objectives:** hands-on learning and scientific prediction. **Discussion – What Threatens the Water Cycle? (around 10 minutes)** **Teacher can asks:** • *"What could go wrong with the water cycle?"* • *"What happens if we cover the land with too much concrete?"* • *"Why is groundwater disappearing in some places?"* Link to pollution, deforestation, and climate change. **Objectives:** build environmental awareness and cause-effect reasoning.
Conclusion	5 minutes	• The teacher summarizes the lesson: *"You've learned how the water cycle works. Now you're ready for a challenge: a mission to protect it."* • Preview the game: introduce a character, a map, or a game mechanic (e.g. controlling a water source). • Ask: *"Can you keep the water cycle healthy if you work as a team?"* **Objectives**: build anticipation and connect knowledge to gameplay..

THE ART OF THE WIND – HOW AIR MOVES AND INSPIRES

Class / Grade	2nd–4th grade
Subject	Science, Art
Related Game	Windy Wonders – The Wind's Art School
Duration	45 minutes

LEARNING OBJECTIVES

- Understand wind as an invisible natural force that causes movement
- Explore how wind can be used as a creative tool
- Identify differences between gentle and strong airflows
- Reflect on the connection between science, creativity, and sustainability
- Prepare conceptually and practically for the upcoming game

METHODS

- Inquiry-based learning
- Experiential science
- Visual and artistic imagination
- Group discussion and hands-on experimentation

MATERIALS

- Feathers, leaves, small paper shapes
- Straws, hand fans, or pieces of cardboard
- Observation sheet (simple: "What moved? How far? Gentle or strong?")
- Whiteboard, visuals or projector
- Sample of wind-based art (photo, video or actual piece)

DIFFERENTIATION

- For younger students: pre-filled observation charts or demonstration-based learning
- For advanced learners: explore drag, resistance, or connect to wind energy
- Visual prompts and modeling for language learners
- Allow verbal or sketched responses as alternatives to writing

STUDENT'S ACTIVITIES

- Participating in mini experiments with air and objects
- Observing and discussing different movements
- Drawing or describing imagined wind-created patterns
- Preparing to apply concepts in a creative game

Lesson structure	Time Frame	Description
Introduction	5 minutes	The teacher holds up a feather and gently blows on it. Quetsion: *"What just moved it?"* → Students can respond: *"air"*, *"wind"*, *"my breath".* Follow-up: *"Can air paint a picture?"* Introduce the lesson title: The Art of the Wind **Objective:** activate prior knowledge, provoke curiosity
Main part	10 minutes	**Concept Exploration – What Is Wind and How Does It Move Things?** Teacher briefly explains that wind is moving air, a force we can feel but not see. **Simple demonstration:** blow on a leaf, paper, and cotton ball – how do they react differently? **Class discussion:** *"Why does the leaf move differently from the cotton?"* **Optional:** show short video/animation of wind in nature (trees, kites, sails, birds). **Objective:** introduce the concept of force and its effect on different objects

Main part	25 minutes	**Mini-Experiment – Air Movement Testing (around 15 minutes)** Students work in small groups. Each group receives: • a straw • a fan or piece of cardboard • 3 different lightweight objects (e.g., paper circle, leaf, paintbrush) Students test: • What moves easiest? • What needs more force? • What happens if we blow gently vs strongly? Groups record observations and discuss with the teacher. **Objective:** build observational and comparative thinking before the game **Can Nature Create Art? (around 10 minutes)** Teacher shows examples of wind-based art (e.g., ink blown on paper, sand shapes made by wind). Ask students: • *"What kind of picture could the wind paint?"* • *"Can we make art without touching the brush?"* Students sketch or describe how they imagine "wind art" would look. Link to sustainability: using natural materials instead of plastics. **Objective:** connect scientific understanding with creative imagination
Conclusion	5 minutes	**Preparing for the Game:** • Teacher announces: "Next time, you will enter the Wind's Art School!" • Preview: *"You will use real wind, fans, or your own breath to create beautiful artwork using leaves, feathers, and paint!"* • Optional teaser: show part of the game setup or a past student work. • Exit prompt: *"What are you most curious to try with the wind?"* **Objective**: build excitement and set the stage for the game-based learning session

MISSION RECYCLE – MATERIALS, WASTE, AND NEW LIVES

Class / Grade	3rd–5th grade
Subject	Environmental Science, Physics, Mathematics
Related Game	Mission Recycle: The Heroes of the Planet!
Duration	45 minutes

LEARNING OBJECTIVES

- Recognize major recyclable materials (paper, plastic, glass, organic waste)
- Distinguish between recycling, reuse, and composting
- Understand the life cycle of waste — from production to second life
- Develop awareness of material properties and their connection to sorting
- Be mentally and socially prepared for a cooperative recycling game

METHODS

- Hands-on learning
- Visual and tangible aids
- Pair and group discussion
- Interactive Q&A
- Critical reasoning development

MATERIALS

- Mixed item samples (or image cards)
- 4 colored boxes or posters for sorting
- Life cycle image strips
- Poster or diagram: recycle | reuse | compost
- Game mission preview card(s)

DIFFERENTIATION

- Visual support with icons and labels
- Pre-filled sorting templates for struggling learners
- Challenge task: write or illustrate a new reuse idea
- Mixed-ability groups to support peer learning

STUDENT'S ACTIVITIES

- Identify and sort materials
- Sequence waste life cycles
- Justify sorting decisions
- Propose reuse ideas
- Get excited for the collaborative game challenge

Lesson structure	Time Frame	Description
Introduction	5 minutes	The teacher places a mixed trash basket on the table and asks: *"What do you see here?"* Students name the items: paper, bottle, banana peel, glass, etc. Follow-up: *"What happens to these if we throw them away?"* **Objective:** activate prior knowledge, provoke curiosity
Main part	10 minutes	**Material Sorting – Why Separate Waste?** Create pairs: Each pair receives cards with everyday items (e.g. cereal box, plastic bottle, eggshell, jam jar). **Task**: identify the material – What is it made of? What can we do with it? Teacher draws a three-part diagram: recycling

Main part	25 minutes	**Waste Life Cycle – Visualizing and Reasoning (around 15 minutes)** Teacher gives out picture cards showing the "story" of different objects (e.g. "Plastic bottle: From oil to T-shirt"). **Group task:** sequence the cards, give them titles, answer: • What was the raw material? • How long do we use it? • What happens after? Groups present their lifecycle and discuss possible "next lives." **Objective**: systems thinking, visual organization, ecological literacy **Interactive Sorting Game – Where Does It Go? (around 10 minutes)** Teacher displays 4 colored bins (blue – paper, yellow – plastic/metal, green – glass, brown – organic). Holds up or describes an item (e.g. jam jar, apple core, box). Students decide which bin and explain why: *"It's glass, it can be washed and reused."* **Objective**: build sorting accuracy, verbal reasoning, applied knowledge
Conclusion	5 minutes	Teacher announces: *"Tomorrow/Next time, you'll become Recycling Heroes of the Planet!"* Shows 1–2 mission cards from the game (e.g. "Give the bottle a second life!"). Asks: *"How many points do you think a great recycling idea deserves?"* Students guess and react. **Objective**: boost engagement, set narrative context for the upcoming game

NUMBERS THAT MATTER – UNDERSTANDING WASTE THROUGH DATA

Class / Grade	4th–6th grade
Subject	Mathematics, Environmental Science
Related Game	Math Missions
Duration	45 minutes

LEARNING OBJECTIVES

- Collect and interpret data related to waste in everyday life
- Use mathematical operations (addition, multiplication, estimation) to quantify environmental impact
- Create and analyze simple graphs or tables
- Reflect on how numerical information can support sustainable decisions
- Develop logical reasoning and teamwork skills

METHODS

- Experiential math
- Data handling and interpretation
- Visual learning (tables, charts)
- Peer discussion
- Environmental literacy building

MATERIALS

- Waste simulation items or image cards
- Sorting chart or worksheet
- Simple calculators (optional)
- Board or projector for discussion
- Printed or drawn waste data templates

DIFFERENTIATION

- Pre-filled tables for students who need support
- Group support for calculations
- Challenge: percentage increase/decrease or data visualization
- Vocabulary cards for ELL students (e.g. waste, graph, total)

STUDENT'S ACTIVITIES

- Categorizing and counting realistic waste samples
- Performing calculations with units
- Interpreting totals and predicting future impact
- Sharing and comparing results
- Writing simple math-based reflections

Lesson structure	Time Frame	Description
Introduction	5 minutes	The teacher shows a small bin filled with empty packaging (paper, plastic, cans). Asks: *"How much waste do you think your class creates in one week?"* Students guess numbers and suggest types of waste. Teacher writes guesses on board under: Paper – Plastic – Organic – Metal. **Objective:** Engage students, connect personal experience to data thinking
Main part	10 minutes	**Group Data Collection – Waste Simulation** Students work in small groups. Each group receives a set of object cards or mock items (e.g. 10 wrappers, 3 juice boxes, 5 banana peels, etc.). They sort the items into categories (paper, plastic, organic, metal), count them, and record totals in a group table. **Optional**: groups rotate to check others' data. **Objective:** Develop counting, classifying and recording skills using realistic environmental content

Main part	25 minutes	**Each group answers short questions based on their data:** *Indicative questions*: • *"If 1 plastic bottle = 30g, how much plastic did your group generate?"* • *"If you repeat this every day, how much waste after 1 week? 1 month?"* • *"How many bins would be needed?"* The teacher supports unit conversions (g–kg), multiplication, estimation. Advanced students may calculate averages or create pie/bar charts. **Objective**: Apply math to real-world sustainability issues, connect small actions to large outcomes **Reflection – What Do These Numbers Tell Us?** The teacher asks: • *"Were you surprised by the totals?"* • *"What type of waste was the highest?"* • *"What could we reduce or replace?"* Students share ideas. The teacher draws connections: *"What if every class in the school generated this much? Or the whole city?"* **Optional**: present national or global waste data for comparison. **Objective**: Develop scale awareness and critical reflection on human impact
Conclusion	5 minutes	Students complete a quick exit ticket: • "One number I'll remember from today is..." • "One thing I want to change at school/home..." The teacher closes: *"Today you used math not just to solve, but to understand and protect. That's what makes numbers powerful."* Optional preview: *"Next time, you'll face real eco-challenges in teams – stay sharp!"* **Objective:** Reinforce learning, inspire ownership and curiosity

BUZZING HELPERS – WHO ARE THE POLLINATORS AND WHY DO THEY MATTER?

Class / Grade	2nd–4th grade
Subject	Environmental Studies / Natural Science
Related Game	Pollinator Parade
Duration	45 minutes

LEARNING OBJECTIVES

- Understand what pollinators are and identify examples (e.g., bees, butterflies, beetles)
- Learn the role of pollinators in plant life and food production
- Recognize the impact of human activities on pollinators
- Suggest ways to help protect pollinators

METHODS

- Visual explanation with drawings
- Group work and peer sharing
- Guided discussion
- Artistic expression
- Game-based learning preparation

MATERIALS

- Real fruit (apple or similar)
- Laminated pollinator and flower cards
- Whiteboard or large paper
- Drawing paper, pencils, crayons
- Preview cards from the Pollinator Parade game

DIFFERENTIATION

- Younger students: focus more on visuals and simplified vocabulary
- Older/more advanced students: include cause-effect questions (e.g., “Why are bees in danger?”)
- Alternatives: instead of drawing, groups may act out the animal’s movement
- Language support: key vocabulary cards for non-native speakers

STUDENT’S ACTIVITIES

- Brainstorming and guessing about fruits and their connection to pollinators
- Working in small groups to analyze animal–flower pairs using picture cards
- Discussing and drawing the interaction between pollinators and plants

Lesson structure	Time Frame	Description
Introduction	5 minutes	The teacher shows a fruit (e.g., an apple) and asks: • *"Do you know who helped this fruit grow?"* • *"What kinds of animals help plants produce fruits and seeds?"* Students offer answers or guesses. The teacher introduces the word pollinator and writes it on the board. **Objective:** Spark curiosity and introduce the topic in a relatable way.
Main part	10 minutes	**What Is Pollination?** **Using simple language and illustrations, the teacher explains:** • What is pollination? • Which animals are pollinators? (bees, butterflies, hummingbirds, beetles, etc.) • What happens to flowers after pollination? • What would happen if there were no pollinators? The teacher involves students by asking questions and encouraging examples. **Objective:** Build foundational knowledge about ecosystem relationships.

Main part	25 minutes	**Group Work – Who's Who in Nature?** Students are divided into groups of 3–4. Each group receives: an animal card (e.g., bee, butterfly, beetle, hummingbird) , a flower card *Tasks*: • Share what they know about the animal • Imagine how it interacts with the flower • Draw a picture of the interaction Teacher walks around, guides discussions, and offers ideas. Objective: Encourage visual and experiential learning; practice cooperation. | Sharing and Discussion – Pollinators Around Us - Each group presents their drawing and explains their pair. Teacher leads the discussion: • *"Have you ever seen a bee or butterfly near flowers?"* • *"Why should we protect these creatures?"* • *"What can we do to help pollinators?"* Teacher collects answers on the board: *"plant flowers", "don't spray chemicals", "don't disturb hives",* etc. **Objective:** Raise environmental awareness and strengthen personal connection. |
Conclusion	5 minutes	Teacher wraps up: *"Now you know who the pollinators are. In our next session, you will become one!"* Prepares students for the game: *"How would you act like a bee or a butterfly?"* Optionally shows a few cards from the upcoming Pollinator Parade game. Exit prompt: *"One thing I learned today is..."* Objective: Reinforce learning and build anticipation for the interactive game session.

RECYCLING, REUSE AND REDUCE

Class / Grade	3rd grade
Subject	Natural environmental concerns — Recycling,reuse and reduce
Related Game	3R Classroom Challenge – Reduce, Reuse, Recycle!
Duration	45 minutes

LEARNING OBJECTIVES

- Define the terms reduce, reuse, and recycle, state the importance of reducing, reducing, and recycling.
- Explain the effects of waste on the environment.
- Students will learn their role in environmental conservation by reducing waste, reusing, or recycling.
- Provide examples of simple ways to reduce or recycle and others of the effects of waste on the environment.

METHODS

- Group work
- Guided discussion
- Project-based learning

MATERIALS

- Chips in different packaging (for comparison
- Refillable water bottle
- Used clothing and reused plastic bags
- Recyclable items: newspaper, plastic bottle, glass bottle, aluminum can
- Drawing tools: paper, pencils, markers
- Picture cards of waste/food items
- Bins for classroom recycling

DIFFERENTIATION

- Younger students: focus more on visuals and simplified vocabulary
- Older/more advanced students: include cause-effect questions (e.g., “Why are bees in danger?”)
- Alternatives: instead of drawing, groups may act out the animal’s movement
- Language support: key vocabulary cards for non-native speakers

STUDENT’S ACTIVITIES

- Work in pairs/groups to sort items and decide if they can be reduced, reused, or recycled
- Complete a "3R" workshee
- Focus on a tin can and propose ideas for reuse or recycling
- Present ideas to the class
- Reflect on their family's habits at home

Lesson structure	Time Frame	Description
Introduction	10 minutes	The teacher begins the lesson by casually opening a small bag of chips, eating some, and throwing the wrapper on the floor (as a staged action). Students are expected to react. The teacher uses this as a provocation to initiate discussion on proper waste disposal. A short, age-appropriate video on the 3 R's is shown. For example: "Reduce, Reuse, Recycle for Kids" (YouTube). The class briefly discusses what they understood.
Main part	15 minutes	Guided Discussion **– REDUCE-**Students are asked to name ways to reduce waste. The teacher emphasizes why reducing waste is crucial. Everyday examples are used: comparing a chips wrapper to chips in reusable Tupperware; the importance of reusable water bottles. Students share what they've learned about reducing waste. Guided Discussion – **REUSE** - Students name items they can reuse. The teacher shows hand-me-down clothes and reused shopping bags as examples. Students share experiences or ideas about how to reuse things at home. The teacher explains the difference between reducing and reusing. Guided Discussion – **RECYCLE** - The teacher asks what types of materials can be recycled (paper, plastic, glass, cans, etc

Main part	15 minutes	Key definitions are reinforced with concrete examples (e.g., classroom scrap paper → newspaper). Group Activity – **The 3 R's in Action** - Students work in small groups (2–4 members). Each group selects sample waste items from a "trash bin" (clean materials pre-prepared by the teacher). They discuss how each item could be reduced, reused, or recycled. Each group completes the 3 R's worksheet, identifying actions for each item. One idea per group is shared with the class and written on the board. Individual Activity – Tin Can Challenge - A tin can (or multiple) is placed in a central spot. Students individually brainstorm how to recycle or repurpose the can. On paper or a computer, students write instructions for recycling or reusing it. They can add drawings.
Conclusion	5 minutes	Finally, conclude the lesson with the following discussion topics: • *"What is the impact of waste on the environment?"* (Allow students to respond). Follow with a brief review of the effects of waste on people and the environment. • *"What is the importance of reducing, reusing, and recycling for the environment?"* • *"How can our class focus on ways to reduce, reuse, and recycle?"* Homework: students look online or in a book for more ideas on how to reduce, reuse and recycle, and ask them to report back in the next time.

CREATE YOUR FANTASTIC ORGANISM

Class / Grade	4th grade
Subject	Natural environmental concerns
Related Game	Fantastic Creatures in Nature
Duration	45 minutes

LEARNING OBJECTIVES

- Demonstrate creativity by designing an imaginary organism (fantasy creature).
- Understand how animals adapt to their environments
- Explain basic ecological concepts, such as food chains and ecosystems.
- Collaborate effectively in pairs or small groups during planning and discussion.
- Present and justify their created organism's features based on environmental needs.

METHODS

- Creative, student-centered learning
- Learning through play and project-
- Pair/group work
- Visual and artistic expression –
- Presentation and explanation

MATERIALS

- Maps of the natural area (if available).
- Animal and plant flashcards (or pictures of animals/plants).
- Paper and pencils for notes.
- Drawing paper and markers (for group activities).
- Baskets for collecting “natural materials” (leaves, rocks, etc.)
- Spider webs or ropes (to build a visual “food chain”).

DIFFERENTIATION

- Younger students: focus more on visuals and simplified vocabulary
- Older/more advanced students: include cause-effect questions (e.g., “Why are bees in danger?”)
- Alternatives: instead of drawing, groups may act out the animal’s movement
- Language support: key vocabulary cards for non-native speakers

STUDENT’S ACTIVITIES

- Work in pairs/groups
- Design and draw an original organism
- Discuss and define the creature’s key features
- Present their organism to the class
- Create a food chain

Lesson structure	Time Frame	Description
Introduction	15 minutes	Opening Activity: Ask the children what they know about animals and plants. How do they think it is easy for organisms to survive in their environment? Talk about different types of environments (forest, ocean, desert) and the adaptations of organisms to them. Show some visual examples or stories about animals (e.g., bird wings to fly, frog skin to survive in water).
Main part	30 minutes	**Nature Walk & Observation** - Students go outside for a short nature walk guided by the teacher. They are encouraged to observe plants, insects, and animals closely. ***Collecting Natural Materials*** - Students gather natural items they find interesting (e.g. leaves, twigs, feathers, stones). These materials will be used later in the creative task.

Main part		***Creating the Fantastic Organism*** - Back in the classroom, the class agrees on how much time is needed for the creation.
		• Using collected and classroom materials, students design their own fantasy organism.
		• Students are guided with prompts:
		  ◦ *What color is your organism?*
		  ◦ *What special features does it have (wings, gills, etc.)?*
		  ◦ *How does it survive in its environment?*
		
		Organism Presentation & Peer Discussion - Each student or group presents their organism to the class.
		They describe its traits, habitat, and how it feeds.
		The teacher facilitates a short peer Q&A or discussion to encourage reflection and engagement.
		
		Food Chain Creation (Group Activity) - Students are placed into small groups and asked to form a food chain using their invented organisms. Roles are assigned within each chain: producer, consumer, predator, etc.
		Each group draws their food chain on a large poster and explains the ecological relationships

Conclusion	5 minutes	**Concluding the lesson** Reflection: Ask children about what they learned. • What was most interesting for them? • What was the most creative adaptation observed? Writing on the board/flipchart: the main ideas and observations of the children will be noted to highlight the lessons learned.

LET'S DESCRIBE AND FEEL THROUGH ART

Class / Grade	4th grade
Subject	Art&English
Related Game	"Let's Draw & Laugh in English!" or "Guess the Artist!"
Duration	45 minutes

LEARNING OBJECTIVES

- Use descriptive language (colors, shapes, emotions) in English
- Express feelings and thoughts through abstract art
- Understand and use key vocabulary related to visual elements
- Collaborate and share artistic interpretations
- Reflect on visual meaning and creative intention

METHODS

- Creative, student-centered learning
- Art-based language learning (CLIL: Content and Language Integrated Learning)
- Pair and group discussions
- Visual thinking and emotional expression

MATERIALS

- Paper (A4 or A3)
- Colored pencils, markers, paint
- Example artworks or art prompt cards
- Word bank (shapes, colors, emotions)
- Timer (optional)

DIFFERENTIATION

- Younger students: focus on colors, shapes, and emotions with simplified vocabulary
- Older or more advanced students: encouraged to use more complex expressions and describe mood changes over time
- Alternatives: instead of drawing, students may create a short scene or movement to express their chosen feeling using their body or gestures

STUDENT'S ACTIVITIES

- Share ideas about colors and feelings
- Use new vocabulary in speech and art
- Create abstract artworks expressing emotion or time
- Work in pairs to interpret and describe each other's work
- Give peer feedback using simple English phrases

Lesson structure	Time Frame	Description
Introduction	5 minutes	***Warm-Up: Color & Emotion Activation*** Teacher shows 3–4 color cards (e.g., red, blue, yellow, black) Question prompts: • *"How does this color make you feel?"* • *"Can you think of something this color reminds you of?"* Students share ideas aloud or write key words on the board Introduce a mini word wall: emotion words + shape vocabulary
Main part	20 minutes	**Art Creation: "Draw a Feeling"** • Students choose one emotion from a shared list (happy, angry, scared, calm…) • Using colors and abstract shapes, they express that feeling on paper • Focus is on line, shape, and color, not on objects or people • Teacher provides sentence starters (e.g., "I chose red because…") **Art ceration - "Visualize Your Day"** • Students draw their daily timeline using shapes and colors • E.g., Morning = zigzag yellow (rush), Afternoon = blue waves (calm) **Optional:** students label each section using 1–2 simple English words

Main part	15 minutes	**Share & Describe**
		• In pairs, students exchange drawings
		• Describes what they think the drawing represents:
		  ◦ *"It looks calm... maybe you were relaxed?"*
		• Artist confirms or explains intention:
		  ◦ *"Yes, I used blue because I felt peaceful in the afternoon."*
		• Encourage 2–3 exchanges per pair
		
		All drawings are placed around the room
		Students walk silently, observe others' work
		Each student leaves 1 written comment on a sticky note:
		• "It looks powerful."
		• "I like the use of yellow."
		
		Optional teacher-led prompt: "Which picture surprised you most and why?"

Conclusion	5 minutes	**Concluding the lesson** Teacher recaps: • *"What feelings did we express today?"* • *"What colors did you use most?"* Students name 1 new word they learned **Optional closure:** • *"Next time, we'll write a poem or story based on our drawing!"* or *"Next tiem we will play a game"*

LET'S TALK ABOUT NATURE – SPEAK, MOVE, LEARN!

Class / Grade	2-4th grade
Subject	English through Nature Topics
Related Game	"Find it if you can!"
Duration	45 minutes

LEARNING OBJECTIVES

- Understand and use key environmental and science vocabulary (e.g., habitats, animals, pollution)
- Practice English speaking through pair and group communication
- Connect movement and drama to learning content (CLIL)
- Recall science facts through oral language tasks

METHODS

- Cooperative learning
- CLIL (Content and Language Integrated Learning)
- Drama and movement-based interaction
- Visual & vocabulary scaffolding

MATERIALS

- Flashcards (animals, habitats, environmental items)
- Word cards
- Soft toss ball
- Printed "animal roles"
- Whiteboard / markers

DIFFERENTIATION

- Younger students: focus on colors, shapes, and emotions with simplified vocabulary
- Older or more advanced students: encouraged to use more complex expressions and describe mood changes over time
- Alternatives: instead of drawing, students may create a short scene or movement to express their chosen feeling using their body or gestures

STUDENT'S ACTIVITIES

- Speaking in Q&A format
- Movement-based roleplay
- Vocabulary matching and peer guessing
- Listening and turn-taking in games

Lesson structure	Time Frame	Description
Introduction	5 minutes	**Introduction & Word Activation** • Teacher shows images of 4–5 nature-related elements (e.g., ocean, polar bear, recycling bin, rainbow, desert) • Elicit words: *"What do you see?" – "Where can you find this?"* Students repeat and match words with pictures

Main part	20 minutes	**Thematic Speaking Activities**
		Part 1: Question Ball Toss (10 min)
		• Teacher uses a soft ball. When caught, student answers a nature question:
		  ◦ *"What do bees do?"*
		  ◦ *"What color is a sunflower?"*
		  ◦ *"Why do we recycle?"*
		• Focus: Simple Q&A + English speaking under light pressure
		
		Part 2: Mini Drama Task (10 min)
		• Students draw a random "animal role" (e.g., frog, penguin, owl)
		• In pairs: they act out the animal and others guess + say a fact (e.g., "This animal lives in cold places. It's a penguin.")

Main part	5 minutes	Part 3: Speaking Chain (5 min) • One student says a word (e.g., “Ocean”) • The next must say a fact or sentence (e.g., “Whales live in the ocean.”) • Continue in chain for 2–3 rounds

Conclusion	5 minutes	**Summary & Reflection**
		• Students form a circle and share:
		  ◦ One word they learned
		  ◦ One funny or cool fact
		• Teacher can add 1–2 challenge questions to reinforce content:
		  ◦ *“Which animal is the biggest in the ocean?”*
		  ◦ *“What happens when we don’t recycle?”*

“GREEN WORLD!” – LET’S TALK ABOUT NATURE

Class / Grade:	4th grade
Subject	English, Science, Social Studies, Visual Arts
Related Game	TABOO 1
Duration	45 minutes

LEARNING OBJECTIVES

- Understand and use key environmental and science vocabulary (e.g., habitats, animals, pollution)
- Practice English speaking through pair and group communication
- Connect movement and drama to learning content (CLIL)
- Recall science facts through oral language tasks

METHODS

- Game-based learning
- Visual support: using picture cards and environmental images to aid understanding
- Collaborative learning: working in pairs or small groups
- Inquiry-based discussion

MATERIALS

- Taboo cards (prepared from TABOO 1)
- Visual cards or PowerPoint
- Drawing paper and colored pencils
- Nature comparison photo (clean vs. polluted environment)

DIFFERENTIATION

- Younger or lower-level students: simplified vocabulary and strong visual aids
- More advanced students: more complex taboo words and open-ended tasks
- Language support: key word cards and sentence starters provided
- Alternatives: instead of drawing, students may express ideas through body movement or role-play

STUDENT’S ACTIVITIES

- Analyze pictures of natural environments
- Read and match vocabulary to visual cards
- Play TABOO game in groups using environmental terms
- Create a drawing (e.g., “Clean Future” or “Polluted World”)

Lesson structure	Time Frame	Description
Introduction	5 minutes	**Warm-up & Introduction** **Objective:** Spark curiosity and activate prior knowledge. • Show an image of a healthy forest and a polluted beach side-by-side. • Ask: *"Which one do you like more? Why?"* Students describe them using simple English: trees, water, animals, trash... Write a few key words on the board: forest, fish, trash, clean, oxygen

Main part	10 minutes	**Vocabulary Presentation**
		
		Objective: Teach nature-related vocabulary using visuals and simple explanations.
		
		• Present selected words from TABOO 1 using flashcards or a digital presentation:
		• Forest, River, Dirt, Fish, Plastic, Electricity, Bug, Panel, Warm, Bloom, Trash, Earth, Weather, Environment
		• For each word:
		  ◦ Show an image
		  ◦ Give a simple English explanation (e.g., "Bloom means a flower grows and opens.")
		• Ask students to repeat and make a sentence if possible

Main part	20 minutes	**Taboo Game**
		
		Objective: Reinforce vocabulary through active speaking.
		• Divide students into two teams.
		• Each group takes turns describing a word from a Taboo card without saying the forbidden words.
		  ◦ Example:
		  ▪ Word: Forest
		  ▪ Forbidden Words: Tree, Plant, Green, Leaves, Wood
		  ▪ Clue: “Many animals live here. It has a lot of trees.”
		Each correct guess = 1 point.
		
		Creative Task: Poster Drawing + Writing (10 minutes)
		Objective: Combine vocabulary with visual expression and writing.
		• Task:
		  ◦ Draw a picture of your favorite place in nature.
		  ◦ Write 2–3 sentences using these words: forest, water, bug.
		Sample sentence: There is a forest with clean water and small bugs

Conclusion	5 minutes	**Present & Reflect** **Objective:** Encourage public speaking and reflect on learning. • Volunteers show their posters and read their sentences aloud. • Teacher highlights good examples and gives stars/stickers. **Wrap-up message:** *“Nature needs your help. Speak English and protect the Earth!”*

LET'S SAVE THE EARTH!

Class / Grade	4th grade
Subject	English, Science, Social Studies, Visual Arts
Related Game	TABOO 2
Duration	45 minutes

LEARNING OBJECTIVES

- Recognize and use key environmental vocabulary in English (e.g., pollution, recycling, forest)
- Improve their oral communication through speaking and listening activities
- Collaborate with peers in a team-based game setting
- Express environmental concepts creatively through drawing and writing
- Reflect on the importance of protecting nature using learned vocabulary

METHODS

- Game-based learning
- Visual support: using picture cards and environmental images to aid understanding
- Collaborative learning: working in pairs or small groups
- Inquiry-based discussion

MATERIALS

- Printed Taboo cards (from PDF vocabulary)
- Visual flashcards or digital presentation
- A4 paper, crayons or colored pencils
- Nature photo for the warm-up

DIFFERENTIATION

- Younger or lower-level students: focus on simpler words and visual recognition; provide example sentences
- More advanced students: use more challenging taboo cards and create longer, descriptive sentences
- Language support: key vocabulary visible on board; repetition and sentence starters provided

STUDENT'S ACTIVITIES

- Compare and describe environmental images
- Learn and practice nature vocabulary with visual aids
- Play the TABOO game in teams using speaking and listening strategies
- Create a nature-themed drawing and write sentences using target vocabulary

Lesson structure	Time Frame	Description
Introduction	5 minutes	**Warm-up & Introduction** **Objective:** Activate prior knowledge and introduce the topic. • Teacher shows a nature photo (a forest, ocean, or planet Earth). • Ask: *"What do you see in this picture?"* • Students say words in English: tree, water, sun, animal... Teacher writes these key words on the board: Earth, Animal, Plant, Pollution, Recycle.

Main part	10 minutes	**Vocabulary Teaching with Visuals**
		
		Objective: Teach key environmental vocabulary using simple English and visuals.
		• Introduce selected words from the PDF:
		• Pollution, Factory, Recycle, Plastic, Glass, Paper, Global Warming, Flood, Earthquake, Renewable Energy
		• For each word, present:
		  ◦ A picture
		  ◦ A simple definition in English
		A sample sentence (e.g., Factories cause pollution.)

Main part	20 minutes	**Taboo Game**
		
		Objective: Practice new vocabulary in a fun and interactive way.
		• Divide the class into groups of 3–4 students.
		• Give each group a set of Taboo cards (based on the PDF).
		• One student explains a word without using the "taboo" words.
		• For example:
		  ◦ Word: Recycle
		  ◦ Forbidden words: plastic, paper, glass
		• The team guesses the word in 30 seconds.
		
		Writing + Art Activity
		
		Objective: Encourage creative thinking and integrate visual arts.
		• Task:
		  ◦ Draw a picture of our planet in the future if we protect it.
		  ◦ Write 3 simple sentences using the words: planet, recycle, and future.
		• Example sentence: We must recycle to protect our planet in the future.

Conclusion	5 minutes	**Presentations & Wrap-up** **Objective:** Encourage speaking and review the lesson. • Students show their drawings and read their sentences aloud. • Teacher gives positive feedback. **End with a message:** *"You are the heroes of the Earth! Let's protect our world together!"*

EXPLORING THE WORLD WITH MAPS

Class / Grade	2-4th grade
Subject	Geography
Related Game	The Best Mapper
Duration	45 minutes

LEARNING OBJECTIVES

- Identify and name the 7 continents and key countries in English
- Understand and use basic directional terms (north, south, east, west)
- Locate countries on a map using reference points
- Estimate distances and describe relative positions using English phrases
- Cooperate in small groups to solve location-based challenges

METHODS

- Visual learning (maps, digital tools)
- Interactive questioning and discussion
- Pair and group activities
- Movement-based learning (e.g., standing map quiz)
- CLIL (Content and Language Integrated Learning)

MATERIALS

- Printed or digital world map
- Mini compass rose handouts
- Country task cards
- Continent puzzle sheet (optional)
- Whiteboard, markers, globe
- Vocabulary flashcards (e.g., ocean, mountain, island, country, capital)

DIFFERENTIATION

- Lower-level learners: use labeled maps, provide word banks and visuals
- Higher-level learners: use unlabeled maps, open-ended reasoning tasks
- Language support: vocabulary cards, visual glossary, sentence starters

STUDENT'S ACTIVITIES

- Map-based warm-up (naming countries & continents)
- Compass direction practice with movement
- Country-hunting group activity
- Distance & estimation reasoning
- Oral reflection and preparation for the mapping game

Lesson structure	Time Frame	Description
Introduction	5 minutes	**Warm-up & Introduction** • Show a globe or large wall map. • Ask: *"Which countries do you know?" / "Which continents have you heard of?"* • Write their responses on the board (organised into CONTINENTS / COUNTRIES). Introduce today's goal: "We will become junior geographers!"

Main part	20 minutes	**Activity 1: The 7 Continents**
		• Show a colour-coded map of the 7 continents (labeled and unlabeled)
		• Group repetition of continent names
		• Ask guiding questions:
		  ◦ *"Which is the largest continent?"*
		  ◦ *"Which one do we live on?"*
		• Matching activity: students match continent names to cut-out shapes
		
		Activity 2: Compass Directions
		• Draw and explain the compass rose on board
		• Show direction on map: *"What is north of Italy? West of Spain?"*
		• Movement activity: students point or move to a direction in class

Main part	10 minutes	**Activity 3: Country Hunt Task**
		• Divide class into groups of 3–4
		• Give each group a task card:
		  ◦ "Find 2 countries in Africa"
		  ◦ "Find a country west of Germany"
		  ◦ "Find a country that borders the sea"
		• Groups use world maps (printed or digital)
		• Share one answer with the class
		
		Activity 4: Distance and Estimation Game
		• Show 2 countries on the map
		• Ask:
		  ◦ *"Which one is closer to Hungary?"*
		  ◦ *"Which is further: Canada or China?"*
		• Use vocabulary: far, near, closer, next to, above

Conclusion	5 minutes	**Summary & Game Teaser**
		• Recap: *"What are continents? What is north of Hungary?"*
		• Encourage reflections:
		  ◦ *"What was fun or surprising today?"*
		• Introduce the next session: *"Next time, we will play 'The Best Mapper'!"*
		  ◦ Explain briefly: students will have to find countries and compete

FLAGS AND COUNTRIES

Class / Grade	2-4th grade
Subject	Mathematics / Environmental Studies / Visual Arts (STEAM)
Related Game	Tombola
Duration	45 minutes

LEARNING OBJECTIVES

- Recognize and name key countries and their flags in English
- Identify continents and place countries on the world map
- Understand basic flag features (colors, shapes, symbols)
- Use and follow simple English phrases related to geography
- Develop skills of observation, comparison, and memory

METHODS

- Visual and interactive learning (flag images, slides, map)
- Cooperative learning (pair/group tasks)
- Game-based preparation (quiz, matching activities)
- CLIL approach combining Geography and English

MATERIALS

- World map or globe
- Printed and digital flags
- Country name labels (English)
- Matching task cards / flashcards
- Blank maps (for labeling continents)
- Flag drawing template for exit activity
- Sample Tombola card

DIFFERENTIATION

- Simplified flag sets and labeled maps for lower-level learners
- Open-ended comparison questions and unlabeled visuals for advanced learners
- Key vocabulary support for EAL students (flag, map, color, symbol, country)
- Use of drawing or tactile elements for students with special needs

STUDENT'S ACTIVITIES

- Identify countries and flags from visual prompts
- Share observations about colors and symbols
- Locate continents and countries on a map
- Match flags to country names in pairs

Lesson structure	Time Frame	Description
Introduction	5 minutes	**Warm-up & Introduction** The teacher shows a well-known flag (e.g., Brazil) and asks: • *"Do you know which country this is?"* Students discuss what a flag represents (colors, shapes, symbols). **Objective:** Engage curiosity and activate prior knowledge about countries and flags.
Main part	20 minutes	**Map & Continent Exploration (10 minutes)** Using a globe or map, students identify continents and locate selected countries. Teacher asks: • *"Where is Europe?* • *"Can you find China?"* **Objective:** Build spatial awareness and geographical context. **Flag Matching Activity (10 minutes)** In pairs, students match 10 flags to 10 country names using cards or board visuals. Teacher supports with hints and pronunciation. **Objective:** Reinforce country–flag associations and English vocabulary.

Main part	10 minutes	**Spot the Differences – Flags** Students compare similar flags (e.g., Ireland vs. Ivory Coast) and describe differences. Teacher guides: • *"What colors do you see?* • *"Which side is green?"* **Objective:** Develop visual discrimination and vocabulary. **Mini Quiz – Guess the Flag** Teacher asks flag-related riddles or displays parts of flags. Students respond by raising hands or using flashcards. **Objective:** Practice recognition and recall in an engaging format.
Conclusion	10 minutes	**Reflection & Game Preparation** Teacher summarizes key learnings: • *"What do flags tell us about a country?* Students reflect and share favorites. Teacher introduces the Tombola game: *"Next time, we'll play using these flags!"* **Objective:** Consolidate knowledge and build anticipation

THE SHAPE OF NATURE: TANGRAM PREPARATION ADVENTURE

Class / Grade	3-5th grade
Subject	Mathematics / Environmental Studies / Visual Arts (STEAM)
Related Game	Nature tangram
Duration	45 minutes

LEARNING OBJECTIVES

- Identify and describe basic geometric shapes (triangle, square, parallelogram)
- Recognize geometric patterns and shapes in natural materials
- Sort and classify objects based on shape, size, and texture
- Apply spatial reasoning in designing structures using nature-based components
- Collaborate to prepare for a shape-based creative game

METHODS

- Outdoor observation and object collection
- Group discussion and visual comparison
- Hands-on shape recognition and sorting
- STEAM approach integrating math, art, and nature

MATERIALS

- Natural objects (collected by students)
- Geometric shape cards or posters
- Blank sorting or drawing worksheets
- Paper tangram sets (optional)
- Large paper for group compositions
- Digital camera or tablet (optional, for documentation)

DIFFERENTIATION

- Younger students: focus on identifying and naming shapes
- Older/advanced students: challenged to create complex figures with collected items
- Language support: visuals and vocabulary cards (e.g., “triangle,” “leaf,” “stone”)
- Inclusive learning: tactile materials and drawing alternatives for students with SEN

STUDENT’S ACTIVITIES

- Observe and name shapes found in nature
- Collect and sort natural materials based on geometry
- Collaborate to build figures using found items
- Discuss and reflect on the design process

Lesson structure	Time Frame	Description
Introduction	5 minutes	**Geometry in Nature** The teacher shows natural objects (e.g., leaf, stick, stone) and asks: *"Can you see any shapes in these?"* Students name the shapes they see. **Objective:** Activate shape recognition and curiosity about geometry in the natural world.
Main part	20 minutes	**Outdoor Exploration** Students go outside (schoolyard/garden) to collect 5–6 small natural objects that resemble geometric shapes. Teacher guides the process and supports vocabulary use. Back in the classroom, students sort their collected items by shape using shape cards (triangle, square, etc.). Discuss findings: *"Which shape was easiest to find?"* **Objective:** Practice classification and critical thinking.

Main part	10 minutes	**Tangram Preview – Creative Composition** The teacher introduces the concept of tangrams (7 shapes forming a figure). In groups, students arrange their natural objects to form a simple figure (e.g., tree, mountain). **Optional:** compare with paper tangram pieces. **Objective:** Prepare for the game by practicing shape construction.
Conclusion	10 minutes	**Reflection and Game Connection** Groups share their figures and explain which shapes they used. Teacher asks: • *"What was challenging?* • *"How did you choose the shapes?"* Wrap up: *"Next lesson, you'll become Tangram artists using only natural materials!"* **Objective:** Encourage reflection and build excitement for the game.

LEARNING DIRECTIONS IN NATURE

Class / Grade	2-5th grade
Subject	Mathematics / Environmental Studies
Related Game	Natural Direction
Duration	45 minutes

LEARNING OBJECTIVES

- Understand the concept of cardinal directions (North, South, East, West)
- Learn how to determine directions using natural elements (sun position, shadow)
- Apply basic navigation skills through an outdoor group challenge
- Collaboratively create a simple map based on their movement and landmarks
- Reflect on how direction-finding is useful in everyday life and environmental exploration

METHODS

- Inquiry-based learning (question prompts)
- Hands-on experimentation (shadow stick method)
- Game-based outdoor navigation
- Drawing and peer explanation
- Reflective discussion and quiz

MATERIALS

- Sticks (1 per group)
- Chalk or markers for shadow marking
- Direction clue cards for the game
- Drawing paper and pencils
- Optional: compass for comparison
- Visual aids (e.g., compass rose, sun path image)

DIFFERENTIATION

- Younger students: focus on recognizing directions and understanding East/West via sunrise/sunset
- Older or advanced students: include compass rose, degrees, and relation to maps
- Visual/tactile learners: use chalk, physical movement, drawing tools
- Language support: direction cards, visual vocabulary

STUDENT'S ACTIVITIES

- Respond to the question about using the sun for navigation
- Practice the shadow stick method
- Follow directional paths in an outdoor game
- Draw and label their route
- Share findings and reflect on what worked

Lesson structure	Time Frame	Description
Introduction	5 minutes	The teacher asks: *"Can you find direction by looking at the sun?"* Children are encouraged to brainstorm answers and discuss ideas. This activates prior knowledge and raises curiosity about navigation in nature.
Main part	10 minutes	**Scientific Observation** In the schoolyard or another outdoor area, the teacher explains and demonstrates how to use a stick and the sun to find direction. Students place a stick vertically in the ground, mark the shadow tip, wait 10–15 minutes, and mark it again. The line between the two marks shows East–West. Students label directions and discuss.

Main part	25 minutes	**Outdoor Game – Compass Challenge** Students are divided into groups and receive a direction-based path card (e.g., "Walk 6 steps North, then 4 East"). They navigate a route and search for a hidden object or place, following clues. The activity is active and fun, reinforcing direction understanding. **Map Drawing and Sharing** Students return indoors and draw the route they followed using arrows and symbols for North, East, etc. They name their path (e.g., "Shadow Trail") and present it to the class. This visual representation deepens spatial understanding.
Conclusion	5 minutes	**Reflection and Game Connection** The teacher summarizes what was learned about using the sun and natural tools for direction. A quick 3-question quiz checks understanding. The session ends with a teaser: *"Next time you'll need your direction skills for a real compass game!"*

"THE EARTH'S TRUE COLORS"

Class / Grade	2-5th grade
Subject	Mathematics / Environmental Studies
Related Game	Natures Palette
Duration	45 minutes

LEARNING OBJECTIVES

- Understand the concept of cardinal directions (North, South, East, West)
- Learn how to determine directions using natural elements (sun position, shadow)
- Apply basic navigation skills through an outdoor group challenge
- Collaboratively create a simple map based on their movement and landmarks
- Reflect on how direction-finding is useful in everyday life and environmental exploration

METHODS

- Inquiry-based learning (question prompts)
- Hands-on experimentation (shadow stick method)
- Game-based outdoor navigation
- Drawing and peer explanation
- Reflective discussion and quiz

MATERIALS

- Sticks (1 per group)
- Chalk or markers for shadow marking
- Direction clue cards for the game
- Drawing paper and pencils
- Optional: compass for comparison
- Visual aids (e.g. compass rose, sun path image)

DIFFERENTIATION

- Younger students: focus on recognizing directions and understanding East/West via sunrise/sunset
- Older or advanced students: include compass rose, degrees, and relation to maps
- Visual/tactile learners: use chalk, physical movement, drawing tools
- Language support: direction cards, visual vocabulary

STUDENT'S ACTIVITIES

- Respond to the question about using the sun for navigation
- Practice the shadow stick method
- Follow directional paths in an outdoor game
- Draw and label their route
- Share findings and reflect on what worked

Lesson structure	Time Frame	Description
Introduction	5 minutes	**Introduction – Nature and Color** The teacher opens with the question: *“Where do we see colors in nature?”* Shows examples like flower petals, leaves, fruit peels, soil. Students make quick observations and guesses about what materials could give color.
Main part	10 minutes	**Science & Technology – Pigment Extraction** In small groups, students crush collected materials (flowers, leaves, soil) and mix with water to create natural paint. The teacher demonstrates the grinding and water mixing technique.

Main part	20 minutes	**Main Creative Task – Map Painting** Students receive a blank geographical shape or map template. They use their handmade paints to color the regions according to natural tones (e.g., green for forests, brown for plains). Creativity is encouraged, but colors must be nature-inspired. **Presentation – Explain Your Palette** Each group shares their painted map with the class. They explain what material they used for each color and why they chose that tone for a specific region.
Conclusion	5 minutes	**Math Reflection – Analyze and Count** **Guided questions:** • *"How many different colors did we use?"* • *"Which area was painted most?"* Students reflect on patterns and proportions. The teacher wraps up by asking: "Could we make natural paint at home too?" Encourages students to think about eco-friendly art materials in daily life.

LUCKY LOGIC: CAN WE PLAY OUR WAY TO A GREENER FUTURE?

Class / Grade	4th grade
Subject	Nature&biology
Related Game	Lucky logic
Duration	45 minutes

LEARNING OBJECTIVES

- Understand the concept of sustainable actions and environmental responsibility.
- Apply logical thinking to real-life environmental challenges.
- Collaborate effectively in a group setting.
- Reflect on daily habits and choices that impact the planet.

METHODS

- Game-based learning
- Group collaboration
- Physical movement and challenges
- Reflection and discussion
- Visual support and vocabulary scaffolding (for EFL learners)

MATERIALS

- Lucky Logic game cards (task + question cards)
- Dice
- “Lucky Path” map board
- Recyclable objects or paper tokens
- Posters with useful vocabulary (e.g., reuse, pollution, recycle)
- Pencils, markers, and reflection worksheets

DIFFERENTIATION

- Younger students: simplified vocabulary, visual clue cards
- Older/more advanced students: deeper logic reasoning and open-ended environmental questions
- Non-native speakers: supported with visual aids and peer support
- Alternative expression: students can draw or act instead of verbal responses

STUDENT’S ACTIVITIES

- Roll the dice and move along the Lucky Path
- Solve environmental riddles and perform eco-challenges
- Reflect on their actions and points collected
- Work in teams to support each other
- Complete a “green habit” self-assessment worksheet at the end

Lesson structure	Time Frame	Description
Introduction	10 minutes	The teacher shows a recycling bin full of unusual objects and asks: *"Which of these can be reused?" or "What would you do with these?"* Short discussion to activate prior knowledge. **Game Setup – Rules and Roles** Teacher introduces the Lucky Logic game, briefly explains rules: students roll a die, move on the board, and pick a card (either question or challenge). Groups of 3–5 students are formed
Main part	30 minutes	**Gameplay – Logic and Action** Students play the game. They encounter logic questions and physical/environmental challenges like: *"Act out the life of a plastic bottle" or "Sort these items into bins."* Teacher moves between groups, supports where needed. Back in a circle, the teacher asks: • *"What surprised you?"* • *"Was anything difficult or easy?"* • *"How can this game help us live more sustainably?"* Short discussion and peer-sharing encouraged.

Lesson structure	Time Frame	Description
Introduction	5 minutes	**Consolidation – Beyond the Game** Students fill out a short reflection worksheet with 3 green habits they already follow, and 2 they would like to try.