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Title of the STEPAM Unit: Natural Ecosystems and Habitats

AUTHORS (NAMES /SCHOOL / COUNTRY): EXPERIENCE WORKSHOP, JAGODINA

RELATED SUBJECTS	AGE GROUP OF THE STUDENTS	TOTAL ACTIVITY TIME	LEARNING OBJECTIVES DURING THE LESSON SUBJECT-SPECIFIC COMPETENCIES	LEARNING OBJECTIVES AFTER THE LESSON
Science, Mathematics, Engineering, Physical Education, Arts, Technology	1st-4th grade (6 to 11 years old)	90 minutes	• Understand the concept of natural ecosystems and habitats (terrestrial and aquatic). • Identify different habitat types and the plant and animal communities within them. • Analyze how environmental factors (soil, light, moisture, temperature) influence plant and animal life.	• Students can describe key characteristics of terrestrial and aquatic habitats. • Students can identify animals and plants specific to different ecosystems. • Students can apply mathematical concepts to design camouflage patterns. • Students will have improved motor skills and

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			• Explore camouflage and its role in survival through math and engineering activities. • Develop spatial and artistic skills by designing digital habitats and ecosystem collages. • Engage in a physical activity that simulates predator-prey relationships and camouflage effectiveness.	teamwork from movement-based learning. • Students can create and present artistic representations of natural habitats. • Students understand the importance of protecting natural ecosystems.

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OVERVIEW: TOPIC & PURPOSE

This unit explores **natural ecosystems and habitats,** focusing on how **plants, animals, and environmental factors** interact. Students will:

- **Classify and analyze** terrestrial and aquatic habitats.
- **Investigate camouflage** through a **math and engineering-based pattern design**.
- **Engage in movement-based activities** simulating predator-prey interactions.
- **Use digital tools** to create **3D models of ecosystems**.
- **Create collages and artistic representations** of different habitats.
- **Discuss environmental conservation** and why habitats must be preserved.

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ACTIVITY PREREQUISITES -

STEAM ELEMENTS

ELEMENT 1: context presentation	What is a habitat? How do plants and animals adapt to different environments? How do factors like light, temperature, and moisture affect habitats? How does camouflage help animals survive in their environments? How can we digitally design and visually represent habitats?
ELEMENT 2: creative design	Observing and analyzing habitat characteristics (forest, meadow, river, pond, etc.). Designing camouflage patterns based on geometric shapes. Creating digital 3D habitats to visualize environmental features. Constructing collages that represent different ecosystems.
ELEMENT 3: emotional and social learning	Working in teams to create and present projects. Developing focus and creativity in camouflage and habitat design. Encouraging collaboration and problem-solving in movement-based activities.

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STEAM SUBJECT ELEMENTS

STEAM SUBJECTS	SCIENCE	TECHNOLOGY	ENGINEERING	Physical Education	ARTS	MATHEMATICS
SHORT INTRODUCTION TO RELATED SUBJECT ELEMENTS	Understanding natural ecosystems, habitats, biodiversity, and adaptation.	Using 3D design software to create digital habitat models.	Designing camouflage patterns that mimic real habitats.	Engaging in predator-prey movement-based camouflage games.	Creating ecosystem collages and camouflage pattern designs.	Applying geometry concepts (area, perimeter, patterns) to camouflage designs.

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SYLLABUS

LESSONS	SUBJECTS	TOPIC OF THE UNIT	LEARNING OBJECTIVES DURING THE LESSON: SUBJECT SPECIFIC COMPETENCIES	LEARNING OBJECTIVES AFTER THE LESSON: STEAM COMPETENCIES
1	**Science, Mathematics, Art**	**Exploring Natural Habitats**	- Identifying different habitats and their features. - Understanding plant and animal life.	- Students classify habitats and explain ecosystem interactions.
2	**Mathematics, Engineering**	**Camouflage & Geometric Patterns**	- Designing camouflage patterns using geometric shapes. - Calculating area/perimeter of patterns.	- Students apply math and engineering concepts to real-world camouflage.

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3	**Physical Education**	**Predator-Prey Camouflage Game**	- Simulating camouflage in nature. - Understanding survival strategies.	- Students develop motor skills and teamwork through movement-based learning.
4	**Technology, Art**	**Digital Habitat Creation**	- Designing 3D models of habitats. - Exploring digital tools for ecosystem representation.	- Students create digital representations of natural habitats.
5	**Art, Science**	**Ecosystem Collage & Presentation**	- Visually representing ecosystems using mixed media. - Explaining the importance of biodiversity.	- Students develop communication skills and environmental awareness.

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INSTRUCTIONAL PLAN BY LESSON

LESSON Grade 3-4 Science, Engineering, Physical Education, Art (Language) and Mathematics

TIME PLAN	TEACHING & LEARNING ACTIVITIES	MATERIALS	LEARNING OBJECTIVES
INTRODUCTION **(5-10 minutes)**	Discussing **natural habitats and environmental interactions**.	Images, posters, videos on ecosystems	Students understand the characteristics of ecosystems.
LEARNING ACTIVITIES **(60-70 minutes)**	**Activity 1: Exploring Natural Habitats** – Group work, creating posters with habitat characteristics.	Graph paper, markers, magazines	Students identify and describe habitats.
	Activity 2: Camouflage Patterns in Nature – Designing patterns using geometric shapes.	Animal outlines, rulers, colored pencils	Students apply math and engineering concepts.
	Activity 3: Predator-Prey Camouflage Game – Simulating survival strategies through movement-based activities.	Natural-colored fabric, gym area	Students understand real-world applications of camouflage.

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	Activity 4: Digital Habitat Creation – Using 3D design software to model ecosystems.	Tablets, laptops with 3D design software	Students use digital tools to create habitat representations.
	Activity 5: Ecosystem Collage – Creating a mixed-media visual representation of ecosystems.	Poster paper, glue, art supplies	Students express knowledge through artistic creation.
WRAP-UP & EVALUATION (15-20 minutes)	Reviewing and presenting ecosystem projects.	Completed collages, digital models	Students summarize key concepts and share findings.

EVALUATION PLAN BY LESSON

LESSON/ACTIVITY	EVALUATION CRITERIA	EVALUATION METHOD
1	Did students accurately identify habitat characteristics?	Poster presentation review
2	Did students correctly apply geometric concepts to camouflage?	Measurement and pattern analysis
3	Did students engage in the camouflage game?	Observation and discussion
4	Did students create digital 3D models of habitats?	Digital project assessment

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5	Did students effectively represent an ecosystem visually?	Collage presentation review

NOTES -

ACTIVITY SHEETS TO BE LINKED -

EVALUATION MATERIALS TO BE LINKED -

REFERENCES / SUPPORTING MATERIALS TO BE LINKED

PDF / PPT slides:

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