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Title of the STEPAM Unit: Don't Eat Me – Relationships Between Living Beings and Their Ecosystems

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	1st-4th grade (6 to 11 years old)	90 minutes	• Understand ecological relationships (predator-prey, symbiosis, food chains). • Describe interdependence among plants and animals in ecosystems. • Recognize human impact (both positive and negative) on ecosystems.	• Students can explain food chains and the transfer of energy in an ecosystem, and • Analyze relationships between living organisms in their environment. • Understand the impact of human activities on nature. • Design and build models of animal habitats.

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			• Demonstrate food chain dynamics using hands-on activities. • Apply engineering principles to design and construct animal habitats. • Develop mathematical skills by calculating food consumption in a food chain. • Engage in movement-based activities that simulate ecosystem roles.	• Calculate and graph food consumption in an ecosystem. • Improve teamwork and coordination through movement-based activities.

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OVERVIEW: TOPIC & PURPOSE

This unit explores **the relationships between organisms in ecosystems,** emphasizing how living beings **depend on one another for survival**. Through hands-on experiments and engaging activities, students will:

- **Construct food chains** and analyze how energy flows through an ecosystem.
- **Build model habitats** that demonstrate how animals adapt to their environment.
- **Apply math skills** to calculate food consumption in an ecosystem.
- **Create artwork** representing organisms and their ecological roles.
- **Engage in physical activities** that simulate food chains and predator-prey relationships.
- **Discuss human impact** on ecosystems and how to protect them.

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ACTIVITY PREREQUISITES -

STEAM ELEMENTS

ELEMENT 1: context presentation	What is an ecosystem? What are the living and non-living components? How do food chains work? What are producers, consumers, and decomposers? How do human activities positively and negatively affect ecosystems?
ELEMENT 2: creative design	Constructing food chains using images and string. Building model animal habitats with simple materials. Creating artwork representing organisms in an ecosystem. Graphing food consumption in a food chain.
ELEMENT 3: emotional and social learning	Working in teams to solve problems collaboratively. Developing environmental awareness and responsibility. Encouraging creative expression through art and model-building.

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STEAM SUBJECT ELEMENTS

STEAM SUBJECTS	SCIENCE	TECHNOLOGY	ENGINEERING	Physical Education	ARTS	MATHEMATICS
SHORT INTRODUCTION TO RELATED SUBJECT ELEMENTS	Understanding food chains, predator-prey relationships, and ecosystems.	Exploring how technology aids in studying ecosystems.	Building model animal habitats to understand survival needs.	Engaging in an active ecosystem relay game.	Creating ecosystem drawings, collages, and clay models.	Graphing food consumption in a food chain.

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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**	**Building a Food Chain**	- Understanding energy transfer through ecosystems. - Constructing food chains.	- Students explain food chain roles and connections.
2	**Engineering, Technology**	**Building Animal Habitats**	- Designing shelters for animals in different ecosystems.	- Students understand habitat needs and environmental preservation.
3	**Arts**	**Nature Art: Creating an Organism**	- Representing an ecosystem component creatively.	- Students express knowledge through artistic projects.

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4	**Mathematics**	**Food Chain Graphing**	- Calculating and visualizing food consumption within a food chain.	- Students interpret bar graphs showing ecosystem energy flow.
5	**Physical Education**	**Eco Relay: Simulating Ecosystem Roles**	- Moving through different stations representing ecosystem interactions.	- Students understand real-world predator-prey relationships.

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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 **ecosystems and food chains** using visual aids.	Posters, animal cards, string	Students understand food chain structure.
LEARNING ACTIVITIES **(60-70 minutes)**	**Activity 1: Building a Food Chain** Connecting organisms with string to show energy transfer.	Animal images, yarn, glue	Students analyze food chains and ecosystems.
	Activity 2: Building Animal Habitats – Constructing model habitats with engineering materials.	Lego, popsicle sticks, rubber bands	Students apply engineering skills to environmental concepts.
	Activity 3: Nature Art – Drawing or modeling ecosystem organisms.	Drawing paper, colored pencils, clay	Students creatively express ecological roles.
	Activity 4: Food Chain Graphing – Calculating weekly food requirements and creating bar graphs.	Graph paper, rulers, pencils	Students interpret numerical data related to ecosystems.

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	Activity 5: Eco Relay – Acting out ecosystem roles through movement-based activities.	Animal masks, outdoor space	Students physically engage with ecosystem dynamics.
WRAP-UP & EVALUATION (15-20 minutes)	Reviewing and presenting food chains, graphs, and art projects.	Completed projects, graphs, and models	Students summarize key concepts and present findings.

EVALUATION PLAN BY LESSON

LESSON/ACTIVITY	EVALUATION CRITERIA	EVALUATION METHOD
1	Did students correctly construct food chains?	Group discussion and observation
2	Did students design appropriate animal habitats?	Hands-on project assessment
3	Did students create accurate and creative artwork?	Art presentation review
4	Did students correctly calculate food consumption?	Bar graph analysis
5	Did students engage in the Eco Relay?	Participation, observation

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NOTES -

ACTIVITY SHEETS TO BE LINKED -

EVALUATION MATERIALS TO BE LINKED -

REFERENCES / SUPPORTING MATERIALS TO BE LINKED

PDF / PPT slides:

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