Grade 2 STEM Lesson Plan

Learning Target: Students will develop and use models to explore how insects and living things rely on their surroundings and other living things for survival.

Sub-Objectives: Insects and animals need food, water, shelter, and other living things to survive.

TN Standard:

2nd Grade Science Standards:
2.LS2:1, 2

TN Computer Science Standards:
2.FC:3

How will I know if the students have mastered the standard?

Criteria for Mastery:

Observation Checklist: Walk around as students build their habitats and check if they include food, water, and shelter for their insect or animal.

Exit Ticket: "Bug Talk"
Give students a sticky note or index card.
Ask them to complete the sentence: "If an insect or animal's habitat changes, it will _____ because _____."

Lesson Organization

1. Show pictures of different insects/animals (e.g., ants, bees, butterflies, birds, turtles).
2. Review our discussion from last week regarding animals, their habitats, and their food.
3. Discuss how insects and other living things depend on plants for food, water for drinking, and other insects or animals for survival.
4. Discuss Roles in the Group:
    a. Habitat Designer
    b. Environmental Factor
    c. Data Collector
5. Explore: Build an Insect Habitat (15 minutes)
    a. Give each group a tray as their "habitat."
    b. Students use natural materials to create an environment for their assigned insect or animal. For example:
        i. Bees need flowers for nectar and water to drink.
        ii. Ants need soil and food sources.
        iii. Butterflies need plants for caterpillars to eat and safe places to rest.
        iv. Birds need trees to make shelter.
6. Introduce Environmental Changes:
    a. Add challenges to the habitats:
        i. Sprinkle paper confetti (pollution).
        ii. Remove plants (deforestation).
        iii. Take away water cups (drought).
        iv. Add oil to the water (oil spill).
        v. Knock down shelters (tornadoes/hurricanes)
7. Ask: "What happens to your insects when the environment changes?"
8. Explain & Reflect
    a. Each group shares their insect habitat and explains how their insect depends on its environment.
9. Discuss: 2–3 minutes (This will be a transition from group to group)
    a. "What happens when a creature's habitat is damaged?"
    b. "What can humans do to protect insect and animal habitats?"
10. Have students write one sentence about how their insect or animal depends on its surroundings as an exit ticket. Some students will get sentence starters to help them complete this task.
11. Closure: Review key ideas--Insects and animals need food, water, shelter, and other living things to survive.

Materials:

- Plastic insect/ animal figurines
- Plastic trays
- Natural materials—soil, leaves, twigs, rocks, plants)
- Small cups of water
- Playdough
- small toy predators
- Sand for ant hill
- Pipe cleaners
- Popsicle sticks
- Confetti to represent pollution
- Fan to represent wind damage
- Water to represent rain

	Questions for Lesson ● What would happen if your creature's food or water source disappeared? How would it survive? ● How does your creature depend on other living things in its habitat? ● What differences do you notice between a healthy habitat and one that has been polluted or destroyed? ● If you were an insect, which habitat would you choose to live in and why? ● What do you think is the most harmful change to a creature's environment? Why? ● Can you design a solution to help an insect survive if its habitat is destroyed? What could people do to stop pollution or habitat destruction before it happens? **Grouping for Lesson** Groups will be broken into 8 groups of 3. The roles of the group members are: ● Habitat Designer – Responsible for gathering all materials for the group. ● Environmental Scientist – Studies what happens when the surroundings change and helps the group determine a solution. ● Data Collector – Writes down how insects or animals made adaptations to their habitat being disturbed and how they saved their creature. Groups: ● Group 1 - Butterfly (Drought) ● Group 2 - Lady Bug (Flood) ● Group 3 - Bird (Deforestation) ● Group 4 - Bee (Lack of flowers to pollinate) ● Group 5 - Marine Life (Oil Spill) ● Group 6 - Ants (Human interaction) ● Group 7 - Turtle (Pollution) ● Group 8 - Fly (Predator - spiders)	

How will I respond when students experience initial difficulty in learning?	**How will I enrich and extend the learning of students who have mastered the learning?**
Use step-by-step directions with pictures or icons to explain how to build a habitat. Create a visual checklist of what insects need (food, water, shelter, protection from predators). Model an example habitat before students begin. Use sentence starters for discussions and reflections: "My insect needs ___ to live." "If the water is gone, my insect will ___."	Challenge exit ticket with a picture of a butterfly included 2 questions**, "*What is another environmental factor that could threaten your habitat? How could that affect your creature?*"**

TN State Standards:

2nd Grade Science: 2.LS2: Ecosystems: Interactions, Energy, and Dynamics

1) Develop and use models to compare how animals depend on their surroundings and other living things to meet their needs in the places they live.
2) Predict what happens to animals when the environment changes (temperature, cutting down trees, wildfires, pollution, salinity, drought, land preservation).

TN Computer Science Standards: 2.FC: Foundational Concepts:

3) Ask questions to conduct investigations, solve problems, and test solutions.