

Teaching Script

1. Title

Nature's Little Explorers: Discovering Insect Life

2. Keywords

Insects, Ecology, Biodiversity, Observation, Scientific Research, Nature, Ecosystem Systems, Exploration, Insect Behavior, Specimen Collection

3. Basic information

STEAM Subject: SCIENCE

Typical interaction time with the learning scenario in for in-school work: 90 minutes

General description of the scenario:

| <u>Phases</u> | <u>Stage</u> | <u>Year</u> |
|----------------------------------------------------|----------------------|-------------|
| Introduction and Preparation | Preparatory Stage | 20 minutes |
| Performing Activities (observing and recording) | Implementation Stage | 60 minutes |
| Discussion and Feedback | Evaluation Stage | 20 minutes |

Age group: 10-12 years old

Estimated difficulty level:

| Very Easy | Easy | Moderate | Challenging | Very Challenging |
|-----------|------|----------|-------------|------------------|
| | | X | | |

Teaching resources

Materials:



Magnifying lenses: For the close observation of insects.

- Microscopes: For detailed examination of insects (optional, subject to availability).
- Collection bags: To collect and transport the insects (or plastic containers).
- Insect Education Guides: To assist students in identifying and categorizing insects.
- Record Papers: To record their observations and record data.
- Pencils/Pens: For notes and recording.
- Insect pictures and posters: For identification and analysis.
- Baskets or collection boxes: For the safe transport of collected insects.
- Detailed activity sheets: To structure observations and questions.

School infrastructure: Indoor and outdoor spaces: Space inside the classroom or school yard area for the insect observation and collection activities.

Additional material from external sources/online tools:

- Insect Identification Applications:
Seek by iNaturalist – Application that allows the identification of insects through photos and provides information about them. (https://www.inaturalist.org/pages/seek_app)
- Videos and Documentaries:
YouTube – Channels like "BBC Earth" have documentaries and educational videos about insects.
Khan Academy – Videos and lectures on insect biology.

Differentiated instruction for students with different abilities and learning styles in the same class:

- Visual Learners: Provide maps, pictures, and videos of insects to enhance understanding. Use posters with pictures of insects and their characteristics.
- Audio Learners: Use audio materials such as recordings of regular insect descriptions or expert interviews. Show related documentaries or reports.
- Kinesthetic Learners: Incorporate activities where students can handle real insect specimens or participate in hands-on experiments with safe media.

Developed by: Development Center of Thessaly



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4. Educational Problem

The scenario "Little Explorers of Nature: Discovering the Life of Insects" helps to solve the educational problem of limited practical experience and the inability of students to combine theoretical knowledge with real observation. In particular it helps to:

- Enhancing Experiential Learning. It provides students with the opportunity to explore and observe insects directly, combining theoretical knowledge with practical application.
- Developing Scientific Skills. It helps develop observation, recording and data analysis skills, enhancing the scientific research process.
- Understanding Ecological Relationships. Promotes understanding of ecological relationships and biodiversity, enhancing students' knowledge of the role of insects in the ecosystem.

5. Learning Objective (-s)

1. Development of Observational Skills. Students will be able to closely observe the characteristics and behaviors of insects, using tools such as magnifying glasses or microscopes.
2. Understanding Biological Strategies. Students will understand the importance of insects in the ecosystem and their roles such as pollination and decomposition of organic materials.
3. Developing Scientific Skills. Students will develop data recording and analysis skills through their observations, enhancing the process of scientific inquiry.
4. Enhancing Cooperative Learning. Students will enhance their collaboration and communication skills through group activities and discussions about their observations.
5. Biodiversity Assessment. Students will recognize and appreciate the biodiversity of insects and their importance in maintaining ecosystems.

6. Phases of the Scenario

Phase 1

Title: Introduction and Preparation



| Indoor | Outdoor | Mixed |
|--------|---------|-------|
| | | X |

Phase duration in minutes: 20 minutes

Detailed description of the scenario phase: In Phase 1 of the Little Nature Explorers: Discovering Insect Life scenario, Introduction and Preparation, students are introduced to the topic of insects through a fun and educational activity. The phase begins with a short presentation describing the importance of insects and their role in the ecosystem. Students will then participate in an activity to familiarize themselves with observation tools such as magnifying glasses and microscopes. Preparation also includes discussing safety rules and the importance of careful observation. The goal is to create a positive climate of excitement and interest for the activity to follow.

Activity Sheets:

Activity Sheet – Phase 1: Introduction to Solar Energy

Name: _____

Date: _____

1. Familiarity with Observation Tools

Tool 1: Magnifying Glass

Question: How do we use a magnifying glass to observe insects?

Answer:

Tool 2: Microscope

Question: What is the difference between a magnifying glass and a microscope?

Answer:

2. Recording and Notes

Activity: Use the magnifying glass to observe an insect and note three characteristics you notice.

Feature 1:

Feature 2:

Feature 3:

3. Discussion of Safety Rules

Question: What are the basic safety rules to follow when observing insects?

Answer:



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4. Enthusiasm for Exploration

Question: What excites you most about observing insects?

Answer:

Phase 2

Title: Performing Activities (observing and recording)

| Indoor | Outdoor | Mixed |
|--------|---------|-------|
| | | X |

Phase duration in minutes: 60 minutes

Detailed description of the scenario phase: In phase 2 of the scenario, students use their observation tools (magnifiers and microscopes) to examine the insects up close. Students are divided into groups and work with various insect specimens, recording their observations on worksheets. They are encouraged to notice details such as body parts, colors and patterns, as well as the behavior of insects. The activity involves discussing the findings and compiling the notes into a common file. The aim is to enhance understanding of insect characteristics and biology through direct experience.

Activity Sheets: N/A

Phase 3

Title: Discussion and Feedback

| Indoor | Outdoor | Mixed |
|--------|---------|-------|
| | | X |

Phase duration in minutes: 20 minutes

Detailed description of the scenario phase: In phase 3 of the scenario, students gather to share their observations and findings. The teacher leads an open discussion in which students report the characteristics of the insects they observed, the differences and similarities they observed, and the questions that arose during the process. Discussion reinforces understanding of science concepts, while feedback allows students to express their thoughts and hear the opinions of their peers. The goal is to deepen their knowledge and recognize the importance of collaboration and critical thinking in the scientific process.

Activity Sheets:



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Full name: _____

Date: _____

1. Presentation of Findings

Activity: Describe the characteristics of the insect you observed. Use the following questions to organize your presentation:

What were the main differences you noticed between the insects?

What similarities did you spot?

Features:

Difference 1:

Difference 2:

Similarity 1:

Similarity 2:

2. Important Findings

Activity: Fill in your group's important findings and what you learned from them.

Important Finding 1:

Important Finding 2:

What did you learn:

3. Questions and Commentary

Activity: Write down any questions or concerns that arose during the observation and discuss them with the class.

Question 1:

Question 2:

Comment or observation:

7. Evaluation Methodology

Evaluation of Process and Participation:

Description: Consider active student participation in observation and recording activities. Find out how well students use the observation tools and how carefully they record their observations.

Method: Observe students during the activity and use observation sheets or rubrics to record active participation and use of tools.



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Content and Comprehension Assessment:

Description: Test students' understanding of the characteristics of insects, their importance in the ecosystem, and their observations. Evaluate the accuracy of their records.

Method: Use worksheet questions and activities (such as identifying features and recording findings) to assess understanding.

8. Additional Resources for the teacher

N/A