STEAMING STEM PROGRAM

BIODIVERSITY CHALLENGE

LEVEL

Level 5 – Level 6

ACTIVITY DESCRIPTION

Students undertake a biodiversity audit in their school grounds. They identify a range of species found in different habitats. They collect data about the school's species diversity, analyse and draw conclusions. Students present and share their findings and make suggestions for habitat improvements at their school.

THEME

- Biodiversity in action

MATERIALS REQUIRED

- Clipboard
- Pencil
- Habitat audit worksheet – attached
- Mini Beasts recording sheet – attached
- Map of the school and grounds

INSTRUCTIONS

The biodiversity audit looks at how well the school grounds provide habitat for wildlife. Undertake the following tasks with the students.

1. NATURE WALK AND IDENTIFICATION OF THE SCHOOL'S HABITATS.

Take students out into the school grounds on a nature walk and provide them with a map of the school grounds. On their walk students will need to:

- Identify what kind of habitats are in the school ground.
- Formulate a description of the habitats.
- Map the habitats.

Divide up the school ground habitats so that each group has a designated area. Ensure each habitat has an appropriate name that describes the habitat and distinguishes it from all the others. Work out how the class can be best organised to collect the habitat data without doubling up too much.

2. COLLECTING DATA ON SPECIES DIVERSITY FOR EACH HABITAT

Each group will collect data on their designated habitat and fill it in on the Student Worksheet. Before they do this, they will need to decide on the following variables:

- Decide how the data will be collected.
- Design ways to collect the data.
- Decide on what data is important to collect.

Students are not experts in identifying organisms so they will need to try to reduce the error in their data collection by deciding on the rules beforehand. Because the students are working in groups it is important for them to think about their method to avoid double-ups and errors. Before collecting the data, confirm that each group will be using a similar timing for gathering data.

3. POOL DATA ON A SPREADSHEET

Once all the data is collected, it can be pooled onto a single spreadsheet. You can then analyse the data so that species diversity and ecosystem diversity can be compared. Students can investigate if there are relationships between species diversity (the number of different species) and the number of different habitats (mini ecosystems). Students can graph their individual data or the pooled data. For example, one axis can have the habitats and the other axis can be the number of species. Alternatively, graph the number of indigenous, native and introduced species.

4. CREATE A REPORT

Using the data students should produce a short report. They should use their chosen graph or graphs to show differences between the habitats. Students can provide their views on the biodiversity in their school. They should also suggest how their data collection could be improved if they were to do it a second time.

EXTENSION: Student's plan, design and create a school ground habitat that encourages greater plant and animal diversity for a sustainable future.

SUGGESTIONS FOR ASSESSMENT

Ability to participate in a school nature walk, locate habitats, gather data, collate findings and draw conclusions. Successful completion of a report on the school's biodiversity.

BACKGROUND INFORMATION

An ecosystem includes all of the living components plus any physical components. Physical components include the slope, gullies where it is damp, rocks, rotting logs and soil. Most school habitats can be described by their vegetation.

Species diversity refers to the number of different species in an ecosystem (species abundance is the number of individuals). Ecosystem diversity refers to a variety of different ecosystems in the one area. It is important to have highly diverse ecosystems and species so that they are less vulnerable to change.

CURRICULUM LINKS

SCIENCE

The growth and survival of living things are affected by the physical conditions of their environment (VCSSU075)

Construct and use a range of representations, including tables and graphs, to record, represent and describe observations, patterns or relationships in data (VCSIS085)

Compare data with predictions and use as evidence in developing explanations (VCSIS086)

Suggest improvements to the methods used to investigate a question or solve a problem (VCSIS087)

MINI BEASTS – RECORDING SHEET

MINI BEASTS	TALLY	TOTAL NUMBER FOUND
Beetle larvae & beetles		
Ants		
Bees/Wasps		
Bugs – other		
Cockroaches		
Earwigs		
Grasshoppers & Crickets		
Butterflies, Moths & Caterpillars		
Mosquitoes		
Praying Mantis/Stick Insects		
Thrips		
Millipedes/Centipedes		
Scorpions		
Earthworms and flat worms		
Slugs		
Snails		
Spiders		
Slaters		
Other		
Total		

SIGNS OF ANIMALS

Sounds (frogs, crickets, birds), scats (droppings) and owl pellets (regurgitated bones, feathers and fur), tracks, burrows, chewed leaves, seeds and flowers, feathers, fur, shed skin, shells, nests, webs, cocoons and bones.

ANIMAL	WHERE	WHAT IS IT DOING	DATE/TIME

HABITAT AUDIT WORKSHEET

TYPE	PURPOSE	PERCENTAGE COVER
Large Trees (dead and alive)	Provide food and shelter for many different types of animals	
Habitat Trees	Trees with hollows for wildlife	
Understorey vegetation	Small trees and shrubs, excellent source of food and shelter	
Weeds	Decrease biodiversity, reduce available habitat, smother native plants	
Organic litter (mulch, leaves, twigs)	Provides homes and food for small creatures such as worms, insects, spiders. Essential part of a healthy food chain. Provide essential nutrients for plants keeps the soil moist and healthy.	
Logs and rocks	Provide shelter for small creatures	
Bare and eroded areas	Detrimental to biodiversity	
Other		

Sketch an aerial view of the habitat