

# Biological Science

Living Things – Animals and Plants

Year 3 Unit of Inquiry

**Planeteers Game-based Learning Platform**

Science and Technology, Arts, Math and Engineering

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## Outcomes and Content

### Science & Technology

**Curriculum Content Reference: ACSSU044**

#### **Learning Outcomes**

Describe safe and proper ways of handling and caring for plants and animals and infer that living things can be grouped on the basis of observable features and can be distinguished from non-living things

#### **Standards: Plants and Animals**

1. How do plants and animals grow?
2. Why is nutrition important to plants and animals?
3. What are the proper ways to handle and care for plants and animals?
4. How do we group animals based on their structure and importance?
  - Explore the requirements of plants for life and growth
  - Identify that animals need the right types and amount of nutrition
  - Identify the characteristics of living things
  - State the importance of plants and animals to humans
  - Describe animals in their immediate surroundings

### Engineering & Mathematics

**STEAM Curriculum Code: EN 1.1 | EN 1.2 | EF1.3**

#### **Learning Outcomes**

Creates and manages simple, natural relationships

#### **Standards: Natural and Built Environment**

1. How do living things reproduce?
2. What are the ways to protect animals from predators?
  - Solve routine and non - routine problems involving multiplication without or with addition and subtraction of whole numbers
  - Explore local environment to meet immediate needs

### Arts & Photography

**STEAM Curriculum Code: AP1.2**

#### **Learning Outcomes**

Takes photos of different plants and animals found in the surroundings

#### **Standards: Photography and Journal Writing**

How do you effectively take photos to capture different plants and animals in the environment?

- Demonstrate understanding of the use of camera and journal
- Apply different techniques of taking photos such as using a camera flash, zoom, and shutter
- Write captions for the photos taken

### Social Studies

#### **Learning Outcomes**

Supports activities and practices for sustainable development

#### **Standards: Civic Efficacy and Well-being**

1. Why are plants and animals important in society?
2. How do we encourage proper handling of plants and animals in our community?
  - Develop a plan to care for plants and animals in the community
  - Develop community awareness about proper handling and caring for plants and animals

## Unit Summary

**Grade:**

3

**Subject:**

Science &amp; Technology

**Duration:**

1 week (50 minutes/day)

**Syllabus Mapping:**

- Living things and non-living things
- Photography and Journal Writing
- Number and Number Sense

**Integration:**

- Science
- Mathematics
- Arts
- Engineering
- Technology

**Outcomes:**

ACSSU044

**Inquiry and Focus Questions:****Driving Question:**

Climate change poses fundamental challenges to plants and animals. What are the safe and proper ways of handling and caring for plants and animals in the environment?

**Science and Technology Inquiries:**

- How do plants and animals grow?
- Why is nutrition important to plants and animals?
- What are the proper ways to handle and care for plants and animals?
- How do we group animals based on their structure and importance?

**Engineering and Mathematics Inquiries:**

- How do living things reproduce?

**Social Studies Inquiries:**

- Why are plants and animals important in society?
- How do we encourage proper handling of plants and animals in our community?

**Learning across the Curriculum:****Cross-curriculum priority**

- Sustainability
- Environmental Awareness

**General Capabilities**

- Teamwork & Collaboration
- Critical & Creative Thinking
- ICT Capability
- Numeracy
- Literacy
- Community Awareness

**Skills Focus:****Working Scientifically**

- Communicating
- Questioning and predicting

**Personal and Social Capability**

- Researching and planning
- Social impact to communities and environments
- Social responsibility and wellbeing

**Skills Focus:**

This unit of investigation explores concepts from the core science standards for living things and their environment, with a focus on plants and animals. Students use an individual inquiry-based approach to explore and document interactions of plants and animals in the environment. They experiment with a number of in-game tasks to survey plants and animals in the community. They learn about sustainable practices in handling and taking care of plants and animals in the environment, recognizing their importance in society. They take action in improving their own and others' social and environmental wellness.

## Teaching, Learning & Assessment Activities

**NOTE:** 'Quest Game Activity' describes activities that happen in-game while 'Unplugged' occur outside the game

### Lesson 1: Project Orientation and Research

**Summary:** Teacher explains the usefulness of plants and animals and their importance to all living things. As part of the project-based lesson, the teacher poses a challenge on the emerging impact of climate change and global warming to plants and animals. Students are tasked with researching the threats that climate change poses to living things, particularly plants and animals. Also, they are to research about the proper ways and best practices in handling and taking care of plants and animals from different parts of the world (i.e Safari in Africa).

**Assessment:** Pre-test about plants and animals (10 minutes)

**Unplugged Activity:** Driving Question ( 15 minutes) – Brainstorm (Guided)

*Begins with a discussion about the importance and the usefulness of plants and animals in society.*

Teachers says “There are many different kinds of plants and animals in the world. They come in different sizes, shapes, and colors. They provide a lot of things for us, such as food and materials. However, the existence and reproduction of these living things are threatened by the worsening impact of climate change and global warming in the world.”

*Teacher poses driving questions for the students to investigate and discover possible solutions:*

**Q.** Climate change poses fundamental challenges to plants and animals. What are safe and proper ways of handling and caring for plants and animals in the environment?

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#### **Science & Technology Inquiries:**

- How do plants and animals grow?
- Why is nutrition important to plants and animals?
- What are the proper ways to handle and care for plants and animals?
- How do we group animals based on their structure and importance?

#### **Engineering and Mathematics Inquiries:**

- How do living things reproduce?
- What are the ways to protect animals from predators?

#### **Social Studies Inquiries:**

- Why are plants and animals important in society?
  - How do we encourage proper handling of plants and animals in our community?
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## Lesson 1: Project Orientation and Research (Continued)

### *Project Orientation (5 minutes)*

- Teacher introduces the project and relates it to the discussion outcomes
- Teacher divides the class in research groups (recommend 4-6)
- Provides project guide and overview of the timeline of activities and assessments to students (organized by lesson)

### *Research and Design Journal (20 minutes)*

- Students research, watch documentary videos, and read infographics about the threats that climate change and global warming pose to living things, particularly plants and animals.

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#### ***Science & Technology Inquiries:***

- How do plants and animals grow?
- Why is nutrition important to plants and animals?
- What are the proper ways to handle and care for plants and animals?
- How do we group animals based on their structure and importance?

#### ***Social Studies Inquiries:***

- Why are plants and animals important in society?
- How do we encourage proper handling of plants and animals in our community?

#### ***Engineering and Mathematics Inquiries:***

- How do living things reproduce?
- What are the ways to protect animals from predators?

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- Students brainstorm, plan and draft their ideas on a sheet of paper or project journal\*\*

\*\* If teachers run out of time in the lesson to meaningfully allocate time for this exercise, students can be given the design plan as homework.

### ***Lesson 1 Assessment Ideas***

*Teachers should consider different assessment options throughout the project phases, including for example:*

1. Pre-test on plants and animals
2. Quality of student research and project journal
3. Reasoning and problem solving
4. Time management, collaboration, problem-solving skills
5. Project works (later lessons)
6. Photo Essay (later lessons)

## Lesson 2: Photo Survey and Documentation

### *Introduction to the Lesson*

Teacher guides the students in identifying and describing animals and plants in their immediate surroundings. Students explore, survey and take photos of the different plant and animals, within the game. The students may also survey animal and plant species in the different continents within the game (i.e. Polar Cap, Savana, etc.) Based on their plan from lesson 1, students can start taking photos of the animals and plants they listed in their plan.

### *Teacher-Led Unplugged Activity (10 minutes)*

- Teacher gives an overview of lesson goals, and reiterates the driving question.
- Teacher gives students the opportunity to ask questions before exploring in the game.

### *Game Sandbox Activity (30 minutes)*

#### **Exploration using the Game Camera**

1. Students should explore the area and take pictures by letting their character walk or ride vehicles.
2. They should survey the area and snap photos of the different plants and animals they see around them.
3. They may also survey other species found on other continents, such as the Polar Cap, Savanna Grasslands, and Tropical Rainforest.
4. Using the game's Mission Journal, students should explain the photos they've taken.
5. They should name the photos in their journal and write about the characteristics of those plants and animals.
6. In taking pictures, students would need to adjust their zoom for the perfect shot.
  - A close-up is great for detail, especially for animals or plants, and small creatures, too.
  - A mid shot is farther away than a close-up, and is used to capture a subject when they want a mix of the detail they get in a close up, and a picture that shows more of the character or characters.
  - If the students zoom out further to capture the character and more of their environment, that's called a full shot.
  - In taking pictures underwater, the students must be sure to master their diving skills so that they can adopt a stable position under water to take good shots.
  - They should set the camera's flash to "on" since there is less light in the deep, and look for close up rather than mid shots and long shots to avoid water blur or distortion.

#### **Documentation using Game Camera and Mission Journal:**

- Using the game's Mission Journal, students should explain the photos they've taken.
- Students should add notes on their journal describing the plants and animals they've seen in the game.

### *Lesson 2 Assessment Ideas*

*Teachers should consider different assessment options throughout the project phases, including for example:*

1. Quality of student research and project journal
2. Photography and literacy skills, specifically for the Mission Journal
3. Reasoning and storytelling
4. Time management, collaboration, problem-solving skills

## Lesson 3: Farming and Exploring

### *Introduction to the Lesson*

Students continue to explore the environment to survey more plants and animals. They learn about how plants and animals can be used for food and fibre production. Using the Farming tool, they are to build a farm and expand it by adding new crops and animals, in order to increase food supply and craft more types of food. With consideration of the social and environmental impact to the community, students should conceptualize and create a campaign about raising awareness on impact of climate change to animals and plants.

### *Teacher-Led Unplugged Activity (10 minutes)*

- Teacher gives an overview of lesson goals, and reiterates the driving question.
- Teacher gives students the opportunity to ask questions before continuing with exploration and farming.

### *Game Sandbox Activity (30 minutes)*

#### **Farming and Exploration using the Game Camera**

1. Using the Farming Tool, students should build and expand the farm with new crops and animals.
  - Ideally, crops should include corn, rice, and fruit trees.
  - Crop farms grow fruits, vegetables, grains and cotton.
  - Animal farms raise animals for meat, eggs, milk, and fibre.
  - In the game, there are also fish farms in the rivers and oceans where fishes like carp, salmon, and shellfish are raised.
2. Using the game's Mission Journal, students should describe the growth of their plants and animals.

#### **Documentation using Game Camera**

- Using the game's Mission Journal, students should explain the photos they've taken.
- Students should add notes on their journal describing the plants and animals they've seen in the game.

### *Lesson 3 Assessment Ideas*

*Teachers should consider different assessment options throughout the project phases, including for example:*

1. Quality of student research and project journal
2. Photography and literacy skills, specifically for the Mission Journal
3. Reasoning and storytelling
4. Time management, collaboration, problem-solving skills

## Lesson 4: Project Finalization

### *Introduction to the Lesson*

Teacher explains the social and environmental impact of climate change and global warming to living things, particularly plants and animals. Global warming may alter the life cycles of plants and animals. Some species are already responding to warmer climate by moving to cooler locations. Teacher highlights the importance of properly handling and caring for these species, in order to meet the current and next generation's needs.

### *Teacher-Led Unplugged Activity (10 minutes)*

- Teacher gives an overview of lesson goals.
- Teacher gives students the opportunity to ask questions before using the game to finalize their project.

### *Game Sandbox Activity (30 minutes)*

#### **Final Project**

1. Use the *Camera* and the *Farming tool and* to make any final documentation and photo capture of their farms, plants and animals.
2. Students should finalize any and all additional strategies in raising awareness on the effects of climate change and global warming to plants and animals.

#### **Documentation using Game Camera**

- Students should take photos to illustrate and record the final designs of their farms.
- Later, in lesson 5, the photos will be used in their reflection and assessment i.e. they will create a photo essay about their project.

### *Lesson 4 Assessment Ideas*

*Teachers should consider different assessment options throughout the project phases, including for example:*

1. Quality of student research and project journal
2. Photography and literacy skills, specifically for the Mission Journal
3. Reasoning and storytelling
4. Time management, collaboration, problem-solving skills
5. And specifically for Lesson 4:
  - Final project design of their farm, including all components based on their own merit
  - Extra credit if students used the Painter Tool in game to color their creations



## Lesson 5: Presentation and Reflection

### *Introduction to the Lesson*

Teacher asks the students to write about their project using the game's photo essay tools.

### **Game Sandbox Activity (30 minutes)**

#### **Photo Essay**

1. Using the game's *Mission Log*, students finalize their photo essay about the project.
2. In the photo essay, students should organize and name photos by activity and stage of the project, and insert them into their essay.
3. For example, some questions students might be asked to answer in their photo essay, may include:
  - How do living things depend on their environment?
  - How do plants and animals grow?
  - Why is nutrition important to plants and animals?
  - What are the proper ways to handle and care for plants and animals?
  - How do we interact to animals in our surroundings?
  - How do we group animals based on their structure and importance?
  - What are the characteristics of living things?
  - How do living things reproduce?
  - What are the ways to protect animals from predators?
  - How does the ability of living things to react help them to survive?
  - Why are plants and animals important in society?
  - How are animals useful to people?
  - How are plants useful to people?
  - What are the ways to ensure that seeds grow in to healthy young plants?
  - How do we encourage the proper handling of plants and animals in our community?
  - What else would you have done, or do differently if you had more time?

**Assessment:** *Post-test about about plants and animals (10 minutes)*

#### **Final Assessment**

1. Photo essay
2. Post-test
3. Previous assessments made during the other lessons

## Teacher Handy Links and Resources

### *From Us to You!*

- What are the basic characteristics of all living things, and how are they grouped together? [READ HERE.](#)
- Climate change is a serious threat to animal and plant life. Here's how this is true. [READ HERE.](#)
- One can do his or her own part in protecting and caring for animal and plant life. Here's 30 ways how. [READ HERE.](#)

### *Other Multimedia Resources*

- Despite climate change and global warming, new animal and plant species are still being discovered by scientists. Here's 10 newly discovered species in the previous year. [WATCH HERE.](#)
- What if every human suddenly disappeared? How would it affect animal and plant life and the environment? TED Ed investigates. [WATCH HERE.](#)
- Animal and plant photography requires passion and determination. Josiah Launstein proves this in a CBC Arts feature video. [WATCH HERE.](#)
- National Geographic cites the causes and effects of climate change. [WATCH HERE.](#)

### *Other Reference Material*

- Australian Curriculum (ACARA) Science Sequence of Content F-6: Strand. [READ](#)

### *Support & Help*

Please feel free to contact the STEAM Craft Edu team for any inquiries or support needs

**Email:** [education@steamcraftedu.com](mailto:education@steamcraftedu.com)