

YEAR 6

BIOLOGICAL SCIENCE

TEACHER BOOKLET

LESSONS AND WORKSHEETS



Year / Level

Year 6



Science Strand

Biological Science



Unit Title

School Habitat Investigation –
Physical Conditions and
Plant Growth



Duration

7 lessons × 40 minutes



Unit Overview

Students become habitat field scientists and investigate two terrestrial habitats within the school grounds. They identify and classify habitats, plan a fair and repeatable investigation, collect measurements and observations from three sample sites in each habitat, organise and graph data, analyse patterns and relationships, consider human impacts, evaluate reliability and use evidence to conclude which habitat provides the best conditions for plant growth, abundance and ground cover.



Achievement Standard

Relevant Year 6 achievement standard: Students explain how the growth and survival of living things are impacted by changes in physical conditions. They plan safe, repeatable investigations; identify variables and risks; use equipment to collect data with appropriate precision; organise and process data to examine patterns, trends and relationships; consider possible sources of error; and draw reasonable conclusions.



Unit Rationale

This unit connects Biological Science understanding with authentic field inquiry. Students move from recognising habitat conditions to planning, measuring, comparing, analysing and evaluating evidence. Repeated sampling across two school habitats develops understanding that physical conditions vary within environments and may influence plant growth and survival, while also building fair-testing, data representation and evidence-based reasoning skills.



Key Concepts

- Habitats provide living things with resources and physical conditions needed for survival.
- Physical conditions can vary between and within terrestrial habitats.
- Changes or differences in light, moisture, soil conditions and other physical factors can affect plant growth and survival.
- Fair, repeatable sampling and accurate measurement produce comparable evidence.
- Tables and graphs reveal patterns, trends and relationships.
- Human activity can alter habitat conditions and influence living things.
- Scientific conclusions must be supported by evidence and evaluated for reliability.

What Is a Habitat?

Identifying and classifying habitats and recognising physical conditions that affect living things.

Different places.
Different conditions.
Different life.



Lesson Focus

Identifying and classifying habitats and recognising physical conditions that affect living things.



Duration
50 minutes



Learning Intention

We are learning to identify and classify habitats and recognise the conditions that living things need to survive.



Success Criteria

- ✓ I can explain what a habitat is.
- ✓ I can distinguish between aquatic and terrestrial habitats.
- ✓ I can classify features of different habitats.
- ✓ I can identify the type of habitat we will investigate.



Curriculum Links (AC v9)

AC9S6U01

Describe how the growth, survival and abundance of living things are affected by the physical conditions of their habitat.

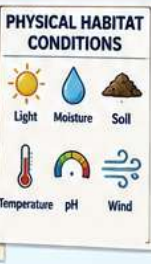
AC9S6I02

Select and use appropriate representation forms, including scientific vocabulary, to communicate ideas and findings.



Resources

- What Is a Habitat? poster
- Aquatic vs Terrestrial Habitats poster
- Physical Habitat Conditions poster
- Science Journal Part A – What Is a Habitat? (page 2)
- Pencils and highlighters



Resource Purpose

The posters establish the key habitat concepts visually. The journal gives students a structured way to define habitat, classify aquatic and terrestrial features, identify the school habitat type and explain their reasoning.



Key Vocabulary

- habitat
- organism
- aquatic
- terrestrial
- environment
- physical condition
- light
- moisture
- soil
- shelter
- survival



50-Minute Lesson Sequence

Time	Lesson Stage	Teacher Actions	Student Actions
0–5 min	Engage / Hook	Display the What Is a Habitat? poster. Ask: “What do all habitats provide for living things?” Introduce habitat as the place where an organism lives and obtains what it needs to survive.	Observe the poster, discuss examples and share prior knowledge.
5–8 min	Introduce the Mission	Explain that students will become field scientists investigating school habitats. Unpack the Learning Intention and Success Criteria.	Identify what they will need to know before beginning fieldwork.
8–13 min	Explicit Teaching / Investigation 1	Use the Aquatic vs Terrestrial Habitats poster. Model how to classify a habitat from evidence rather than from one object found there.	Identify aquatic features and justify classifications.
13–18 min	Explicit Teaching / Investigation 2	Contrast terrestrial habitats with aquatic habitats. Discuss forest, grassland, desert, school oval and garden examples.	Compare the two habitat types and identify terrestrial features.
18–21 min	Explicit Teaching / Investigation 3	Display the Physical Habitat Conditions poster. Introduce measurable or observable non-living conditions such as light, moisture, temperature, soil pH and leaf litter.	Identify conditions that could differ between two school habitats.
21–41 min	Student Investigation / Journal Task	Direct students to Journal Part A, page 2. Support students to define habitat, classify features, circle Terrestrial Habitat and explain how they know.	Complete Part A using the posters as evidence.
41–45 min	Analyse and Discuss	Compare student classifications. Ask students to justify why the school investigation is terrestrial and which physical conditions may vary.	Share classifications and justify ideas with evidence.
45–48 min	Science Inquiry / I Wonder...	Model: “I notice one area is shaded. I wonder whether its soil stays wetter.” Generate questions about differences between school habitats.	Develop questions about measurable habitat conditions.
48–50 min	Exit Ticket	Prompt: “Name one physical condition that could be different between two school habitats and explain why it might matter.”	Write one individual response.



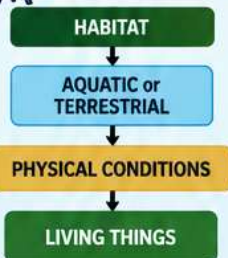
Explicit Teaching

Scientific Idea

A habitat is the place where an organism lives and obtains what it needs to survive. Habitats can be classified as aquatic or terrestrial, and each habitat has physical conditions that can affect living things.



Board Model



Student Investigation

- Define habitat in their own words.
- Classify aquatic and terrestrial habitat features.
- Identify the school investigation as terrestrial.
- Identify physical conditions that could differ between school sites.
- Use evidence to justify classifications.



Investigation Prompt

What evidence tells us that our school investigation is a terrestrial habitat?



Science Inquiry – Developing Questions

Model the relationship between observation and questioning:

I notice: _____

I wonder: _____



Teacher Questioning

- What do you notice?
- What evidence supports your classification?
- What is similar about aquatic and terrestrial habitats?
- What is different?
- Which physical conditions could we measure?
- How could a change in moisture or light affect a plant?



Expected Big Idea

Habitats can be classified as aquatic or terrestrial, and their physical conditions influence the living things that can grow and survive there.



Connection to the Next Lesson

Today we discovered: Habitats can be classified as aquatic or terrestrial, and their physical conditions influence the living things that can grow and survive there.

Next scientific question: If two school habitats are both terrestrial, how can we plan a fair investigation to compare their physical conditions?





PART A WHAT IS A HABITAT?

CLASSIFYING HABITATS



Before you begin your investigation, you need to identify the type of habitat you are investigating.

What is a habitat?

Classify the features of the two main types of habitats.

Aquatic Habitat



Terrestrial Habitat



Which Habitat will you be investigating? Circle.



OR



How do you know this?

SCIENCE IS ALL AROUND US!

Habitats come in many shapes and sizes. Every habitat provides living things with what they need to survive.



EXPLORE

Observe the natural world around you.



INVESTIGATE

Ask questions and collect evidence.



UNDERSTAND

Use your findings to explain the world.

Observe. Investigate. Understand. Protect.

Planning a Fair Habitat Investigation

From a question to a plan – setting up a fair test

**Plan
Investigate
Discover
Real Science**



Lesson Focus

Planning a fair, safe and repeatable investigation that compares habitat conditions and plant responses.



Learning Intention

We are learning to plan a fair and repeatable scientific investigation.



Success Criteria

- ✓ I can write an investigation question and prediction.
- ✓ I can identify independent, dependent and controlled variables.
- ✓ I can select appropriate equipment.
- ✓ I can identify risks and plan a repeatable method.



Curriculum Links (AC v9)

AC9S6U01

Describe how the growth, survival and abundance of living things are affected by the physical conditions of their habitat.

AC9S6I02

Select and use appropriate representation forms, including scientific vocabulary, to communicate ideas and findings.

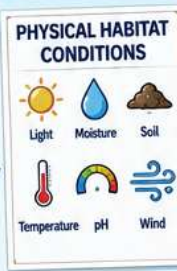


Duration
50 minutes



Resources

- Physical Habitat Conditions poster
- Science Journal Part B – Planning Your Investigation (page 3)
- Sample field equipment: light meter, soil moisture meter, ruler and quadrat/ marked sampling area
- Pencils and highlighters



Resource Purpose

The poster helps students select relevant physical conditions. The planning page guides them through the investigation question, prediction, variables, equipment, risk assessment and a repeatable method.



Key Vocabulary

- investigation
- prediction
- variable
- independent variable
- dependent variable
- controlled variable
- fair
- repeatable
- measurement
- equipment
- risk
- method



50-Minute Lesson Sequence

Time	Lesson Stage	Teacher Actions	Student Actions
0–5 min	Engage / Hook	Show two contrasting school habitat images or point to two possible field sites. Ask: "How could we compare these scientifically rather than just decide which looks greener?"	Suggest measurements and discuss what would make the comparison fair.
5–8 min	Introduce the Mission	Introduce the final inquiry question: "Which school habitat provided the best conditions for plant growth?" Unpack the Learning Intention and Success Criteria.	Identify the purpose of the investigation.
8–13 min	Explicit Teaching / Investigation 1	Revisit physical conditions. Establish the investigation question and model a prediction supported by scientific reasoning.	Suggest a prediction and explain the reasoning behind it.
13–18 min	Explicit Teaching / Investigation 2	Explicitly model variables using the journal terminology: independent variable = physical condition/site being compared; dependent variable = plant response measured; controlled variables = things kept consistent.	Classify example variables and explain why controls matter.
18–21 min	Explicit Teaching / Investigation 3	Model selecting equipment, identifying a fieldwork risk and writing a method that another Year 6 student could repeat.	Match equipment to measurements and identify safety controls.
21–41 min	Student Investigation / Journal Task	Students complete Part B: question, prediction, condition, variables, equipment, risk assessment and method. Confer with groups to check feasibility.	Complete the investigation plan and refine it after feedback.
41–45 min	Analyse and Discuss	Partner-check methods: "Could another group follow this without asking what to do?" Compare controls and measurement choices.	Review another plan and suggest one improvement.
45–48 min	Science Inquiry / I Wonder...	Ask students what other variables might influence plant growth even if they are not the main focus of the comparison.	Record possible influencing factors for later analysis.
48–50 min	Exit Ticket	Prompt: "What is one thing we must keep the same so our habitat comparison is fair?"	Write one controlled variable and explain why.



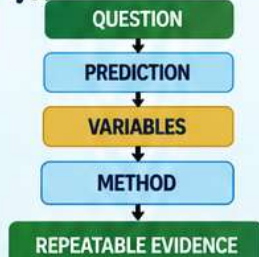
Explicit Teaching

Scientific Idea

A useful scientific investigation has a clear question, a reasoned prediction, appropriate measurements, consistent procedures and safety controls so that the results can be compared.



Board Model



Student Investigation

- Write the investigation question.
- Make a prediction using scientific reasoning.
- Identify variables and controls.
- Select suitable measuring equipment.
- Identify a risk and safety action.
- Write a repeatable method.



Investigation Prompt

What must stay consistent so that differences between Habitat A and Habitat B can be compared fairly?



Science Inquiry – Developing Questions

Model the relationship between observation and questioning:

I notice: _____

I wonder: _____



Teacher Questioning

- What are we comparing?
- What will we measure as evidence of plant growth or abundance?
- What must stay the same?
- Why is this equipment appropriate?
- Could another group repeat your method?
- What could make the comparison unfair?



Expected Big Idea

Fair and repeatable investigations use consistent methods and measurements so that patterns in the results are more trustworthy.



Connection to the Next Lesson

Today we discovered: Fair and repeatable investigations use consistent methods and measurements so that patterns in the results are more trustworthy.

Next scientific question: Now that we have a plan, how can we collect accurate evidence from Habitat A?





PART B

PLANNING YOUR INVESTIGATION



1 INVESTIGATION QUESTION

2 PREDICTION

3 PHYSICAL CONDITION BEING INVESTIGATED

(Tick what physical habitat condition will you compare?)

- | | |
|--|---|
| ☐ Light level | ☐ Shade |
| ☐ Soil moisture | ☐ Wind exposure |
| ☐ Leaf litter depth | ☐ Amount of bare soil |
| ☐ Soil temperature | ☐ Distance from a path or building |
| ☐ Air temperature | ☐ Presence of rocks or logs |
| ☐ Soil pH | ☐ Human disturbance |

4 VARIABLES

Independent variables – the physical condition you are comparing:

I will Investigate: _____

Dependent variables – what will you measure to determine plant growth:

I will measure: _____

Controlled variables – What must stay the same to make the investigation fair?

5 EQUIPMENT

Tick the equipment you will use.

- | | | | |
|--|--|---|---|
| ☐ Light level | ☐ Ground cover (%) | ☐ Amount of bare soil | ☐ Slope of the ground |
| ☐ Soil moisture | ☐ Soil pH | ☐ Presence of rocks or logs | ☐ Type of plants present |
| ☐ Number of trees | ☐ Number of insects | ☐ Number of flowers | ☐ Soil type |
| ☐ Leaf litter depth | ☐ Shade | ☐ Distance from a path or building | ☐ Number of weeds |
| ☐ Air temperature | ☐ Grass height | ☐ Human disturbance | |
| ☐ Number of shrubs | ☐ Wind exposure | ☐ Number of birds | |
| ☐ Soil temperature | ☐ Number of plant species | | |

6 RISK ASSESSMENT

Identify one risk.

How will you stay safe?



7 METHOD

Write your investigation method.



Year 6 Science

Biological Sciences

Lesson 3

Habitat A

Field Investigation

Collecting real evidence in our local environment

Lesson Focus

Learning and applying a consistent fieldwork procedure to collect accurate observations and measurements from three sample sites within Habitat A.

Learning Intention

We are learning to collect accurate and consistent observations and measurements from a habitat.

Success Criteria

- I can use scientific equipment appropriately.
- I can follow a consistent sampling procedure.
- I can collect and record data from three sample sites.
- I can distinguish between measurements and observations.
- I can identify possible human impacts.

Curriculum Links (AC v9)

AC9S6U01
Describe how the growth, survival and abundance of living things are affected by the physical conditions of their habitat.

AC9S6I02
Select and use appropriate representation forms, including scientific vocabulary, to communicate ideas and findings.

Duration

50 minutes

Resources

- Science Journal — Habitat A Field Recording Sheet, page 4
- Physical Habitat Conditions poster
- Clipboards and pencils
- Light meter
- Soil moisture meter
- Ruler
- Quadrat or marked sampling area
- Required fieldwork safety equipment

Resource Purpose

The Habitat A Field Recording Sheet provides a consistent structure for collecting measurements and observations from three sample sites. Measuring equipment provides quantitative evidence while observations, the habitat sketch and human-impact checklist provide qualitative evidence. Students learn how to use the equipment, record evidence, identify human impacts and apply a sampling procedure that can be repeated in Habitat B.

Key Vocabulary

- habitat
- sample
- sample site
- observation
- measurement
- data
- quantitative
- qualitative
- lux
- soil moisture
- leaf litter
- ground cover
- human impact

50-Minute Lesson Sequence			
Time	Lesson Stage	Teacher Actions	Student Actions
0–5 min	Engage / Fieldwork Briefing	At Habitat A, ask: "What can we observe immediately, and what will we need to measure?" Establish fieldwork boundaries and review safety expectations.	Observe the habitat and distinguish visible features from measurable conditions.
5–8 min	Introduce the Mission	Explain that today students will learn the fieldwork procedure they will use in both habitats. Review group roles and the need to record measurements immediately.	Prepare equipment and identify group responsibilities.
8–13 min	Model the Sample Site	Establish a sample area. Model how every sample site must be investigated using the same procedure. Explain why consistency matters.	Observe the procedure and identify what needs to remain consistent.
13–18 min	Model the Measurements	Demonstrate how to measure and record light, soil moisture, leaf litter depth, ground cover and number of shrubs. Model correct units and equipment use.	Observe, practise reading equipment and identify possible measurement errors.
18–21 min	Observation vs Measurement	Model the difference between quantitative measurements and qualitative observations. Demonstrate how to record sunny/shaded conditions, vegetation and visible human impacts without assuming their effects.	Give examples of measurements and observations.
21–41 min	Habitat A Field Investigation	Groups investigate three sample sites. Circulate to check correct equipment use, consistent sample areas, accurate measurements and immediate recording.	Measure and record all three Habitat A sample sites on page 4. Complete observations, human impacts, sketch and notes.
41–45 min	Check & Analyse	Ask students to check their recording sheet for missing evidence. Then ask: "What do you notice across your three sample sites?"	Check data and identify one preliminary pattern or observation.
45–48 min	Science Inquiry / I Wonder...	Model: "I notice the shadier sample had wetter soil. I wonder whether shade affects soil moisture."	Develop one question arising from their observations.
48–50 min	Exit Ticket / Prepare for Habitat B	Ask: "What will we need to do exactly the same when we investigate Habitat B?"	Identify the parts of the procedure that must remain consistent.

Explicit Teaching

Scientific Idea
Scientists collect measurements and observations as evidence. A measurement provides numerical information, such as: Light = 850 lux. An observation describes something noticed, such as: The sample site was mostly shaded. To make evidence useful for comparison, scientists collect it using a consistent sampling procedure.

Board Model

```

graph TD
    A[SELECT SAMPLE SITE] --> B[USE SAME-SIZED SAMPLE AREA]
    B --> C[MEASURE  
Light • Soil Moisture • Leaf Litter •  
Ground Cover • Shrubs]
    C --> D[OBSERVE  
Shade • Vegetation • Human Impacts]
    D --> E[RECORD IMMEDIATELY]
    E --> F[REPEAT x 3]
        
```

Student Investigation

Students use the Habitat A Field Recording Sheet to:

- describe Habitat A
- record observable habitat features
- identify visible human impacts
- collect data from three sample sites
- measure light
- measure soil moisture
- measure leaf litter depth
- estimate ground cover
- count shrubs
- record observations
- complete a habitat sketch and relevant notes.

Investigation Prompt

What does the evidence from our three sample sites tell us about the physical conditions within Habitat A?

Teacher Questioning

- What do you notice?
- Is that a measurement or an observation?
- What unit should you record?
- How can you make this measurement more accurate?
- Are you using the same-sized sample area?
- Are your three samples similar or different?
- What evidence suggests a possible pattern?
- What human impacts can you observe?
- What must we repeat exactly when we investigate Habitat B?

Expected Big Idea

Accurate field evidence comes from careful measurement, precise observation and consistent sampling across several sites.

Connection to Lesson 4

Today we discovered: Scientists use a consistent procedure to collect measurements and observations from several sample sites.
Next scientific question: What happens when we repeat exactly the same procedure in a different habitat?



PART C – HABITAT INVESTIGATION

Habitat Investigation – Habitat A Field Recording Sheet



1 GROUP INFORMATION

Habitat Name: _____

Date: _____

Group Members: _____



2 DESCRIBE YOUR HABITAT – Where are you investigating?

3 DESCRIBE WHAT YOU CAN SEE.

- | | |
|--|---------------------------------------|
| ☐ Mostly sunny | ☐ Trees |
| ☐ Mostly shaded | ☐ Shrubs |
| ☐ Grassy | ☐ Rocks |
| ☐ Leaf litter | ☐ Other: _____ |

4 HUMAN IMPACTS YOU OBSERVED.

- | | |
|-------------------------------------|---------------------------------------|
| ☐ Footpaths | ☐ Buildings |
| ☐ Mown grass | ☐ Garden beds |
| ☐ Rubbish | ☐ Other: _____ |

5 COLLECT YOUR DATA – Measure three different sample sites within your habitat.

Sample Site	Light (lux)	Soil Moisture	Leaf Litter (cm)	Ground Cover (%)	Shrubs (number)
1					
2					
3					

6 WHAT DID YOU NOTICE?

Circle any patterns you observed.

- ☐ More light = fewer plants
☐ More moisture = more plants
☐ More leaf litter = more shrubs
☐ No obvious pattern
☐ Something different

Explain your observations.

7 HABITAT SKETCH

Draw your investigation area.

Include:

- ☐ Trees
☐ Shrubs
☐ Grass
☐ Rocks
☐ Human features

8 ANY OTHER NOTES OR INTERESTING THINGS OBSERVED:



Lesson 4

Habitat B Field Investigation

Repeating our investigation to collect comparable evidence

Same Method Better Answers

Lesson Focus

Independently repeating the Habitat A investigation procedure to collect comparable evidence from Habitat B.

Learning Intention

We are learning to collect comparable data by repeating the same investigation procedure in a second habitat.

Success Criteria

- I can independently repeat the fieldwork procedure from Lesson 3.
- I can measure the same variables using the same equipment and units.
- I can collect data from three Habitat B sample sites.
- I can record observations and human impacts accurately.
- I can identify an initial similarity or difference between the habitats.

Curriculum Links (AC v9)

AC9S6U01
Describe how the growth, survival and abundance of living things are affected by the physical conditions of their habitat.

AC9S6I02
Select and use appropriate representation forms, including scientific vocabulary, to communicate ideas and findings.

Duration

50 minutes

Resources

- Science Journal — Habitat B Field Recording Sheet, page 5
- Completed Habitat A Field Recording Sheet, page 4
- Same equipment used in Lesson 3:
 - Light meter
 - Soil moisture meter
 - Ruler
 - Quadrat or marked sampling area
 - Clipboards and pencils
 - Required fieldwork safety equipment

Resource Purpose

Students use the same recording structure, variables, equipment, units, sample size and sampling procedure used in Lesson 3. This produces evidence that can be meaningfully compared between Habitat A and Habitat B.

Key Vocabulary

- comparable
- consistent
- repeatable
- sample
- measurement
- observation
- data
- controlled variable
- evidence
- pattern
- human impact

Fieldwork

- Observe
- Measure
- Record
- Compare

Same method. Comparable evidence.

50-Minute Lesson Sequence			
Time	Lesson Stage	Teacher Actions	Student Actions
0–5 min	Engage / Recall	Ask: “What procedure did we use in Habitat A?” Have students reconstruct the steps rather than reteaching them.	Recall and explain the Lesson 3 procedure.
5–10 min	Consistency Check	Ask: “What must stay the same today?” Record responses: equipment, units, sample area, variables, measurement technique and three sample sites. Review safety and boundaries.	Identify the controlled features of the investigation.
10–35 min	Habitat B Field Investigation	Students independently repeat the Lesson 3 procedure. Teacher monitors rather than remodelling unless correction is necessary.	Investigate three Habitat B sample sites using exactly the same procedure as Habitat A.
35–40 min	Complete the Habitat Record	Prompt groups to check that all measurements, observations, human impacts, sketch and notes are complete.	Complete and verify the Habitat B Field Recording Sheet.
40–46 min	Initial Habitat Comparison	Students place Habitat A and B recording sheets side by side. Ask them to identify one similarity and one difference supported by their observations or measurements. Emphasise that this is preliminary analysis.	Compare both field sheets and identify evidence of a similarity and difference.
46–48 min	Science Inquiry / I Wonder...	Ask: “What pattern or relationship would you like to investigate when we combine all of our data?”	Develop a question that could be investigated using the combined data.
48–50 min	Exit Ticket	Prompt: “Why was it important to repeat the same procedure in Habitat B?”	Explain that consistency makes the data comparable.

Explicit Teaching

There should be very little new explicit teaching in Lesson 4. Instead, begin with retrieval:

“Tell me the procedure.
What do we do first?
What comes next?
What must stay the same?”

Students should now take greater responsibility for the procedure.

Scientific Idea

Comparable data are collected in the same way.

If students change the equipment, units, sample size or measurement method between habitats, they introduce another difference that could affect the comparison.

Board Model

```

graph TD
    A[LESSON 3 PROCEDURE] --> B[Habitat A]
    B --> C[REPEAT EXACTLY]
    C --> D[Habitat B]
    D --> E[COMPARABLE EVIDENCE]
          
```

Student Investigation

Repeat the Lesson 3 procedure:

- Select Sample Site 1
- Use the same-sized sample area
- Measure: Light • Soil Moisture • Leaf Litter • Ground Cover • Shrubs
- Observe: Shade • Vegetation • Human Impacts
- Record immediately
- Repeat for Sites 2 and 3
- Complete habitat sketch and notes
- Check that no data are missing

Investigation Prompt

What evidence suggests that Habitat B is similar to or different from Habitat A?

Teacher Questioning

- What comes next in your procedure?
- What must stay the same?
- Are you measuring this in exactly the same way as Habitat A?
- Why do the units need to match?
- What evidence have you collected?
- What appears different between the habitats?
- Do you have enough evidence to draw a final conclusion yet?
- What will comparing averages help us determine?

Expected Big Idea

Repeating the same investigation procedure in a second habitat produces comparable evidence that can be analysed for patterns, differences and relationships.

Connection to Lesson 5

Today we discovered: Habitat A and Habitat B can be compared because we collected the same measurements using the same procedure.

Next scientific question: How can we organise and represent all of our data so that patterns and relationships are easier to see?



PART C – HABITAT INVESTIGATION

Habitat Investigation – Habitat B Field Recording Sheet



1 GROUP INFORMATION

Habitat Name: _____

Date: _____

Group Members: _____



2 DESCRIBE YOUR HABITAT – Where are you investigating?

3 DESCRIBE WHAT YOU CAN SEE.

- | | |
|--|---------------------------------------|
| ☐ Mostly sunny | ☐ Trees |
| ☐ Mostly shaded | ☐ Shrubs |
| ☐ Grassy | ☐ Rocks |
| ☐ Leaf litter | ☐ Other: _____ |

4 HUMAN IMPACTS YOU OBSERVED.

- | | |
|-------------------------------------|---------------------------------------|
| ☐ Footpaths | ☐ Buildings |
| ☐ Mown grass | ☐ Garden beds |
| ☐ Rubbish | ☐ Other: _____ |

5 COLLECT YOUR DATA – Measure three different sample sites within your habitat.

Sample Site	Light (lux)	Soil Moisture	Leaf Litter (cm)	Ground Cover (%)	Shrubs (number)
1					
2					
3					

6 WHAT DID YOU NOTICE?

Circle any patterns you observed.

- ☐ More light = fewer plants
☐ More moisture = more plants
☐ More leaf litter = more shrubs
☐ No obvious pattern
☐ Something different

Explain your observations.

7 HABITAT SKETCH

Draw your investigation area.

Include:

- ☐ Trees
☐ Shrubs
☐ Grass
☐ Rocks
☐ Human features

8 ANY OTHER NOTES OR INTERESTING THINGS OBSERVED:



Collating, Comparing and Graphing Data

Organising our data to find patterns

Data Helps Us Discover New Things



Lesson Focus

Organising field data, comparing habitat averages and selecting an appropriate graph to represent patterns and relationships.



Learning Intention

We are learning to organise and represent data so that patterns can be identified.



Success Criteria

- ✓ I can enter my data accurately.
- ✓ I can compare Habitat A and Habitat B.
- ✓ I can select an appropriate graph.
- ✓ I can create a correctly labelled graph.



Curriculum Links (AC v9)

AC9S6U01

Describe how the growth, survival and abundance of living things are affected by the physical conditions of their habitat.

AC9S6I02

Select and use appropriate representation forms, including scientific vocabulary, to communicate ideas and findings.



Duration

40 minutes



Resources

- Science Journal Part D – Collating and Comparing Data (pages 6–7)
- Year 6 Habitat Investigation – Data and Graphs workbook
- Completed Habitat A and Habitat B field sheets
- Computers/laptops
- Projector
- Pencils and highlighters



Resource Purpose

The spreadsheet organises measurements from both habitats and calculates averages. The journal guides students through comparison, graph choice, graph construction and correct labelling so patterns are easier to interpret.

Organise data.
Compare evidence.
Show the patterns.



Key Vocabulary

- data
- table
- average
- comparison
- pattern
- relationship
- variable
- graph
- column graph
- scatter graph
- line graph
- axis
- scale



40-Minute Lesson Sequence

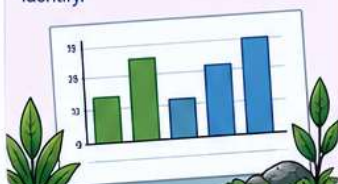
Time	Lesson Stage	Teacher Actions	Student Actions
0–5 min	Engage / Hook	Display a page of raw field numbers beside a simple graph. Ask: "Which one makes a pattern easier to see, and why?"	Compare the two representations and identify advantages.
5–8 min	Introduce the Mission	Show the workbook tabs: Habitat A, Habitat B, Habitat Comparison, Graph Builder and Instructions. Explain the pathway from raw data to evidence.	Locate each tab and identify its purpose.
8–13 min	Explicit Teaching / Investigation 1	Model accurate data entry from the field sheet. Demonstrate checking a value against the original record.	Enter/check sample values carefully.
13–18 min	Explicit Teaching / Investigation 2	Open Habitat Comparison and model reading averages. Ask which habitat has more light, moisture, shrubs, leaf litter and ground cover.	Compare averages and describe differences.
18–23 min	Explicit Teaching / Investigation 3	Use the Graph Builder to compare column, scatter and line graphs. Model choosing a graph based on what the student wants to show, then add a title and axis labels.	Select a suitable graph type and justify the choice.
23–31 min	Student Investigation / Journal Task	Students enter both habitats, inspect averages, decide what comparison/relationship to show and create a graph following pages 6–7. Circulate and support.	Complete spreadsheet and graph tasks.
31–36 min	Analyse and Discuss	Partner-check graphs for accuracy, readability, title, X-axis and Y-axis. Ask students what pattern is visible.	Review and correct graphs, then state one pattern.
36–39 min	Science Inquiry / I Wonder...	Prompt: "What question can your graph help answer?" Encourage questions about relationships rather than just highest/lowest values.	Write a question that can be investigated using the graph.
39–40 min	Exit Ticket	Prompt: "State one pattern shown by your data or graph."	Write one evidence-based pattern statement.



Explicit Teaching

Scientific Idea

Tables, averages and graphs organise data so that differences, patterns and possible relationships are easier to identify.



Board Model

RAW DATA

↓

ORGANISE

↓

AVERAGE / COMPARE

↓

GRAPH

↓

PATTERN



Student Investigation

- Enter Habitat A and B data accurately.
- Compare automatically calculated averages.
- Decide what comparison or relationship best addresses the inquiry.
- Choose an appropriate graph.
- Create a clear, correctly labelled graph.



Investigation Prompt

What does your graph make easier to see about Habitat A and Habitat B?



Science Inquiry – Developing Questions

Model the relationship between observation and questioning:

I notice: _____

I wonder: _____



Teacher Questioning

- Which habitat had the higher average?
- What pattern can you identify?
- What are you trying to compare?
- Which graph best represents that comparison?
- What evidence is visible in the graph?
- Does the graph show a relationship or only a difference?



Expected Big Idea

Representing data clearly helps scientists identify patterns and relationships that may not be obvious in raw measurements.



Connection to the Next Lesson

Today we discovered: Representing data clearly helps scientists identify patterns and relationships that may not be obvious in raw measurements.
Next scientific question: What do the patterns in our graph actually suggest about physical conditions, plant abundance and human impacts?

PART D – COLLATING AND COMPARING DATA

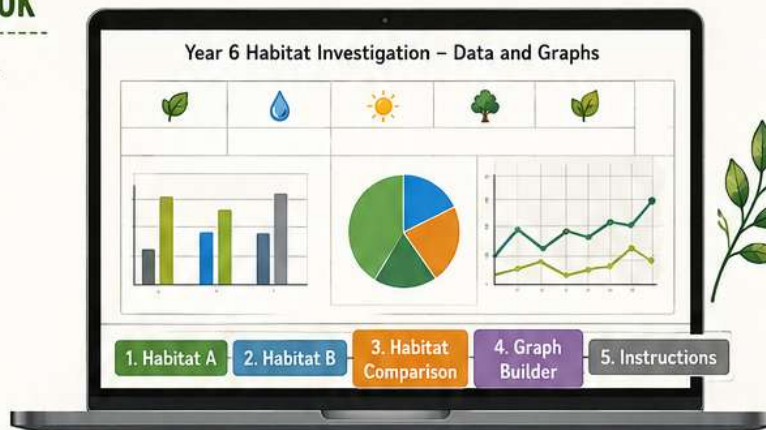
Student Instructions – Using the Habitat Investigation Spreadsheet

STEP 1 OPEN THE WORKBOOK

Open the Year 6 Habitat Investigation – Data and Graphs workbook.

You will see five tabs at the bottom:

- 1 Habitat A
- 2 Habitat B
- 3 Habitat Comparison
- 4 Graph Builder
- 5 Instructions



STEP 2 ENTER HABITAT A DATA



Click on the **Habitat A** tab.
Enter your data from your field recording sheet.



Make sure you enter all measurements carefully.
Check your numbers.

STEP 3 ENTER HABITAT B DATA



Click on the **Habitat B** tab.
Enter your data from your field recording sheet.



Make sure you enter all measurements carefully.
Check your numbers.

STEP 4 COMPARE YOUR HABITATS

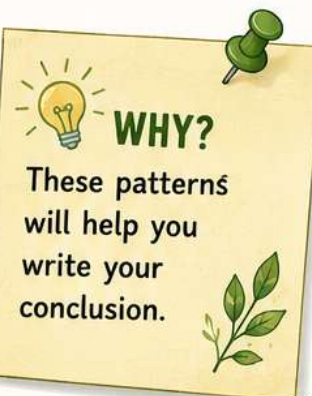


Open the Habitat Comparison sheet.

The spreadsheet will automatically calculate the average for each measurement.
Look carefully at the results.

Ask yourself:

- Which habitat had the most light?
- Which habitat had the highest soil moisture?
- Which habitat had more shrubs?
- Which habitat had the deepest leaf litter?
- Which habitat had the greatest ground cover?





PART D – COLLATING AND COMPARING DATA



STEP 5 DECIDE WHAT YOU WANT TO SHOW

Before making a graph, think about your investigation question.

Ask yourself:



What am I trying to compare?

Examples:

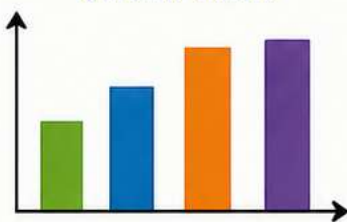
- Does more light mean less ground cover?
- Which habitat has more shrubs?
- Does soil moisture affect ground cover?



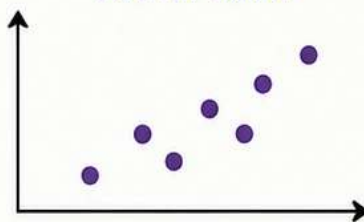
STEP 6 CHOOSE THE BEST GRAPH

Use the **Graph Builder** sheet to help decide.

COLUMN GRAPH



SCATTER GRAPH



LINE GRAPH



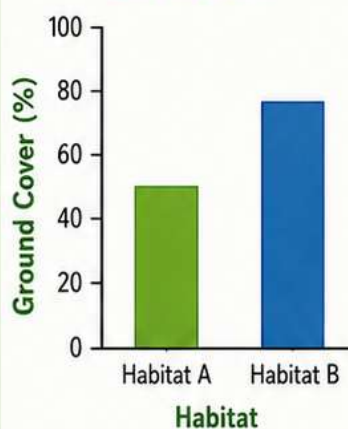
STEP 7 CREATE YOUR GRAPH

- 1 Highlight the data you need.
- 2 Click **Insert**.
- 3 Choose the graph type you selected.
- 4 Add:

- A clear graph title
- X-axis label
- Y-axis label

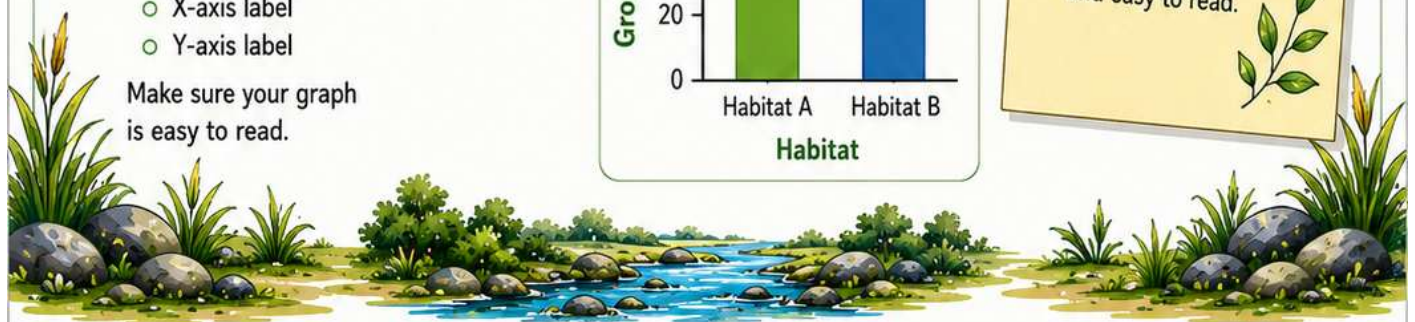
Make sure your graph is easy to read.

Example Graph



TIPS

- ✓ Choose the graph that best answers your question.
- ✓ Label everything clearly.
- ✓ Keep it simple and easy to read.





Lesson Focus

Students bring together evidence from their habitat investigation to analyse patterns and relationships, consider human impacts, evaluate the reliability of their investigation, and draw an evidence-based conclusion.



Resources

- Year 6 Biological Science Journal — final assessment pages
- Lesson PowerPoint/scaffolding slides
- Completed Habitat A and Habitat B field recording sheets
- Completed data tables and graphs
- Students' recorded observations
- Pencils and highlighters



Resource Purpose

The slides guide students through each assessment section in sequence. Students refer back to their own investigation data, graphs and observations and use the provided prompts and sentence scaffolds where needed.



Learning Intention

We are learning to use evidence from our habitat investigation to explain our findings and draw a scientific conclusion.



Success Criteria

- ✓ I can identify patterns and relationships in my results.
- ✓ I can use data and observations as evidence.
- ✓ I can explain how human activities may have influenced a habitat.
- ✓ I can evaluate whether my investigation was fair and reliable.
- ✓ I can answer the inquiry question using evidence.
- ✓ I can suggest an improvement to the investigation.
- ✓ I can communicate my scientific thinking in full sentences.



Key Vocabulary

- evidence
- data
- pattern
- relationship
- physical condition
- plant abundance
- ground cover
- human impact
- fair
- reliable
- conclusion
- improvement
- reflection



Australian Curriculum v9.0 Links

AC9S6U01

Science Understanding

Investigate the physical conditions of aquatic and terrestrial ecosystems and how the growth and survival of living things is affected by changing physical conditions.

AC9S6I04

Science Inquiry

Construct and use representations, including tables and graphs, to organise and process data and information and identify patterns, trends and relationships.

AC9S6I05

Science Inquiry

Compare methods and findings, recognise possible sources of error, pose further questions and select evidence to draw reasonable conclusions.

AC9S6I06

Science Inquiry

Create texts to communicate ideas and findings using appropriate scientific language.



Lesson Sequence



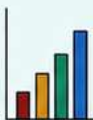
1 Introduce the Final Assessment

- Explain that students are now bringing together everything they have collected during their habitat investigation.
- Students need their Habitat A and Habitat B results, data tables, graphs and observations available.
- Every answer should be based on your own investigation. Look back at your evidence before you write.
- Work through the assessment one section at a time.



2 Part E – Analysing the Evidence

- Students examine their results and identify statements supported by their investigation.
- Use prompts: "I noticed...", "The graph shows..." and "This suggests..."
- Discuss what a pattern is: something that repeats or stands out in your results.
- Prompt: What stands out? Which results are higher or lower? What is different between Habitat A and B? What evidence supports the pattern?
- Students complete the Analysing the Evidence and Patterns sections.



3 Relationships

- A relationship describes how one thing changes when another thing changes.
- Compare a physical habitat condition with plant abundance or ground cover (e.g. light, soil moisture, leaf litter, shrubs).
- Choose the relationship that best matches your results (or no clear relationship).
- Use the structure: When ____ changed, ____ also changed. My data showed ____ compared with _____. This suggests _____.
- Use evidence from your graph or data table.
- Complete the Relationships section.



4 Human Impacts

- Identify evidence of human activity (e.g. mowing, footpaths, buildings, roads, garden beds, irrigation, rubbish, weeds, removed trees).
- Consider how these activities may have influenced habitat conditions and living things.
- Prompt: What evidence did you observe? How was Habitat A different from Habitat B? Could the activity have changed light, moisture, leaf litter or vegetation?
- Use cautious language such as "may have influenced" or "the evidence suggests".
- Complete the Human Impacts section.



5 Reliability

- Review the difference between a fair and a reliable investigation.
- Consider whether you: used the same-sized area, same equipment, three sample sites, same method, recorded carefully, checked measurements.
- Identify factors that may have affected results (e.g. weather, shadows, different observers, uneven ground).
- Explain: Our investigation was fair because... Our results were reliable because... One thing that may have affected our results was...
- Complete the Reliability section.



6 Part G – Conclusion

- Answer the inquiry question: Which school habitat provided the best conditions for plant growth?
- Use specific evidence from your data table, graph, measurements and observations.
- Use prompts: Habitat ____ provided the best conditions because... My data showed... For example... This evidence supports my conclusion because...
- Complete the Answer and Evidence sections.



7 Improvements

- Suggest what you would change if you repeated the investigation.
- Consider: more samples, repeat measurements, same observer, same time, check equipment, control other conditions.
- Complete: If I repeated this investigation, I would improve _____. This would make my results more reliable because _____.



8 Reflection

- What was the most important thing you learnt about habitats?
- Reflect on your scientific understanding (e.g. physical conditions, differences between habitats, relationships, human influences, importance of reliable evidence).



Final Assessment Check

Before submitting, check that you have:

- | | |
|---|--|
| ☐ answered every question | ☐ considered reliability |
| ☐ used your own data | ☐ answered the inquiry question |
| ☐ included specific evidence | ☐ suggested an improvement |
| ☐ explained patterns and relationships | ☐ written in full sentences. |



Assessment Evidence Collected

The completed final assessment provides evidence of students' ability to analyse and represent investigation findings, identify patterns and relationships, use evidence to explain how physical conditions relate to plant abundance or ground cover, consider human influences, evaluate the reliability of an investigation, draw a reasonable evidence-based conclusion and communicate scientific findings.





- ☐ Areas with more light had more plants.
- ☐ Areas with more light had fewer plants.
- ☐ Areas with more soil moisture had more plants.
- ☐ Areas with deeper leaf litter had more shrubs.
- ☐ Habitat A and Habitat B were very different.
- ☐ I noticed something else:

[illegible]





A decorative illustration of green plants and rocks, located at the bottom right of the page. It features several green fern-like plants growing from a cluster of grey, rounded rocks. The style is simple and illustrative, with a white background.



A detailed illustration of a lush landscape. In the foreground, a river flows from the bottom left towards the center, with several large, grey, rounded rocks protruding from the water and along the banks. The water is a vibrant blue with white highlights. The banks are covered in green grass and various plants. A large, leafy green tree stands prominently on the right bank. To its right, there are tall, slender green plants with long leaves. The background consists of a white space with horizontal lines, suggesting a notebook or a template for text. The overall style is a soft, painterly illustration.



HUMAN IMPACTS



Human activities can change habitats in many different ways.



1. HOW HAVE PEOPLE CHANGED THIS HABITAT?

- ☐ Mown grass
- ☐ Footpaths
- ☐ Buildings
- ☐ Roads or car parks
- ☐ Garden beds
- ☐ Rubbish
- ☐ Weeds
- ☐ Cut or removed trees
- ☐ Irrigation or sprinklers
- ☐ Fences
- ☐ Playground equipment



2. HOW MIGHT THESE HUMAN ACTIVITIES HAVE AFFECTED THE HABITAT?

- ☐ More sunlight reached the ground.
- ☐ Less sunlight reached the ground.
- ☐ The soil was drier.
- ☐ The soil was wetter.
- ☐ There were fewer plants.
- ☐ There were more plants.
- ☐ There was less leaf litter.
- ☐ There were fewer shrubs.
- ☐ Animals may have had fewer places to live.



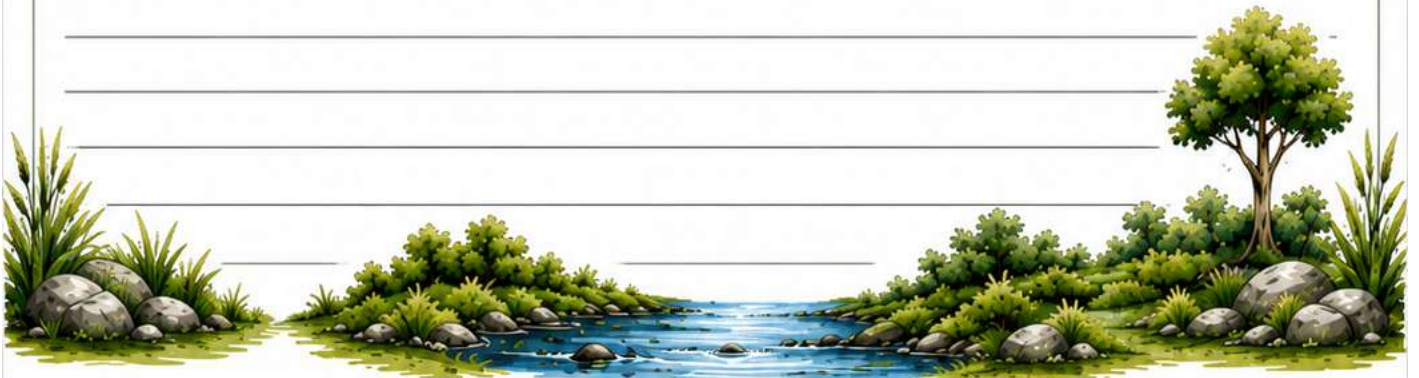
3. USE EVIDENCE TO EXPLAIN YOUR THINKING.

I think _____

because _____



4. HOW MAY HUMAN ACTIVITIES HAVE INFLUENCED EACH HABITAT? WHAT EVIDENCE SUPPORTS YOUR THINKING?





RELIABILITY



A fair investigation means you only changed one variable and kept the other conditions the same.



A reliable investigation means you collected enough data so your results can be trusted.

- ☐ We investigated the same-sized area each time.
- ☐ We used the same equipment for every measurement.
- ☐ We measured three sample sites.
- ☐ We followed the same method.
- ☐ We recorded our results carefully.
- ☐ We checked our measurements.



Was there anything that may have affected your results?

Examples

- Weather
- Shadows
- Different observers
- Uneven ground

Explain your answer using evidence.

Our investigation was fair and reliable because

.....



Was your investigation fair and reliable?





PART G – CONCLUSION



ANSWER THE INQUIRY QUESTION

Which school habitat provided the best conditions for plant growth?



EVIDENCE

Use your data to support your conclusion.



IMPROVEMENTS

If you repeated this investigation, what would you improve?



REFLECTION

What was the most important thing you learnt about habitats?

