

Characteristics of Living Things: IGCSE Biology Activity Pack

Student Information

Name: _____
Class: _____
Date: _____

Learning Objectives

- ◆ Identify and explain the seven characteristics of living organisms
- ◆ Apply scientific reasoning to classify biological systems
- ◆ Analyze real-world examples of living characteristics
- ◆ Develop critical thinking skills through biological investigation

Warm-Up Challenge: What Makes Something Alive?

Look at the images below and determine which characteristics of life each demonstrates. Write your answers in the spaces provided.

Image 1: Plant growing towards sunlight

Characteristics shown: 1.

_____ 2.
_____ 3.

Image 2: Cell division under microscope

Characteristics shown: 1.

_____ 2.
_____ 3.

Section 1: Characteristics Matching Challenge

Match each characteristic of life with its correct description and provide a specific example from nature.

Characteristic	Description	Your Example
Movement		
Respiration		
Sensitivity		
Growth		

Critical Thinking Challenge

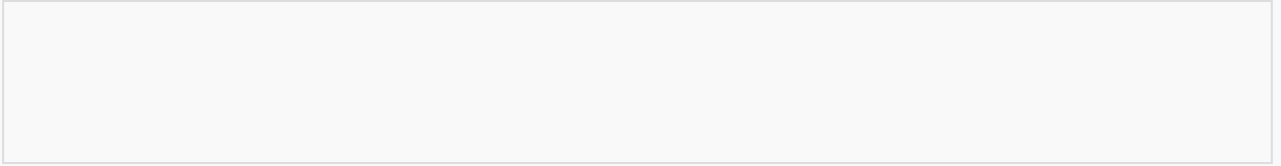
For each characteristic you matched above, explain why it's essential for life. Consider what would happen if an organism couldn't perform this function.

1. Movement is essential because:

2. Respiration is essential because:

3. Sensitivity is essential because:

4. Growth is essential because:



Section 2: Living vs. Non-Living Investigation

Analyze each scenario and determine whether it demonstrates true characteristics of life. Justify your answers with scientific reasoning.

Scenario 1: A Growing Crystal

Is it living or non-living?

☐ Living ☐ Non-living

Which characteristics are present/absent?

Explain your reasoning:

Scenario 2: A Dormant Seed

Is it living or non-living?

☐ Living ☐ Non-living

Which characteristics are present/absent?

Explain your reasoning:

Section 3: Advanced Life Processes

Explore the remaining characteristics of life through detailed analysis and practical examples.

Characteristic	Cellular Process	Real-World Application
Reproduction	<div>Describe the process:</div>	<div>Give an example:</div>
Excretion	<div>Describe the process:</div>	<div>Give an example:</div>
Nutrition	<div>Describe the process:</div>	<div>Give an example:</div>

Practical Investigation: Observing Life Processes

Design and conduct a simple experiment to observe one life process in action.

Experimental Design Template

1. Research Question:

2. Hypothesis:

3. Materials Needed:

4. Method:

5. Variables:

Independent Variable:	Dependent Variable:	Control Variables:
<div></div>	<div></div>	<div></div>

Results Table

Trial	Observation	Measurement
1		
2		
3		

Graph Space:

[Draw your graph here]

Analysis and Conclusions:

Section 4: Real-World Applications

Apply your understanding of life processes to solve these real-world scenarios.

Case Study 1: Desert Adaptations

A cactus survives in extreme desert conditions. Analyze how it demonstrates each characteristic of life:

<div>Movement Adaptations:</div> <div></div>	<div>Nutrition Adaptations:</div> <div></div>
<div>Sensitivity Adaptations:</div> <div></div>	<div>Growth Adaptations:</div> <div></div>

Case Study 2: Marine Ecosystems

Compare how different marine organisms demonstrate the characteristics of life:

Life Process	Fish	Coral	Seaweed
Reproduction			
Respiration			
Nutrition			

Final Reflection

Complete these reflection questions to demonstrate your understanding of the characteristics of life.

1. What have you learned about the characteristics of living things?

2. Which characteristic do you think is the most important for life? Why?

3. How can you apply what you've learned to better understand the world around you?

Teacher Assessment

Understanding of Core Concepts	<input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Developing
Critical Thinking Skills	<input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Developing
Application of Knowledge	<input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Developing
Teacher Comments: 	