

Starter Activity: Biology through the window: life and its characteristics

Introduction: This is a starter activity where you will look through the window and discuss what you see.

Key Stage: Biology KS3

National Curriculum Ref: Sc2 1d; 2b, c, e; 3a.

Time: 10 minutes

Pupil learning outcomes: Life is all around us and the evidence for the characteristics of life is all around us too.

Context: To introduce the idea that 'biology is all around you'.

Common misconceptions: The term 'excretion' is often poorly understood. Excretion refers to products that have been produced by chemical reactions in our body, such as carbon dioxide, sweat and urea – waste products. Since faeces are not the result of chemical change and have not been digested they are not excreted, but simply the result of expulsion of unwanted material (egestion).



The view from the window (Starter Activity)

All photographs can be found in colour on the Earth Science Education Unit website.

Activity: Participants simply look through a nearby window and attempt to answer the questions. This is best done in pairs or groups to encourage discussion.

Resource list: Participant card per group

Follow-up: Pupils can continue to look for examples of life and the characteristics of life in the local environment on their way home from school. They could be asked to discuss the results with their parents and attempt to add things to the tables.

Some questions and answers:

1. Spot and note down examples of the 'key characteristics of life' happening now in animals and plants, or evidence that they have happened not too long ago.

This question helps us to become aware of the evidence for the characteristics of life all around us. It is based on the MRS GREN (or MRS NERG) approach: Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion, Nutrition.

2. Where, in the environment through the window, are there places where living things cannot be found?

This question is intended to show that life is all around us, even in unexpected places. Bacteria have now been found in nearly every environment on the Earth and under the Earth.

Spot and note down examples of the 'key characteristics of life' happening now in animals and plants, or evidence that they have happened not too long ago.			
Key Characteristic of life	Animal example	Plant example	
Movement – animals or plants moving (of their own accord rather than being moved by anything else)	<ul style="list-style-type: none"> • People moving • animals moving on the ground • insects and birds flying • worm paths across grass (evidence of past movement) • worm casts (evidence of past movement) • footprints (evidence of past movement) 	<ul style="list-style-type: none"> • Plants growing out from walls or other shady spots (evidence of past movement) 	
Respiration	<ul style="list-style-type: none"> • None visible 	<ul style="list-style-type: none"> • None visible 	
Sensitivity	to light	<ul style="list-style-type: none"> • Animals with eyes move over the ground without falling over • Birds/insects fly without hitting things 	<ul style="list-style-type: none"> • New shoots will grow towards sunlight (leaves are green because of the chlorophyll they contain for photosynthesis) • Sunflowers turn towards sunlight
	to sound	<ul style="list-style-type: none"> • Birds singing to one another • Dog barking in response to loud noises • What we can hear around us 	<ul style="list-style-type: none"> • None visible
	to smells	<ul style="list-style-type: none"> • Dogs sniffing lamp-posts • Insects attracted to scent of flowers • What we can smell around us 	<ul style="list-style-type: none"> • None visible
	to taste	<ul style="list-style-type: none"> • People eating (what would the evidence for sense of taste be?) • Wasps around a discarded cola can 	<ul style="list-style-type: none"> • None visible
	to movement/pressure/temperature (touch)	<ul style="list-style-type: none"> • People holding hands – or having a fight! • birds with ruffled-up feathers in cold weather 	<ul style="list-style-type: none"> • None visible
Growth	<ul style="list-style-type: none"> • animals which are the same species but a different size due to differences in growth (what would the evidence for this be?) 	<ul style="list-style-type: none"> • plants which are the same species but a different size due to differences in growth (what would the evidence for this be?) • lawnmower cutting grass (what would the evidence be?) 	
Reproduction	<ul style="list-style-type: none"> • a pregnant mother 	<ul style="list-style-type: none"> • flowers, berries and other fruits, seeds • saplings 	
Excretion	<ul style="list-style-type: none"> • toilet block 	<ul style="list-style-type: none"> • none visible 	
Nutrition	<ul style="list-style-type: none"> • birds and other animals foraging • someone eating • worm casts 	<ul style="list-style-type: none"> • green leaves (evidence that plants are photosynthesising and therefore gaining nutrition) 	

Where, in the environment through the window, are there places where living things cannot be found?	
Living things cannot be found in these places through the window:	Probably none, unless evidence can be seen of an enclosed sterile environment such as a can of drink or paint – since: <ul style="list-style-type: none"> • Bacteria probably exist on every open surface that can be seen • Lichens can be seen on walls and other surfaces • Moss grows on walls and roofs

Starter Activity

Biology through the window: life and its characteristics

Introduction:

This is a starter activity where you will look through the window and discuss what you see.

1. Spot and note down examples of the following characteristics of life happening now in animals and plants, or evidence that they have happened not too long ago.

Key Characteristic of life		Animal example	Plant example
Movement - animals or plants moving (of their own accord rather than being moved by anything else)			
Respiration		• None visible	• None visible
Sensitivity	to light		
	to sound		• None visible
	to smells		• None visible
	to taste		• None visible
	to movement/ pressure/ temperature (touch)		• None visible
Growth			
Reproduction			
Excretion			• none visible
Nutrition			

2. Where, in the environment through the window, are there places where living things cannot be found?

Living things cannot be found in these place through the window:	
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