

# Questacon at HOME

## Year 6 Activity Sheet

# Environment Effects on Growth

### Background

**Plants** and **animals** are affected by the physical conditions of their environments – if the conditions are “bad” (i.e. are too harsh for them to cope with), they might not grow as much or they might not survive at all. However, if the conditions are “good”, they may thrive.

Plants and animals have, over long periods of time, developed features and behaviours which allow them to thrive in their **habitats** (their natural environments).

The features and/or behaviours that help plants and animals to survive in their habitats are called their **ADAPTATIONS**.

### ACTIVITY TIME – Physical Conditions

Can you make a list of physical conditions that might affect the **growth and survival** of animals and plants? Can you think of a living thing that might not do well under the different types of physical conditions you have listed? What are some of the adaptations these living things have that allow them to do so well in these environments?



## Year 6 Activity Sheet

Animals need to **insulate** themselves against extreme **cold** conditions. Many animals have **evolved** the ability to grow thick fur coats which keep them **warm** during the freezing cold winters. The Musk Ox is one animal that grows a thick fur coat to keep them warm during the arctic winters.

### Q1. Which of the following animals might struggle to keep warm and survive under cold conditions?

- Walrus
- Arctic Fox
- Humans
- Seals

The Australian Water-Holding Frog **buries** itself underground inside a sealed water-tight cocoon during the drier and warmer months of the year.

### Q2. Why might the water – holding frog choose to do this?

- The Water-Holding Frog likes to take long naps.
- The Water-Holding Frog wanted to conserve water.
- The Water-Holding Frog likes hunting for deep-burrowing worms in a cool space.
- The Water-Holding Frog is very good at digging.

Frogs have **webbed feet**. Some water-dwelling birds, like the **Albatross**, also have webbed feet.

### Q3. Why might frogs and water-dwelling birds have evolved webbed feet?

- Webbed feet make flying easier, for both the frog and the water-dwelling bird.
- Both the frog and the water-dwelling bird can use their webbed feet to catch their prey.
- Webbed feet make swimming easier.
- Webbed feet are good for attracting mates.

You have probably heard about how **bees** and other **bugs** play a role in **spreading pollen** between flowering plants.

### Q4. Which of the following features of an environment might also help to spread pollen between plants?

- Light
- Ground
- Water
- Wind



## Environment Effects on Growth - Answers

### ACTIVITY TIME – Physical Conditions: Example Answers

1. **LIGHT** – Light can be essential to the survival of some living things. Plants must have light, as it is a key ingredient in photosynthesis (the process plants use to make sugars and building blocks for their growth and survival).
2. **WATER** – Some living things have evolved strategies for dealing with environments where water is scarce (e.g. the Water-Holding Frog burrows undergrounds during dry seasons, only resurfacing during the wet season). Other animals might not do too well when water isn't abundant (e.g. Springbok might struggle to survive should a drought lead to his/her waterhole drying up).
3. **TEMPERATURE** – Some living things can handle a lot of heat (e.g. the Australian Moloch Lizard lives in hot and dry deserts), but these living things might not do too well in the cold (e.g. they don't have big fur coats to keep themselves warm like the Artic Musk Ox do).

#### Q1. Which of the following animals might struggle to keep warm and survive under cold conditions?

Humans lack thick fur coats of their own and thus would not tolerate extreme cold conditions too well. Thankfully, humans are quite smart – we've developed warm clothing that may take the place of fur coats, allowing us to venture out into the cold during the winter.

#### Q2. Why might the water-holding frog choose to bury itself underground during dryer and warmer months?

During the hot and dry months of summer, it would not be wise for the Water-Holding Frog to be out and about. When water is limited, a thirsty Water-Holding Frog might struggle to survive. For this reason, the Water-holding Frog has evolved an interesting approach to life in the heat – and the approach is to avoid it entirely. The Water-Holding Frog can spend up to two years underground, in its cocoon, without food or drink and will resurface during the wet seasons.

#### Q3. Why might frogs and water-dwelling birds have evolved webbed feet?

The webbed feet we see in frogs and in water-dwelling birds might be thought of as paddles that make swimming easier for these animals. If you've ever worn swimming fins, you probably know that you can swim a lot faster with fins on, compared to when your fins are off. Swimming fins increase the surface area of your feet, allowing you to push against more water as you swim through it. Webbed feet, much like swimming fins, increase the surface area of an animal's paddling feet – allowing them to push more water as they propel themselves through it.

#### Q4. Which of the following physical features of an environment might also help to spread pollen between plants?

Wind can also help distribute pollen. But be warned! Too much wind can be dangerous and can devastate plant populations.

