

KS2

Animal adaptation



TEACHING PACK

- Research unique animals
- Create your own 'animal adaptation' (bird beak or flying squirrel!)
- Present (and demonstrate) your adaptation

Lesson plan:

Exploring animal adaptations

About this project-based lesson

This project-based learning unit is designed to teach and reinforce the concepts in a year 6 primary science unit on animal adaptations and can be used in conjunction with existing curriculum materials.

The project is divided into 5 milestones; each milestone includes a self-contained pupil project activity. Done in sequence, the milestones connect to enable pupils to produce a final project.

The minimum suggested duration for completing this project is 5 hour-long lessons. However, it is completely flexible and can be lengthened or shortened as necessary, based on available lesson time and interest level.

How to use this teaching guide

Each milestone for this project-based learning unit includes detailed daily activities presented in step-by-step order, with teaching notes, instructional guidance, and page references to resources and materials included in the teacher pack and pupil pack.

Daily activities are organized for you as follows:

- **Prepare (bell-ringer/opener activity)**

Use these short opening activities at the beginning of class.

- **Present (teacher-led instruction)**

Use this portion of the lesson to deliver new subject material and project information, and to model any instructions or activity required for Produce or Participate elements.

- **Produce (pupil project work)**

Use this portion of the lesson to allow pupils to work independently or in small groups on activities and other project elements.

- **Participate (pupil/group share)**

Use this portion of the lesson to allow pupils to share out any project, research or presentation materials.

- **Practice (homework/assessment/independent)**

Use this optional portion of the lesson, if desired, to give pupils homework activities.

Overview

Milestone 1: Building background knowledge about polar animals

- Complete KWL grid
- Identify where polar animals live using globe/map
- Generate questions about adaptations
- Research animal adaptations

Milestone 2: Understanding how adaptations aid in survival

- Watch a teacher demonstration showing animal adaptation (flying squirrel)
- Start to plan a way to demonstrate their animal's adaptation
- Explain an adaptation helps an animal's survival

Milestone 3: Demonstrating how animal's adaptations work in nature

- Carry out bird beak adaptation investigation
- Plan the materials and resources needed for their demonstration
- Plan a way to demonstrate another animal's adaptation (pufferfish)

Milestone 4: Plan, design and create an adaptation demonstration

- Carry out demonstrations and make necessary adjustments
- Plan and practice presentations
- Explain importance of perseverance

Milestone 5: Demonstrating an adaptation

- Actively listen and judge other group's presentations
- Present their own projects
- Reflect on learning to choose their own adaptation

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Arctic and Antarctic animals



Polar Bear



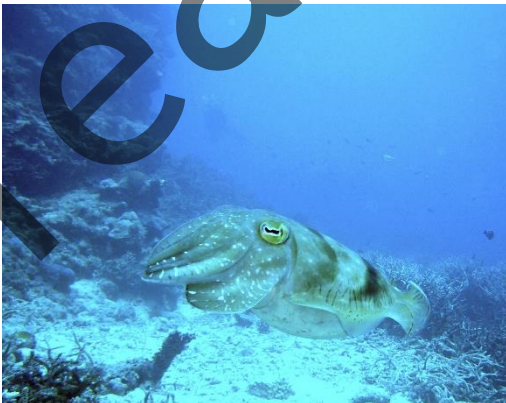
Arctic Fox



Emperor Penguin



Walrus



Squid



Starfish



Weddell Seal



Reindeer



Gray Whale



Albatross

Map of the Arctic and Antarctica



Answer**Polar Animal adaptations**

Teacher notes: use the Arctic and Antarctic PowerPoint presentations to teach your pupils about animal adaptations. Ask them to take notes. Go over the sample answers with the class.

Where is the Arctic Circle?

Look at a globe and explain that it is at the top of the northern hemisphere.

List adaptations of each animal in the chart.

Polar Bear	Small, rounded ears, lose little body fat, hollow hairs trap warm air near body, non-slip soles help grip slippery ice
Arctic Fox	Thick white fur in winter, thin brownish grey fur in summer (camouflage)
Caribou	Large antlers, broad hooves act like snowshoes in snow and paddles in water
Walrus	Heavy skulls protect brain when walrus smashes ice, tusks used like ice picks to lift body out of water, thick skin on neck and shoulders offers protection during fights, blubber for warmth and padding
Whale	Blubber for insulation, flukes help move up and down in water, blowhole, baleen plates to filter food

Where is Antarctica?

Look at a globe and explain that it is at the bottom of the Southern Hemisphere.

List adaptations of each animal in the chart.

Starfish	Grow very slowly, sometimes grow larger, long life
Albatross	Large wingspan to fly long distances on ocean winds, webbed feet to act as air 'brakes', large eyes to find prey in choppy oceans, razor-sharp edge on bill to catch fish and squid
South Pole Penguins	Streamlined body for swimming, thick body fat for insulation, oar-like flippers propel through water, stiff tail with pointed feathers to use as rudder in water and support on land
Emperor Penguins	In the worst weather they huddle together in large groups to stay warm, taking turns on the outer circle, can hold breath for 20 minutes, male penguin holds egg for 2 months while female feeds in ocean
Weddell Seals	Streamlined for diving, blubber for insulation, stay underwater for 45 minutes, teeth used to break open air hole in ice if necessary

Sample flying squirrel slide



Animal:
Flying Squirrel



Habitat:
Forests and
Woodlands



Have you ever heard of a squirrel that can fly? Actually, flying squirrels cannot really fly, and they do not have wings. They glide from one place to another. Between their wrists and legs, flying squirrels have membranes of skin that stretch out, giving them the ability to glide far distances. Their long, flat tails also help guide where they are going.

Flying squirrels are typically found in the forests of Canada. The principal enemies of the flying squirrel are the owl, the hawk and the domestic cat. Flying squirrels seldom go down onto the ground. Being on the ground makes them vulnerable to predators. They use their strong climbing skills and their ability to glide from tree to tree to stay safe.