

Making the most of your visit:

ADAPTATIONS



AMAZING ADAPTATIONS

Mexican red-kneed tarantulas have barbed hairs that they flick out like darts at their enemies when threatened.

Lions have rough tongues to rasp flesh from the bones of their prey.

Squirrel monkeys live in groups so that there are more eyes and ears to sense predators and find food.

Crocodiles are ectothermic and depend on the sun to keep warm. As a result they only need 20% of the food that endothermic mammals like us need.

Clownfish secrete a chemical that renders them undetectable amongst an anemones' tentacles, thus providing a safe home for them. In return for this protection, the clownfish make short trips out onto the surrounding reef, bringing back food that the anemone also benefits from.



See it · Sense it · Save it

Before your visit

- 1) Take advantage of the **free pre-visit deal** for group leaders. You can familiarise yourself with the Zoo layout and locate exhibits related to your topic.
- 2) Consider **how humans adapt** to different environments and seasons, using role-play or cartoon-strips, e.g. shivering and drinking hot beverages when cold; sweating and peeling off layers when hot.
- 3) Watch a video about a habitat and get the group to consider the **challenges the environment presents**. How do animals and plants adapt? e.g. in rainforests that have low light levels, animals use senses other than sight.
- 4) Ask the group to **match up cut-outs of animals to habitat scenes** of desert, savannah (tropical grassland), temperate woodland (e.g. in the UK) and mountains.
- 5) Set the group a challenge to collect **images of animal limbs** for a montage. Limbs are used for walking, flying, gliding, swimming, jumping, climbing, digging, gripping, killing and tasting (flies do this!)

In the Zoo

- 1) In the **Aquarium and Bug World** find out what body parts animals use to move through water. Try to find as many different examples as you can, or get the group to do some sketching.
- 2) Go to the **Reptile House** to look for colours and patterns. Why are many tortoises brown and mottled. Why are gila monsters and many frogs brightly coloured?
- 3) **Twilight World** showcases the ingenious methods nocturnal animals use to cope with darkness. Sketch features such as large eyes, long whiskers and active noses.
- 4) Visit the **Wallace Aviary** and use the information panels to spot some of the bird species where males and females differ in their plumage. Usually the male is the one with the fabulous colours or crown - this helps him to attract females.
- 5) Watch the various species of monkey we have at the Zoo, and see how some use their tails for gripping, while others use their tails for balance. Why do you think other primates, like gorillas, don't have them?



After your visit

- 1) Encourage your group to use their new knowledge to write a diary entry for a **day in the life of a chosen animal** and describe what they must do during a 24-hour period in their habitat to survive.
- 2) Get members of your group to **design the 'ultimate animal'** for a chosen habitat. This animal must have many adaptations that enable it to survive in its environment. Or try an 'Adaptations of the future' competition.
- 3) **Compare your local environment with a more 'exotic' one** that your group learnt about in the Zoo. Compare the animals of the two habitats, e.g. ducks near a British stream and king penguins in Antarctica?
- 4) **Make animal skull ID guides** that include labelled sketches of Zoo animal skulls. The guide will identify an animal as a herbivore, carnivore or omnivore according to the shape and position of teeth. See websites below.



For more information

- 1) Check out the Zoo's website – we have factsheets on many of the Zoo's species and wildlife-related issues. You can also download this and other leaflets.
www.bristolzoo.org.uk
- 2) Visit the Arkive website, an audio-visual record of life on Earth.
www.arkive.org
www.planetarkive.org
- 3) Learn more 'wild facts' from the BBC's science and nature site.
www.bbc.co.uk/nature
- 4) Find good skull diagrams at:
ag.arizona.edu/pubs/natresources/az1145.pdf
www.d91.k12.id.us/www/skyline/teachers/robertsd/skulls.htm

If you would like to know more about the Education Department and its work please contact us:

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Adaptation:

These questions and many others can be covered in our interactive education session on adaptation.

By looking at live animals, your group can learn about adaptation in a memorable way. We will display animals' anatomical and behavioural adaptations and explain the adaptations we can't see. You may see how a mealworm's intriguing behaviour and long cylindrical body work together to improve its chances of survival. Or you may get the chance to see the giant spines of tropical stick insects in action or the tongue-flicking of a snake.

Why do leopards have spots and zebras have stripes?

How do penguins avoid frostbite in their toes?

Why does a scorpion glow under ultraviolet light?

You will also get the chance to look at lots of animal biofacts, some loaned to us by HM Customs and Excise as confiscations from smugglers and tourists. You may see small items such as teeth, claws and tongues and large items such as leopard skins and even stuffed polar bears!

If you haven't booked an education session this time, but are interested in finding out more, please contact the Education Department on 0117 974 7369, or education@bristolzoo.org.uk