Key Stage 3 Adaptation
Resource Pack
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Introduction

This resource has been produced to support the teaching and learning of Key Stage 3 Adaptation topics. It contains a number of activities that can be used in a variety of ways:

• In school as part of your Scheme of Work
• During an independent park visit to Marwell Wildlife
• As part of a visit to Marwell Wildlife that also involves the KS3 Adaptation session run by the Science and Learning Centre.

This resource contains:

• An Adaptation Trail around Marwell
• Two activities that can be used at specific sites in the park (Cold-blooded Corner and Tropical World)
• Two interactive games: Marwell versions of Top Trumps and Dominoes
• Two post-visit activity sheets
• An origami instruction and template set to summarise their understanding of adaptation to habitat in a creative way

National Curriculum links:

Sc3.3d – All living things show variation, can be classified and are interdependent, interacting with each other and their environment
Sc4c – Use real-life examples as a basis for finding out about science
Sc4e – Experience science outside the school environment
Ge1.1a – Understanding the physical and human characteristics of real places
Ge2.1b – Collect, record and display information
Ge3f – Physical geography, physical processes and natural landscapes
Ge4e – Undertake fieldwork investigations in different locations outside the classroom, individually and as part of a team

Summary of resources

Adaptation Trail – for use on a visit
The Adaptation Trail is a journey of discovery through Marwell which allows students to develop and apply their knowledge and understanding of ‘adaptation’. It follows the main route around the park, taking in seventeen species from a range of habitats; this provides students with the opportunity to see and consider a range of adaptations. The route of the trail will pass toilet blocks and there is a picnic site and café approximately half way round to allow for a break or for lunch.
Cold-blooded Corner Mini-trail – for use on a visit
This can be added on to the main trail or done as a stand-alone sheet. It focuses upon some of the reptiles found in Cold-Blooded Corner at Encounter Village. The students link together the picture of the reptile, its name and its adaptations by looking at the animals and finding the correct information, clues for which should be available on the information signs.

Tropical World Activity – Who Am I? – for use on a visit
Again, this can be added on to the main trail or done as a stand-alone sheet. This clue-based activity is designed for the Tropical House. Students have to look at the different species within the tropical house and determine which species is the answer to the clues. Please note that there is a one-way route around the Tropical House and that students should be forewarned not to touch the plants as some of them are poisonous.

Adaptation Dominoes – classroom based
This consists of 15 domino cards to print out; each one with an animal photo on one half and the adaptations of a different animal on the other half, which need to be matched in turn. This could be played in groups and could be used as a starter or a plenary activity. Once all matched correctly, the dominoes should form a loop.

Adaptation Post-visit Activity – Who is best adapted? – classroom based
This activity has been designed to encourage pupils to think in greater depth about the animals they have seen and their adaptations. There is no right or wrong answer to this task, however it is important pupils try to justify their answers. This could be set up as a classroom debate whereby pupils try to persuade others their chosen animal is best adapted to its habitat. This could be used as a starter or plenary activity.

Adaptation Post-visit Activity – Where do I live? – classroom based
This activity involves pupils matching four different animals to their habitat based on their adaptations. Pupils should be encouraged to give reasons for their decisions that are linked to the animals’ adaptations (not answers like, ‘Because I know’). This could be used as a starter or plenary activity.

Create your own Animal! – classroom based
This activity requires pupils to apply their understanding in order to design their own animal adapted to their chosen habitat. Some questions have been provided to give pupils some guidelines to consider in their design process.
Origami Adaptation Teller – classroom based
A template is provided for pupils to create some origami linked to adaptation. The idea of this is to enable pupils to demonstrate their understanding of useful adaptations for different habitats in a creative way. It is a fun way of teaching other people about the different adaptations they have learnt about. A completed example is provided that could be cut out and made up to show pupils what they will be doing. An instruction sheet on how to fold this template into the finished product is also provided.

Before your Visit

It may be useful to familiarise yourself and the students with the variety of animals that we have here at Marwell Wildlife. Our website (www.marwell.org.uk) might be helpful and there are other links at the end of this document.

If you are doing a trail round the park, students can use the information provided on signs, some picture clues on trail sheets and their own observations to complete their worksheets. A word card is included at the end of the pack to assist less able students.

Please note that the crested porcupines and the black and white colobus monkeys are currently in the same enclosure. Giraffes have an indoor enclosure, where they will be in winter and wet weather, and two outdoor paddocks, in both of which there should be giraffes in good summer weather. The other animal which moves its location regularly is the Bactrian camel, which has a winter and a summer paddock – the summer one is near the playground. These are all marked on the map in the Adaptation Trail Booklet.

This booklet can be printed out either on A4 sheets or in booklet format. The Adaptation Trail Booklet includes a map.
1. Humboldt penguin
2. Cheetah
3. Crested porcupine
4. Black and white colobus monkey
5. Giraffe
6. Sand cat
7. Ocelot
8. Coati
9. Cold-blooded corner
10. Bactrian camel
11. Bat eared fox
12. Sulawesi crested macaque
13. Siamang gibbon
14. Malaysian giant stick insect
15. Ring-tailed lemur
16. Snow leopard
17. Pygmy hippo
18. Giant anteater
19. Tropical World
## Adaptation Trail

**Welcome to Marwell Wildlife!**

You are about to go on a journey of discovery around the park to find out more about how different animals are suited to their environment.

First, let’s remind ourselves about the types of habitats animals might live in as this might affect their adaptations. See if you can match up the habitats below with the correct picture and characteristics:

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainforest</td>
<td>Hot and dry, little plant life</td>
</tr>
<tr>
<td>Desert</td>
<td>Hot, enough rainfall for grass growth</td>
</tr>
<tr>
<td>Mountain</td>
<td>Hot, high rainfall, tall trees and dense vegetation</td>
</tr>
<tr>
<td>Savanna</td>
<td>Can be steep/rocky, temperature decreases with altitude</td>
</tr>
<tr>
<td>Coastal</td>
<td>Where the sea meets the land</td>
</tr>
</tbody>
</table>
You will be looking at lots of different animals and the adaptations that they have to survive in different habitats.

You will need to collect information on some of these animals and record it on the sheets provided – some of the information you will need is on signs on the animal enclosures; sometimes you have to watch the animals to work the answers out!

1. HUMBOLDT PENGUIN

What habitat does it live in? __________________________

What are their wings like and what do these help penguins to do? __________

What other adaptations help these birds to live? How?

Adaptation: __________________________

______________________________

Useful because: __________________________

______________________________

Adaptation: __________________________

______________________________

Useful because: __________________________
2. CHEETAH

What habitat do these cats live in? 

Can you spot this pattern on the cheetah?

How might this pattern be useful to cheetah?

Look at the skulls by the cheetah enclosure. What type of teeth does a cheetah have?

How might these teeth be useful to cheetah?

How does a cheetah skull differ to a leopard or lion skull?

How might this adaptation help cheetah?

Can you spot any other adaptations cheetah have to help them survive in their habitat? What might these be useful for?
3. CRESTED PORCUPINE

The habitats these porcupines live in are ________________________________

Its most obvious adaptation is its ________________________________

These help it survive because _______________________________________


4. BLACK AND WHITE COLOBUS MONKEY

What habitat does it live in? ____________________________________________

Explain two adaptations these monkeys have to help them survive in their habitat:

1. __________________________________________
   Useful for: ________________________________
   __________________________________________

2. __________________________________________
   Useful for: ________________________________
   __________________________________________
5. GIRAFFE

This is the tallest land animal in the world.

What habitat does it live in? ____________________________________________

What two adaptations do giraffes have to make them so tall?

1. ___________________________________________________________________
2. ___________________________________________________________________

Give two reasons why being so tall is useful for a giraffe:

1. ___________________________________________________________________
2. ___________________________________________________________________

A giraffe’s tongue is 46-50cm long.
Why is this useful to giraffes?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
6. SAND CAT

What type of habitat do these cats live in? __________________________

Use the information boards to find out:

a. How hot it gets during the day in the Sahara____________________ °C

b. How cold it can get at night in the Sahara_____________________ °C

What main adaptation do sand cats have to help them live in this climate? How does this help them? __________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

How can it behave to help it survive these harsh temperatures? What adaptation does it have to allow it to do this?

Survival strategy: __________________________

_________________________________________________________________

____________________________________

Adaptation: __________________________

_________________________________________________________________
7. OCELOT

What habitat does it live in? _____________________________

In what two ways is an ocelot similar to a soldier?

1. _____________________________

2. _____________________________

How do these two adaptations help it to survive in its habitat?

_______________________________

_______________________________

8. RING-TAILED COATI

What type of habitat does it live in? _____________________________

Can you identify and explain two adaptations that help it to live there?

Adaptation: _____________________________

Useful because: _____________________________

Adaptation: _____________________________

Useful because: _____________________________

What special feature does this animal have that allows it to walk down trees headfirst?

________________________________________________________________________

________________________________________________________________________
9. BACTRIAN CAMEL

This species has 2 possible locations on the map, depending on the season. It is near Encounter Village in the winter and near the sand cats in the summer.

Which habitat is the camel adapted for? ________________________________

Add annotations (labels with explanations) to the camel below to show what adaptations it has to help it survive in its habitat. An example has been done for you:

Nostrils are slits that can open and close to keep sand out in sandstorms
10. BAT-EARED FOX

What type of habitat do these animals live in? __________________________________________

“Why does the bat-eared fox follow the zebra?” – Using the signs around the enclosure complete the comic strip below by adding pictures/captions to answer this question.

So why do bat-eared foxes follow zebras? __________________________________________

Complete the table below to show what adaptations the bat-eared fox has to support this diet:

<table>
<thead>
<tr>
<th>Adaptation</th>
<th>Sketch of adaptation</th>
<th>Useful because...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Zebras eat grass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Zebras poo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Eggs hatch into larvae</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The larvae eat the zebra poo</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11. SULAWESI CRESTED MACAQUE

What habitat do they live in? ________________________________

What special features do the macaques have? ________________________________

How are these useful? ________________________________

12. SIAMANG GIBBON

In which type of habitat are these gibbons found? ________________________________

Identify 3 adaptations these gibbons have to help them move through the trees:

1. ________________________________

2. ________________________________

3. ________________________________

Listen out for gibbons whooping as you go around the park! Siamang gibbons have an inflatable throat sac that allows their hooting to travel long distances. Why might this be useful in the habitat they live in? ________________________________
13. MALAYSIAN GIANT STICK INSECT

What habitat do these insects live in? ____________________________

What main adaptation do they have to help them survive? Why is this so useful? ____________________________

__________________________

__________________________

Challenge: How many stick insects can you spot?! 

14. RING-TAILED LEMUR

What habitat do ring-tailed lemurs live in? ____________________________

Suggest two adaptations that these lemurs have to help them live in this habitat

1. ____________________________

2. ____________________________

At one end of the lemur house is a sign with flaps you can lift up. Use this to explain why lemurs have forward-facing eyes: ____________________________

__________________________

__________________________

__________________________
15. SNOW LEOPARD

The habitat you would find snow leopards in is ______________________

Try to add at least 3 annotations to the snow leopard below to explain what adaptations it has to help it live in its habitat. An example has been done for you.

In the box sketch the markings found on snow leopards. Explain how these markings might be useful to the snow leopard.

________________________________________________________________________

________________________________________________________________________
16. PYGMY HIPPO

What habitat does it live in? ____________________________________________

What adaptations does it have to allow it to hide underwater but still see, hear and breathe? ____________________________________________

What does the sticky substance produced by the pygmy hippo’s skin protect it from? ____________________________________________

17. GIANT ANTEATER

In what habitats would you find these animals? ________________________

What type of food does this animal eat? ________________________________

What two adaptations does it have that would help it to feed? How?

Adaptation: ________________________________

This helps it feed because: ______________

________________________________________

Adaptation: ________________________________

This helps it feed because: ______________

________________________________________
### What am I?

<table>
<thead>
<tr>
<th>Animal</th>
<th>What adaptations (special features) do I have?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egyptian tortoise</td>
<td>I store fat in my tail for use in winter months, in western U.S. deserts.</td>
</tr>
<tr>
<td>Gila monster</td>
<td>I have a hard shell to protect against predators.</td>
</tr>
<tr>
<td>Madagascar tree boa</td>
<td>My long tongue with a sticky tip shoots out very fast to catch insects.</td>
</tr>
<tr>
<td>Panther chameleon</td>
<td>I kill my prey by tightening my powerful coils round the victim’s body.</td>
</tr>
</tbody>
</table>

### Cold-blooded Corner Mini-trail

Look at the amazing reptiles in the exhibit and see if you can match up the picture, name and adaptations. Use four different lines (e.g. - - - - - - or _____ or ~~~~) or four different colours to match them up. Look at the signs to see where in the world each one lives and what it eats, to help you choose the matching boxes.
TROPICAL WORLD – WHO AM I?

Read the clues and track down these amazing plants and animals found in Marwell’s Tropical World, whilst discovering more about how they are adapted to their habitat.

1. I have 6 stalk-like legs
   I am green/grey and small
   I am very well camouflaged
   My head looks similar to that of a horse

   I am a ...........................................
   ...........................................
   ...........................................

2. I have 4 legs
   I have a long tail
   I have claws that I can use to climb trees
   I have a special flaps of skin behind my head that I can open into a fan to scare off attackers and to lose heat

   I am a ...........................................
   ...........................................
   ...........................................

3. I am green and black
   I am not well camouflaged
   My colour warns predators that I am poisonous
   My skin is smooth and moist

   I am a ...........................................
   ...........................................
   ...........................................

4. I am very small
   I have six legs
   I don’t live alone
   I have a special job that helps my colony to survive

   I am a ...........................................
   ...........................................
   ...........................................

5. I have four legs
   I have rough scaly skin
   When I float in the water, I leave only my nostrils, eyes, and ears above the surface.
   I have a powerful tail to help me swim, and many sharp teeth

   I am a ...........................................
   ...........................................
   ...........................................

6. I am a climbing plant
   I have small extra roots to attach to tree trunks
   My leaves get bigger nearer the top, to use the available light
   I have thick, waxy leaves so that I don’t lose too much water

   I am a ...........................................
   ...........................................
   ...........................................
ADAPTATION DOMINOES

There are 15 dominoes in the pack. The picture on one domino links to the information on another. They should end up as a loop at the end when they are all matched up.

You may wish to print out 2 sets, divide your class into two groups and let them compete to finish the dominoes in the quickest time.

---

**Humboldt penguin**

- I have small spots to camouflage in savannah grasses
- My long, slim legs help me run very fast
- I have a small head which helps me to be streamlined for speed
- My long tail helps me to change direction, when I am chasing my prey

---

**Serval**

- My wings are like flippers and help me swim
- I have waterproof feathers
- My body is a streamlined shape to help me swim through the water
- I have black and white feathers so that predators cannot see me from above and below
- My beak has special teeth to hold the fish that I catch for food

---

**Crested porcupine**

- My light brown coat with black spots helps me to blend in with my habitat
- I live in grasslands or savannas
- My long legs help me to jump into the air to catch birds and to run fast
- I have very large ears so that I can hear my prey
- I have very long quills that are very sharp
- My quills are hollow so when I am scared I can shake them to make a loud rattle sound
- If I am being attacked, I run backwards at my attacker and stick my quills in them

**Giraffe**

- I am mostly black with a very long white tail
- I use my long tail to help me move through the trees
- My long arms help me to swing from tree to tree
- I have long fingers that I use to grip onto branches.

**Ring-tailed coati**

- I am light brown with darker patches that look like crazy paving
- My tongue is very long to help me reach food and it is blue
- My lips are very tough as I like to eat leaves off very prickly trees
- I am very tall as I have very long legs and a very long neck

**Bactrian camel**

- I have strong legs and claws to help me move around woodland areas
- I use my tail to help me to balance as I walk along branches
- My snout (nose) is very flexible
- My ankles can move 180° so that I can see below me when I am walking down trees
I can have a thick coat in winter to keep me warm and a thin coat in the summer to help me to stay cool.

My nostrils can be closed during dust storms.

I can drink up to 57 litres of water in one go.

I have two humps where I store my fat.

I have special hairs on my toes that help my feet stick to any surface, even glass.

If I feel threatened I can drop my tail which will act as a distraction whilst I escape.

My eyes work separately to each other so I can see all around me.

I have a special long tongue that I use to stun and grab my prey.

My toes allow me to grip onto small branches.

I can change my colour to make me camouflaged or to show my mood.

I live in sandy deserts.

My fur is very special as it is so thick that it protects me from freezing temperatures at night and very hot temperatures during the day.

I have strong legs so I can dig out prey and make burrows for me to shelter in.
**Siamang gibbon**
- I am light brown so that I am camouflaged
- I am very small
- I look like the twigs on which I live
- I am an insect

**Snow leopard**
- I spend most of my time up in the canopy of the forest
- My legs are much shorter than my arms, which helps me to move from branch to branch
- When I am on the ground I walk with my arms above my head to help me balance
- I have black hair

**Poison dart frog**
- I am camouflaged against the mountain where I live
- My feet are very wide which helps me to move through the snow and across rocks
- I have a very long and fluffy tail that I use for balance and to keep my face warm when I am asleep

**Cheetah**
- I am not a mammal
- I am small and live in the tropical rainforests
- My colouring means that I am not well camouflaged
- My black and green colour tells predators that they shouldn’t eat me as I am poisonous
Adaptation post-visit activities

Who is best adapted?

Rank the following 5 animals that you have hopefully seen on your visit to Marwell Wildlife based on their adaptations.

1 = Best adapted to their habitat
5 = Least adapted to their habitat

You must also give a reason for why you have ranked each animal the way you have.

Humboldt penguin
I have ranked this as number ..... because

Bactrian camel
I have ranked this as number ..... because

Sulawesi crested macaque
I have ranked this as number ..... because

Snow leopard
I have ranked this as number ..... because

Ring-tailed lemur
I have ranked this as number ..... because
Where do I live?

Look at the following animals and their adaptations - less obvious adaptations have been labelled to help you. Can you match the animals to their habitat? Choose from the habitats below and give reasons for your choice based on the animals’ adaptations.

Rainforest | Coastal | Desert | Mountain

Leopard gecko
- Tail detaches if caught hold of by predator. Can re-grow over time
- Stores excess fat in its tail

Habitat:
I think the leopard gecko lives here because:

Ibex
- Hooves have a hard rim, allowing them to gain good footholds and to grip rock
- Thick fur
- Webbed feet

Habitat:
I think the ibex lives here because:

Sea otter
- Very good eyesight for seeing underwater and on land
- Waterproof outer fur

Habitat:
I think the sea otter lives here because:

Spider monkey
- Prehensile (gripping) tail

Habitat:
I think the spider monkey lives here because:
Create your own animal!

Your challenge is to design a new animal that is perfectly adapted to the habitat it lives in. You can choose any of the habitats you have learnt about. Below are some questions you will need to consider before designing your animal.

Questions to consider:

1. Where will your animal live (habitat)? What are the main characteristics of that habitat? – e.g. Hot? Cold? Wet? Dry? Lots of vegetation? Not very much vegetation?
2. What will your animal eat?
3. How will your animal move?
4. How will your animal communicate?
5. Where will your animal sleep?
6. Will your animal come out during the day, night or both?
Origami adaptation teller

Below is a template for making your own Origami Adaptation Teller! The idea is for you to make a fun way of teaching other people about the different adaptations animals may have for their habitat. The template is split into 4 different habitat areas (marked by the thick black lines). You need to choose 4 habitats, suggest 2 adaptations that animals in that habitat might have and provide an example of an animal who lives in that habitat. Then cut out your adaptation teller and use the instructions on the next page to make it up. You can then use it to teach your friends about different adaptations animals might have in different habitats!
Origami adaptation teller

Below is a template for making your own Origami Adaptation Teller! The idea is for you to make a fun way of teaching other people about the different adaptations animals may have for their habitat. The template is split into 4 different habitat areas (marked by the thick black lines). You need to choose 3 habitats, suggest 2 adaptations that animals in that habitat might have and provide an example of an animal who lives in that habitat (an example has been done for you). Then cut out your adaptation teller and use the instructions on the next page to make it up. You can then use it to teach your friends about different adaptations animals might have in different habitats!
Making your own origami adaptation teller

1. Fold your paper in half and then unfold it along the dotted lines shown (design side facing down).

2. Fold each of the corners in to the centre of your paper.

3. Turn your paper over.

5. Fold each of the corners in to the centre of your paper.

6. Fold your paper in half down the dotted line.

7. Fold your paper in half down the dotted line.

8. Put your fingers in each of the 4 pockets on either side of your paper to make your origami adaptation teller work.
Example of a finished adaptation teller design

- **Coastal**
  - Waterproof feathers/fur
  - Black & white camouflage

- **Mountain**
  - Thick, warm fur
  - Tail for balance

- **Desert**
  - Large feet to spread weight
  - Fat stored in hump or tail

- **Rainforest**
  - Small fingers for gripping branches
  - Dense vegetation
Activity answers

Adaptation trail

1. Humboldt penguin
   Habitat: Rocky coasts and cool waters
   Wings: Act as flippers to help them swim
   Other adaptations: Beak has small teeth to keep hold of fish; waterproof feathers; streamlined body to move quickly through water; black and white camouflage so can’t be easily seen by predators

2. Cheetah
   Habitat: Desert, grasslands, bushveld, mountainous areas
   Pattern useful for: Camouflage – helps them to hide from their prey in savanna grasses
   Teeth: Big teeth – sharp canines, strong incisors – used for catching and eating their prey
   Skull: Smaller than leopard/lion skull – helps cheetah to be streamlined for running at speed
   Other adaptations: Long, slim legs for running fast; Long flat tail that allows it to change direction when chasing its prey at speed

3. Crested porcupine
   Habitats: Many habitats from forest to desert
   Obvious adaptation: Quills
   Helps it survive by: Defence against predators, can shake them to make them rattle or run at attacker and stick quills into them

4. Black and white colobus monkey
   Habitat: Rainforest
   Adaptations: Long arms – for swinging between trees, moving along branches; Long tail – acts as a brake or used for balance

5. Giraffe
   Habitat: Savanna or dry, open country and woodland
   Adaptations to make it tall: Long legs; Long neck
   Why being tall is useful: Helps giraffe to reach food; Can look out for danger
   Long tongue: Useful for grabbing and picking leaves to eat

6. Sand cat
   Habitat: Sandy desert
   How hot?: 58°C
   How cold?: -5°C or -25°C (winter)
   Adaptation to survive climate: Special solid, dense fur that insulates them
   Survival strategy: Digs burrows to get shade;
   Adaptation for this – Strong legs
7. Ocelot
**Habitat:** Forests, scrubland and savanna
**Similarities to a soldier:** Waterproof coat; Camouflaged (Found on information board)
**How these similarities help ocelot to survive in its habitat:** Oily coat to waterproof it in wet rainforest; Uses colours and patterns on its coat to camouflage it to help it hide from its prey

8. Ring-tailed coati
**Habitat:** Forests and woods
**Adaptations:** Strong short legs and claws to help it climb; Narrow nose to search for food; Thick fur to keep it warm; Long tail to help it balance
**Special feature:** They can turn their ankles 180° (Found on information board)

9. Bactrian camel
**Habitat:** Semi-arid to arid plains, grasslands and desert
**Adaptations:** Wide feet to spread out weight and stop camel sinking in the sand; Hump to store fat when food and water is scarce; Long eyelashes to keep sand out of eyes; Sandy coloured for camouflage

10. Bat-eared fox
**Habitat:** Savanna, plains, grassland and steppes

<table>
<thead>
<tr>
<th>1. Zebras eat grass</th>
<th>3. Dung beetles roll up the poo</th>
<th>5. Eggs hatch into larvae</th>
<th>7. Bat-eared foxes love to eat dung beetle larvae</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Zebras poo</td>
<td>4. Dung beetles lay their eggs into the poo</td>
<td>6. The larvae eat the zebra poo</td>
<td></td>
</tr>
</tbody>
</table>

Why do bat-eared foxes follow zebras? Where there are zebras there is fox food!
**Adaptations:** Big ears to listen for and find underground bugs; Needle-like teeth to eat bugs more easily and quickly as need to eat really fast to fill up on bugs

11. Sulawesi crested macaque
**Habitat:** Tropical forest
**Special features:** Crest on head – raises when anxious/alarmed; Pink bottom – perhaps helps them see each other better in the forest – becomes bigger on a female when she is ready to breed; Cheek pouches – can hold as much food as stomach
12. Siamang gibbon
Habitat: Tropical rainforest
Adaptations: Long arms for swinging through trees; Long fingers to grip branches; Forward facing eyes to judge distances
Why might whooping be useful?: To communicate with each other in dense rainforest; to mark their territory

13. Malaysian giant stick insect
Habitat: Forests
Main adaptation: Camouflage – helps them to hide from predators

14. Ring-tailed lemurs
Habitat: Scrub and forest
Adaptations: Long tail for balance; Long fingers for gripping branches
Forward facing eyes: For judging distances when moving through trees

15. Snow leopard
Habitat: Cold mountains
Adaptations: Thick fur to protect against the cold; Large paws to spread weight so it can move easily through the snow; Long tail for balance when moving through rocky areas; Furry tail can be wrapped over the face to keep it warm when resting; Large teeth for killing and eating prey
Markings: Help snow leopard camouflage to help it hide from and sneak up on its prey

16. Pygmy hippo
Habitat: Wet forests, swamps and streams
Adaptations for hiding under water: Their ears, eyes and nose are on the top of their head
Sticky substance protects it from: The sun – acts as a kind of sunscreen

17. Giant anteater
Habitat: Grasslands and forests
Diet: Ants, beetles, termites and fruit
Adaptations: Strong legs and claws to break into termite mounds/reach ants/termites; Long nose to sense ants/termites; Long tongue to pick up ants/termites
Cold-blooded Corner mini-trail answers

Panther Chameleon
- My long tongue with a sticky tip shoots out very fast to catch insects
- My red, green and white skin colour changes for camouflage or to show my moods
- Each of my eyes can look round on its own, which helps me find insect food

Egyptian tortoise:
- I have a hard shell to protect against predators
- Small round size helps me to heat up quickly in the sun after a cold night in the desert
- My claws are good for digging and burying eggs in the sand in North Africa

Gila monster:
- I store fat in my tail for use in winter months, in western US deserts
- My short black legs with long claws help to dig up a meal or make a burrow
- My striking pink and black colouring warns that I am venomous

Madagascar tree boa:
- I kill my prey by tightening my powerful coils round the victim’s body
- I eat small mammals and birds, opening my jaw wide to swallow animals whole
- I am green, grey and black – good camouflage to live in forests!

Tropical World activity – Who am I? – Answers
1. Horse-headed grasshopper
2. Frilled lizard
3. Poison arrow frog
4. Leaf-cutter ant
5. West African dwarf crocodile

POST-VISIT ACTIVITY – WHERE DO I LIVE? – Answers
Leopard gecko – desert
Ibex – mountains
Sea otter – coastal habitats
Spider monkey - rainforest
Adaptation Word Card

ankles  beak  bottom  cheek  claws  ears  feet
fingers  flippers  fur  eyes  hump  legs  neck
paws  pouches  quills  snout  stomach  tail
ant  leaves  rocks  prey  predator  termite
trees  alarmed  anxious  bushy  fat
forward-facing  large  long  raised  small
streamlined  strong  thick  thin  visible  webbed
attack  balance  camouflage  catch  defend
keep warm  pick  reach  swing  swim  spread weight

Habitats (where animals live)
desert  savannah  tropical rainforest  grassland
arid/semi-arid plains  mountains  woodlands

Adaptation Word Card

ankles  beak  bottom  cheek  claws  ears  feet
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References

General species information for animals at Marwell:

http://www.marwell.org.uk/zoo_guide/encyclopaedia.asp?css=1
http://www.bbc.co.uk/nature/wildfacts/animals_a_z.shtml
http://www.bbc.co.uk/nature/animals/
http://www.arkive.org/

Evaluation

Please let us have some feedback when you have used this resource, so that we can improve our resources in the future.

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How helpful have you found it?
Which were the best parts or activities?
Which were the least useful?
Did you have any problems with it?
If so, what were they?
Have you any more comments or suggestions?

Please e-mail any feedback to education@marwell.org.uk.

Thank you very much for your help!