POWERED BY

SMART CONSERVATION PRIMARY

Combining design, biology and engineering with geography and animal care skills

PARK LIFE (PRIMARY)

AGES 7-11

Lesson plan x2

SKILLS COVERED:

- Imagining
- Designing
- Making
- Thinking creatively
- Technical knowledge
- 2D technical drawings
- Designing
- Habitats
- Animal care

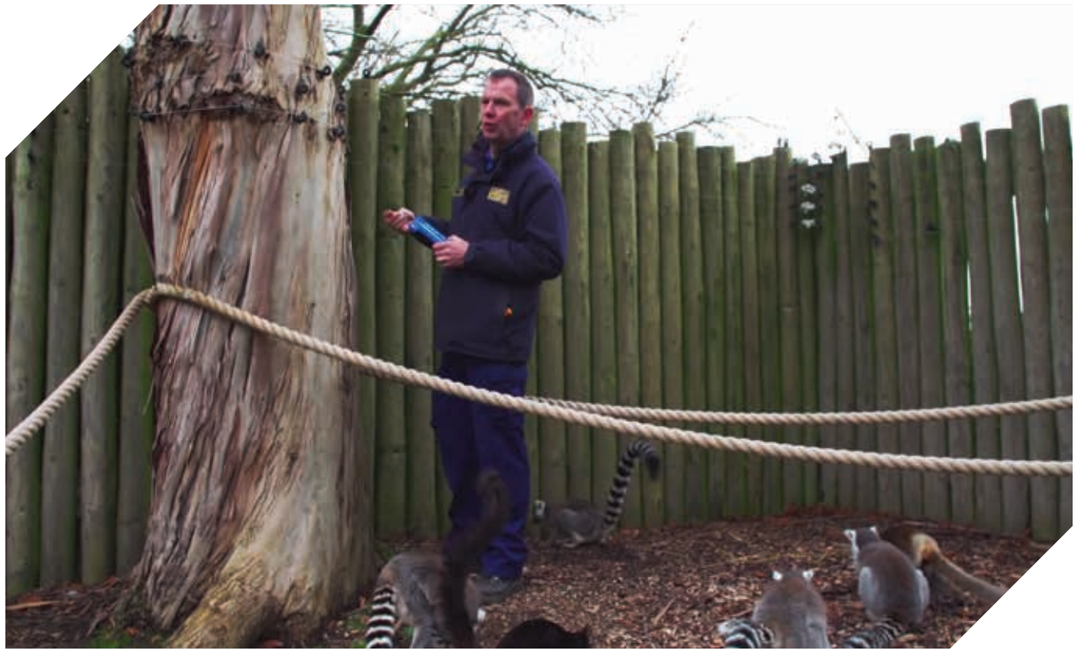
Taking inspiration directly from the amazing story of Drusillas Park, and their maintenance engineer, this lesson combines animal care together with design and engineering, to give your pupils an insight into the incredible world of ‘smart Conservation.’

It also contains an important life lesson about preserving their habitats to help them survive and thrive in the wild. This cross-curricular two-part lesson will speak to the animal lovers in your class and inspire them to use their technical skills to care for other living things.

Overview

RS hero – smart conservation

Meet Colin Hartley. He features in the accompanying video for this lesson, which is included in the presentation – see slide 30.



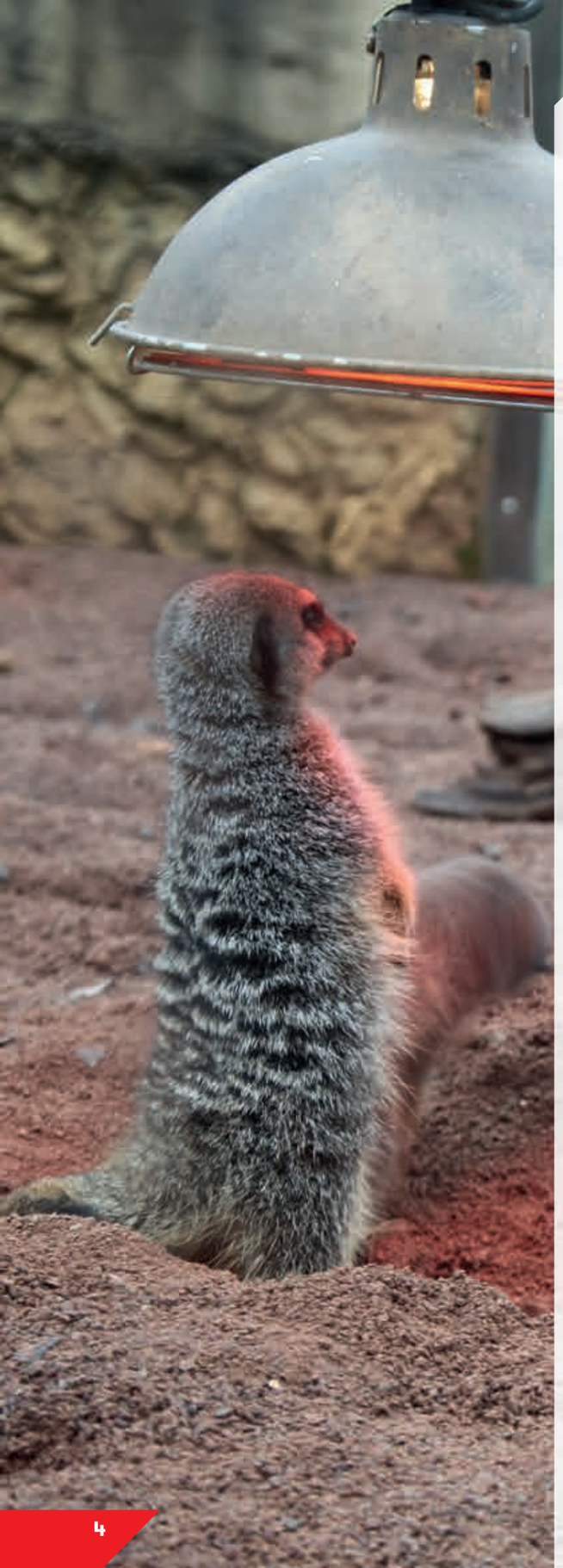
Colin may well have the best engineering job an animal lover could hope for. He is the zoo electrician at Drusillas Park, which is a small UK zoo dedicated to the conservation and care of over 100 endangered species of animals – including lemurs, sloths, penguins, iguanas and bats.

His job is to ensure the constructed habitats of these exotic animals are up to date and well maintained, so the animals stay healthy and happy.

Colin is the RS Hero for these consecutive lessons, as your class step into the shoes of a zoo maintenance engineer to learn all about the exciting world of smart conservation and exotic animal care.

REMEMBER...

While this lesson plan has been timed to run over two-lessons, it can also be spread out over a longer timeframe. Younger or less advantaged classes may benefit from three or more sessions using the same material.



LESSON 1 (informative)

- Animal's basic needs
- Different animals and their needs
- Different animal habitats

LESSON 2 (practical)

- Emulating animal habitats
- Designing animal habitats for zoos
- Using graph paper
- Recognising uses for different types of technology
- Conservation of endangered species
- Other uses for skills learned

DESIRED PUPIL OUTCOMES (lessons 1 & 2)

- I can now describe different animals and their different needs
- I can now understand why different animals have different needs
- I can now explain describe different animal habitats
- I can now describe the role of the zookeeper and the zoo maintenance engineer
- I can now design a suitable enclosure for an animal based on its specific needs
- I can now recognise how technology can be used in animal care
- I can now explain what an endangered animal is, and understand why they become endangered in the first place
- I can now understand how conservation works, and zoos role in it
- I can now recognise how human behaviour can impact on animals in the wild

Lesson 1

REMEMBER...

There are slides accompanying this lesson plan, including activities.

Before you run this lesson, make sure you have the PARK LIFE presentation downloaded and set up on a projector at the front of the class. Please see teaching notes for further instructions.

Introduction – 20 mins

1. **Ask:**
   - What is your favourite animal? (make a list on the board)
   - What are their needs? (write the 'need' next to each animal, if any answers are volunteered)
2. **Explain:**

The difference between:

- Wild animals
- Captive animals
- Domestic animals
- The basic needs of animals

3. **Ask:**
   - Do different animals have different needs?
   - What could influence those different needs?
     - What 'class' they are (mammal, reptile, amphibian, fish bird)
     - Natural environment (where in the world that species is from)
     - Whether they are herbivore / carnivore /omnivore
     - Whether they are a 'social' or 'solitary' animal

Stretch & challenge

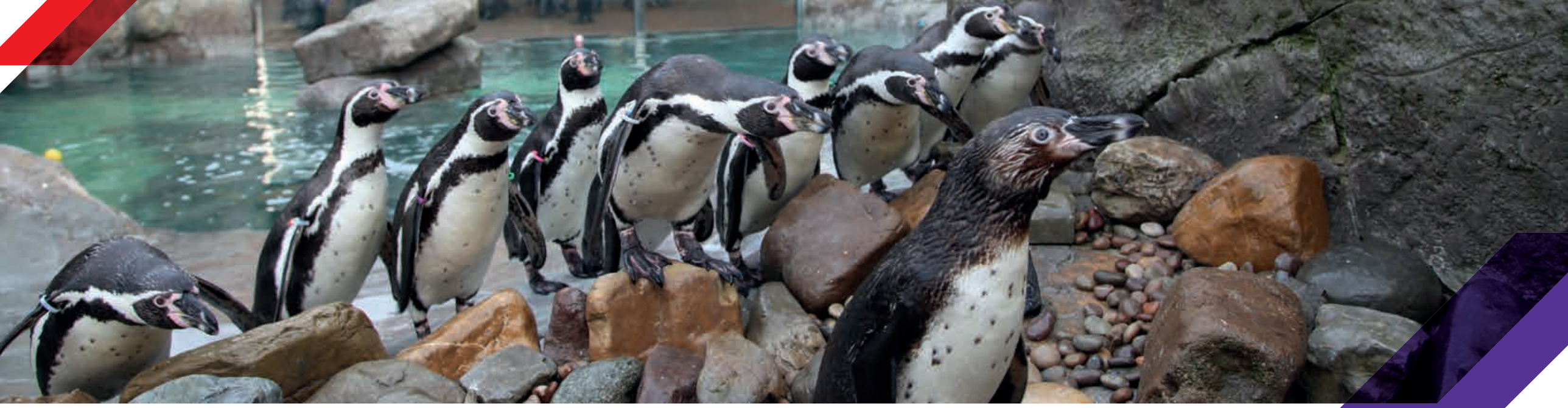
ASK:

Why is it a bad idea to 'domesticate' or keep certain animals as pets?

- Hard to recreate or maintain the right environment for them

EXPLAIN:

- Animal rights and the legislation protecting them (see teaching notes)



Main activity – 20 mins

1. Explain

We're going to the zoo! Let's meet some of the animals at Drusillas Park and find out what their needs are.

Using the slides, tell your pupils to imagine themselves as the following animals.

- Ring-tailed Lemurs
- Two-toed Sloths
- Green Iguanas
- Humboldt Penguins
- Rodrigues Fruit Bat

2. ASK (for each animal)

- What are your needs as this animal?
- What does your environment need to be like so you can be happy and healthy?

3. Reveal the answers for what the habitats need to be like after your pupils have provided satisfactory answers

Stretch & challenge

ASK:

Each of these animals have thrived in captivity. How do their keepers know this?

- Eating and sleeping well
- In good health and living up to and beyond expectancy
- Showing 'normal behaviours'
- Breeding and socialising normally
- Increased numbers in captivity

Plenary – 10 mins

1. Ask

- Your pupils to imagine themselves as a zookeeper
- What would you have to do, every day, to look after these five animals?
  - Feed them the correct diet (in the correct amounts)
  - Monitor their behaviours
  - Clean their enclosures
  - Monitor their enclosures
  - Maintain their enclosures

2. Explain

- Show the video of Colin, the maintenance engineer at Drusillas Park

3. Ask:

- What is Colin's role?
- Why is he qualified to do it?
- Why is his job so important for the animals?

4. Explain:

- In the next lesson, the class are going to be zoo engineers

OPTIONAL HOMEWORK

Instruct the class to go away and think about what kind of tools / technology they would need to:

- Monitor enclosures
- Maintain enclosures

Stretch & challenge

ASK:

The class to research the types of technology you would need to monitor and maintain zoo enclosures, using the internet at home.

Lesson 2

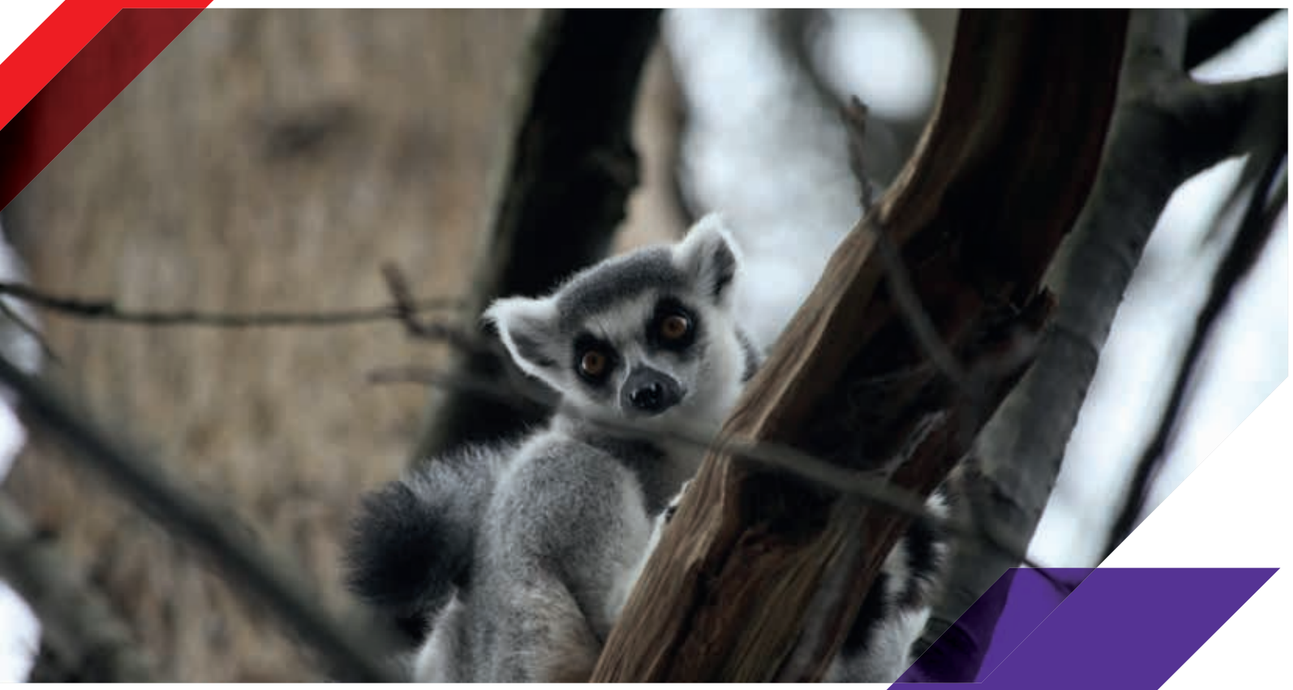
REMEMBER...

There are slides accompanying this lesson plan, including activities.

Before you run this lesson, make sure you have the PARK LIFE presentation downloaded and set up on a projector at the front of the class. There is also a practical element to this lesson, with items to print out. Please see teaching notes for further instructions.

Introduction – 15 mins

1. Using the slides, recap the five example animals and their different needs
2. Discuss their different habitats, and what each animal will require
3. Invite your class to think about the role of the zookeeper, specifically the maintenance engineers who monitor and maintain their enclosures
4. Briefly discuss the different types of animals, and what their habitat needs are



Main activity – 20 mins

REMEMBER...

This activity has a practical element which will require some preparation, and prior knowledge/skill. Please see teaching notes for further details.

1. Split the class into five groups and assign each an animal out of:
   - Ring-tailed Lemurs
   - Two-toed Sloths
   - Green Iguanas
   - Humboldt Penguins
   - Rodrigues Fruit Bat

Hand out each animal's fact sheet to their respective groups.

2. Instruct the class to design an enclosure for their assigned animal

Tell them to think about:

- Whether their animal will be happier indoors or outdoors
- What kind of light they will need
- What type of air they will need
- How hot/cold it needs to be – and where
- Any other features? (trees, pools, rocks etc.)

3. Once the enclosures are complete, use the slide to discuss the different types of technology necessary to ensure the right conditions for each animal (see teaching notes)
4. Ask the groups to briefly present their enclosures
5. Ask the class to guess which animal belongs to which enclosure, based on its features

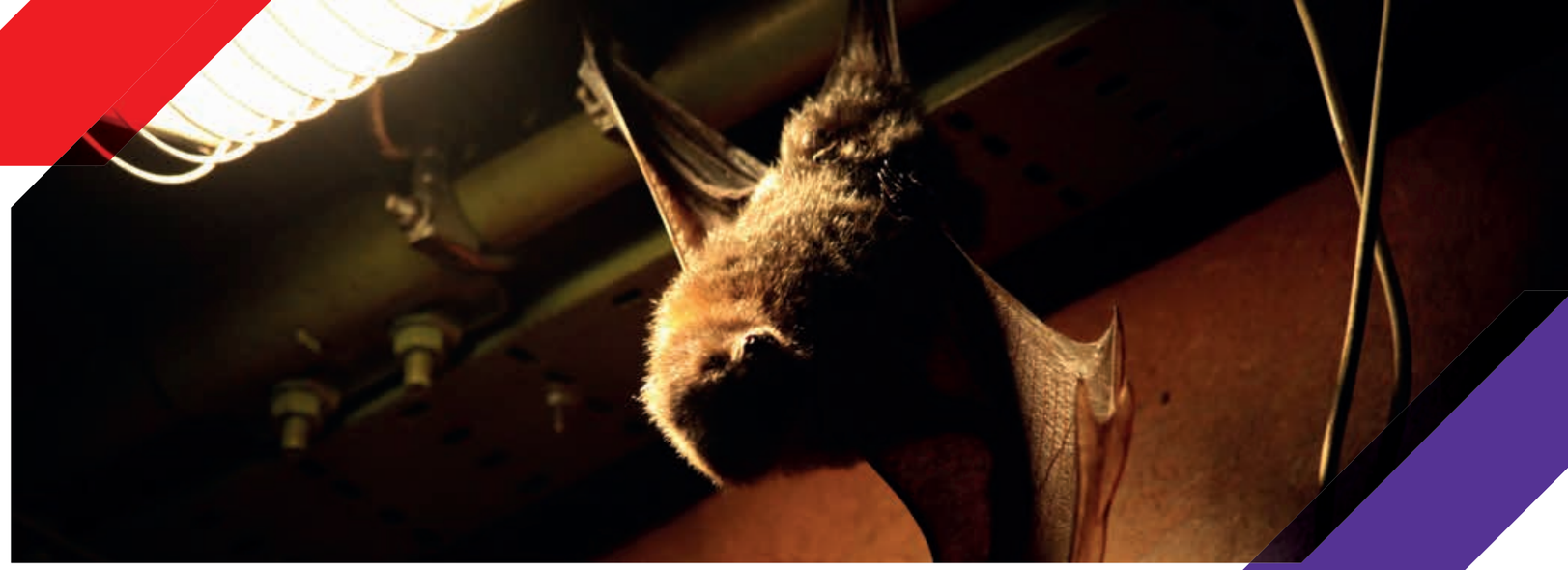
Stretch & challenge

- Instruct them to update their designs by stating which technology could be used to establish which conditions
- Label the areas in which that technology will sit within
- Re-present their new enclosures

Plenary – 10 mins

Slides 45 – 52

1. Use the slides to discuss:
   - Why animals become endangered
   - Why some people don't like zoos
   - Why we need zoos:
     - Conservation
     - Research
     - Education
2. Finish by asking how they, as individuals, can help preserve the natural environments of each of the five animals they have studied
3. If there's time ask if they know any other endangered animals, and how we can help them



Teaching notes

Curriculum links

Biology

Living things and their habitats

- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including animals
- Give reasons for classifying animals based on specific characteristics

Evolution and inheritance

- Identify how animals and plants are adapted to suit their environment in different ways and how that adaptation may lead to evolution

Geography

Human and physical geography

- Use basic geographical vocabulary to refer to key physical features, including: beach, cliff, coast, forest, hill, mountain, sea, ocean, river, soil, valley, vegetation, season and weather.

Definitions

Animal laws

The Animal Welfare Act – a piece of legislation from 2006 which aims to ensure that animals are not mistreated by humans, whether through improper care or sheer cruelty.

The Dangerous Wild Animals Act – a piece of legislation originally enacted in 1976 and amended in 2010. The act ensures that individuals who keep wild animals do so in a way that minimizes the risk to the public. In particular, the act provides that no person may keep any dangerous wild animal except under the authority of a licence granted by a local authority. Zoos, circuses, and pet shops are exempt.

Zoo Licensing Act – a piece of legislation from 1981 which requires the inspection and licensing of all zoos in Great Britain. The Act aims to ensure that, where animals are kept in enclosures, they are provided with a suitable environment to provide an opportunity to express most 'normal behaviours'. Drusillas Park, for example, has 15 such inspections a year.

Technology and features

Enclosure

- **Indoors or outdoors (or both)** – some animals need to be inside, others outside. Some need to have both indoor and outdoor areas, depending on their needs at the time.
- **Type (open, semi-open, closed)** – some animals need lots of space and fresh air and don't need to be excessively closed, others will need to be kept firmly out of reach for their own safety (and for the safety of others)
- **Walls (glass, fencing, caged, none)** – the types of enclosure walls depend on the size of the animal, and what their habitat requirements are (e.g. hot, humid environments won't stay that way if you use cages or fencing, but will with glass)

Light

- **Lighting controls** – are the animals nocturnal or diurnal (i.e. awake during the day)

Air

- **Air quality sensors** – detect the air quality, including humidity levels
- **Air humidifier** – makes the air moister and more humid
- **Air conditioner** – makes the air dryer and cooler

Heat

- **Heating sensors** – detect the temperature in different places in the enclosure
- **Heaters** – heat the areas of the enclosure they are placed in

Instructions for teachers

Lesson 1

Before you start

Make the classroom ready to show a presentation and download the slides from the resource pack (set to the beginning SLIDE 2 – Lesson 1)

Resources

- PARK LIFE presentation slides
- Screen and projector

Lesson 2

Before you start

The main activity requires the class to be familiar with the basics of:

- 2D birds-eye-style drawings
- Drawing on simple squared graph paper

Make the classroom ready to show a presentation and download the slides from the resource pack (set to the SLIDE 32 – Lesson 2)

Resources

- PARK LIFE presentation slides
- Screen and projector
- A3 squared graph paper (if unavailable, A4 can also be used)
- Pencils and erasers
- Rulers
- Compasses
- Colouring in pencils or pens

To print:

- X1 animal fact sheets (to cut out – one animal fact per group, plus spares) single-sided

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