Ellie and the unusual creature

Teacher guidance:

The idea behind this story is that it is a way of teaching Primary school age children about DNA by linking it to the science curriculum in a fun and engaging way.

DNA is not a teaching requirement for science in the Primary curriculum, however it is a great way to show young children how it is being used in the real-world to help us understand more about the subjects they are learning about. This will help with increasing their science capital and may encourage them to pursue a future career in this field. In addition, understanding DNA at a very simple level, will help with their understanding of more complicated topics later on, such as evolution in Year 6.

The story helps to engage pupils, by conveying a problem they will want to solve i.e. they want to help Dr Russell get DNA from the different animals to help with her project and find out what Ellie's unusual creature is. It will also initiate discussions and hopefully encourage the children to want to find out more about the subjects in the book. This will be possible through specially created weblinks for the story.

The story is based on the KS1 & KS2 topics of "Animals and humans" and "Living things and their habitats". It provides a fantastic hook and starting point for teachers to explore these topics further with their pupils. The story can be used for pupils from years 1,2, 4, 5 and 6 (Ages 5 – 11 years), as there are a wide range of links in the book which cover the teaching requirements for these age groups.

Specific topics linked to the story include observing different habitats for animals (school field - soil and pond), identification of different animals in a habitat (can be used to encourage children to observe animals and plants in habitats in their school), classification of animals into groups including mammals, reptiles, amphibians, reptiles, fish and birds (story can be used as a link to creating simple classification keys), the different characteristics of these animals, observing how animals have offspring which grow into adults and the life cycle of newts (can use story as link to life cycles of other animals).

The idea is that while the children are reading the story, they can test their knowledge and try the different activities in the story e.g., do they know the names of the different groups of animals? Do they know the characteristics of these different groups? Could they go outside and try and find animals from each of the different groups or identify them using pictures? Can they identify what Ellie's unusual creature is from the DNA? Weblinks have been created for the topics in the book to help with ideas for fun games and activities and to reinforce children's learning.

Curriculum Links

Animals & Humans

Year 1: identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals.

Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds, and mammals,

Year 2: notice that animals, including humans, have offspring which grow into adults.

Living things and their habitats

Year 2: identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.

Identify and name a variety of plants and animals in their habitats, including microhabitats.

Year 4: recognise that living things can be grouped in a variety of ways

Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.

Pupils should explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non-flowering plants. Pupils could begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals.

Pupils might work scientifically by using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.

Year 5: describe the differences in the life cycles of a mammal, an amphibian, an insect, and a bird.

Pupils should study and raise questions about their local environment throughout the year. They should observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment.

Pupils might work scientifically by observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world. (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences.

Year 6: describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants, and animals

Give reasons for classifying plants and animals based on specific characteristics.

Weblinks

Page 1

In this part of the story Dr Russell asks the children if they know what groups we can divide animals into. Click on the links to find out more about these groups.

1. Try these different activities for the different groups of animals. Year 1: Animals, including humans | STEM

Page 2

In this part of the story, Dr Russell explain to the children about the "Darwin Tree of Life project" she is working on. Click on the links below to find out more about this project and the scientists working on it.

Darwin Tree of Life – Reading the genomes of all life: a new platform for understanding our biodiversity

Page 3 & 4

In this part of the story, Dr Russell explain to the children "What is DNA?" Click on the links below to find out more about DNA, listen to a podcast and try these fun activities.

1. Listen to Episode 1 of the author, Dr Mandy Hartley's "DNA Detectives podcast", with Dr. Fran Gale from the Wellcome Genome Campus to find out "What is DNA?"
   The DNA Detectives Podcast — Insight & Perspective (insightandperspective.co.uk)

Page 5

We can use the sheet Mr Jones gave the children to classify animals into different groups. Click on the links below to find out more about classification and try out a fun game and activities.

1. Have a go at these classification activities.

| STEM

Page 6

On page 6, the children go outside and look for animals on the school field. Click on the links below to find out about different habitats and how to look for and identify wildlife in these spaces.

1. Find out more about different habitats near you by clicking on this link.

Types of Woodland Habitats - Woodland Trust

2. There are lots of useful “spotter guides” on this website to help you identify plants and animals in habitats near you.

Activities | Wildlife Watch

Page 11 & 12

On these pages Ellie’s creature is identified. Find out more about newts and Great Crested newts by clicking on the links below.

1. Find out about the different species of newts by watching this video and clicking on this identification guide.

British Newts: An Identification Guide - Woodland Trust

3. Great Crested newts are protected by law. This means you have to have a special licence to handle them. Read more about what this means on the link below.

Great crested newts: protection and licences - GOV.UK (www.gov.uk)

Page 13

In this part of the story the children show Dr Russell the Great Crested newt larvae hatching out. Click on the links below to find out more about the life cycle of the newt and see the different stages. You can also find out about the life cycle of other animals.

1. Click on this website to watch videos of different life cycles and try some fun activities.

| STEM

2. Watch these links to find out more about the life cycle of the Great Crested newt.

Lifecycle of Amphibians | Forth Rivers Trust