

# A Guide to Life on Earth

*Introductory Activity circa 1-2 periods*

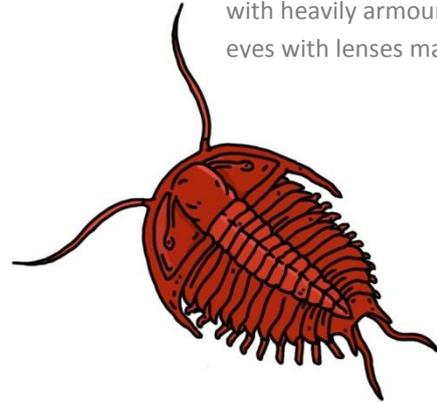
*Main Activity circa 1 period*

*Conclusion circa 1 period*

*Activity covers English, Science, ICT and Geography*

## Overview

**In this activity, pupils will define a ‘living thing’ and investigate the wide range that exist or have existed on the earth. They will learn about the classification of living things and produce a poster with images and information focusing on one particular species.**



Olenoides: Trilobites are arthropods with heavily armour-plated bodies and eyes with lenses made of calcite

Earth formed about 4.5 billion years ago and life appeared on its surface within one billion years. Living things and organisms have been evolving ever since. The sheer number of animal and plant species necessitates that we divide them into small groups and classify them according to observable characteristics.

## Resource List

*What on Earth? Wallbook of Natural History*

*What on Earth? Wallbook of Natural History Introductory Presentation*

*What on Earth Evolved? (Optional)*

**PUPIL SHEET 4.1 EXHIBIT PLATES**

**PUPIL SHEET 4.2 LIVING THINGS**

A range of science books with sections on classification

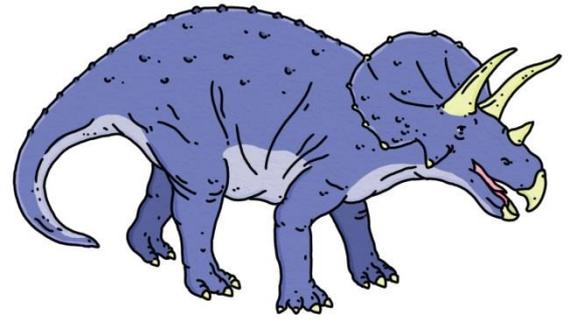
## Learning Aims and Objectives

In this activity pupils will:

- gain historical perspective by investigating timescales
- understand that the variety of plants and animals makes it important to identify them and assign them to groups or categories
- consider how locally occurring animals and plants can be identified and grouped
- investigate how animals and plants in two different habitats are suited to their environment
- collect visual and other information to help them develop their ideas
- choose form and content to suit a particular purpose.

Triceratops: a three-horned herbivorous dinosaur with a large bony frill used for both protection against predators and courtship displays

## Introductory Activity

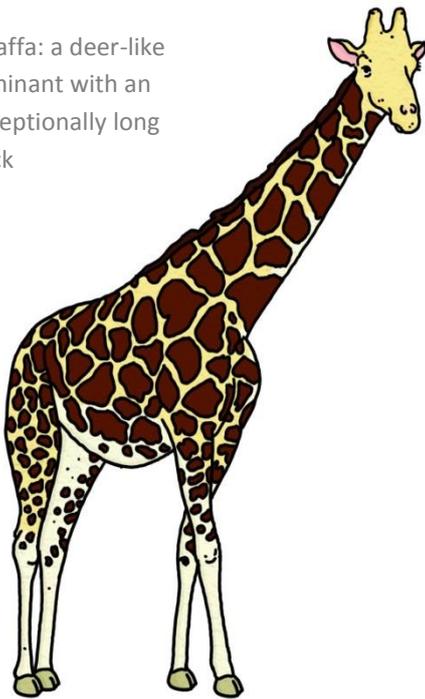


1. You can begin by watching the *What on Earth? Wallbook of Natural History Introductory Presentation* as a class. This will establish the context for the activity. You can find this video at [www.whatonearthbooks.com/wonderboxnature](http://www.whatonearthbooks.com/wonderboxnature)
2. Explain to the pupils that they are going to look at the *What on Earth? Wallbook of Natural History* to find out about the many different living things that inhabit or have inhabited the planet.
3. Spend a few minutes discussing what we mean by living things:

**Living thing:** Any organism that displays all the characteristics of life. These include being able to grow, reproduce, use energy and die.

4. Explain to the class that scientists believe that there are over 10 million different life forms on Earth. Ask them to imagine trying to describe, study and understand the lives, behaviours and evolution of so many different species. In order to make their job easier, scientists classify living things into groups based on how they are the same and how they are different.

Giraffa: a deer-like ruminant with an exceptionally long neck



5. Brainstorm the life forms that can be found in school and at home. This will include plants in the garden, houseplants, pets, wild creatures and so on. Look at and discuss how these might be classified or put into groups. This can be a tricky exercise, there are many ways to group living things in order to understand points of similarity and difference. For example, a cat is very similar to a lion, less similar to a horse, and very different from an alligator, yet they are all animals. Ensure that the pupils are aware that there is no simple right answer when attempting to classify living things. Explain that some scientists have classified living things into five kingdoms:

**Monera Kingdom** unicellular life forms, a living thing with only one cell, for example, bacteria

**Protista Kingdom** more complex unicellular life forms as they also have a nucleus, for example, green algae

**Fungi Kingdom** a variety of different fungi, for example, mushrooms

**Plant Kingdom** flowering and non-flowering plants, for example, trees, grass and flowers

**Animal Kingdom** moving, thinking creatures with tissues, organs and organ systems that help sustain life, for example, tigers, snails and dogs

Find examples in the Wallbook of each of the five Kingdoms.

Homo Neanderthalensis:  
These stocky humans are well adapted to living in cold north European ice-age climates

6. Explain that the kingdoms are sub-divided into different categories and that the class are going to use the following categories for the task:

- micro-organisms (algae)
- fungi
- flowering plants
- non-flowering plant
- trees
- invertebrates
- fish
- amphibians
- reptiles
- birds
- mammals



Simple descriptions of these categories can be found on **PUPIL SHEET 4.1 LIVING THINGS**. Again, use the Wallbook to identify different examples of each of these sub-categories.

## Main Activity

7. Organise the class into pairs or small groups and allocate one category to each.
8. Ask pupils to find out as much about their category as they can from the *What on Earth? Wallbook of Natural History* (some might want to do further research using other sources including the internet).
9. Pupils use the information to design their own wall chart/poster defining their chosen category and giving examples of the living things within it. Information might include when they first appeared on Earth, when and how they have changed and how they live/lived.
10. Explain that the posters should be highly pictorial and include relevant captions.
11. Display all the completed posters on the classroom wall.

## Conclusion

12. Ask each pair or group to design a virtual zoo including one living thing from each of the categories from the displayed posters.
13. Pairs/groups should then nominate one living thing from their virtual zoo for a class zoo and justify the choice.
14. Having selected one life form from each pair or small group of pupils, ask them to write the information plate for their exhibit. It should include its name, where it is from and what its needs are (food, habitat, temperature) etc. If pupils need some help with this task, refer them to **PUPIL SHEET 4.1 EXHIBIT PLATES**.

## Support Activities

Younger pupils, or those who need more support, could use the **PUPIL SHEET 4.2 LIVING THINGS** which is an exercise to match categories with a simple definition and an image. Pupils draw a line connecting the living thing to its correct category.

## Extension Activities

Older pupils, or those who respond well to additional challenge, could think about what living things they would expect NOT to see in a zoo in 50 years in the future. It should include present day animal, plants etc and will involve research into which living things are in danger of extinction. Refer back to Activity 1 and use the Wallbook of History to explore previous Mass Extinctions.

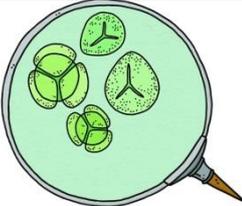
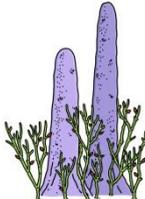


Panthera Tigris: Tigers emerge in Asia

## Exhibit Plates

<b>Name:</b>	Spider Monkey
<b>Scientific name:</b>	<i>Ateles geoffroyi</i>
<b>Range:</b>	Mexico, Central America, South America
<b>Habitat:</b>	lowland and mountainous rain forests (areas with high concentration of fruit and trees)
<b>Status:</b>	Endangered
<b>Diet in the wild:</b>	Fruit
<b>Diet in the zoo:</b>	Fruit
<b>Name:</b>	The saguaro cactus
<b>Scientific name:</b>	<i>Carnegiea gigantea</i>
<b>Range:</b>	Southern Arizona and Western Sonora, Mexico
<b>Habitat:</b>	Thrives in the arid deserts of North and Central America
<b>Status:</b>	The saguaro is not currently listed as threatened or endangered
<b>Life Span:</b>	With the right growing conditions, it is estimated that saguaros can live to be as much as 150-200 years old
<b>Size:</b>	Saguaro are very slow growing cacti. A ten year old plant might only be 3.5 cms tall. Saguaro can grow to be between 12-18m

# Living Things

Kingdom/Category	Name/Image
<b>Monera/Protista Kingdoms</b>	
Algae: single celled with a nucleus	
<b>Fungi Kingdom</b>	
<i>Fungi</i> : More closely related to animals than plants and reproduces by spores	
<b>Plant Kingdom</b>	
<i>Flowering plants</i> : produce flowers, fruit, and seeds	
<i>Non-flowering plant</i> : does not produce flowers	
<i>Trees</i> : have permanently woody main stem or trunk	

<b>Animal Kingdom</b>	
<i>Invertebrates</i> : do not have a backbone	
<i>Fish</i> : live and breathe in water	
<i>Amphibians</i> : spend life in water and on land	
<i>Reptiles</i> : cold blooded and have scales	
<i>Birds</i> : warm blooded and have feathers	
<i>Mammals</i> : warm blooded, have fur or hair and produce milk	