



KS2 Living things in their environment
Exhibition-based activity

Feeling fit?

The Science of Aliens exhibition offers a marvellous opportunity to see evolution at work. This activity focuses on the way that creatures from two very different habitats have evolved to suit their environment – and even highlights the way that we humans have adapted our environments to suit ourselves.

Go to zone two of the exhibition, *Alien Science*, and find the displays about life on Earth. As the children examine the exhibits they will notice that life on this planet, no matter how “alien” in appearance, has evolved in interesting and ingenious ways to fit the environment in which it has developed.

Challenge the children to find the essential differences between the two environments of the sea and the land by posing the following questions:

Can you find five specific ways in which these creatures have evolved to fit their earth-based or sea-based environments?

Why would a creature be able to survive in one environment but not another?

What, if anything, do creatures from different environments have in common?

How have humans learned to adapt their own environment to suit themselves?
(Clue: examine the spacesuit-like diving apparatus)



KS2 Life processes
Exhibition-based activity

It's life...but not as we know it

The Science of Aliens exhibition examines the evolution of life on this planet and uses it as a basis for understanding the potential for the development of life on other worlds.

Go to zone two of the exhibition, *Alien Science*, and find the displays on the development of life on the Earth. As the children examine these displays they will see that all life evolves and that some features like eyes and wings have evolved many times on Earth. They will also see how life has developed in some of the strangest environments found anywhere on our planet.

Ask the children to explore some of the factors that will affect alien life by getting them to complete the following tasks:

Alien life will be adapted to its particular environment, just like creatures on Earth. In what different ways have the flying squirrel, the tapeworm and the Tarantula evolved to fit the environment in which they live?

Like life on Earth, alien life is likely to evolve from simple to more complex forms. Find the common ancestor of cats, bats, fish and birds. How do these four creatures differ from their common ancestor?

Find the eyes and wings display. What would be the advantages for aliens of having eyes and/or wings?

Aliens might not need the kind of conditions we humans need to survive. Find the display *Going to Extremes*. How are these creatures able to survive in environments that would kill a human being?



KS3 Living things in their environment
Exhibition-based activity

We're depending on you

The Science of Aliens exhibition examines the evolution of life on this planet and uses it as a basis for understanding the potential for the development of life on other worlds. In this approach there is an assumption that life elsewhere in the Universe will undergo evolution due to environmental pressures, just like life on Earth, and will exist in interdependent eco-systems.

Go to zone two of the exhibition, *Alien Science*, and find the displays on the development of life on the Earth and life under the sea. As the children examine these displays they will notice that these habitats support an amazingly diverse range of creatures.

Ask the children to find the essential links between the physical forms and lifestyles of the creatures on display, the environment in which they developed and the interdependent nature of the creatures' existence by getting them to complete the following tasks:

Can you find five specific ways in which these creatures have evolved to fit their earth-based or sea-based environments?

Why would a creature be able to survive in one environment but not another?

What, if anything, do creatures from different environments have in common?

Can you find three examples of how the species on display depend on other plants or animals for survival?



KS3 Earth and beyond
Exhibition-based activity

Welcome to the neighbourhood

The Science of Aliens exhibition offers an unparalleled opportunity for pupils to get a grasp of our place in the solar system. By examining where we are, and how far we have travelled, students will get a sense of the scale of our local star system and its position in the Milky Way Galaxy.

Go to zone two of the exhibition, *Alien Science*, and find the solar system display. While examining it, ask your pupils to create their own map of the solar system and challenge them to consider the following questions:

Is there anything about the position of the Earth in relation to the Sun that makes it a suitable place for life as we know it?

Venus has often been called the “sister” planet to Earth. Why might this be?

In what ways is Mars, the fourth rock from the Sun, different from Earth.

Jupiter and Saturn are the largest of the planets and are known as gas giants. They have many large moons, including Europa and Titan. How are these two moons different from each other?

What would a human being need to survive on Pluto, the furthest planet from our Sun?



KS4 The Earth and beyond
Exhibition-based activity

Welcome to the neighbourhood

The Science of Aliens exhibition offers an unparalleled opportunity for pupils to get a grasp of our place in the solar system. By examining where we are, and how far we have travelled, students will get a sense of the scale of our local star system and its position in the Milky Way Galaxy.

Go to zone two of the exhibition, *Alien Science*, and find the solar system display. While examining it, ask your pupils to create their own map of the solar system, paying special attention to the differences in the size and nature of the planets, and then challenge them to consider the following questions:

Is there anything about the position of the Earth in relation to the Sun that makes it a suitable place for life as we know it?

Why might conditions on Mercury be unfavourable to human life?

What would a human being need to survive on Pluto?

Venus has often been called a “sister” planet to Earth. Why, so far as we know, is there no life on our nearest neighbour?

Mars, the fourth rock from the Sun, has many features in common with the Earth. Why are there no obvious signs of life on this planet?

Jupiter, the largest of the planets known as the gas giants, could not sustain life as we know it. Why might its moon, Europa, be more suitable?



KS4 Life processes – variation, inheritance and evolution
Exhibition-based activity

Going the distance

The Science of Aliens exhibition offers the opportunity to examine the development of life on this planet over the last 500 million years or so. In particular, an examination of the development of life in the world's oceans presents the chance to view creatures more “alien” than anything in science fiction. In some cases these lifeforms evolved into familiar creatures while others represent an evolutionary dead end.

Find the display on life in the oceans and challenge your pupils to discover for themselves the ways in which variation and selection may lead to the evolution – or extinction – of entire species by posing the following questions:

Some creatures, such as those living around deep sea vents, have evolved in very specialised ways. What chance would they have of surviving in the kind of environments in which we humans thrive?

Examine the sea creatures display. Can you find one creature that has evolved over time and is still with us today and one that failed to go the distance? What were the deciding factors in the fates of these two creatures?

Find five creatures that are perfectly suited to life in extreme (to us) environments in the oceans. As a human, what equipment would you need so that you could survive in the same environment?