

Design and technology - Design in the natural world

How can designers use 'biomimicry' and 'biomorphic' for inspiration?

Technology Lesson 1



OAK
NATIONAL
ACADEMY

What we will explore in today's lesson....

Task: Write down these definitions and keywords along the way

How nature can inspire designers

The meaning of biomimicry

The meaning of biomorphic

How you can use nature to inspire



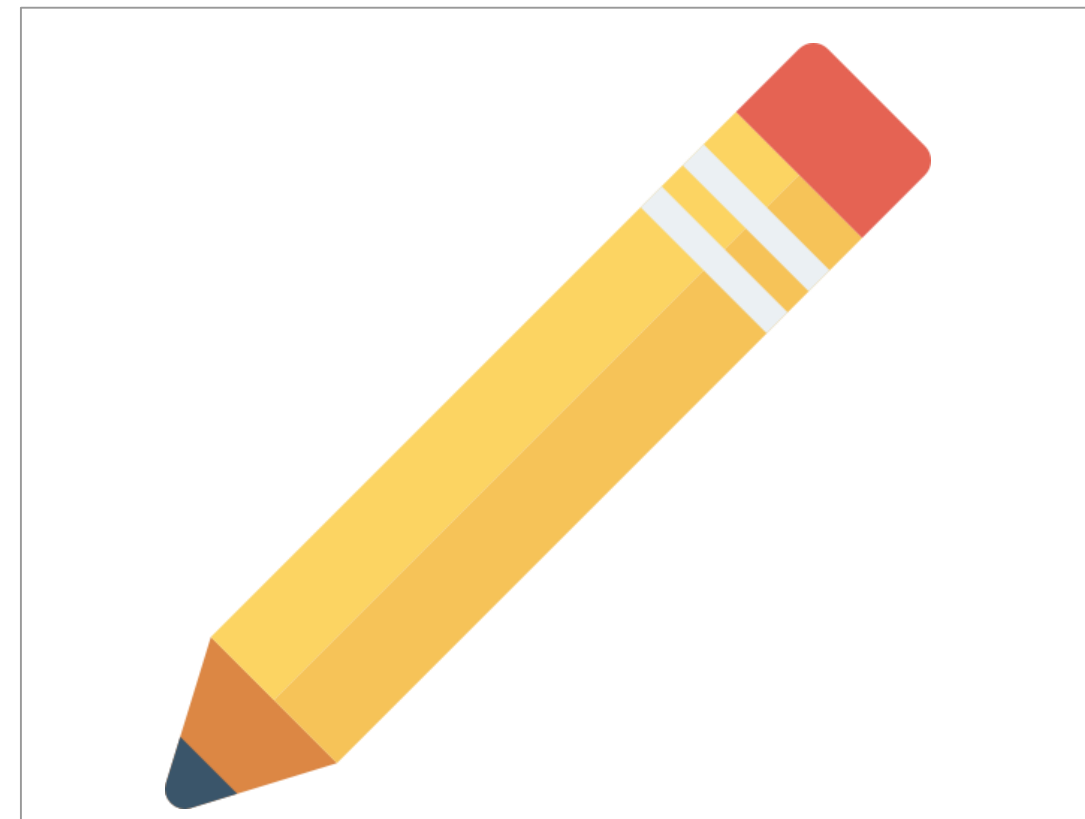
In this lesson you will need

*If you prefer you
can also work in
word or
PowerPoint.*

Exercise book or paper



A pencil



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So what does 'Biomimicry' mean?

Task: Write down these definitions

Let's break down the word

Bio

Bio comes from the Greek word 'bios', which means 'organic life'.

Mimic

Mimic means to take on the appearance of or to copy.

Biomimicry

When the two are put together you get 'biomimicry'. For designers this means to copy or take some inspiration from nature.



So what does 'Biomorphic' mean?

Task: Write down these definitions

Let's break down the word

Bio

Bio comes from the Greek word 'bios', which means 'organic life'.

Morphic

Morphic means to take the form of.

Biomorphic

When the two are put together you get 'biomorphic'. For designers this means to copy or take the form from nature.



Example 1

Task: Explain the definition of Morphic. If you are not sure research this.

Can you see how the form of this kingfisher inspired the front of the train?



Credit: Pixabay



Example 2

This is an example of morphic.



Can you see how the form of this beetle inspired the car? The car is also called a Beetle!



Credit: Pixabay



Example 3

This is an example definition of mimic

This slide shows how plastic suction cups could have been inspired from an octopus



Example 4

This is an example definition of mimic

The hard coating from a sea shell inspired the scratch resistant coating on car windshields.



Nature has been re-designed through evolution over millions of years. It's a great way to inspire you too!



Can we use biomimicry to help with these issues?

Copy these ideas down

Grip

Sometimes additional grip and friction is needed

Going fast

There are many situations where speed is important

Cooling down

Moving parts can get hot, they need cooling down

Structural strength

Strength without weight is sometimes crucial



Grip

This is an example of grip in nature



It is amazing how this gecko can grip to smooth surfaces and the lizard to rocks and trees..



Credit: Pixabay



Cooling down

This is an example of cooling down in nature



How does a dog cool down? How can the colours on a zebra create a microclimate above their skin?



Credit: Pixabay



Going fast

This is an example of going fast in nature



Fighter planes and sports cars have been inspired by these two amazing animals, but why?



Structural strength

This is an example of structural strength in nature



Where have you seen these structures? How have they been used in the design of products?



Tasks

You will need a computer for this task

- 1. Watch the video on YouTube called Biomimicry 101 – Examples of how we copied Nature.**

<https://www.youtube.com/watch?v=V2GvQXvjhLA>

- 2. Produce a mood board to show the different solutions that nature uses. You will need to create your mood board in PowerPoint or Word. A mood board is a neat collection of images.**

