



Year 6

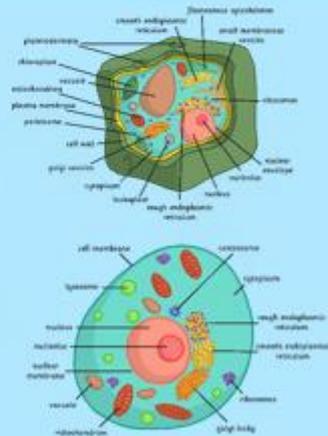
Home Learning Pack: 7

Subject: Topic

Cells, Chromosomes, DNA and Genes

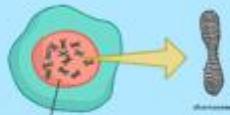
While you will not be examining these in detail, it is helpful to know about the building blocks of life for this unit.

Cells



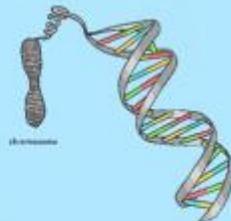
Cells are the building blocks of all living things. All living things are made up of cells. Amoebas have one cell. Humans have trillions of cells!

Chromosomes



The nucleus of a cell contains chromosomes, which are made up of DNA.

DNA



DNA carries the characteristics that we inherit. It is located in two places in the cell: the nucleus and the mitochondria. DNA can replicate and make copies of itself. When cells divide, each cell needs to have an exact copy of the DNA in the old cell.

Genes



Genes are short sections of DNA that contain specific information. This is often called the genetic code. All the genes in the whole cell are called the genome.

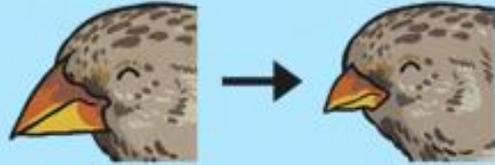
Inheritance

These are characteristics that are passed on to offspring from their parents.



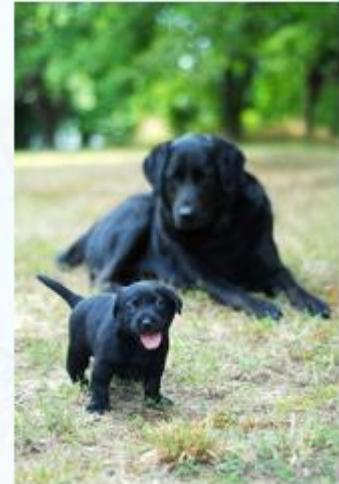
Adaptation

Over many generations, a species will adapt to its environment because the animals with the most successful characteristics are more likely to survive and pass on these characteristics to their offspring.



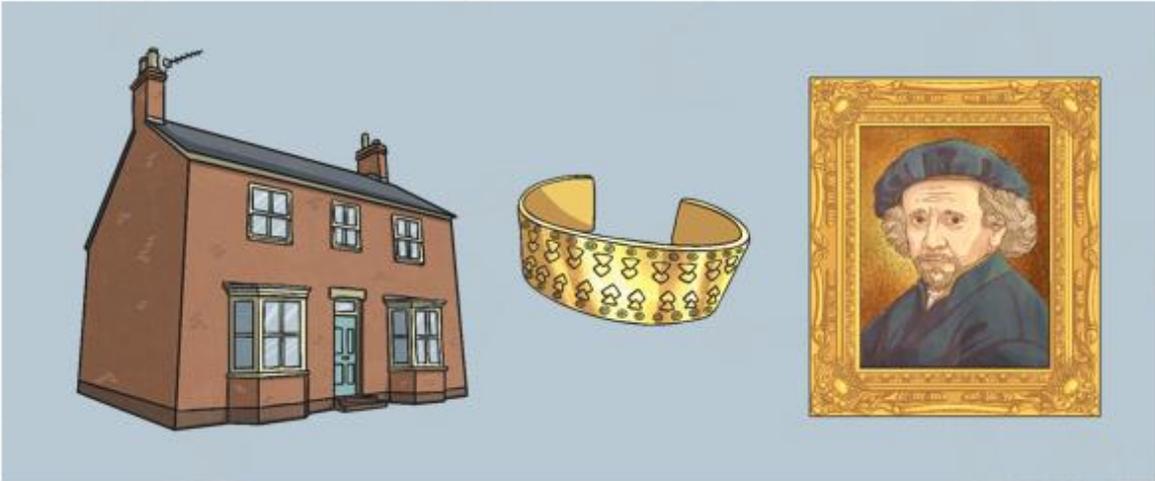
Inheritance

In science, inheritance refers to the genes that are passed on from parents to offspring. When we refer to inherited characteristics we tend to focus on physical characteristics as these are easy to spot but inherited characteristics include abilities such as taste and smell.



Inheritance

When we talk about inheritance, we often mean things that are passed on to us when one of our relatives or friends has died. Inherited items are sometimes houses or important objects.



Topic day 1 – Questions

Bronze

1. Cells are the building blocks of all living things. True or false?
2. Inheritance in science is where objects, such as jewellery, are passed through generations. True or false?
3. In science, inheritance refers to the genes passed on from parents to offspring. True or false?

Silver

1. Cells are the building blocks of all living things. True or false?
2. Inheritance in science is where objects, such as jewellery, are passed through generations. True or false?
3. In science, inheritance refers to the genes passed on from parents to offspring. True or false?
4. What are chromosomes made up of?
5. What will happen to an animal which has the most successful characteristics through adaptation?

Gold

1. Cells are the building blocks of all living things. True or false?
2. Inheritance in science is where objects, such as jewellery, are passed through generations. True or false?
3. In science, inheritance refers to the genes passed on from parents to offspring. True or false?
4. What are chromosomes made up of?
5. What will happen to an animal which has the most successful characteristics through adaptation?
6. Give 2 examples of physical characteristics which can be inherited.
7. Ben said 'All inherited characteristics are physical.'

Do you agree? Explain your reasoning.

Topic day 2 – Parents and offspring



BRONZE ACTIVITY

1. Match the parent with the offspring.

SILVER ACTIVITES

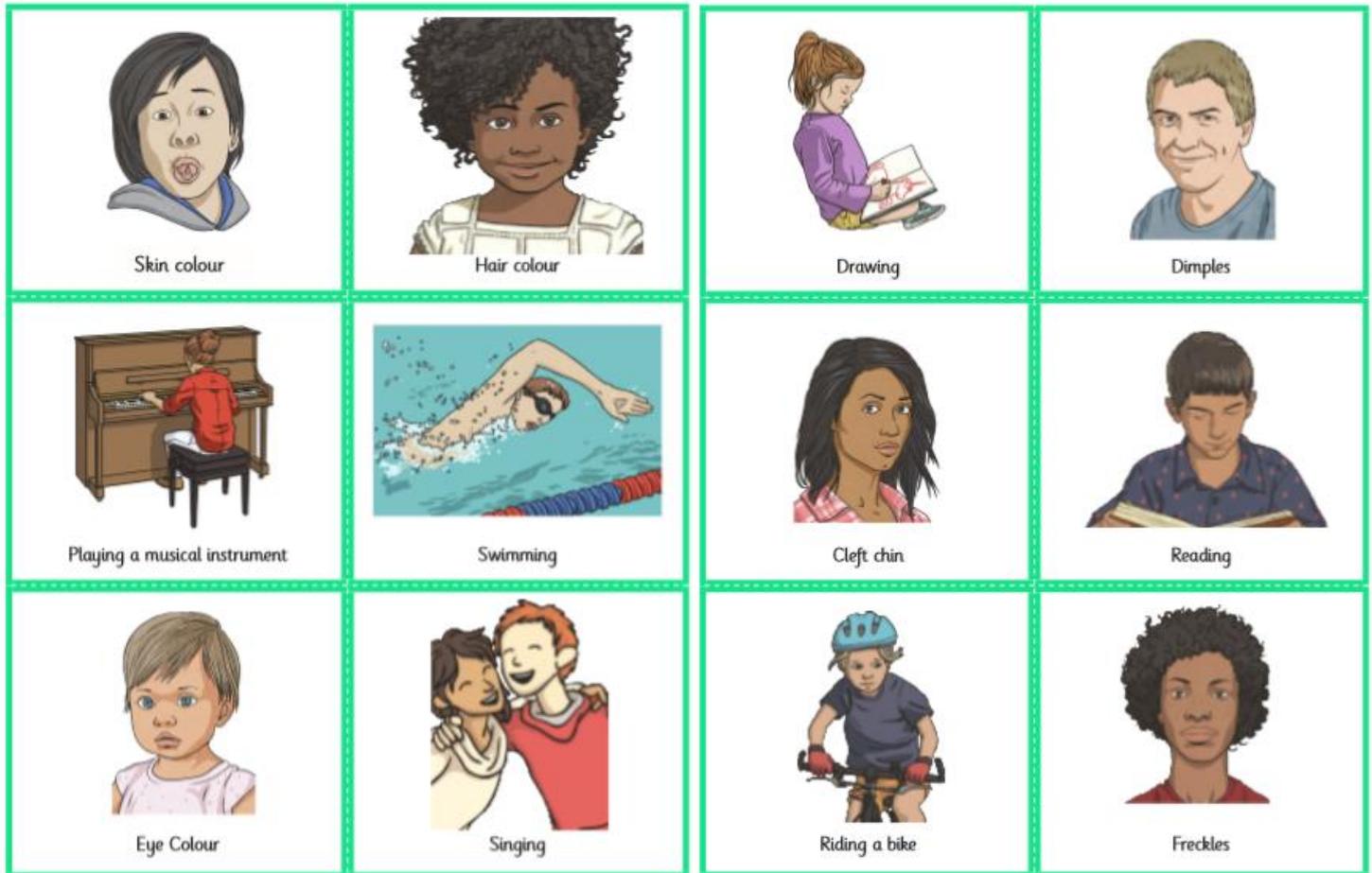
1. Match the parent with the offspring.
2. For each animal, list the inherited characteristics that you can see.

GOLD ACTIVITIES

1. Match the parent with the offspring.
2. For each animal, list the inherited characteristics that you can see.
3. Choose one of the offspring and explain a learnt characteristic it might have picked up from watching its parent.

Topic day 3 – Physical characteristics vs learnt characteristics

We often talk about inheriting characteristics from our parents. However, it is not always the case that these are passed on through DNA. Some are learnt as we grow up.



BRONZE ACTIVITY

1. Using the pictures, identify 3 physical characteristics which can be inherited.

SILVER ACTIVITES

1. Using **inherited characteristics** and **learnt characteristics** as subheadings, categorise each picture under the correct subheading.

GOLD ACTIVITIES

1. Using **inherited characteristics** and **learnt characteristics** as subheadings, categorise each picture under the correct subheading.
2. Come up with 3 more physical and learnt characteristics of your own.

Topic day 4 – Practical activity

Hi Year 6,

Today, everybody will complete the same task. Your task is to find out as much as you can about the inherited characteristics you have from your parents and grandparents. For those with pictures from the past, you might even find characteristics you share with your great grandparents!

- **Search through old photographs and look for similarities**
- **Speak to your parents about your physical characteristics. What do you share? The same nose? The same eyes? The same hair colour?**
- **If you have siblings or cousins, what similarities and differences do you share with them?!**
- **Do you have any old family videos you can look back at? Which physical characteristics have changed over time? Have you always had the same eye colour you've got now? What about your hair?**

Topic day 5

Hi Year 6!

Like yesterday, everybody has the same task.

First you must draw a picture of yourself or find a printed one that you have at home.

If you have drawn a picture of yourself, annotate around it identifying your physical characteristics and where you got them from (mum, dad, grandparents etc).

If you have a printed one, lay it on top of a piece of paper and annotate around it. Look below for inspiration!

Here is a picture of me when I (Mr Nelson) was younger. This is what I noticed!



My dad's hair. Hopefully it doesn't start to turn grey like my dad's has!

My mum's eyes. Very dark!

My love for Tottenham Hotspur wasn't inherited, it was a learnt characteristic. My dad didn't give me the choice!