

Science Week 4

Evolution and Inheritance

There is a lot to go through this week, so you might find it helpful to have an adult with you to help read some of the slides if you get stuck. You also might prefer to do the work in little chunks rather than all in one go.

There is a lot of new vocabulary so it might help to note down some key words as you go to help you remember, just like if we were in school so we could put them on our working wall!

Retrieve your prior knowledge...

fossil

The process of living organisms developing from earlier forms over millions of years.

evolve

To change or develop gradually over time.

evolution

Able to adjust to new conditions.

adapt

The remains or impression of a prehistoric plant or animal embedded in rock.

adaptation

To adjust to new conditions.

adaptable

The process of change where organisms or species become better suited to their surroundings.

Variation – what is it?

Variation is the slight differences that occur between organisms, for example different eye colours.

What causes variation?

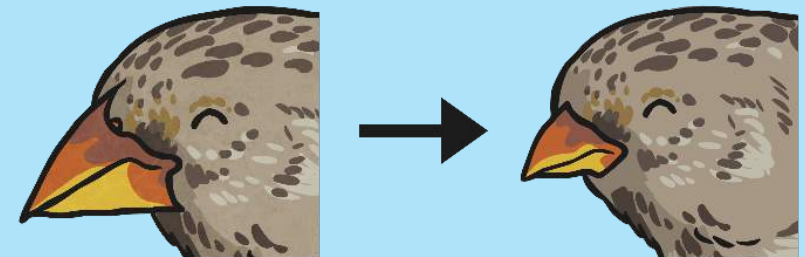
Inheritance

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



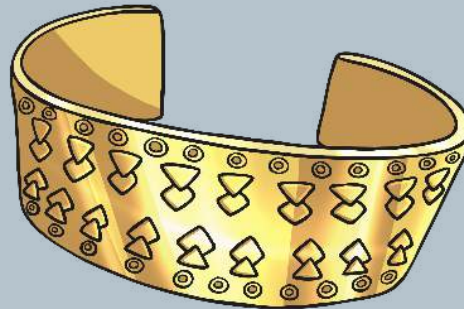
Adaptation

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.



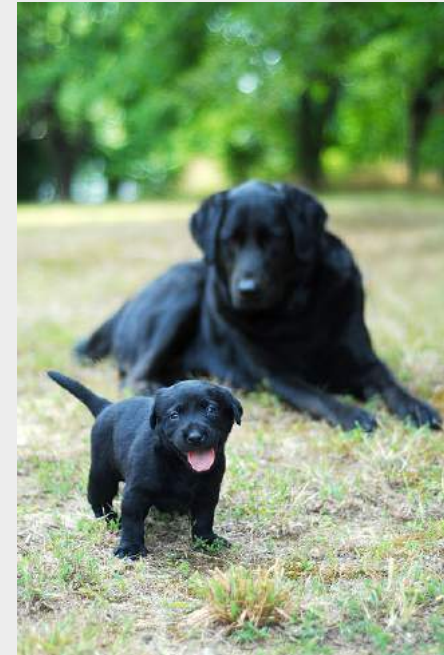
Inheritance

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.



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.



Parents and Offspring

Match the parent with its offspring.



How did you match the parents and offspring?

Make a note of some of the inherited characteristics that you could see for each offspring.

Inheritance and Variation

How can inherited characteristics (similarities between parent and offspring) result in variation (differences)?

Think about you and your brothers and sisters. If you don't have any, think about your cousins or a friend you know who has siblings.

Do they look exactly the same? Why not? What makes them similar? What makes them different?



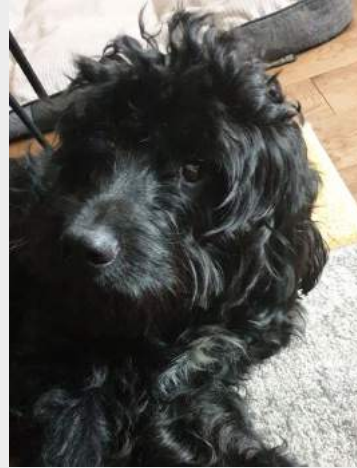
Here is a picture of me with my siblings. As you can tell, we are not identical, but we have inherited characteristics from our parents. Can you spot any shared characteristics that we have? What about some variation between us?

Inheritance and Variation

This doesn't just happen in humans! Nearly all species show inheritance and variation through their offspring. Let's have a look at Rocket's family!



Mum (Bella)



Dad (Bobby)

Rocket was one of seven puppies! Here you can see what his mum and dad looked like alongside two of his siblings.

What shared characteristics can you see?
What variation is there between the offspring?

Brother (Bertie)



Sister (Darcey)



Rocket

Why does variation occur?

Well most living things are the result of sexual reproduction, so they have two parents. You inherit the characteristics from both parents but the way they combine makes the offspring unique.

The inherited characteristics can combine in different ways, which is the reason why siblings inherit the same characteristics but are not identical to each other.

Even identical twins that share the exact same combination of DNA are not 100% the same! This is due to the fact that genes develop separately when the twins are embryos or during later development.

Activity: Draw a picture of yourself or ask your grown ups if they have a picture of you that you could use.

Label the characteristics you think you have inherited from your parents. For example, do you have the same eye colour? Hair colour? Freckles?

Extra – if you have siblings, draw them too and see how many characteristics you share compared to how many are different. For example, my brothers and I all have brown eyes while my sister has blue eyes but we all have brown hair.

Inherited 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. We call these 'acquired characteristics'.

Sort the characteristics into the correct category:

Inherited Characteristics

Acquired Characteristics

Hair color

Sporty

Enjoys reading

Eye colour

Good at singing

Skin colour

Dimples

Freckles

Curly hair

Drawing

Riding a bike

Chin dimple

Can roll your tongue