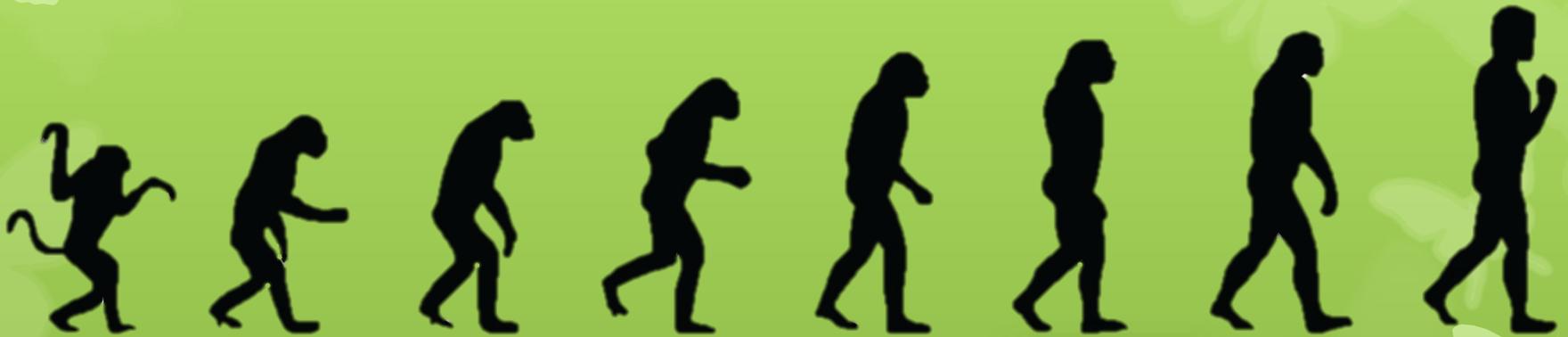


Evolution & Inheritance



Inheritance and Variation





All humans
are alike...



...but we
are all
different.

We all have hair....

...but some of us have straight hair and some of us have curly hair.



We all have hair....

...but it can be all kinds of different colours.



We all have eyes....

...but they can be different shades of blue, brown and green.



We all have noses....

...but they can be all sizes and shapes.



We all have a mouth....

...but they can be all sizes and shapes.



Why do children not look exactly like their parents?

Why do all people not look exactly the same?

Have humans always looked like they do today?



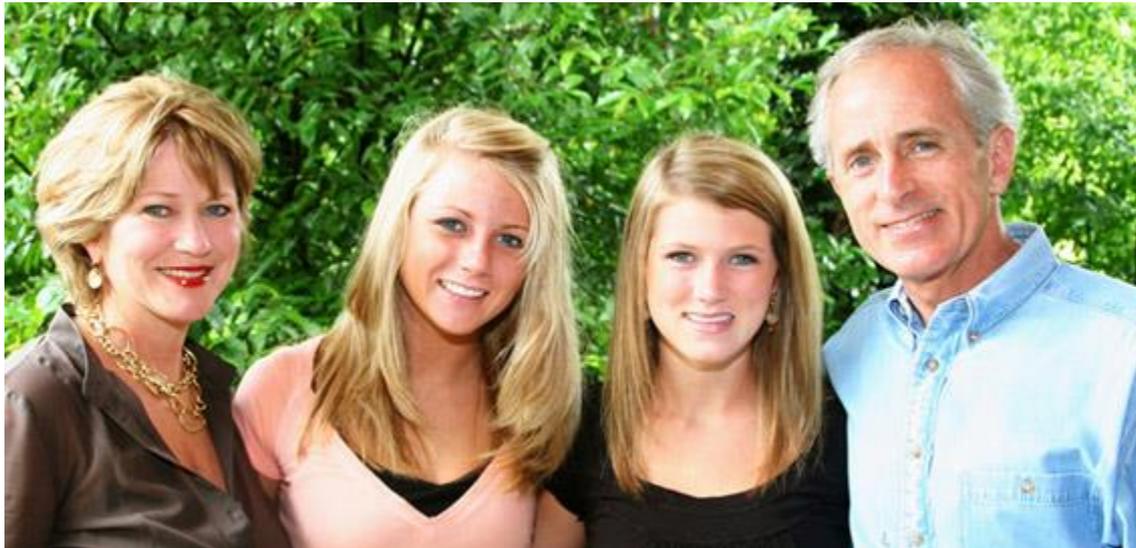
Discuss the questions with a partner.

No need to record your answers.

When two people have children together, how is the appearance of the children decided?

Children *inherit* traits such as eye colour and height from their parents.

Look at this picture of a family. What similarities can you see between the children and the parents?



Here is another family. What similarities can you see here?

What are the differences between this family and the other family?



When a child inherits a trait, he or she also passes that along to his or her children later in life.

An entire family can all share similar looks and characteristics.

The photo below shows two families at a wedding. Can you see any obvious difference?



The passing down of traits from parents to offspring is known as heredity.

This also occurs in all living things that need two different sexes to reproduce.



Here you can see what happens when you breed certain flowers together.

The two flowers at the top have been bred to produce the flowers on the bottom.

A labradoodle is a the result of mating a Labrador with a poodle.

Labrador



Poodle



Labradoodle

Why are offspring not identical to their parents?



There is also some variation when children are being born. This is what stops children from looking exactly like their parents, allowing them to have traits that neither parent had.



This variation when children are born allows children to be taller than their parents, or have thicker hair or stronger bodies.

Here is a picture of Robert Wadlow, the tallest man in history.

His parents are stood next to him. **Do you think his height was inherited or due to variation? How can you tell?**



Variation (and a lot of training) is the reason Usain Bolt can run so much faster than his parents.

Usain might pass his athletic ability to his children or he might not, due to variation.

What have you learnt about inheritance and variation?

- What decides our traits when we are born?
- Do children look exactly like their parents?
- What happens if two different-looking people have children?



TASK – complete the worksheet in your books

Variation and Characteristics

All humans look _____ from one another. This is because we all have different _____ of features that make us who we are. These features are called _____.

The differences between humans (or any other organism) are called _____.

Characteristics can be _____, environmental or both.

Both types of characteristics cause variation in organisms and make them look different from one another.

Combinations Characteristics Variation Different Inherited

Inherited Characteristics

We get some of our characteristics from our _____. These are called _____ characteristics.

The instructions for these features are passed down to us by _____, which are little sections of DNA found in the _____ of our cells.

We get half of our genes from our _____ and half from our father. This is because the nuclei of their _____ cells fuse together in _____ and make a full set of "instructions" that makes us.

Nuclei Inherited Mother Fertilisation Parents Genes Sex

Environmental Characteristics

Some of our characteristics are determined by the way we live the choices we make.

List three environmental factors that can affect our characteristics:

- _____
- _____
- _____

Some of our characteristics are very complicated and are a combination of **environmental** and **inherited** factors.