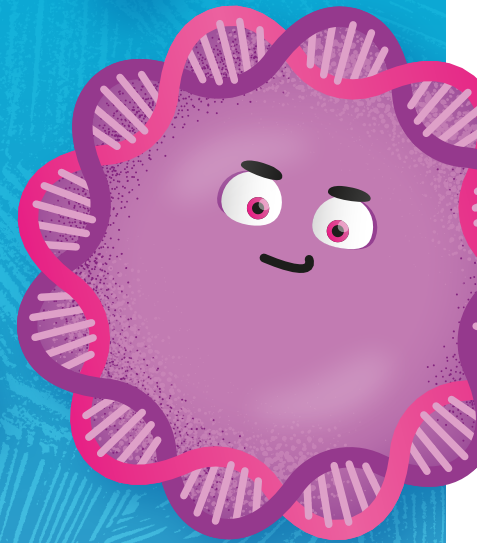
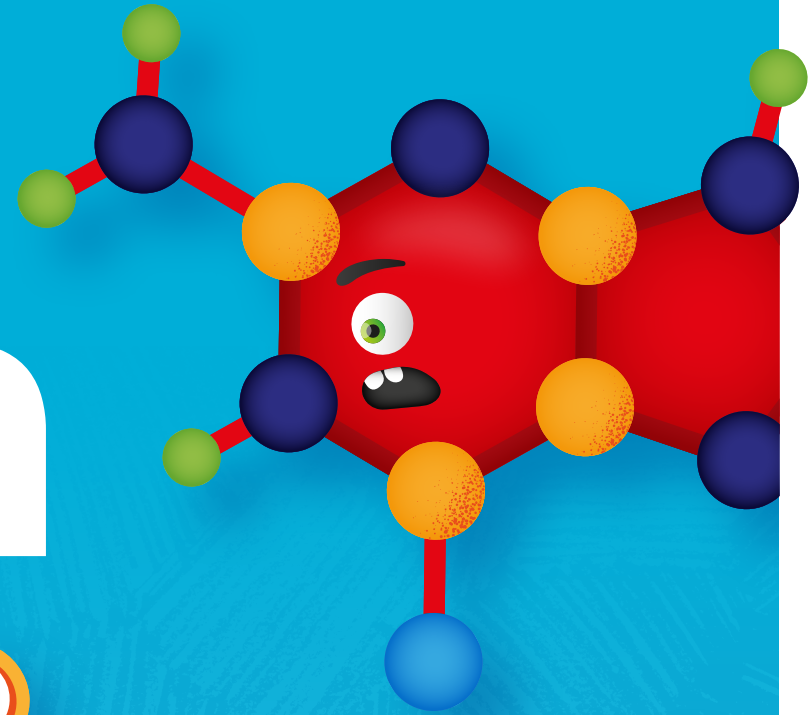


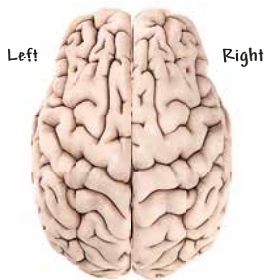
Science Home Learning Pack:

Human Body



Two sides

The brain has two sides. The left side controls the right side of our body, while the right side is in charge of the left side of the body!



The front part of the brain is all about your personality – how you behave, and what you like and don't like.

This part of the brain is in charge of how we move our bodies. It can tell us to walk, run, or dance!

Every time you touch something a message goes to this part of the brain.

Being able to understand our surroundings helps us to make good decisions about how to move around.

Artificial intelligence

Computers can be taught to think and make decisions like humans. This is called artificial intelligence (AI). Mobile phones use AI to help answer any questions you might have or tell you what's in your diary.

What's the weather like today?

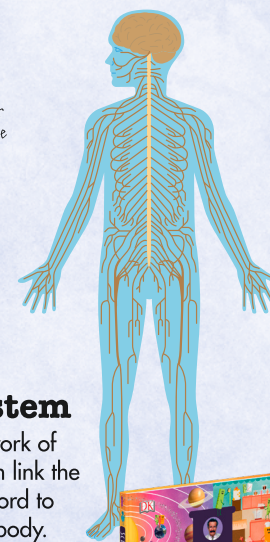
It's raining. Take an umbrella!



Understanding emotions, like happiness or sadness, helps us to respond well to other people.

Making images

Our brain receives information from our eyes and makes sense of what we're seeing.



Nervous system

We have a huge network of nerves inside us, which link the brain and the spinal cord to the other parts of the body.

Coordination

This bit of the brain helps us to move smoothly. It's useful for things such as walking and writing.

The spinal cord carries messages to and from the brain.

Memory

You figure out what different sounds are in this part of the brain.

This part of your brain is where you keep all of your memories, like the first time you rode a bike or your last birthday party.

Hearing

The more wrinkly your brain, the smarter you are!

Speech

This part of our brain allows us to speak to each other.

Thinking and personality

Planning movements

Movement

Touch

Awareness of space

Emotional understanding

Think about it

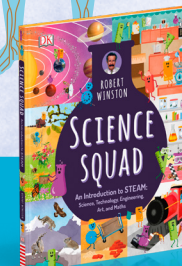
Your brain may look like a big wobbly ball of jelly, but it works like an amazing supercomputer. It sits in your head and allows you to see, hear, talk, move, feel, think, imagine, and remember.



Pretend to be a doctor! Use the information on this page to create a poster telling your patients about the importance of the brain.

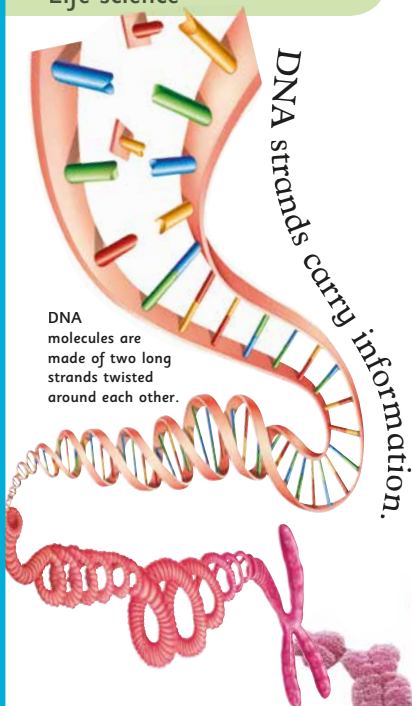
Suitable for 5-7 years

Content from: *Science Squad*
Available now



Inheritance

Your genes are a set of chemical instructions for building someone just like you. You inherit them from your parents, which is why you are like them in many ways. But unless you are a twin, your genes are unique.

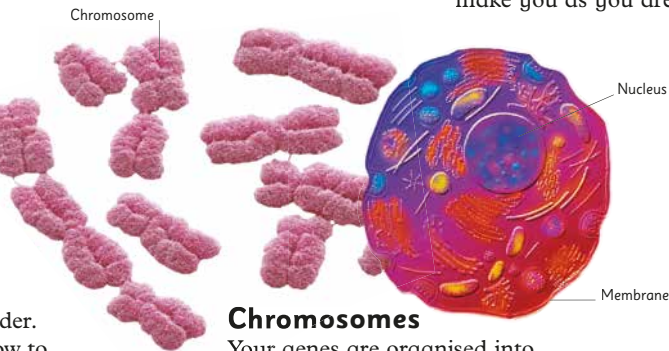


Amazing DNA

DNA is made of long molecules. Each molecule is made up of two parts joined together like a twisted rope ladder. DNA carries instructions on how to make cells work, and how different types of cells develop and join together to build a living thing, such as a plant or animal.

Tiny cells

Cells are the building blocks that make up all living things. Each cell in your body contains a complete set of genes – the information to make you as you are.



Chromosomes

Your genes are organised into 46 chromosomes, arranged in 23 pairs. Genes and chromosomes are made from the chemical called DNA.

What is a gene?

Every cell in your body contains a set of about 20,000 genes. All living things pass on their genes to their offspring. Sexual reproduction combines two sets

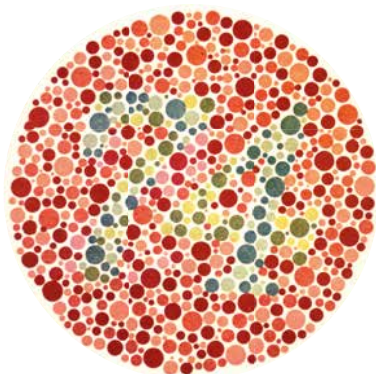


You can only roll your tongue if the right genes are active.

of genes. You've got two of each gene, one from your mother and one from your father. Sometimes the gene from your mother comes into action, and other times your father's gene wins out.

Colour blindness

Some people have a gene which causes them to be colour blind. Look at the circle below. If you can see the number inside then you aren't colour blind.



Test your family and friends to see if anyone you know is colour blind.



Seeing double

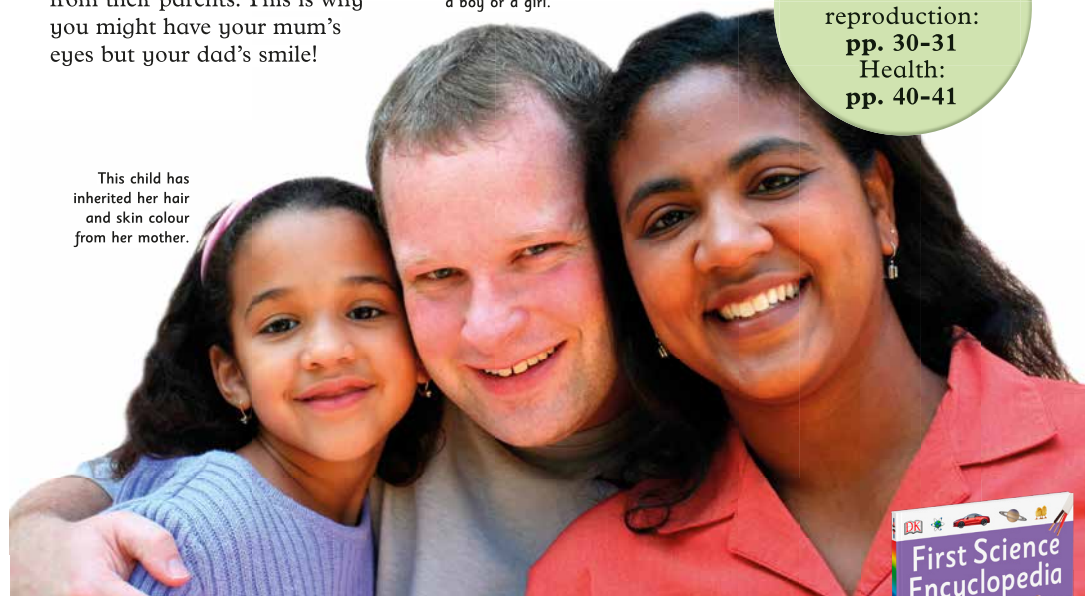
Identical twins share most of their genes. A quarter of these are mirror twins, which means that they are a mirror image of each other. For example, they might have an identical mole, but on the opposite arm to each other.

Who do you look like?

Children have a mixture of genes from their parents. This is why you might have your mum's eyes but your dad's smile!

The chromosomes of your father determine whether you will be a boy or a girl.

This child has inherited her hair and skin colour from her mother.



Turn and learn
Animal reproduction: pp. 30-31
Health: pp. 40-41

What does DNA stand for?

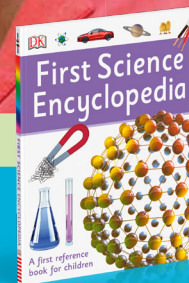
Deoxyribonucleic acid.



Look at a photo of you and your parents. What features do you have that are the same as them? Write about the features you've inherited from them.

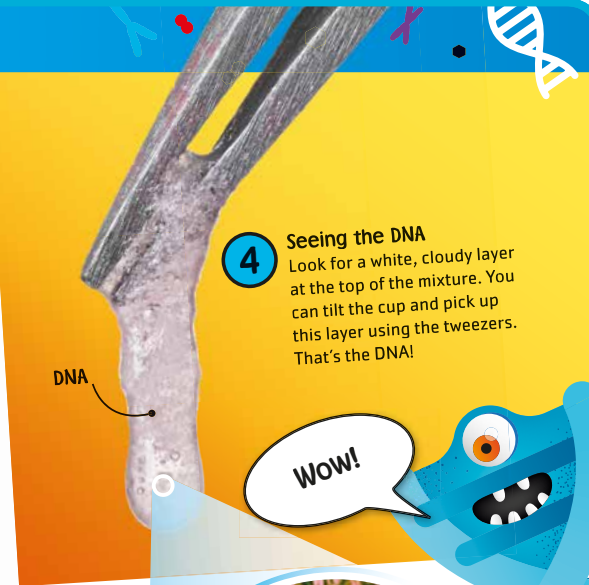
Suitable for 7-9 years

Content from: *First Science Encyclopedia* by Steve Mould
Available now



Let's experiment!

Would you like to have a go at seeing DNA yourself? Try this fun experiment, which you can do at home. You'll be getting DNA out of strawberries.



YOU WILL NEED

- » 2 beakers or plastic cups
- » 2 tsp washing-up liquid
- » 1 tsp salt
- » ½ cup water
- » 2 strawberries
- » 1 resealable plastic bag
- » Sieve or coffee filter
- » ½ cup ice-cold surgical spirit
- » Tweezers
- » 1 scientist (that's you!)

- 1** **Preparing the DNA-extraction mixture**
In a beaker, mix together 2 teaspoons of washing-up liquid, 1 teaspoon of salt, and ½ cup of water.

- 2** **Breaking open the cells**
Put the strawberries into the plastic bag, seal it, and crush them well with your fingers. Add 2 teaspoons of the DNA-extraction mixture, reseal the bag, and continue crushing for another minute.

- 3** **Separating the DNA**
Sieve the strawberry liquid into the other clean beaker. Then, **gently** add the surgical spirit, pouring it down the side of the beaker. Use about the same amount as there is of strawberry liquid. **DO NOT** mix or stir.

- 4** **Seeing the DNA**
Look for a white, cloudy layer at the top of the mixture. You can tilt the cup and pick up this layer using the tweezers. That's the DNA!

Don't eat these!

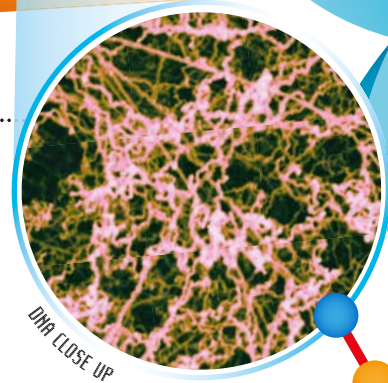


Can I see DNA?

It's very hard to know what something is like **unless you can see it**. DNA is very tiny and hidden in our cells, but we have some tricks for getting it out and having a look at it!

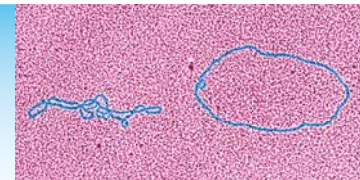
Seeing chromosomes

It's often hard to see DNA in cells because the chromosomes are all spread out. However, when cells get ready to divide, the chromosomes pack up and copy themselves.

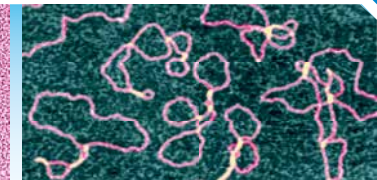


UNDER THE MICROSCOPE

We still haven't seen the DNA in much detail, have we? Very powerful microscopes can help us here...



Viral DNA
An electron microscope uses a beam of incredibly tiny particles to show microscopic objects, such as this DNA (blue) from a virus.



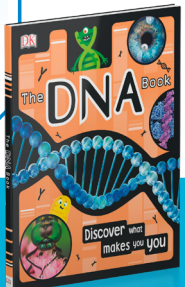
Bacterial DNA
This DNA (pink) from a bacterium has been made visible by an atomic force microscope, which builds up an image of the DNA by probing it with a minute instrument.



Now you know all about DNA, have a go at the activity - asking an adult for help if you need it.

Suitable for 7-9 years

Content from: *The DNA Book*
Available May

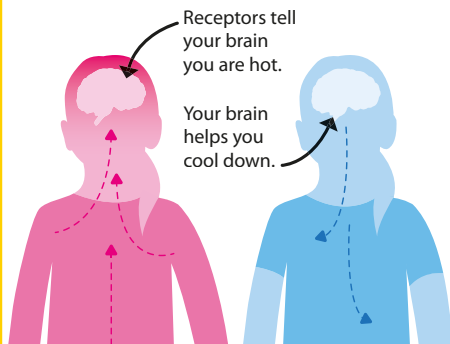


Senses

We experience the world around us through our senses. Tiny points around our bodies called sensory receptors collect information about the world outside. This keeps the body safe. It also keeps things such as temperature at the right level, so the body can work properly. Special senses such as sight use a whole organ to gather information.

Sensory receptors

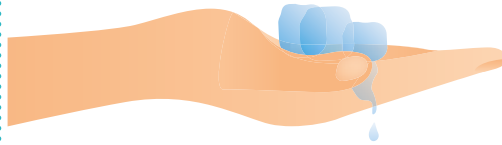
These points around the body gather different information. When you feel hot, your temperature receptors detect this. They send information to the brain, which tells you to take your jumper off so you don't overheat!



The right body temperature is important.

Sound

Hearing is a special sense. It helps us communicate with others. Listening to sounds helps us to stay safe. When you hear a car coming, you know not to cross the road.



TEMPERATURE

We can find out how hot or cold something is just by touching it. The temperature receptors in our hands tell us this information.

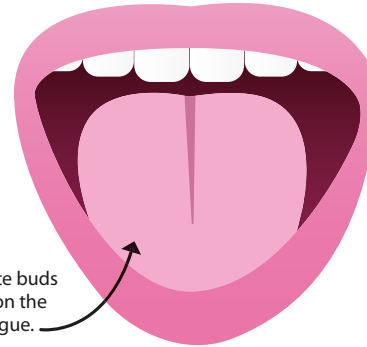
Pressure

Pressure receptors tell us how hard to grip things. Pressure receptors in the fingers tell you how hard to hold things so they don't get damaged.



TASTE

Taste is a special sense. Taste buds detect different types of taste, telling you if the food you're eating is sweet or sour.

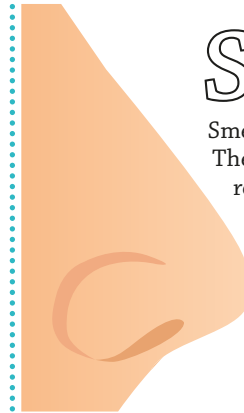


Pain

Feeling pain is not nice, but it keeps our bodies safe. Pain receptors detect the pain and you know not to bump your head again!

Smell

Smell is a special sense. The nose has smell receptors. Food that's gone off smells bad. When you smell it, you don't want to eat it. This protects your body.



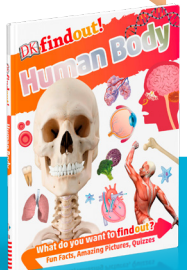
Sight



Sight is a special sense with its own organ, the eye. Seeing things with our eyes tells us a lot about the world. It helps us not to walk into things!

Balance

Our sense of balance helps us not to fall over. Having poor balance means we might fall over a lot. Being able to walk in a straight line means you have good balance.



Read this page, then create your own Sense Diary - each hour, write down one thing you see, smell, hear, taste, and touch.

Suitable for 7-9 years

Content from: *DKfindout! Human Body*
Available now Discover more at: www.dkfindout.com/uk