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What does a brain do when it sees a friend across the street?



It has a quick brainwave.

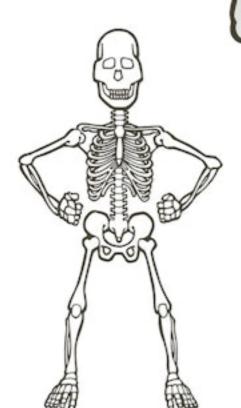


# PUZZLE ACTIVITY BOOK OF BHUMAN BOOK OF BOOK OF BOOK OF BOOK OF BUZZLE ACTIVITY BUZZLE ACTIVITY BOOK OF BUZZLE ACTIVITY BUZZLE ACTIVITY



## BODY BASICS

Your body is made up of billions of tiny cells. These mini-units group together to form the all-singing, alldancing marvel of engineering that is you!



#### CELLS

Your body contains over 200 different types of cells. Cells of a particular type build up to form tissues, and tissues combine to form organs. Organs work together to create the body's main systems, such as the digestive system.

#### MUSCLES

Muscles pull on bones to allow you to move in hundreds of different ways. Together, bones and muscles give the body its shape.

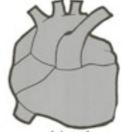
#### SKELETON

The skeleton supports your body and keeps you upright. It is made from 206 bones. Living bones aren't stick-like and dry like the bones in museums. On the outside, bones are tough and strong; on the inside, they're soft and spongy.

## ORGANS

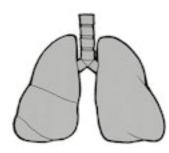
#### AN ORGAN IS A BODY PART WITH A VERY SPECIAL JOB TO DO...

Some of the body's main organs are shown below. Here's what they do...



#### HEART

The heart pumps blood around your body, every minute of every day.



#### LUNGS

The lungs take oxygen from the air and transfer it to your blood, which transports it around the body.



#### LIVER

The liver neutralises poisons and stores nutrients for when the body needs them.



#### STOMACH

The stomach is a muscular bag where food begins to be digested.



#### KIDNEY

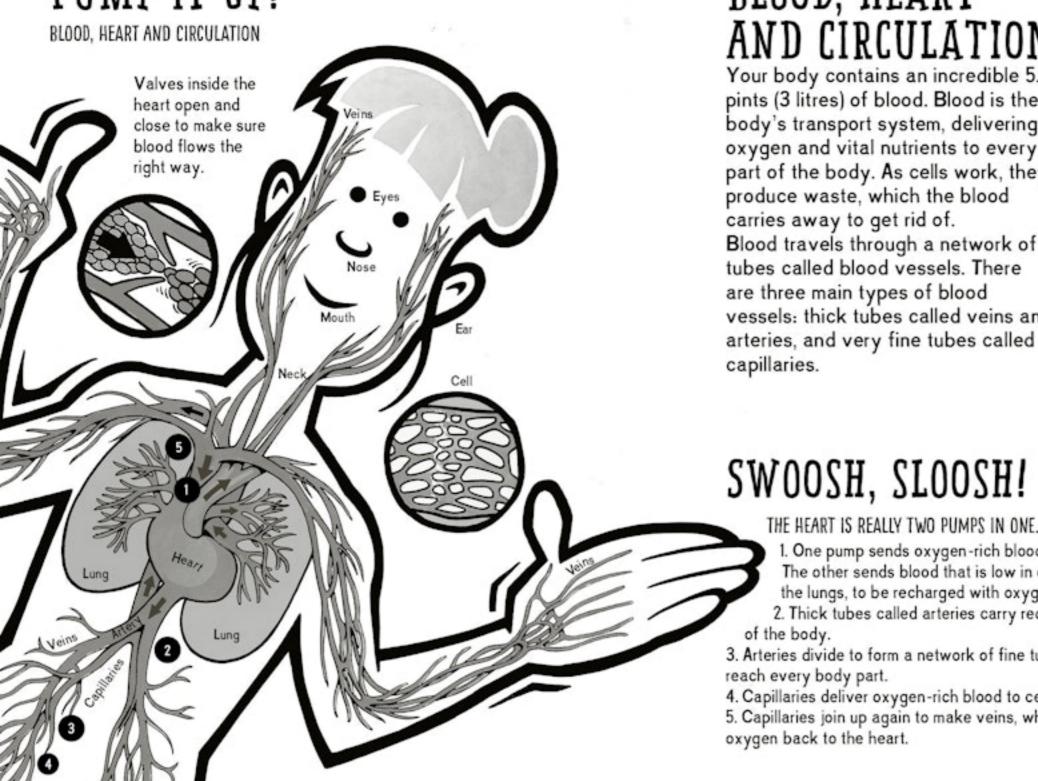
Kidneys filter the blood and remove waste.



#### BLADDER

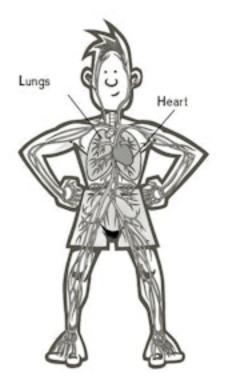
The bladder stores waste water until you get rid of it by peeing.

## PUMP IT UP!



## BLOOD, HEART AND CIRCULATION

Your body contains an incredible 5.3 pints (3 litres) of blood. Blood is the body's transport system, delivering oxygen and vital nutrients to every part of the body. As cells work, they produce waste, which the blood carries away to get rid of. Blood travels through a network of tubes called blood vessels. There are three main types of blood vessels: thick tubes called veins and

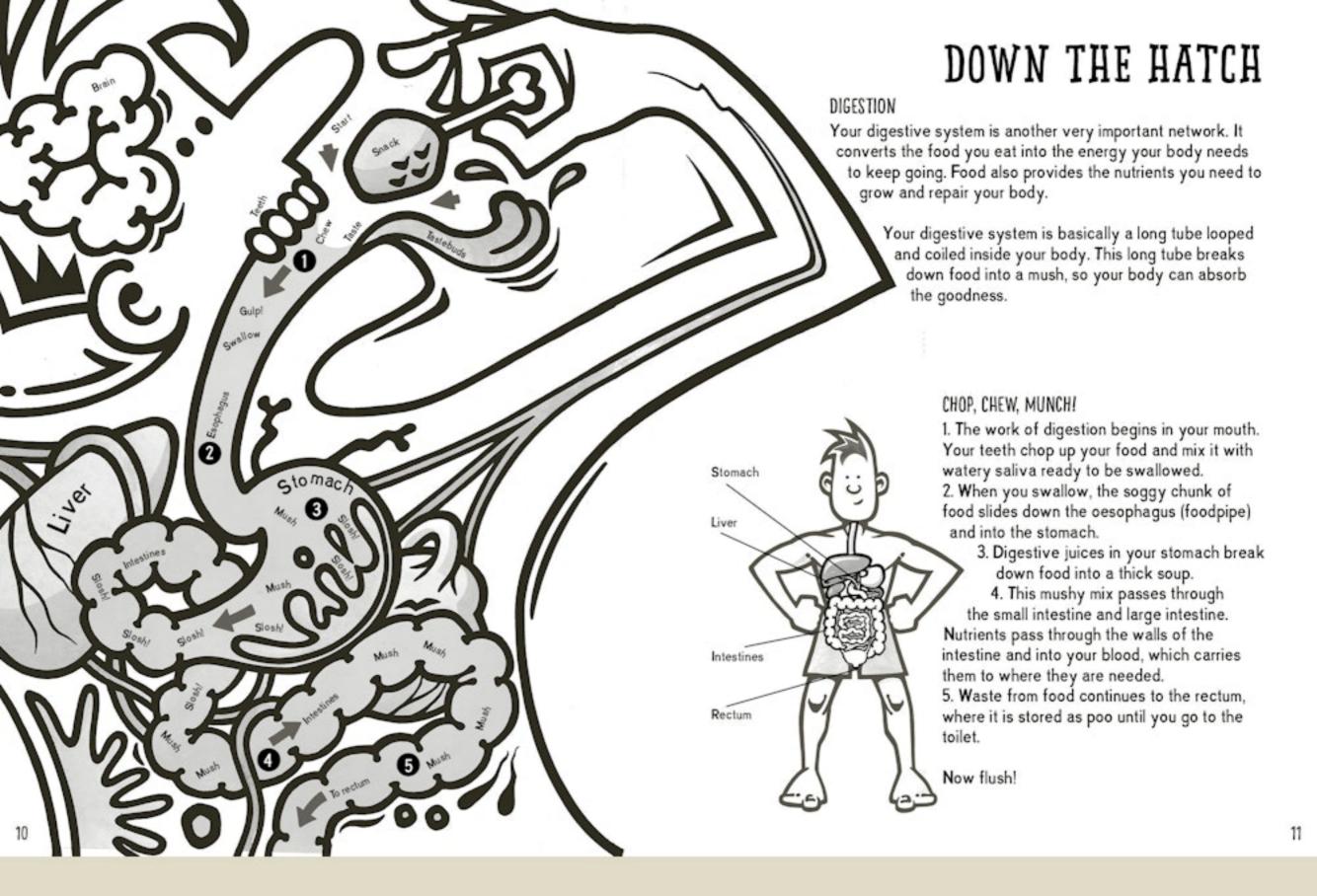


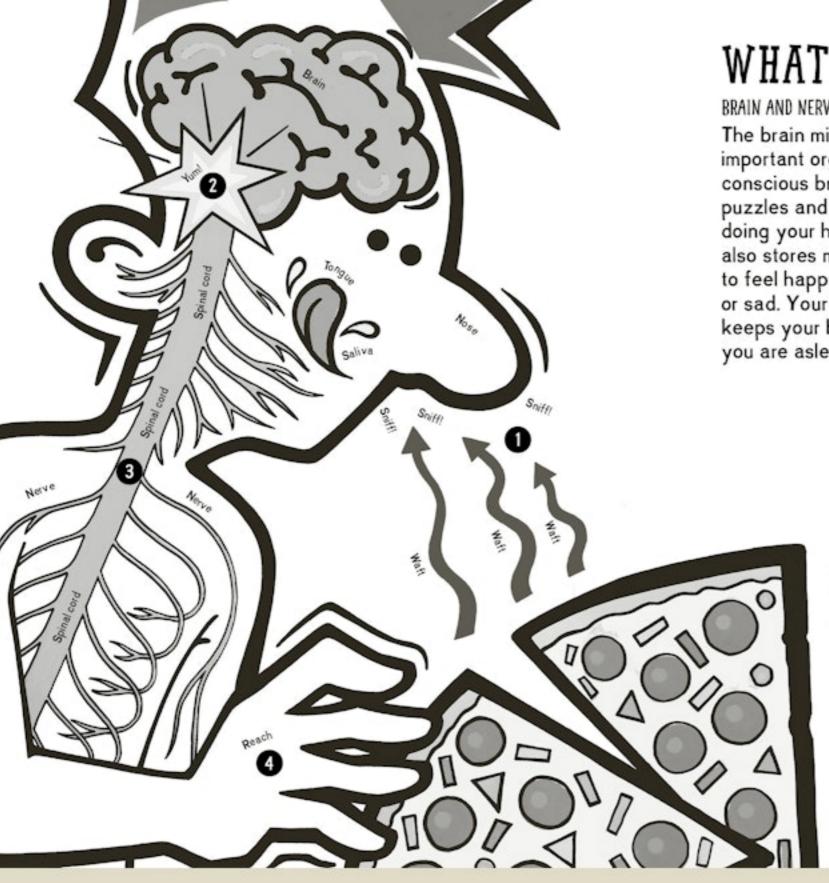
CIRCULATORY SYSTEM Blood circles on an endless journey around the body. This one-way trip is called circulation.

# SWOOSH, SLOOSH!

THE HEART IS REALLY TWO PUMPS IN ONE.

- 1. One pump sends oxygen-rich blood from the lungs around the body. The other sends blood that is low in oxygen from the body back to the lungs, to be recharged with oxygen.
- 2. Thick tubes called arteries carry red, oxygen-rich blood to the rest of the body.
- 3. Arteries divide to form a network of fine tubes called capillaries, which reach every body part.
- 4. Capillaries deliver oxygen-rich blood to cells and carry away waste.
- 5. Capillaries join up again to make veins, which carry purplish blood low in oxygen back to the heart.





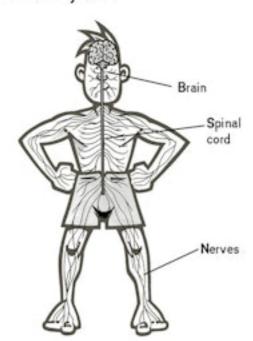
## WHAT A NERVE!

BRAIN AND NERVOUS SYSTEM

The brain might be the most important organ you have! Your conscious brain helps you to solve puzzles and think up excuses for not doing your homework. It also stores memories and allows you to feel happy or sad. Your unconscious brain keeps your body ticking even when you are asleep.

#### NERVOUS NETWORK

The brain receives sense signals and controls actions via a network of nerves reaching every part of your body. Your brain, spinal cord, and nerves make up your nervous system.

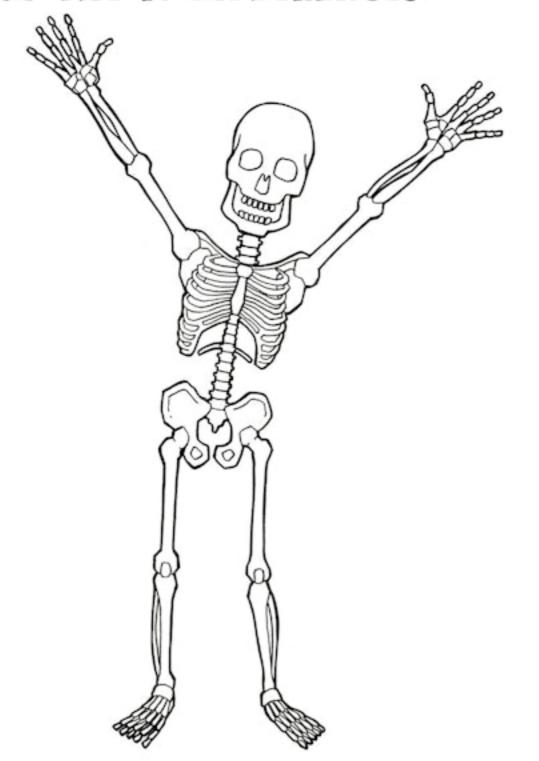


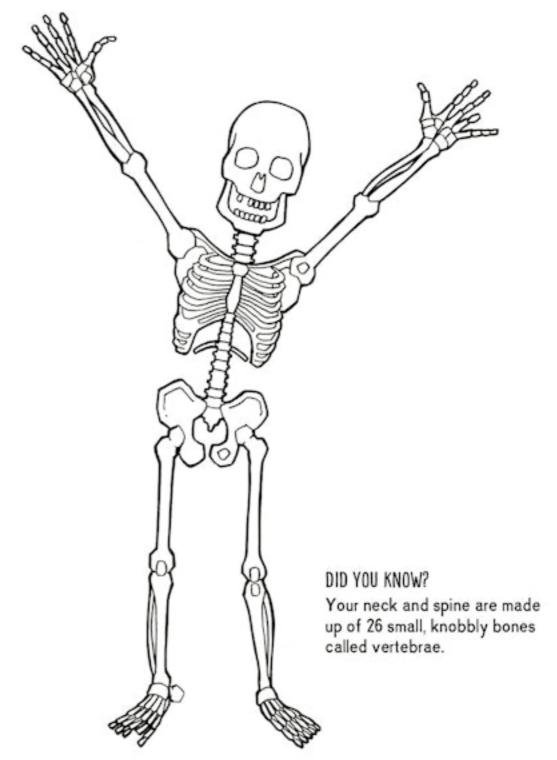
#### SNIFF THAT!

Your brain receives messages from your senses via nerves called sensory nerves. It controls actions via motor nerves.

- 1. When the smell of pizza wafts towards you, sensory nerves in your nose send a message to your brain.
- 2. The brain receives the sense signals. It processes the information and makes a decision... It orders your hand to grab a slice!
- 3. The brain sends a message to your arm and hand via the spinal cord, the body's main nerve.
- 4. The order passes down motor nerves, ordering your arm to reach out and your fingers to grab the pizza.

# SPOT THE 10 DIFFERENCES



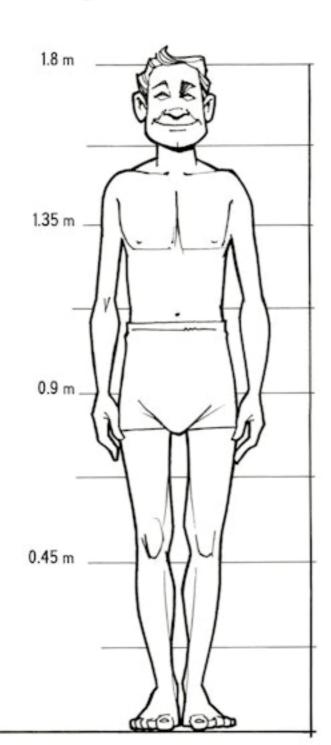


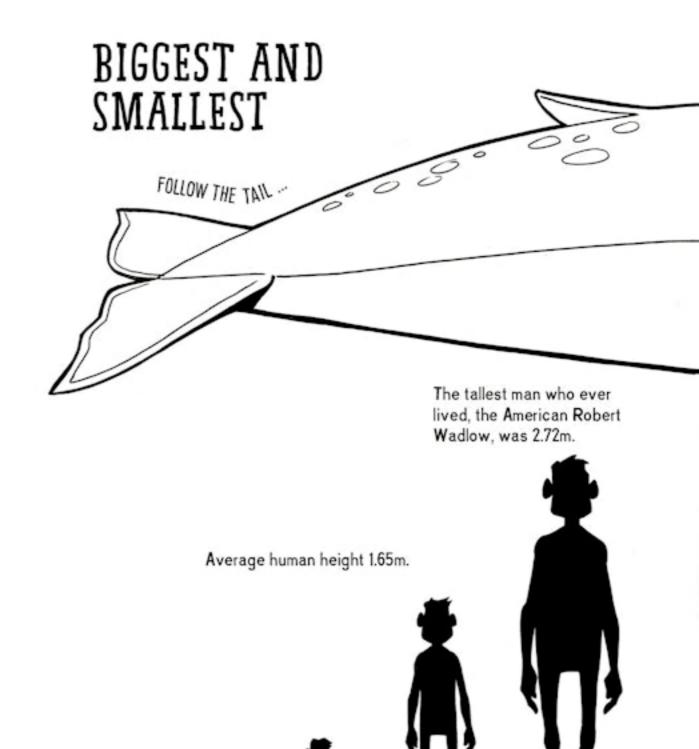
# HOW TALL ARE YOU?

Measure your height and draw yourself between the two figures.

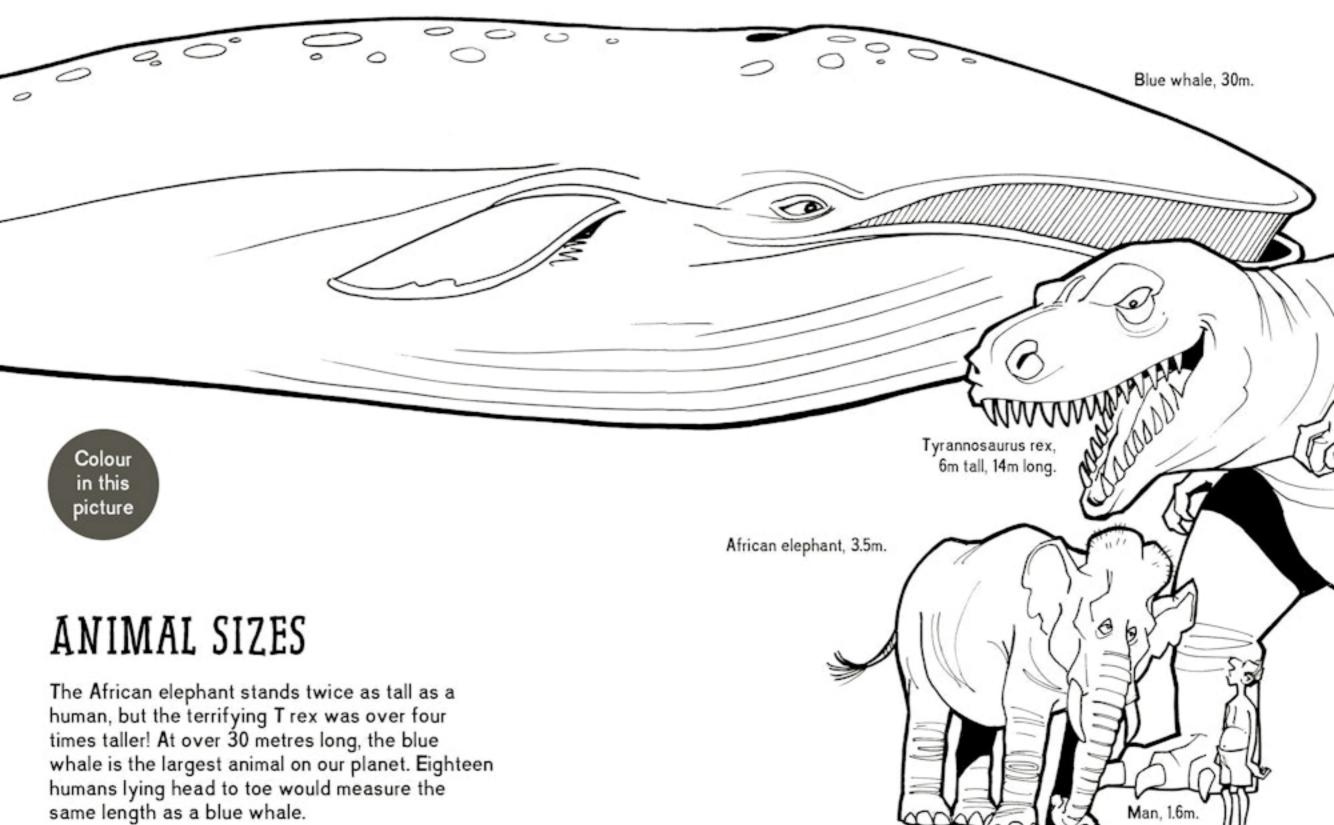
#### DID YOU KNOW?

An adult's height is eight times the size of the head, and a baby's height is four times the size of its head!



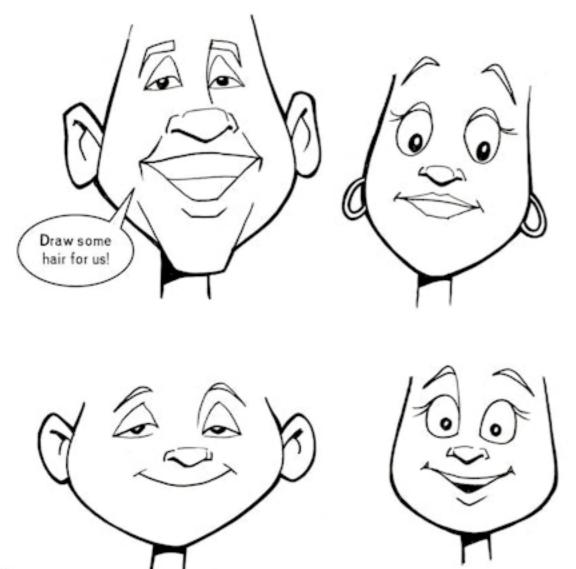


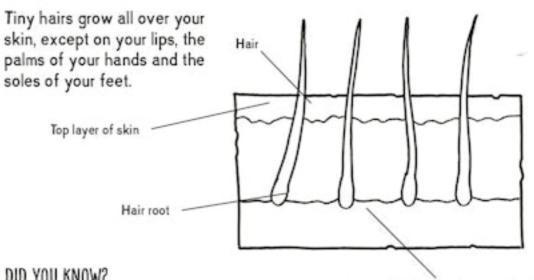
Chandra Bahadur Dangi of Nepal is the world's shortest man, at 0.55m.



## HAIR

Your body is covered in hair! Hair in the ears, nose and around the eyes help to keep dust, dirt and germs out. Hair on your head protects the scalp and keeps you warm. Hair comes in all forms - it can be dark, fair, ginger, straight, wavy, curly or coily!

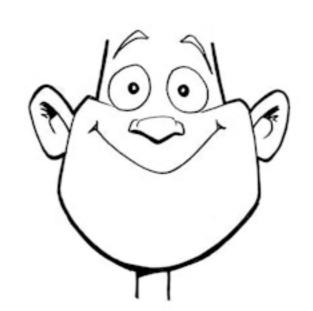


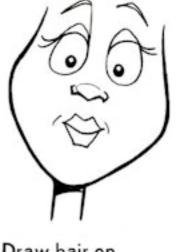


DID YOU KNOW?

Hairs grow from living roots in the lower layer of skin. But the long hairs you see on your head are dead.

Layer of fat to help keep your body





Draw hair on these people.

## MATCH THE ORGANS

 Filters waste products out of your bloodstream and turns it into urine.





Controls your whole body from your head.

-----

Long tubes that absorb the goodness from the food that you eat.

.....

 Absorbs oxygen from the air you breathe in and sends out carbon dioxide.

\_\_\_\_\_

HEART

**PANCREAS** 

SPLEEN

Colour the pictures!

Pumps your blood around your body.

\_\_\_\_\_

 Filters the blood, recognising and removing old or damaged red blood cells.

-----

Uses acid to break down your food.

-----

 Helps to control your blood sugar by releasing a hormone called insulin.

\_\_\_\_\_

BRAIN KIDNEY

LUNGS

INTESTINES



# MAKE A MONSTER

Play Frankenstein and design your own monster. You can use human or animal body parts.



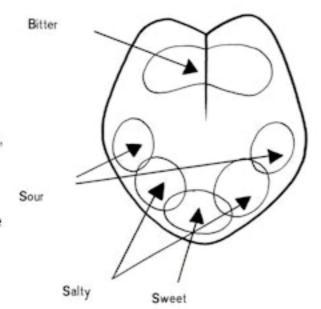
MY MONSTER

## TASTE TEST

Taste and smell are two of your five main senses.

Your senses of smell and taste can warn you of danger, such as smoke from a fire, or rotten food.

Different parts of your tongue pick up four main tastes: sweet, sour, salty and bitter.





Identifying different foods is tricky if you can't see them. Blindfold your friends and see if they can identify foods from just the smell and taste.

See who does best by putting a cross or tick by their result.

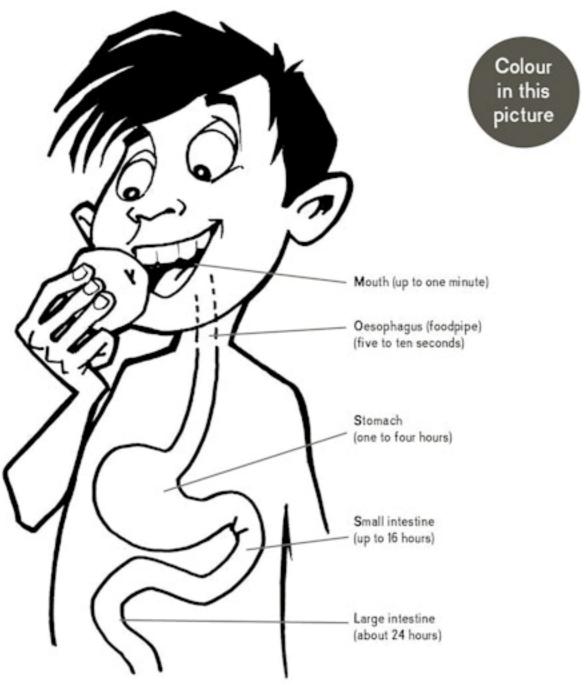
Three example foods are below – add more of your own!



	Person 1	Person 2	Person 3	Person 4
Strawberry				
Cucumber				
Chocolate				_
		_	_	-
			_	_
		_	_	_
				_
	_	_		, ,
		_	-	-

## BREAKING DOWN FOOD

Food takes over a day to pass right through your body.



#### KNOW YOUR FOOD

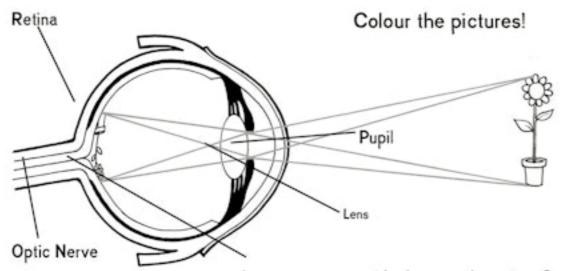
A healthy diet contains lots of different foods. Proteins such as fish build bones and muscles. Carbohydrates such as rice provide energy. Fruit and vegetables contain vitamins, minerals and also fibre, which helps with digestion. Eating too many sugary or fatty foods such as sweets and crisps isn't good for you.

Match the food on the left to the correct food type on the right by drawing a line.

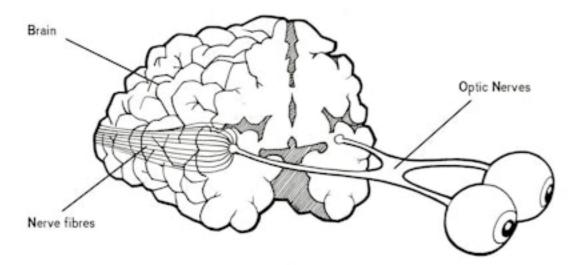
San Land	Bread, pasta, rice, cereal	Protein
60000	Milk, yogurt, cheese	Fat and sugar
	<b>M</b> eat, fish, eggs, nuts, beans	Calcium and dairy
	Fruit and vegetables	Carbohydrates
	Chips, sweets, etc	Vitamins and minerals

## HOW YOU SEE

Light passes through a hole called the pupil in the coloured part of your eye. It passes through the lens which focuses it on the retina at the back of the eye. This sends signals via nerves to your brain.



Images appear upside down on the retina. Our brain decodes this image so that we see it the right side up.

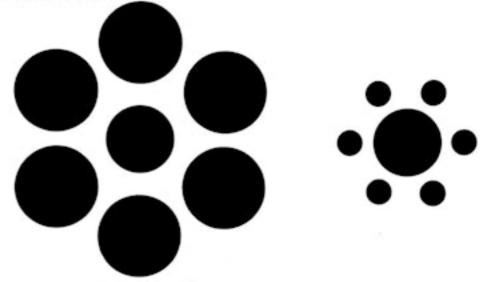


#### TRICKING THE EYE

Look at this picture for a minute or two. Then close your eyes. You should see an image of the skull even though your eyes are closed.

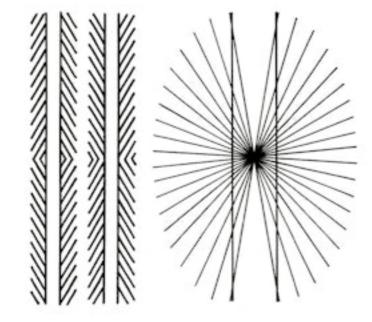


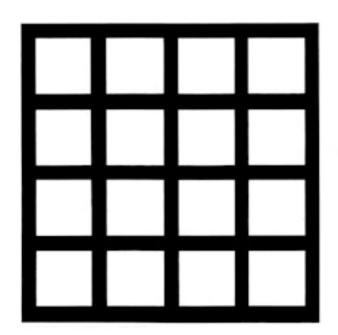
Look at the circles in the centre. Which looks bigger? Now measure them with a ruler.



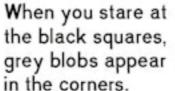
## MORE EYE TRICKERY

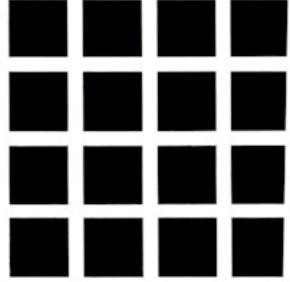
Look at the parallel lines in these drawings. They appear to bend, though in fact they are straight.

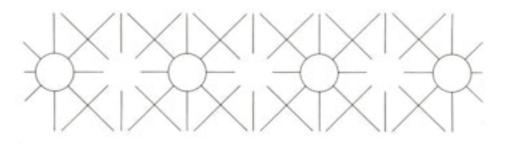




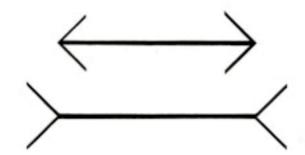
When you stare at the white squares, do pale blobs appear in the corners?







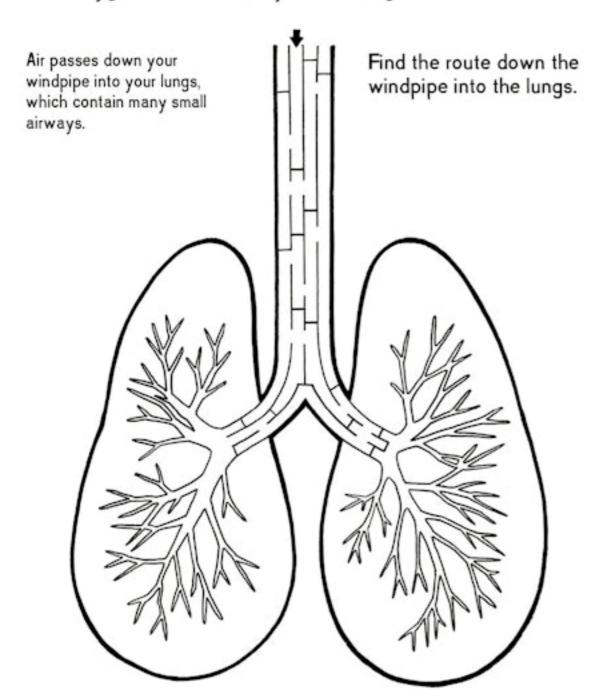
Which look brighter, the circles enclosed by black lines, or the unenclosed circles at the centre of the crossed lines?



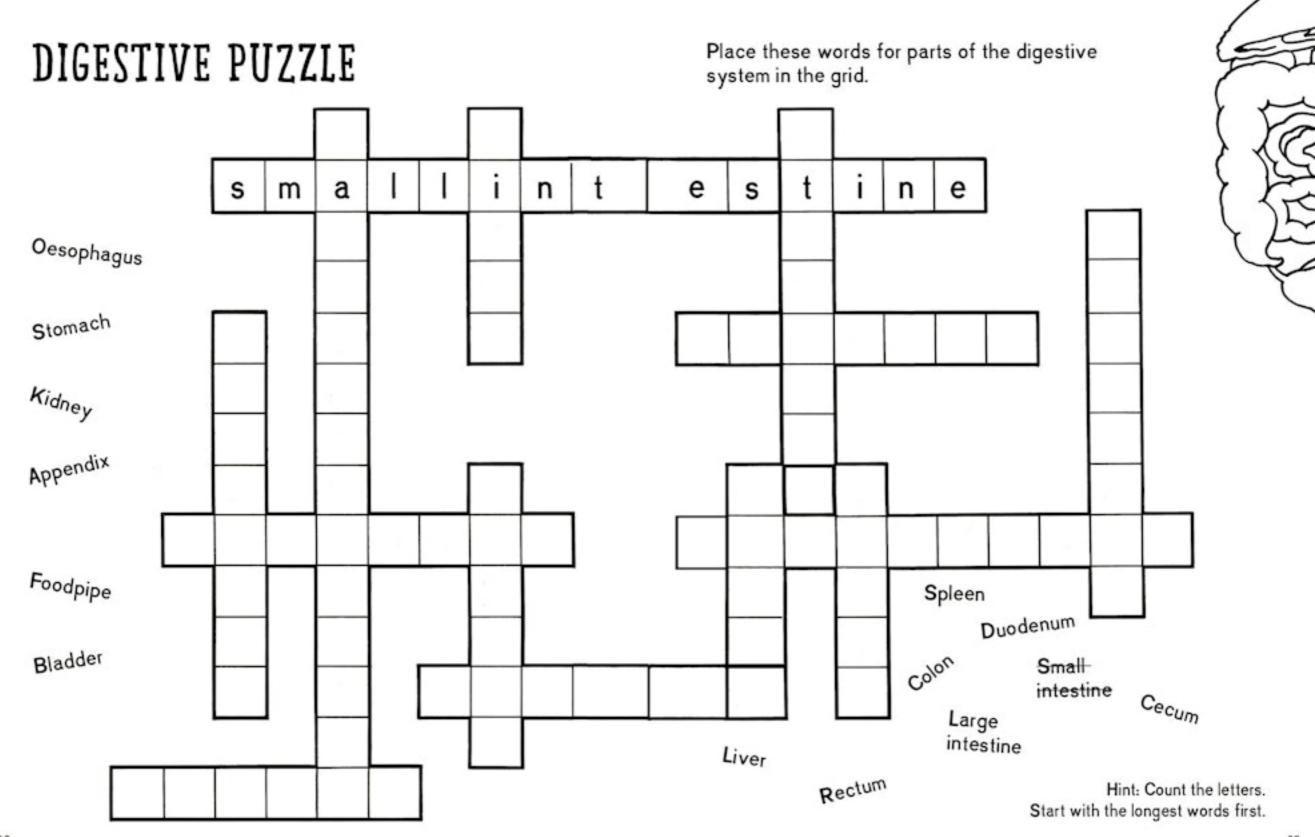
Which of the two horizontal lines looks longer? Now measure them with a ruler.

## BREATHING

Vital oxygen enters the body via the lungs.



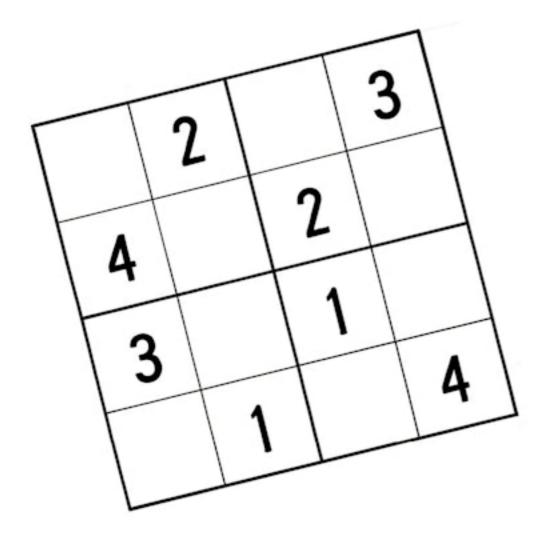




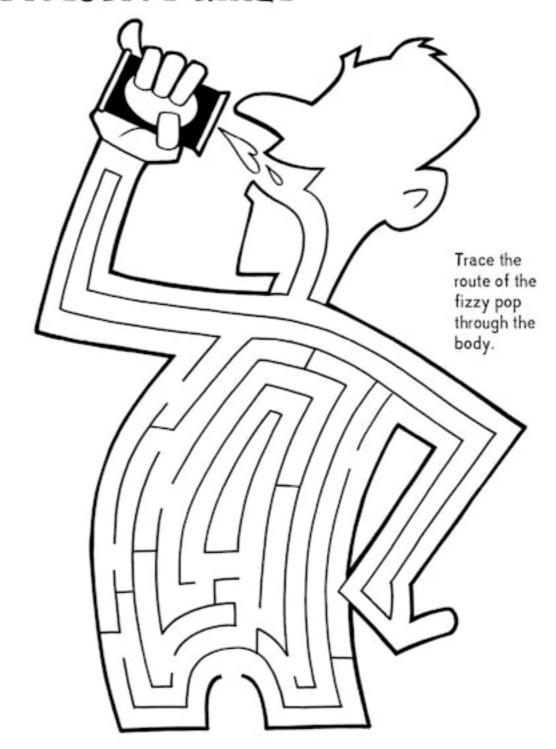
# SUDOKU PUZZLE

FOR YOUR BRAIN HEALTH!

Test your brains with this Sudoku puzzle! Each row, column and 2 by 2 square must have all four numbers.

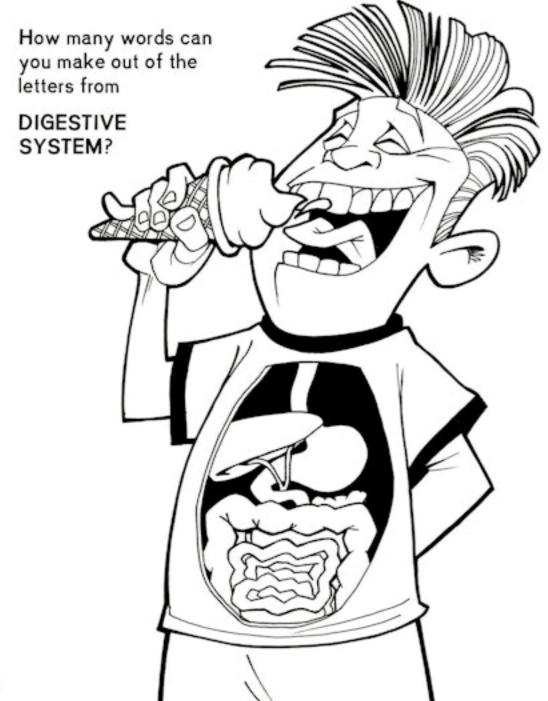


# DIGESTIVE MAZE



# DIGESTIVE TEASER

Your digestive system breaks down your food and absorbs the goodness. The rest is waste!



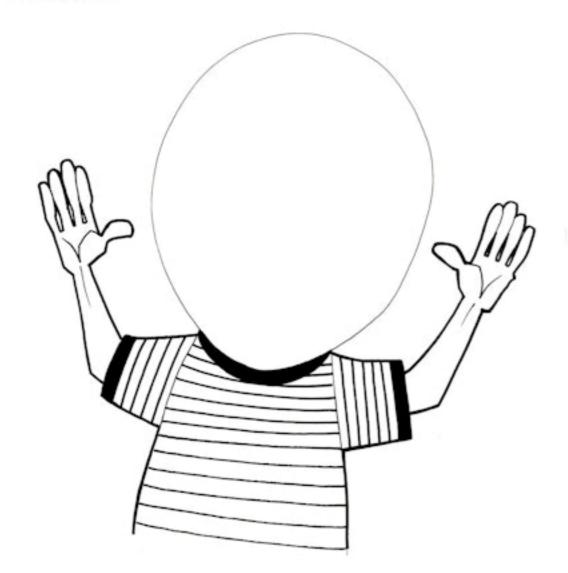
DIGESTIVE	SYSTEM	Z
TEST		
		_
		_
		-
		-

## DRAWING PORTRAITS

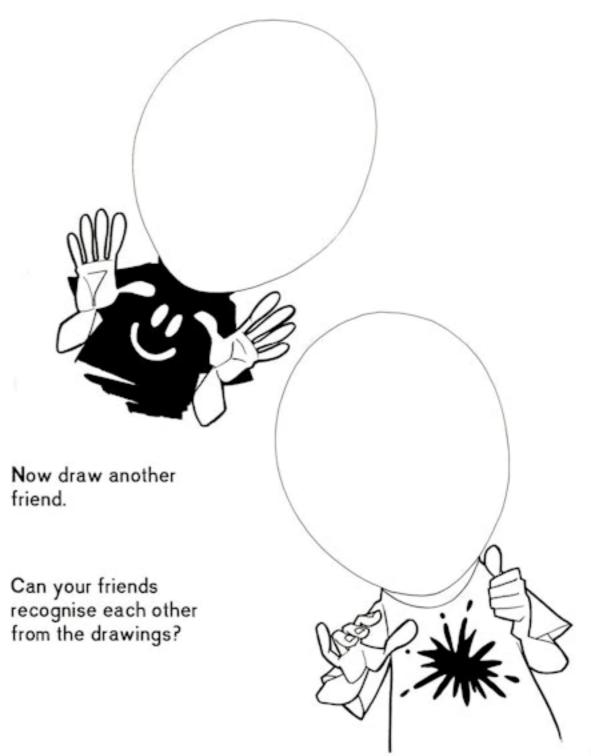
No two people look exactly alike – even identical twins are slightly different!

Is your hair straight or curly?
What colour are your eyes?
What shape is your nose?
Do you have freckles?

Study your face in a mirror and draw it.

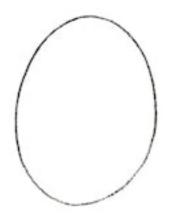


Draw one of your friends.



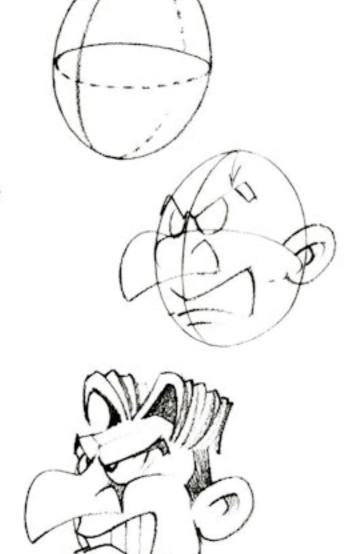
## FACIAL EXPRESSIONS

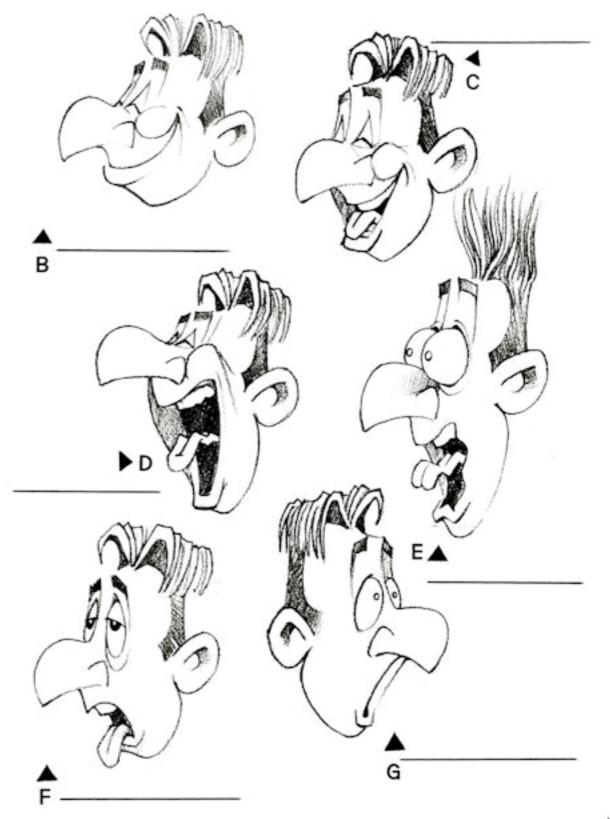
Draw a cartoon face step by step, starting with an egg shape. Practise drawing faces with different expressions.



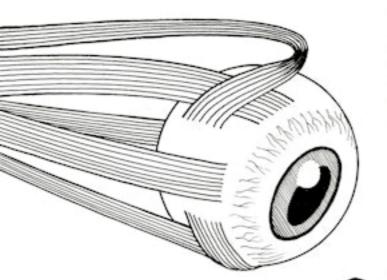
Fit these words to the expressions on the faces.

ANGRY
LAUGHING
TIRED
GIGGLY
FRIGHTENED
SMILING
ALARMED

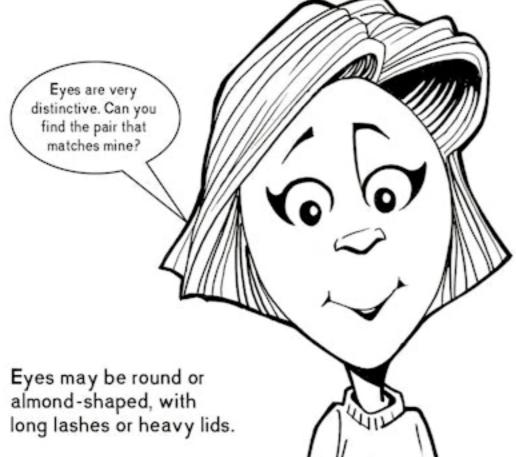


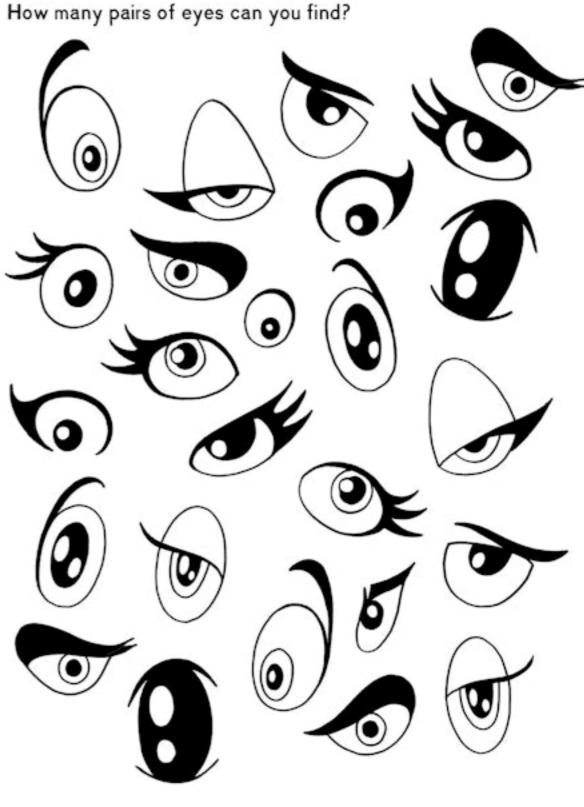


# EYE SPY!



Eyes are vital for vision, but they also express our feelings. They can narrow in suspicion, widen in surprise and weep with sadness.



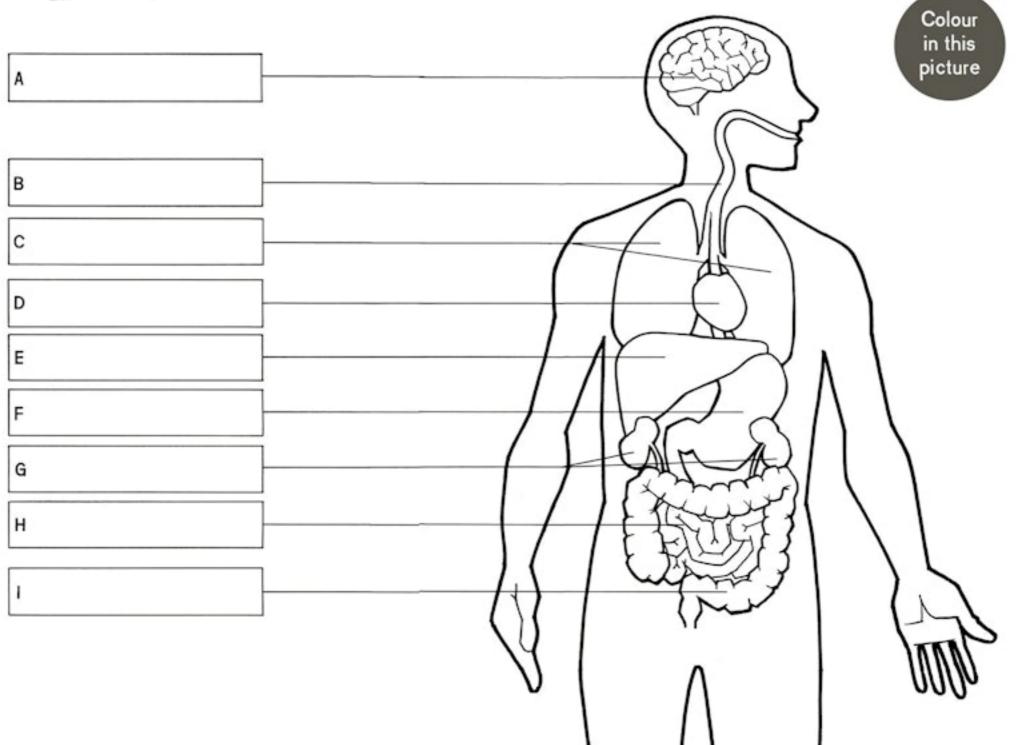


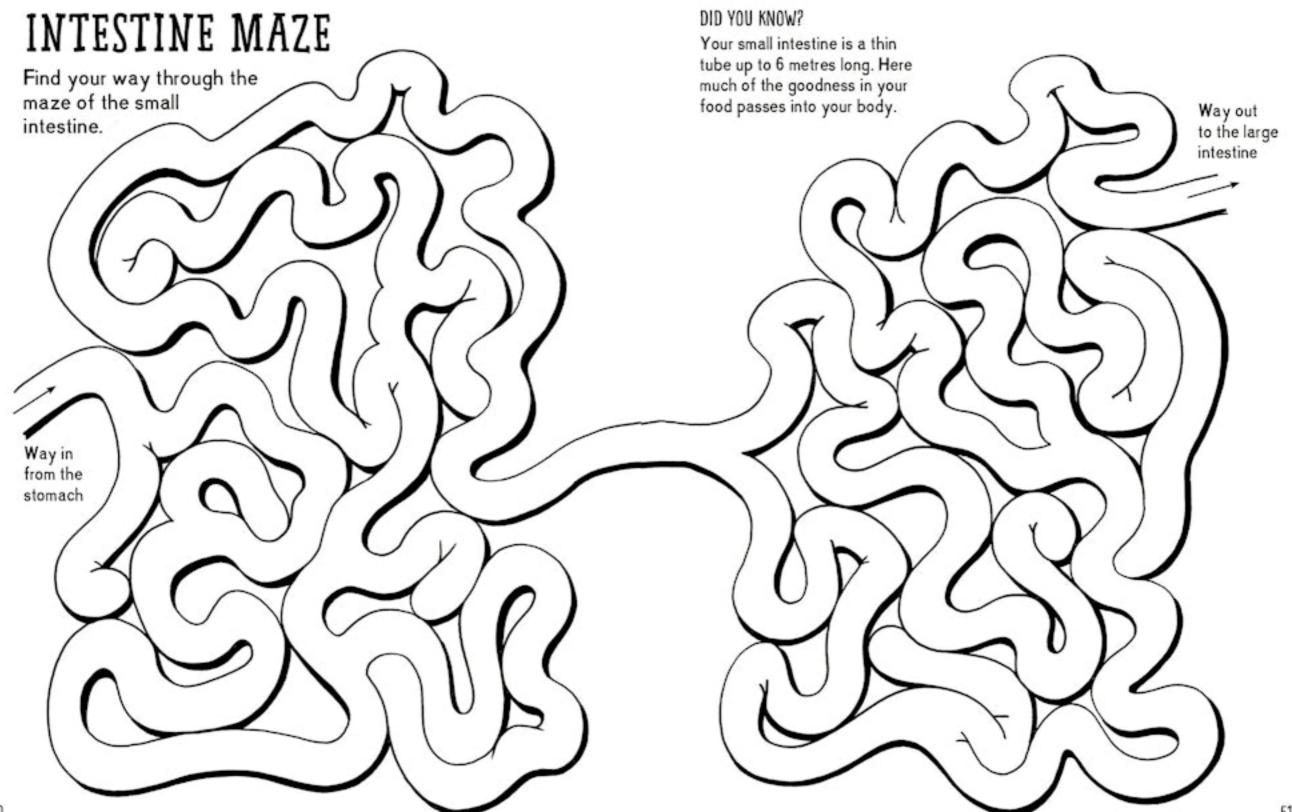
## IDENTIFYING ORGANS

Organs are parts of the body with a special job to do.

Write the names of the organs in the correct boxes.

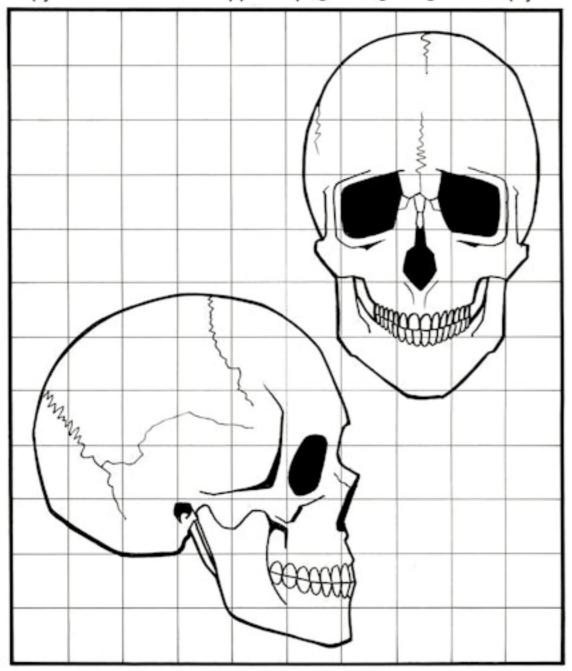
- 1 HEART
- 2 SMALL INTESTINE
- 3 STOMACH
- 4 BRAIN
- 5 LARGE INTESTINE
- 6 OESOPHAGUS (FOODPIPE)
- 7 KIDNEYS
- 8 LIVER
- 9 LUNGS



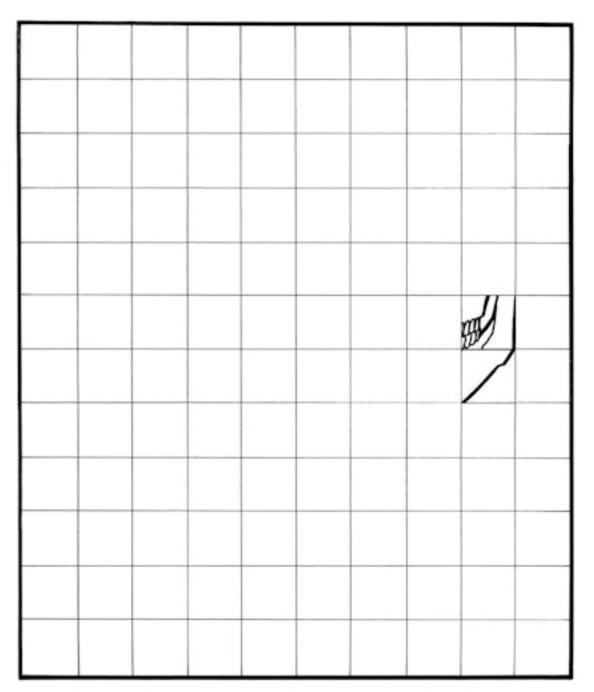


## DRAW THE SKULLS

Copy the skulls onto the opposite page using the grid to help you.



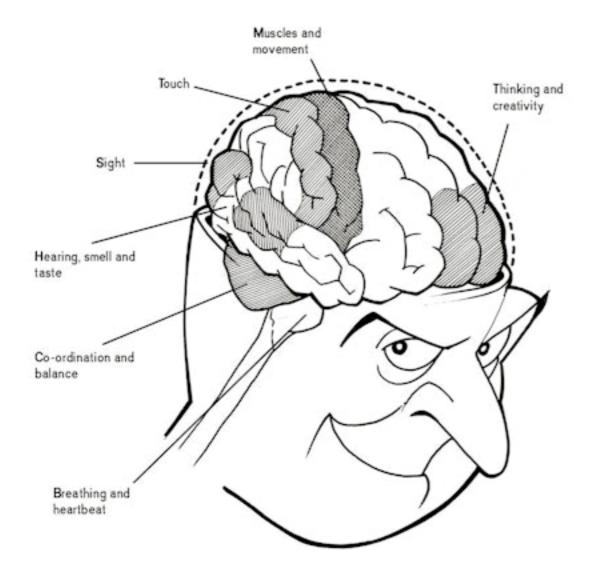
The skull is made up of over 20 bones, joined together at wiggly lines called sutures. The lower jawbone is the only moveable joint.



Now try drawing the skull on a blank piece of paper.

## BRAIN CENTRES

Different parts of the brain control your senses and functions such as movement.



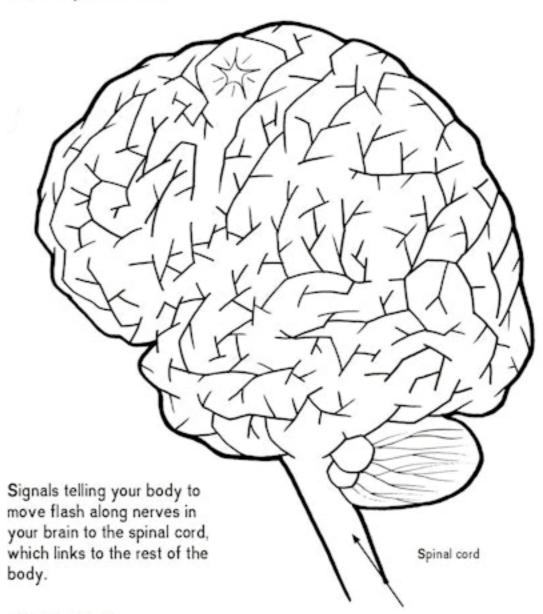
Colour the picture!





## NERVE SIGNALS

Find the way from your bright idea to the spinal cord.

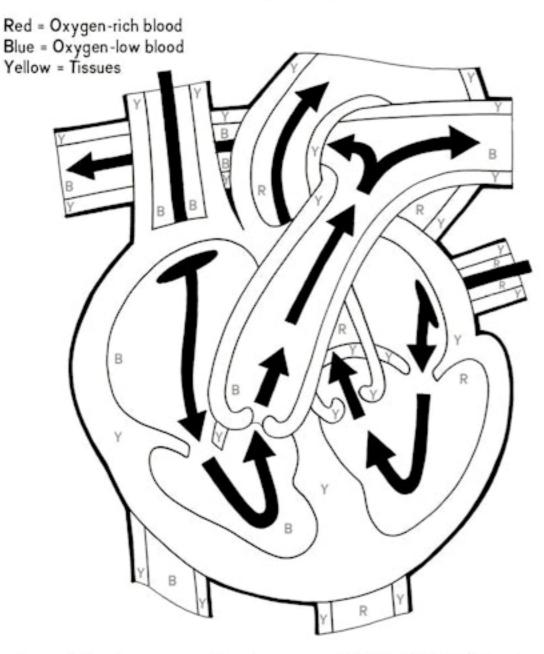


#### DID YOU KNOW?

Signals race along nerves at up to 400kph!

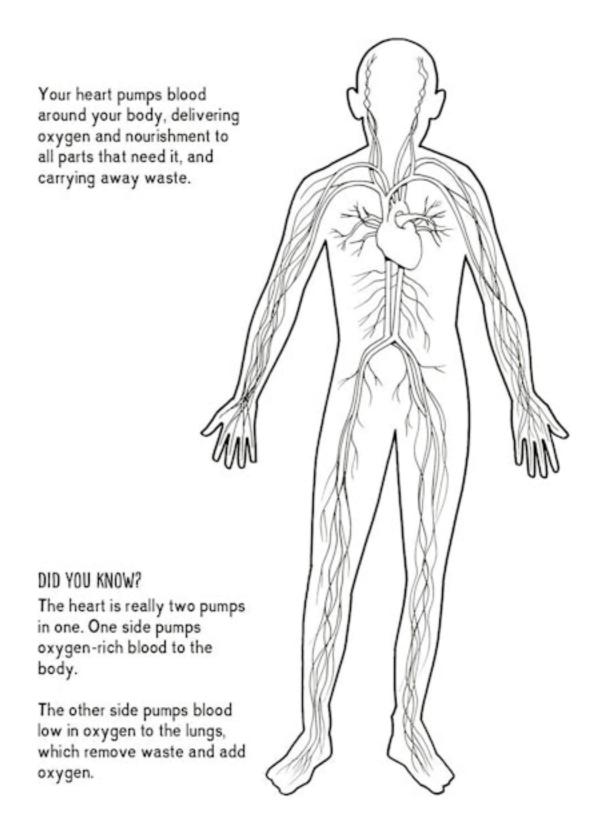
## BLOOD CIRCULATION

Colour the blood vessels using the key.



Tubes called veins carry blood low in oxygen back to the heart and lungs.

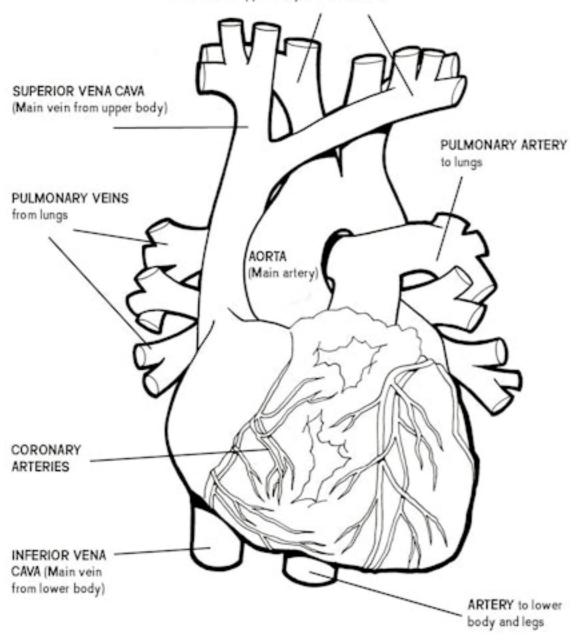
Tubes called arteries carry oxygen-rich blood to the body.



# HEART

Your heart never stops working night and day, pumping blood around your body.

ARTERIES to upper body, neck and head



Find the heart words in the wordsearch grid, reading down or across.

AR	TERY	١	/ENA	C	ORON	ARY	PULMONARY		
В	Р	U	L	1	٧	Е	N	Α	S
Е	U	٧	0	Α	0	R	T	Α	U
Υ	L	Е	1	R	Р	U	J	T	Р
J	М	F	N	Т	J	N	С	R	Е
K	0	ı	F	Е	L	0	Н	٧	R
1	N	Х	Е	R	G	T	W	L	1
L	Α	D	R	Υ	F	Z	Α	Н	0
D	R	Α	1	J	N	Е	0	ı	R
Q	Υ	С	0	R	0	N	Α	R	Υ
S	T	٧	R	В	В	٧	Е	1	N
VEIN AORTA INFERIOR SUPERIOR				IOR					

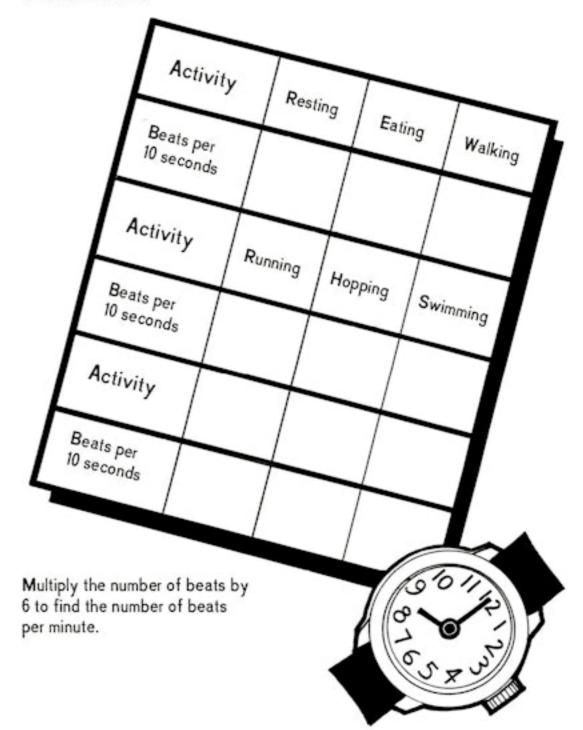
SUPERI

## CHECK YOUR PULSE

Every time your heart beats, it sends a surge of blood through your arteries. These little surges are your pulse.

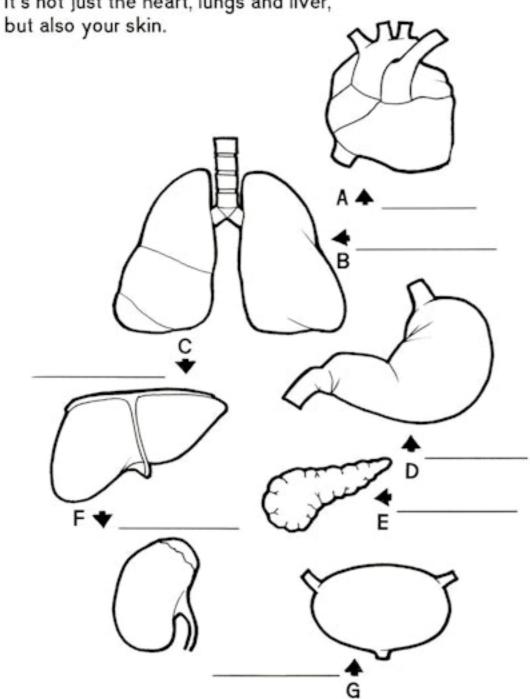


Eating and exercise make your heart beat faster. Time your pulse after doing different activities for two minutes; add three of your own activities. Record the results below.

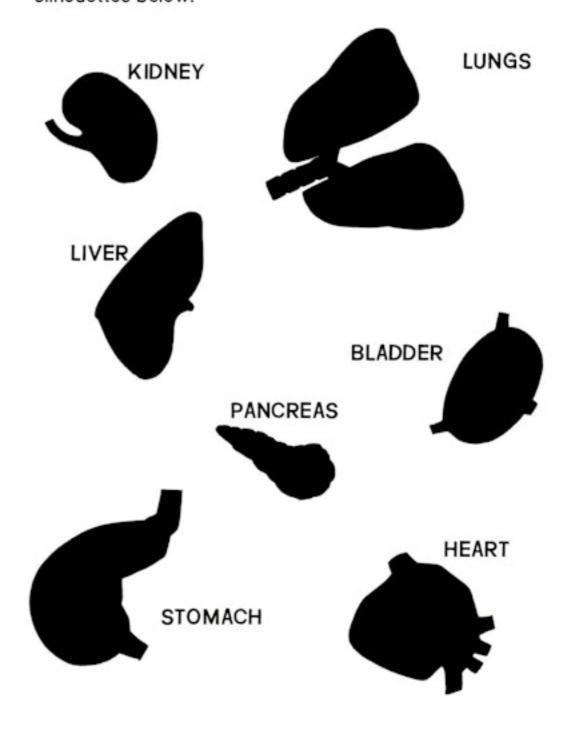


# LABEL THE ORGANS

Your body has dozens of organs – it's not just the heart, lungs and liver, but also your skip.

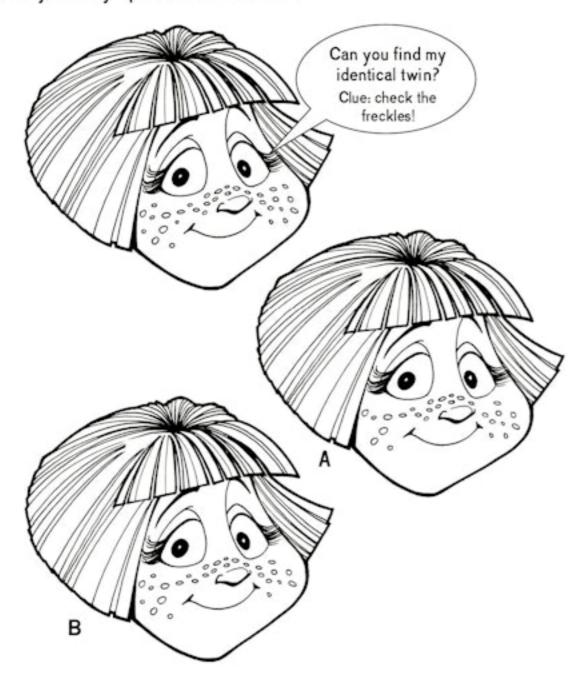


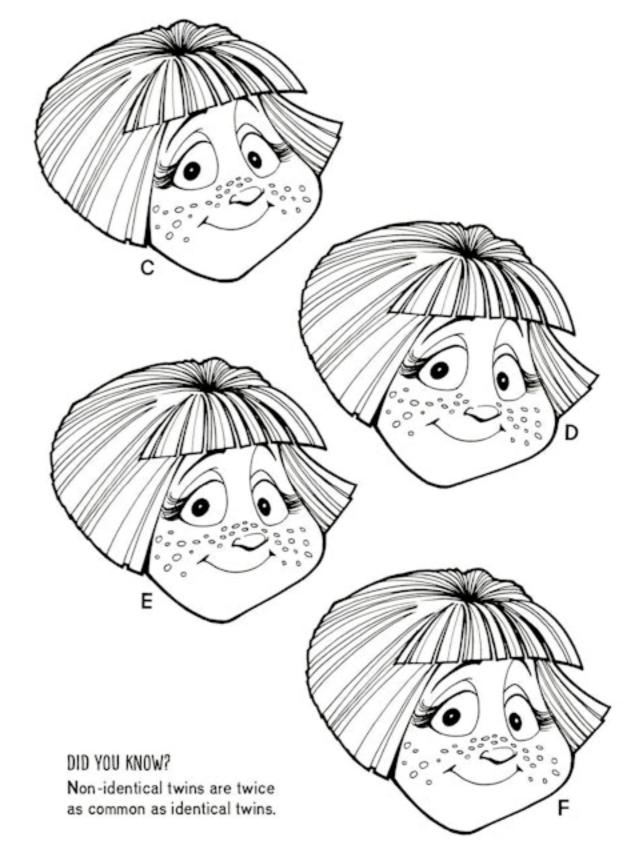
Write in the names of the organs on the opposite page using the silhouettes below.



# SPOT THE TWIN

Identical twins look almost the same – but look very closely and you may spot the difference!



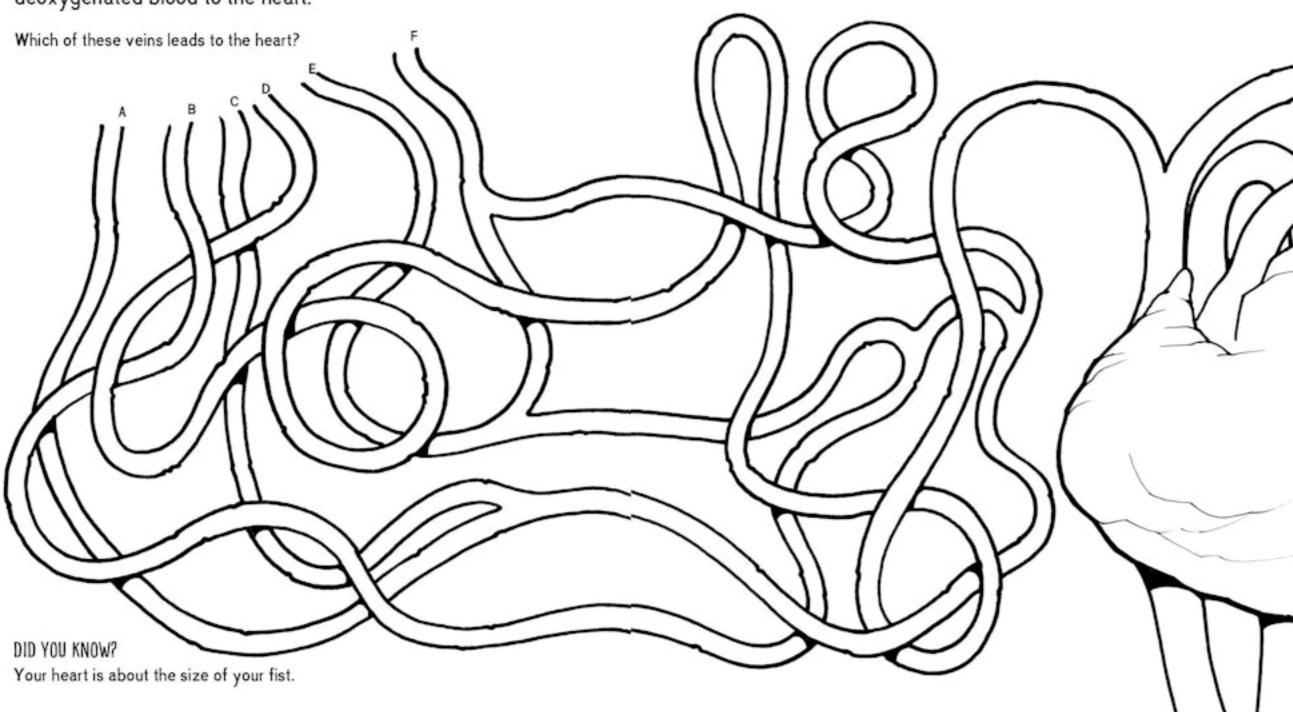


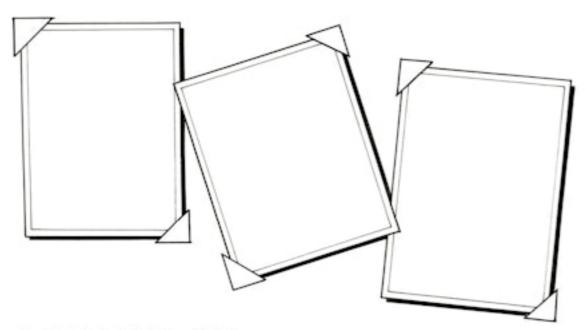
# VEIN MAZE

A network of tubes called veins carry deoxygenated blood to the heart.

#### DID YOU KNOW?

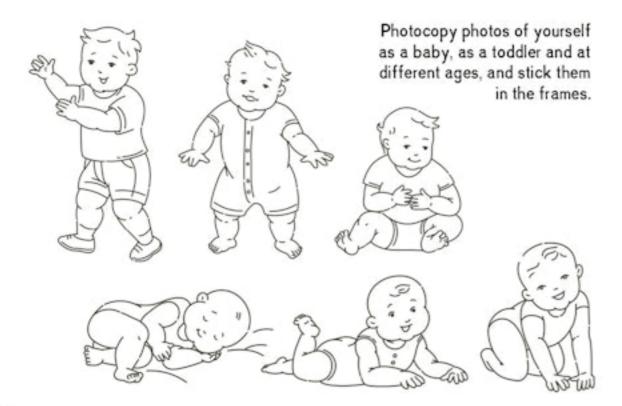
The blood in your veins looks reddish-purple, because it is low in oxygen.

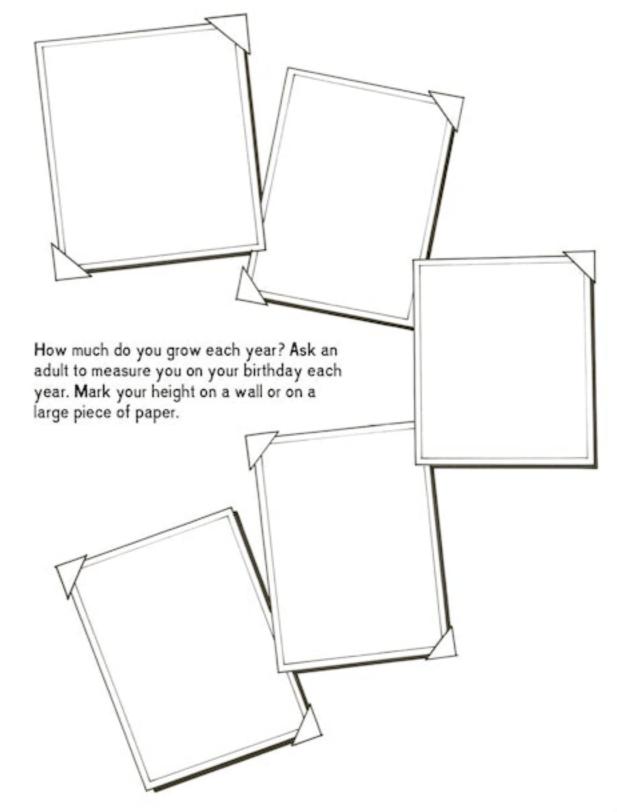




# GROWING UP

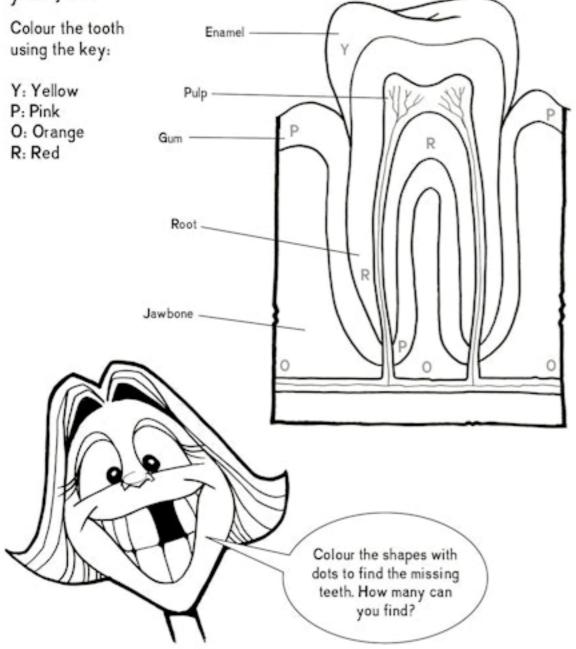
YOUR BODY HAS CHANGED A LOT SINCE YOU WERE LITTLE!

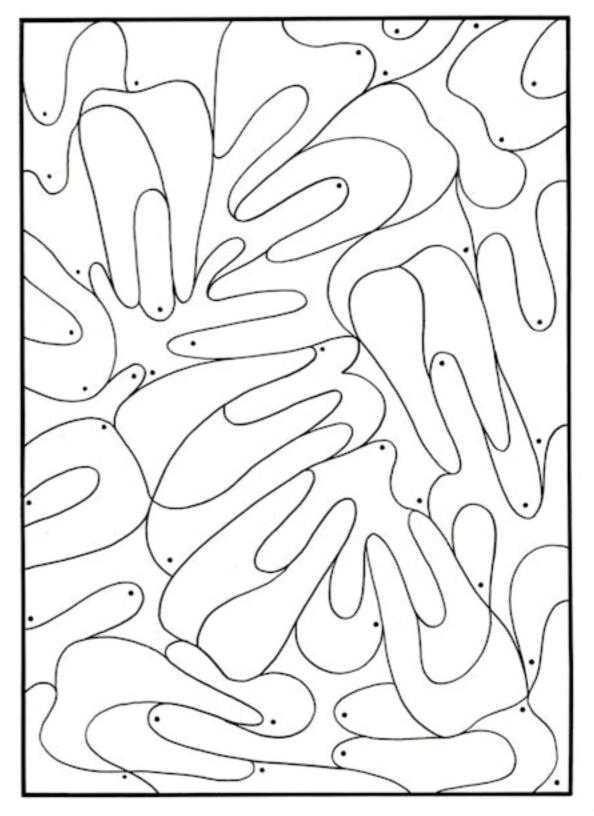




### FIND THE TEETH

The top or crown of your teeth is covered with super-hard enamel. The soft pulp inside is supplied with blood. The root anchors the tooth in your jaw.





# GAPPY GRINS

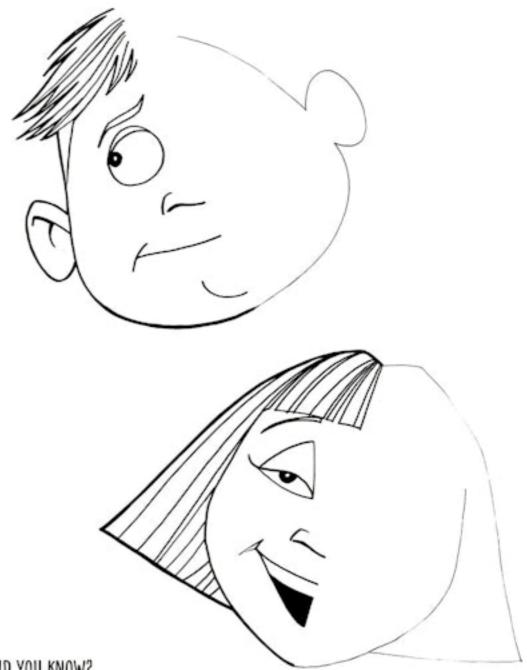


# COMPLETE THE FACES

The two sides of a face never match exactly.

Draw in the other sides of these faces.

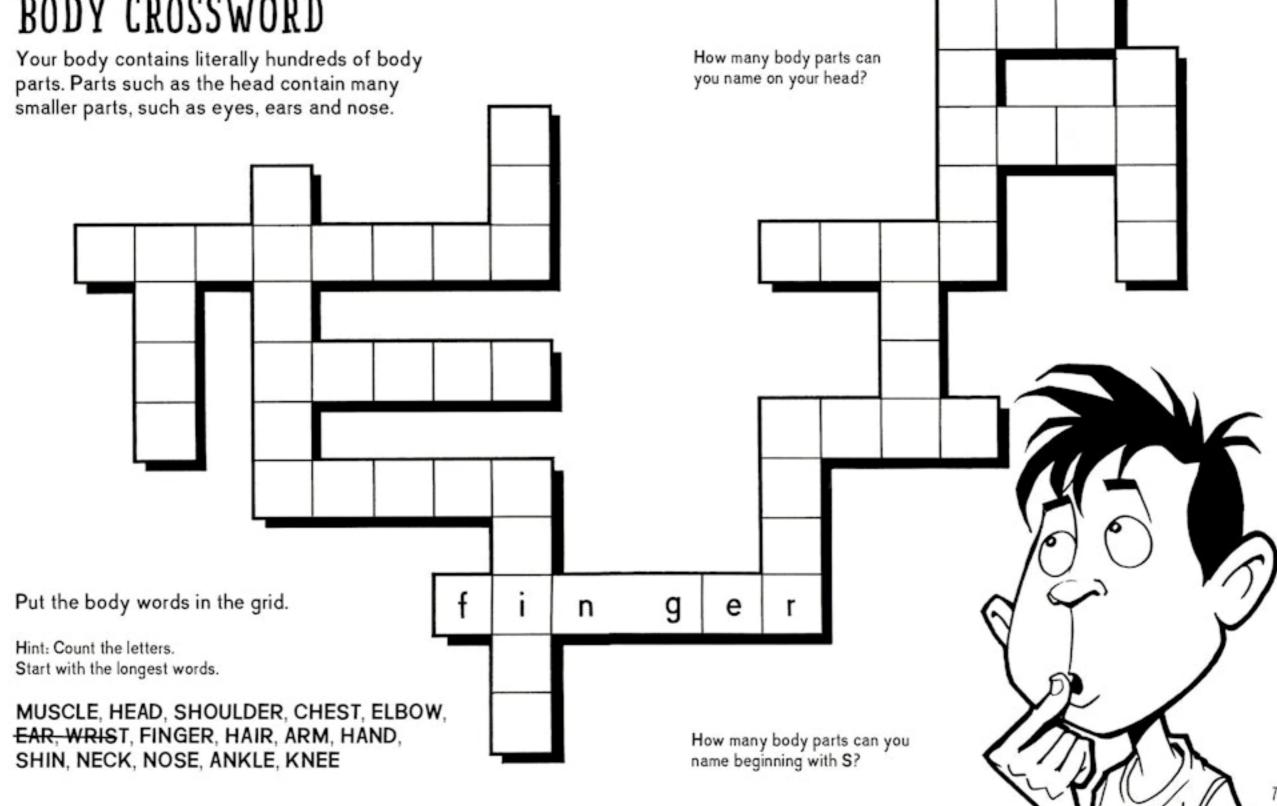




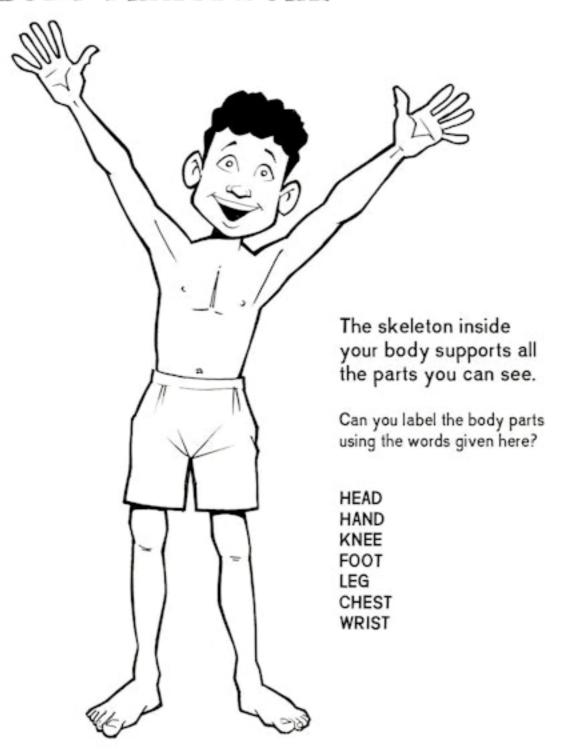
DID YOU KNOW?

When you look in a mirror the image is reversed. So you never see yourself exactly as others see you!

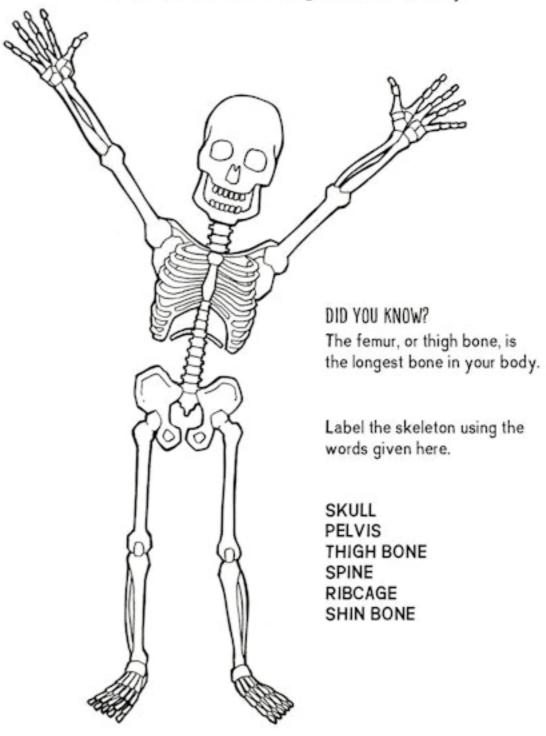




### BODY FRAMEWORK



Your skeleton contains bones of different shapes and sizes. Some are large, others are tiny.



# MATCH THE SKELETONS

The adult skeleton contains about 206 bones. The smallest bone is located in the middle ear, and is called the stapes.





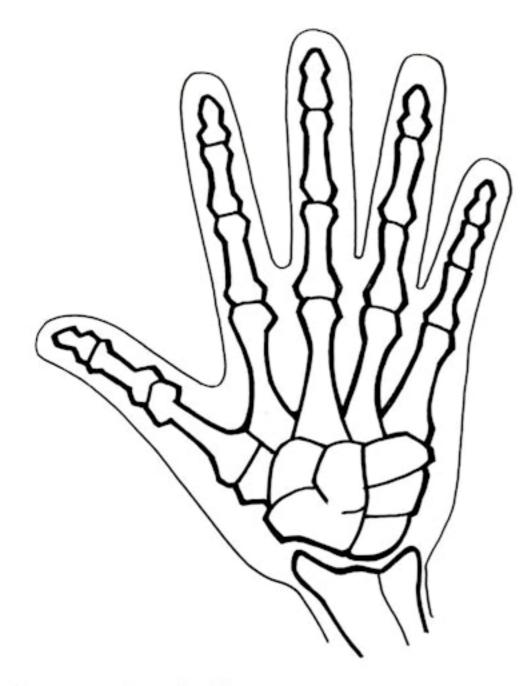








### DRAW YOUR OWN HAND



Draw around your hand.
Then add the bones inside, as shown above.

### DID YOU KNOW?

Each of your hands has 27 bones. These small bones allow you to carry out all sorts of actions, such as gripping, stroking and threading a needle.

### FUNNY FACES

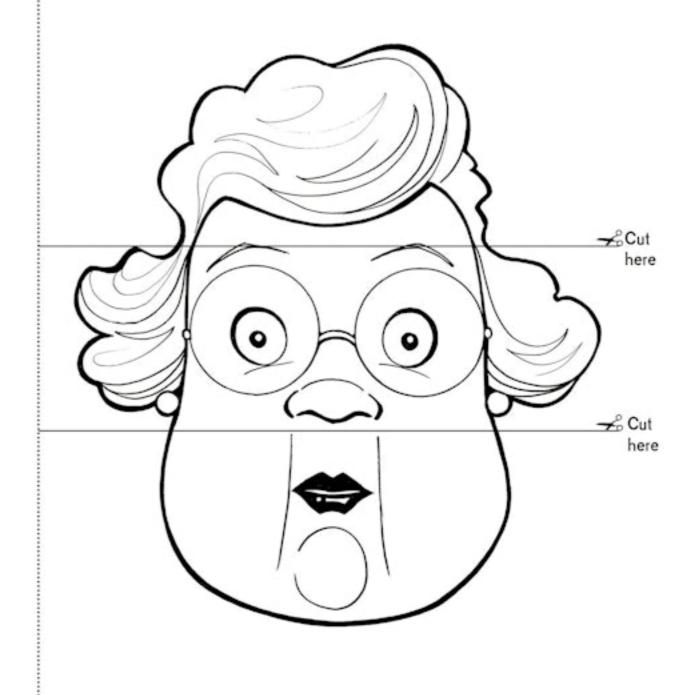
YOUR FACE HAS MANY MUSCLES, WHICH ALLOWS YOU TO PULL ALL SORTS OF FUNNY FACES.

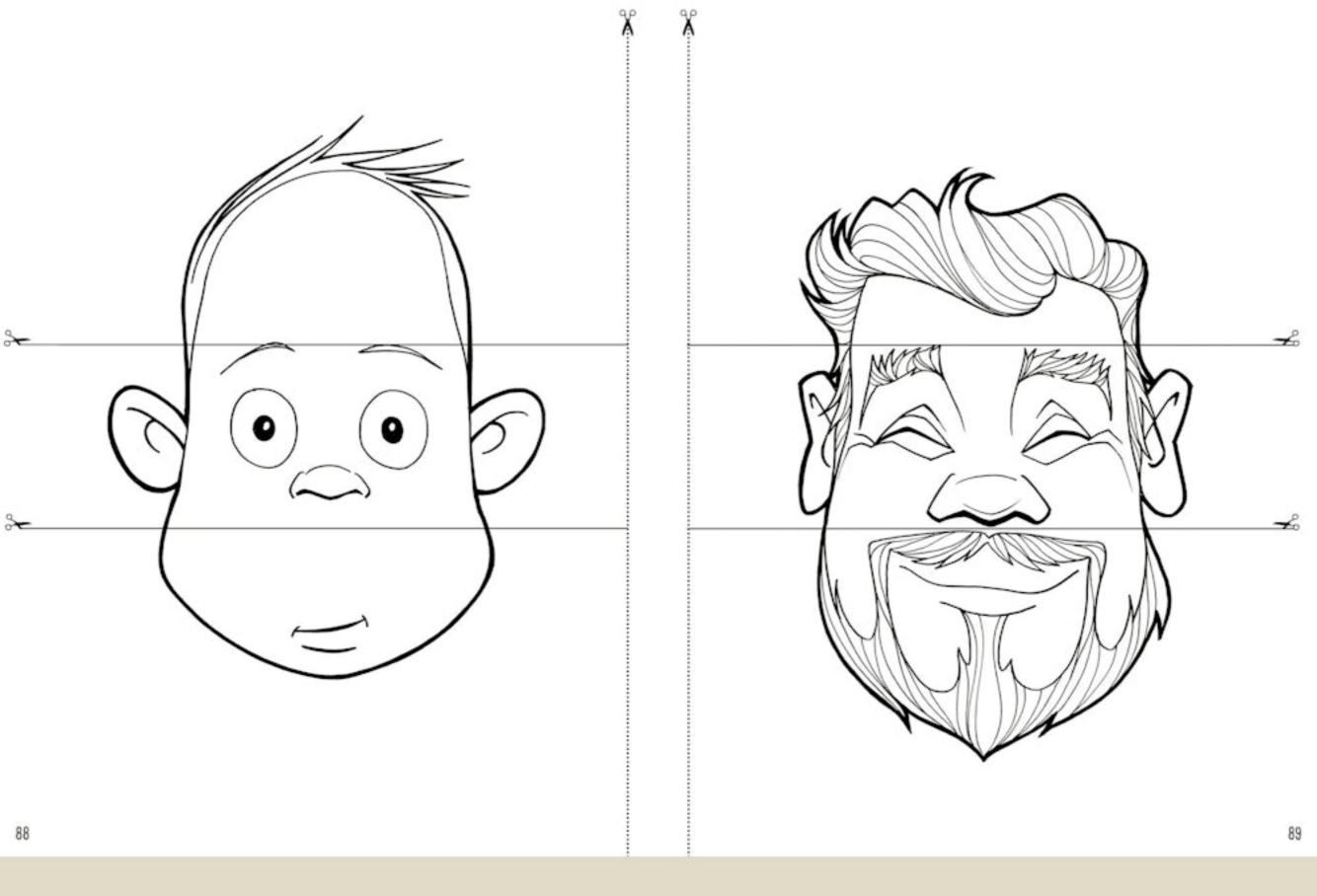
### How many faces can you pull?

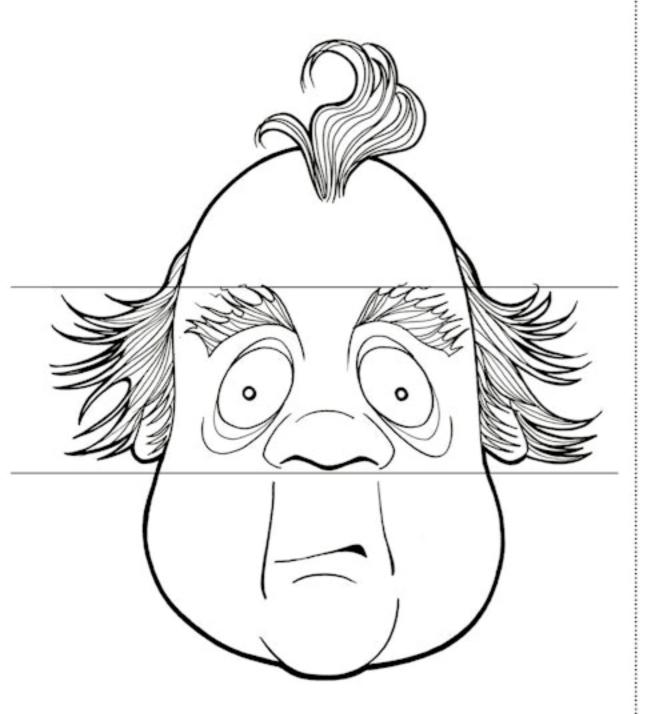
Colour in the faces on the next five pages. Cut along the lines to separate the top, middle and bottom parts of the faces. Swap the strips to make weird and wacky faces that have never been seen before!

(If you don't want to cut the book, trace the pictures instead.)



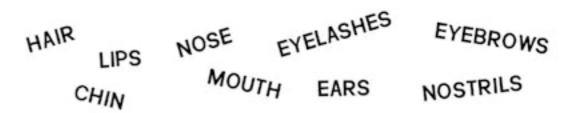






## PARTS OF THE FACE

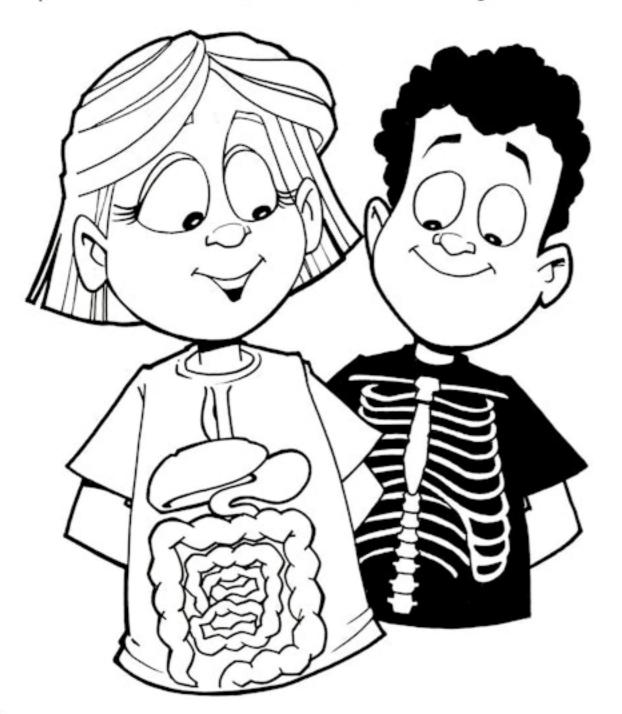
Find the words for parts of the face hidden in the wordsearch grid.



G	Υ	В	L	٧	Ν	0	S	Ε	Н
L	Н	Α	I	R	L	J	T	Υ	T
J	Т	С	Р	R	N	Υ	S	E	Ν
Р	1	R	S	J	С	В	L	L	М
W	Q	Е	F	T	X	Р	i	Α	0
N	E	Υ	E	В	R	0	W	S	U
Α	W	U	Α	N	W	С	E	Н	T
L	Р	Н	R	ı	E	Н	0	E	Н
D	N	0	S	T	R	i	L	S	E
С	Z	В	Р	Α	0	Ν	U	Α	0

# SPOT THE DIFFERENCE

Spot seven differences between these two drawings.



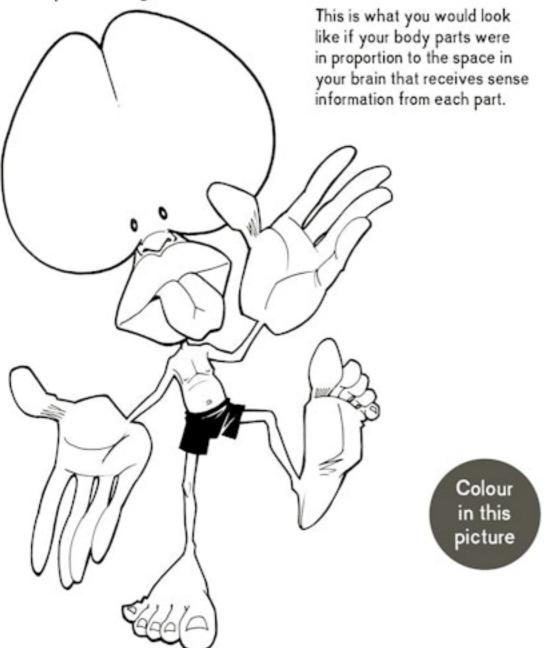
### DID YOU KNOW?

Your ribcage protects your digestive system, as well as delicate parts such as your heart and lungs.



### THE FIVE SENSES

Your five senses are sight, smell, hearing, taste and touch. Your sensory organs – the eyes, nose, ears, tongue and skin – collect information about our environment and send it to the brain for processing.



Draw your own version!

### DID YOU KNOW?

The most touch-sensitive areas are your lips, your tongue, the palms of your hands and the soles of your feet.

# DOTTY HANDS

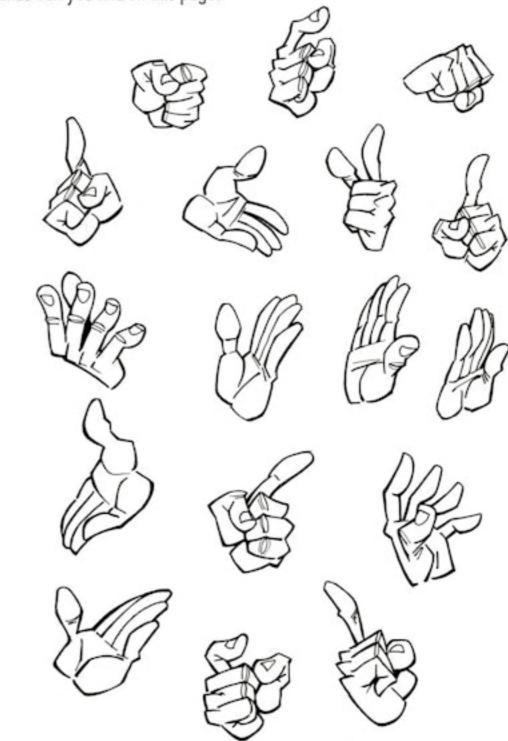
Having a thumb allows you to grip all sorts of objects, from a pea to a pencil.

Monkeys and apes also have thumbs, which helps them to climb trees.



Join the dots, then colour in what you have drawn.

How many left hands and how many right hands can you find on this page?



### BONE CROSSWORD

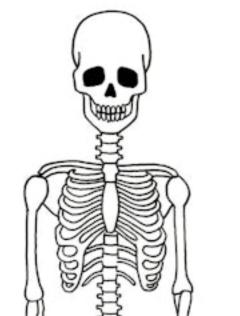
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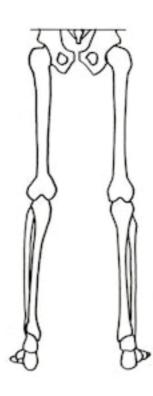
S

Fit the bone names in the grid.

DID YOU KNOW? The humerus and radius are arm bones. Hint: Count the letters. The femur, patella, tibia and tarsals are in your legs and feet. The phalanges are your toe and Fill in the shortest and the longest words. finger bones. TIBIA RADIUS SKULL CLAVICLE HUMERUS FEMUR PELVIS FIBULA SCAPULA PATELLA RIBS TARSALS STERNUM PHALANGES u m e

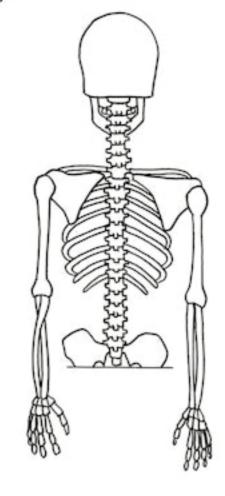
# DRAW THE SKELETONS

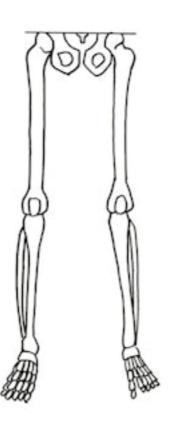




### DID YOU KNOW?

Some of your bones are long and thin, others are flat or rounded. All are tough and strong!



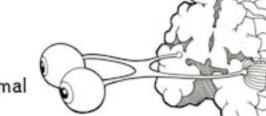


## THE ULTIMATE BODY QUIZ

GET READY TO TEST YOUR HUMAN BODY KNOWLEDGE IN THIS ULTIMATE BODY QUIZ!

- 1. How many bones make up a human skeleton?
- 2. There are five basic senses can you name them all?
- 3. What is the main organ in the respiratory system?
- 4. The blood in your veins looks reddish-purple.
  This is because it's low in what?
- 5. How many sets of teeth do humans have in their lifetime?
- 6. What is the longest bone in the human body?
- 7. How many bones are in each human hand?
- 8. Your ribcage protects which two vital organs?
- 9. What is the name of the tube that carries food from your mouth to your stomach?
- 10. The pancreas is an important organ in your digestive system, but what does it do?





- 11. What is the largest animal in the world?
- 12. How long is the small intestine?
- 13. What is the smallest bone in the human body and where is it located?
- 14. What is the name of the system that pumps blood throughout your body?
- 15. A human's brain is about the same size as their fist? True or false?
- 16. What are the four main tastes?
- 17. What hole in our eye does light pass through to the reach the lens?
- 18. There is only one movable joint in your entire skull. Which is it?
- 19. How fast can signals race along our nerves?
- 20. Which artery carries oxygen-low blood from the heart to the lungs?

Don't forget to colour in your certificate on page 112!

### GLOSSARY

ARTERY A blood vessel that transports blood away from the heart.

BLOOD A red liquid that circulates oxygen, nutrients and defence cells to all parts of the body, keeping everything working.

BONES Rigid body tissue inside a human or animal that make up its skeleton.

BRAIN The complex organ that controls your whole body. It is protected by your skull and sends signals to different areas to control different functions.

CELLS The basic building-blocks for all life. Cells combine to make each organ and body part.

CIRCULATION The continuous movement by which blood travels throughout the body.

HORMONE A chemical messenger that travels through the blood and sends signals to parts of the body.

LIVER A vital organ that filters toxins from the blood.

LUNGS The centrepiece of your respiratory system. The lungs are two spongy bags in your chest. They bring air in and out of the body. MUSCLES A piece of tissue that connects two bones. Muscles make it possble for us to move.

ORGAN A group of tissues with an important, specific function to carry out. The heart, lungs and kidney are examples.

PANCREAS A large organ behind the stomach that produces hormones, such as insulin, to help with digestion and blood sugar regulation.

PULSE The rhythmic throbbing of arteries as blood is pumped through them, often felt in the wrists and neck.

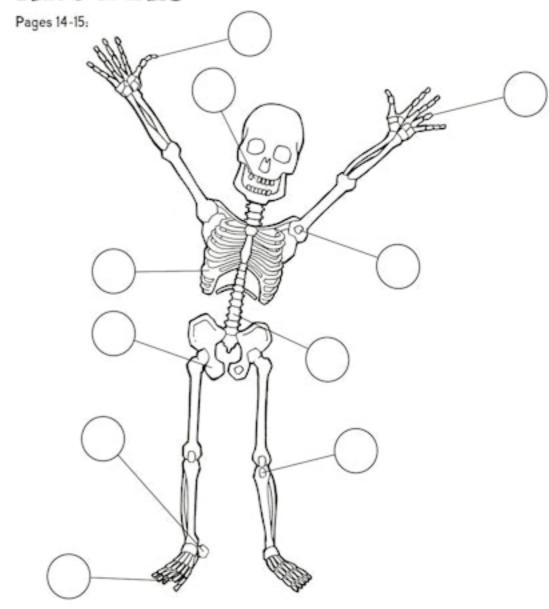
RESPIRATION The process of producing energy, breathing in oxygen and breathing out carbon dioxide.

SENSES The way in which the body recieves information about the world around us. The five main senses are touch, taste, smell, sight and hearing.

SKELETON The framework of bones that supports your body and keeps it upright.

VEIN A blood vessel that transports blood towards the heart.

### ANSWERS

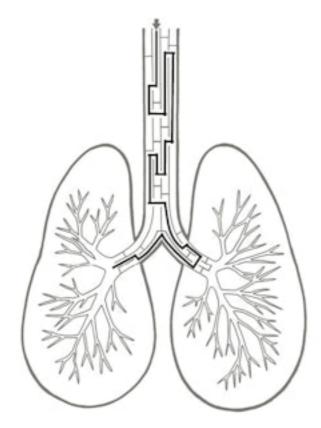


Pages 22—23: 1 Kidney, 2 Brain, 3 Intestines, 4 Lungs, 5 Heart, 6 Stomach, 7 Spleen, 8 Pancreas

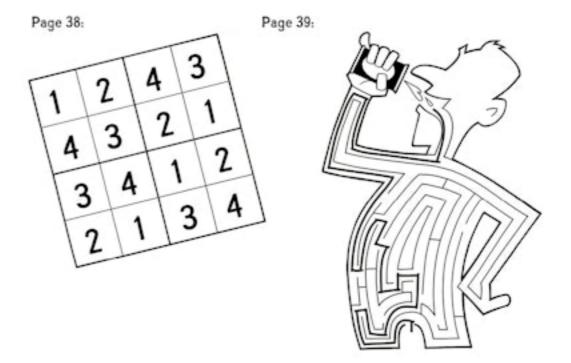
Page 29:

Bread = Carbohydrates, Milk = Calcium, Meat = Protein, Fruit = Vitamins and minerals, Chips = Fat and sugar

Page 34:



Pages 36-37: S n t e s i s m t n e a d V 0 m u Ы e d d e r 0 a d 0 С h 0 e n d C C n (5) a p d Ph P e a g n 0 е 0 u S X S d C P 0 n ct u m Г e n s p e e



Pages 40-41:

There are at least 40 words of three letters or more that can be made. Here are some of the more interesting ones:

3 letters: dig, tie, sit, get, set, vet, dim, sty, met, tee, yes

4 letters: vest, ties, tide, side, seed, meet, digs, time, diet, miss

5 letters: sieve, stems, styes, misty, times, visit, sissy, midge, messy

6 letters: devise, desist, detest, smites, tester, midget, digits

8 letters: vegetist, misgives, vestiges, mistiest

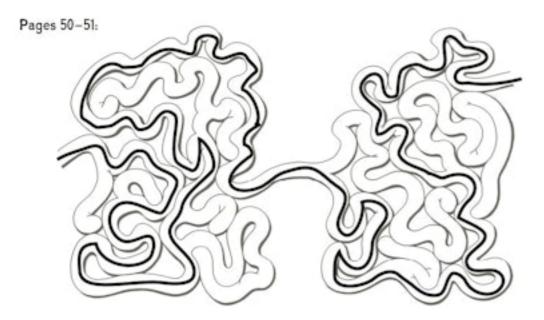
You may have to look some of these up in the dictionary.

Pages 44-45:

A Angry, B Smiling, C Giggly, D Laughing, E Frightened, F Tired, G Alarmed

Pages 46-47: 11 pairs.

Pages 48-49: A4, B6, C9, D1, E8, F3, G7, H2, I5



Page 57:



Page 61:

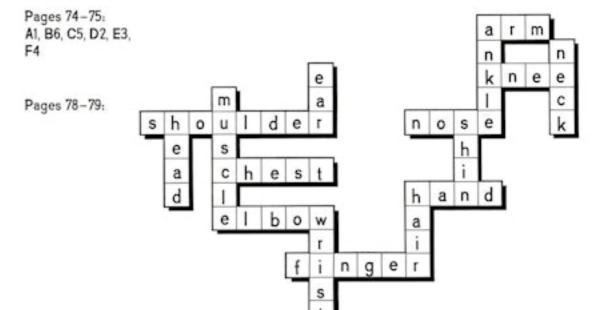
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E	U	V	0	A	0	R	T	A	U
Y	L	E		R	Р	U	J	Т	Р
J	M	F	N	T	J	N	C	R	Е
K	0	1	F	Е	L	0	Н	V	R
1	N	Χ	Е	R	G	Т	W	L	1
L	A	D	R	Y	F	Z	Α	Н	0
D	R	Α	1	J	N	E	0	1	R
Q	Y	C	0	R	0	N	Α	R	Y
S	T	٧	R	В	В	V	E		N)

Pages 64-65: A Heart, B Lungs, C Liver, D Stomach, E Pancreas, F Kidney, G Bladder

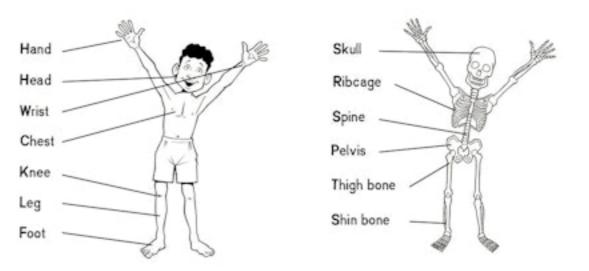
Pages 66-67: E.



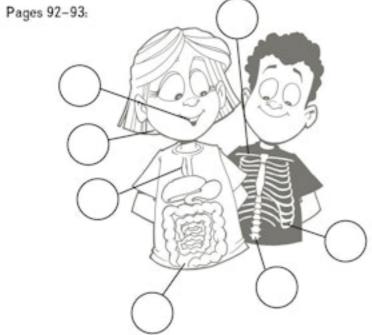
Page 72:



Pages 80-81:

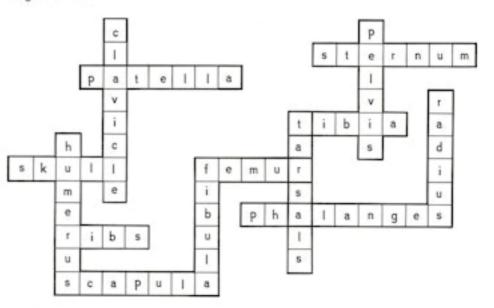


G	Υ	В		٧	(N	0	S	P	Н
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J	T	C	Р	R	N	Υ	S	E	N
Р	1	R	S	J	С	В	L	L	M
W	Q	E	F	T	Χ	Р	1	Α	0
	1								
N	Œ	Υ	(E)	В	R	0	W	S	U
A	W	Y	A	B N	R	0	E	S	U
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Page 97: 9 right and 8 left.

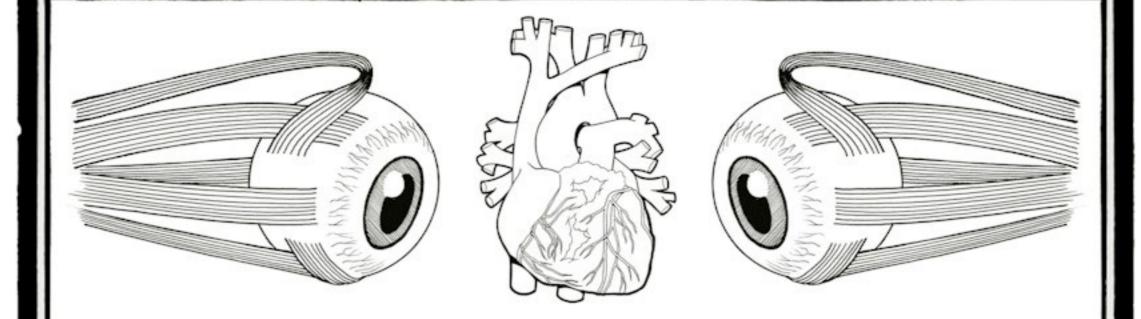
### Pages 98-99:



### Pages 102-103:

The Ultimate Body Quiz answers:

- 1 = 206
- 2 = The five main senses are touch, taste, smell, sight and hearing.
- 3 = The lungs
- 4 = Oxygen
- 5 = Two
- 6 = The femur (thigh bone)
- 7 = 27
- 8 = The heart and the lungs.
- 9 = The oesophagus (or food pipe)
- 10 = The pancreas produces hormones, such as insulin, to help with digestion and blood
- 11 = Blue whale
- 12 = Up to 6 metres
- 13 = The stapes, located in the middle ear.
- 14 = The circulatory system
- 15 = True
- 16 = Sweet, sour, bitter and salty
- 17 = The pupil
- 18 = The lowerjawbone
- 19 = Up to 400kph
- 20 = The pulmonary artery



# CERTIFICATE OF BOREDOM BUSTING

THIS CERTIFICATE IS PRESENTED TO

DOCTOR .....

UPON THE COMPLETION OF ALL ACTIVITIES IN THIS BOOK.

**CONGRATULATIONS!** 

