

Your Brilliant Brain



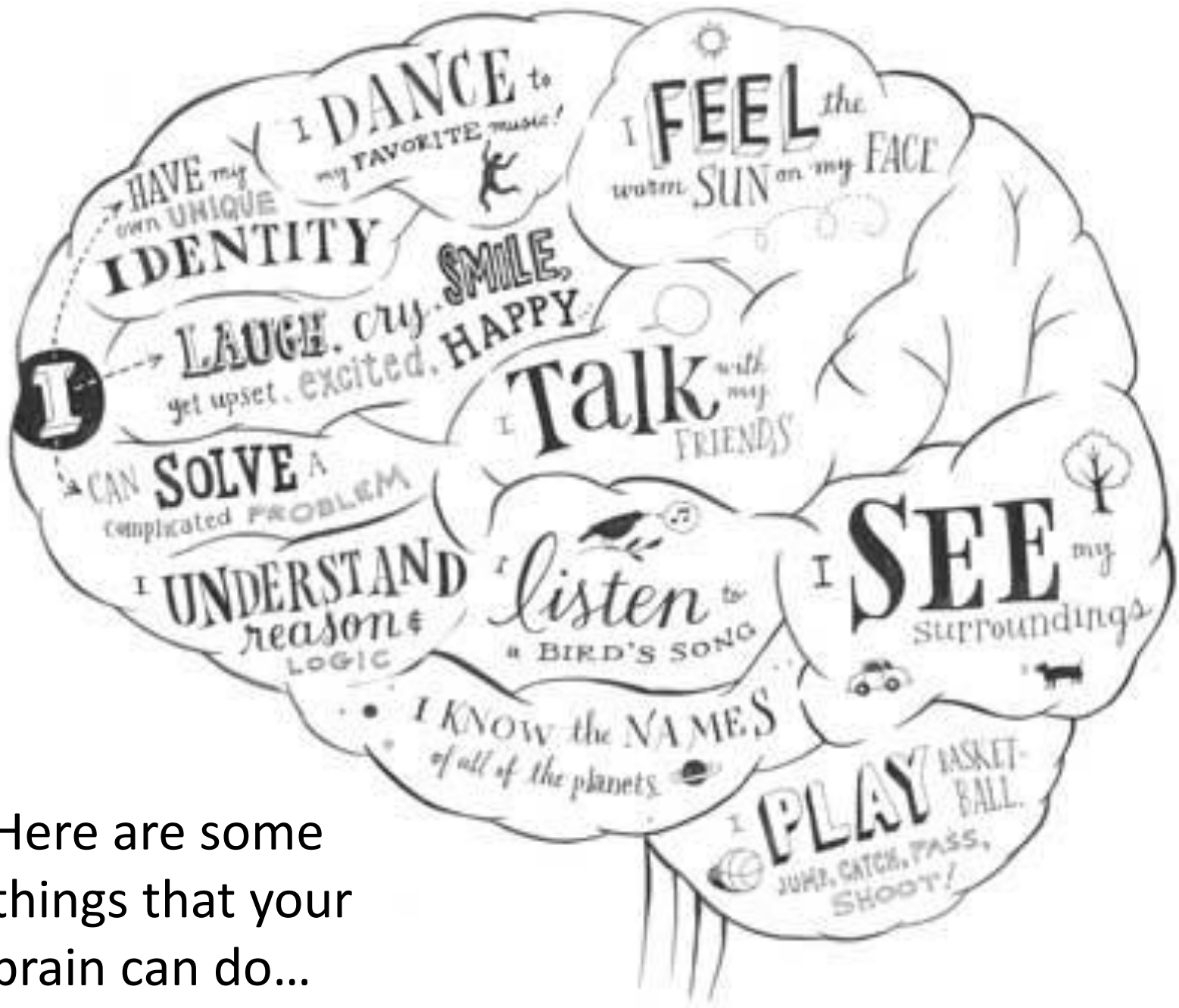
Your Amazing Brain



The human brain has been described as being like a powerful computer that stores our memories and controls how we think and feel. Our brains can do more than the biggest computer in the world

Can you make a list of some of the things your brain can do?



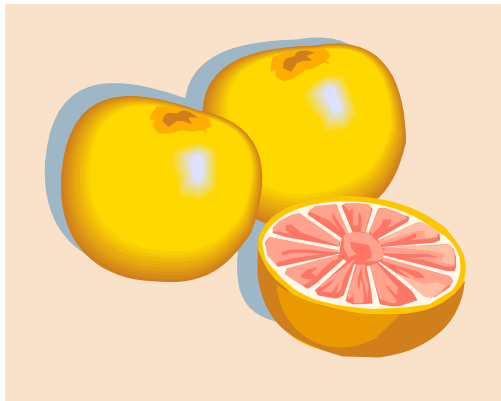


Here are some things that your brain can do...



What is your brain like?

- What do you think these items tell you about the brain e.g. size, weight, how it feels?



What is your brain like?



- The adult human brain is a wet fragile mass that weighs about 1.5kg (large bag of flour).



- It is about the size of a small grapefruit and it can fit in the palm of your hand!



- It has ridges that make it look like a walnut



Did you know?

- At birth the brain is about 25% of its adult weight, by the age of 2 this has increased to 75% and by the age of 3 it is about 90% of the weight.



The brain has 4 parts...

**Frontal
Lobe**



**Parietal
Lobe**



**Occipital
Lobe**



**Temporal
Lobe**





Frontal Lobe

Where is it and what does it do?

The frontal lobe (the bit in blue in the picture) is at the very front of the head, where your forehead is.



It helps with:

- **Decision making e.g. what to have for breakfast**
- **Problem solving e.g. how to get to school if you missed the bus**
- **Planning**
- **Your personality –your unique characteristics**



Parietal Lobe – where is it and what does it do?

The parietal lobe is the yellow part in the picture and is located towards the back of the top of your head.



Helps you with:

- **Taste**
- **Temperature**
- **Touch**
- **Processes sensory information**



Occipital Lobe – where is it and what does it do?

The occipital lobe is located at the bottom back part of the head in green here.

It helps you to...

- Make sense of what we are seeing from the visual information that is coming in from the world around us such as people, buildings, countryside, animals etc.
- Make sense of emotional information conveyed through body language (smiling, arms crossed etc), signs, symbols and written language.



What do you see in the picture? Ask you brother, sister, mum or dad. Do they see the same?



Did you see a duck? A rabbit? Something else?

- Sometimes people can interpret the same visual information in a different way.
- Sometimes it is difficult to see the first animal you saw once you have seen another. Click back and try it.
- This can happen in other situations too e.g. in the playground. Different people might experience the same situation differently or recount a story differently to a friend.



Temporal Lobe – where is it and what does it do?



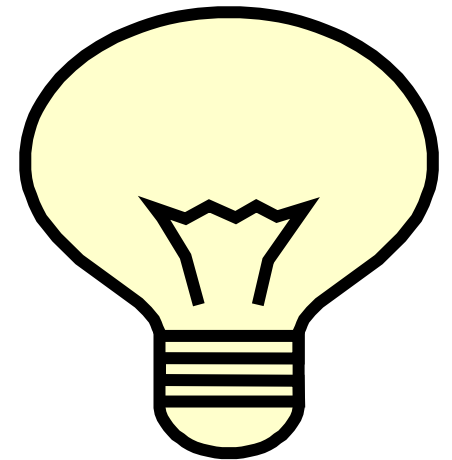
The temporal lobe is the pink bit in the picture and it is located at the bottom middle part of the head, right behind the temples.

This part of the brain:

- **Involved with hearing and selective listening**
- **Receives sensory information such as speech or sounds**
- **Makes sense of what we hear**
- **Helps us to understand what someone is saying**

More about the brain

- **We use most of our brain most of the time – even when we are asleep!**
- **When we are awake the brain produces enough energy to power a small light bulb!**
- **Although it is only 2% of our body weight, it uses 20% of the calories we eat**
- **The more we think the more calories we burn!**



The brain is LIKE a muscle-

- The brain is like a muscle- it changes and gets stronger when you use it.
- Like our muscles get stronger through exercise, our brains get bigger and stronger through learning and practice.

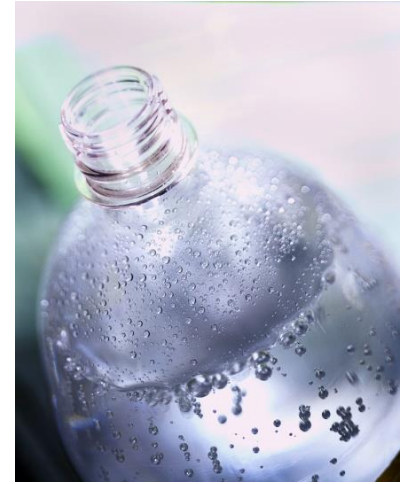


**What 4 things does
your brain need?**



Answer...

- Sleep
- Water/Hydration
- Food
- Exercise



Water or hydration

- Our brains need to be hydrated to work properly. Your brain loses efficiency if you don't drink enough and water is best.
- When we're thirsty, we have more difficulty keeping our attention focused.
- Dehydration can impair short-term memory and the recall of long-term memory.
- The ability to perform mental maths calculations can be compromised when you have not had enough to drink.



**Fruit and
vegetables**

**Bread, rice,
potatoes, past
and other starchy fo**



**Meat, fish,
eggs, beans
other non-dairy
sources of protein**

**Food and drinks
high in fat and/or sugar**

**Milk and
dairy foods**

**A
balanced
diet**



Exercise

- Exercise makes your heart beat faster which is great for your body and your mood
- Scientists have recently learned that for a period of time after you've exercised your body produces a chemical that makes your brain more willing to learn.

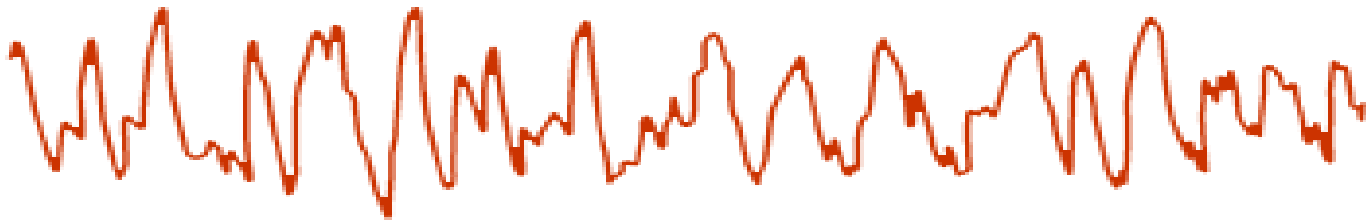
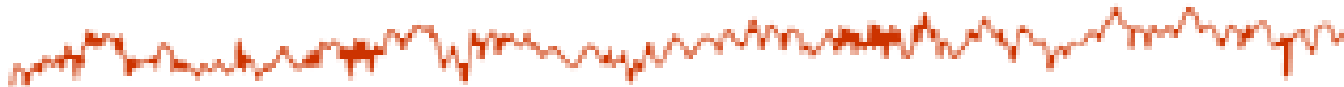
Exercise



- How much exercise do you do each week?
- NHS choices recommend to maintain a basic level of health, children and young people aged 5 to 18 need to do:
 - at least 60 minutes of physical activity every day – this should range from moderate activity, such as cycling and playground activities, to vigorous activity, such as running and tennis
 - Children and young people should reduce the time they spend sitting watching TV, playing computer games and travelling by car when they could walk or cycle instead.
- Some schools encourage pupils to run a mile a day. What could we do in our school to increase our exercise? What other brain breaks could we do?

Sleep

- **These waves show a person's brain activity while they are awake and asleep.**
- **Which do you think is for when a person is awake?**

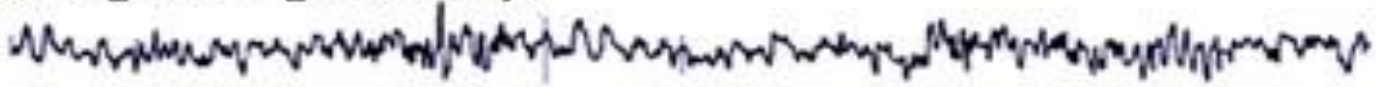


Did you guess correctly?

Relaxed / Waking



Stage 1 Light Sleep



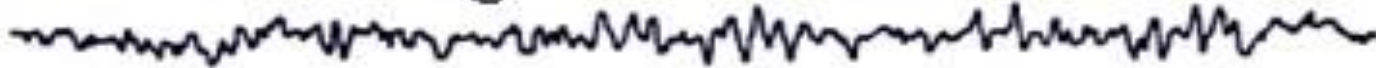
Stage 2 Light Sleep

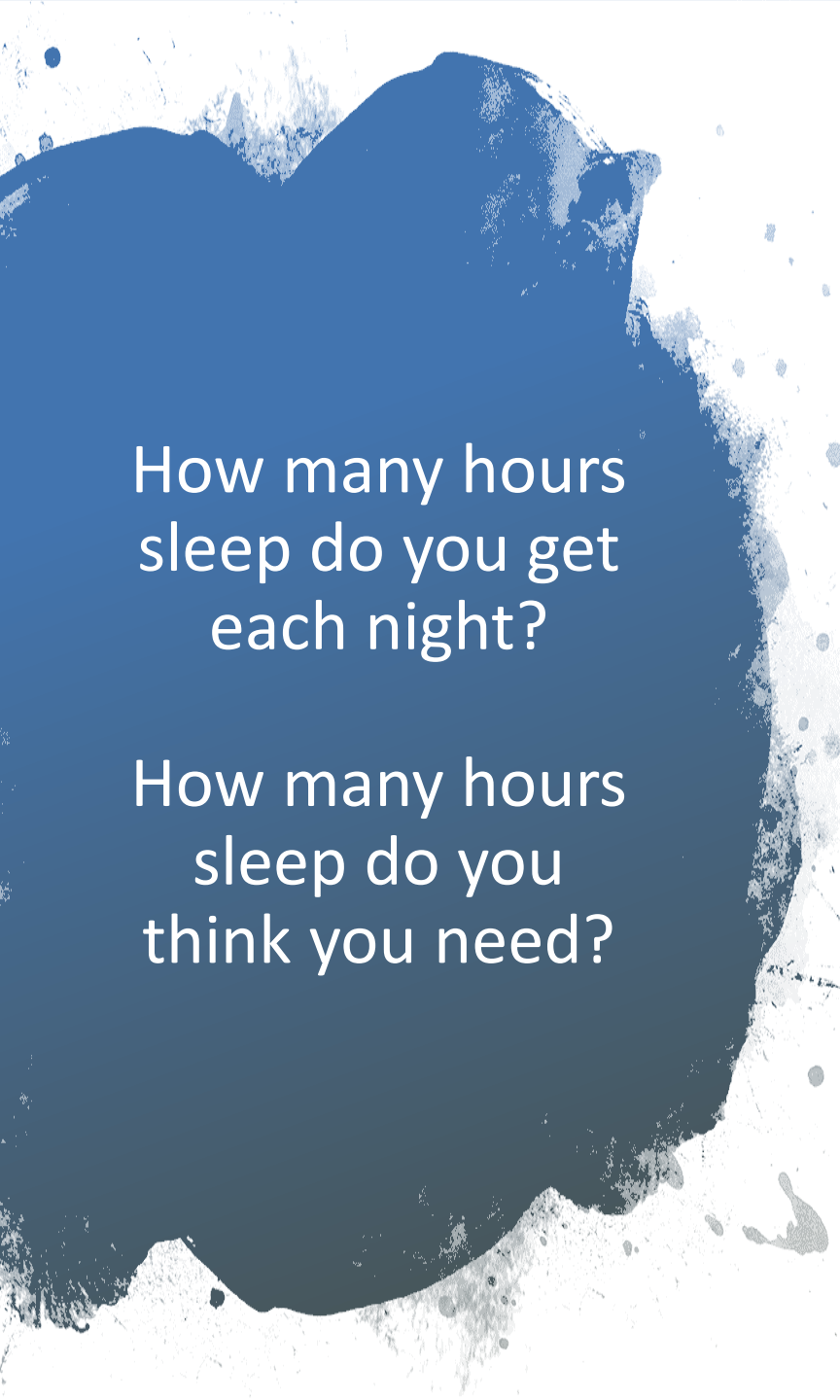


Deep Sleep



REM / Dreaming





How many hours
sleep do you get
each night?

How many hours
sleep do you
think you need?

NHS Choices
recommendations the
following:


- **5 years** - 11 hours
- **6 years** - 10 hours, 45 minutes
- **7 years** - 10 hours, 30 minutes
- **8 years** - 10 hours, 15 minutes
- **9 years** - 10 hours
- **10 years** - 9 hours, 45 minutes
- **11 years** - 9 hours, 30 minutes
- **12 years** - 9 hours, 15 minutes
- **13 years** - 9 hours, 15 minutes
- **14 years-16 years** - 9 hours

Now our brain is ready to learn, what else can help?





Paying Attention and Good Memory

- **Here are 2 fun activities to try to see how much attention you are paying today and what your memory is like...**
- 

1. Kim's Game



Ask your brother or sister or Mum/Dad to play this game with you.



Put a selection of objects on a tray (10 - 15 would be a good number)



Talk about each object one at a time.



Take a couple of minutes to focus on each item. Can you think of ways to remember them?



Somebody (perhaps the adult) should cover the tray with a tea towel and take one object away.



Can you guess which object is missing.



Replace the item and then take turns to remove an item and guess.

2. Stroop test
– Read the following list aloud – say the colour that you see and not the word that is written.

red blue orange purple

orange blue green red

blue purple green red

orange blue red green

purple orange red blue

green red blue purple



Science for Kids – Brilliant Brains


If you would like to learn more about the brain, how it works and what it can do, follow the link below to watch an episode of (or some of it) **Operation Ouch!**

<https://www.youtube.com/watch?v=GUCcsMmZVec>

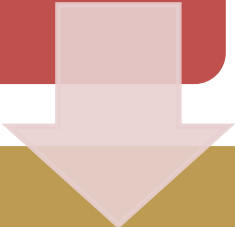

Dr Chris and Dr Xand look at the amazing things our brains can do! Operation Ouch is a British Science Show for kids that is full of experiments and biological learnings.

Today we
were
learning...

What your
brain looks
like



What each
part of your
brain does



What your
brain needs
to work well

