

**Activity 1**

Look at these questions. Can you guess the correct answer?

1. How many cells are there in your brain?  
a) a million                      b) a billion                      c) a 1,000 billion
2. How many layers of meninges protect your brain?  
a) three                              b) four                              c) six
3. How much does the average adult human brain weigh?  
a) 1kg                                b) 1.4kg                              c) 1.9kg
4. Which part of your brain controls speech?  
a) The cerebellum    b) The cerebrum    c) The brain stem
5. What does the cerebellum control?  
a) emotions                      b) breathing                      c) movement
6. The olfactory bulb is linked to which sense?  
a) smell                              b) sound                              c) sight

Now read the text about the brain and check your answers. How many did you guess correctly?

**Activity 2**

Read the article again and find words that have the following meanings:

1. (v) to let a substance spread into the atmosphere or area around it, often as part of a chemical reaction (paragraph 1).
2. (v) to give something energy to make it work (paragraph 1).
3. (adj) easily damaged or broken (paragraph 2).
4. (n) the process or thing that helps keep something safe from injury or damage (paragraph 2).
5. (v) to stop something from happening (paragraph 2).
6. (v) to be responsible for something (paragraph 3).

7. (n) physical harm or injury (paragraph 3).
8. (v) to make something do what you want it to do (paragraph 4).
9. (v) to organise things so that they work well together (paragraph 4).
10. (v) to join two things together (paragraph 5).

## The Brain

The brain is probably the most important organ in your body. Of course, you need all your organs, but your brain is the control centre for the whole of your body. It contains over 1,000 billion cells and when your brain is working hard it releases enough energy to power a small light bulb – maybe that’s why when someone is thinking we think of a light bulb above their head!

Because the brain is so important, and because it is quite delicate, it is well protected. The first layer of protection are the meninges – three layers of little sponge like membranes. Between these there is a clear fluid which also helps prevent infection. And, finally, the outer layer – the skull. The brain is made up of four main regions – the cerebrum, the cerebellum, the limbic system and the brain stem – each with its own set of functions.

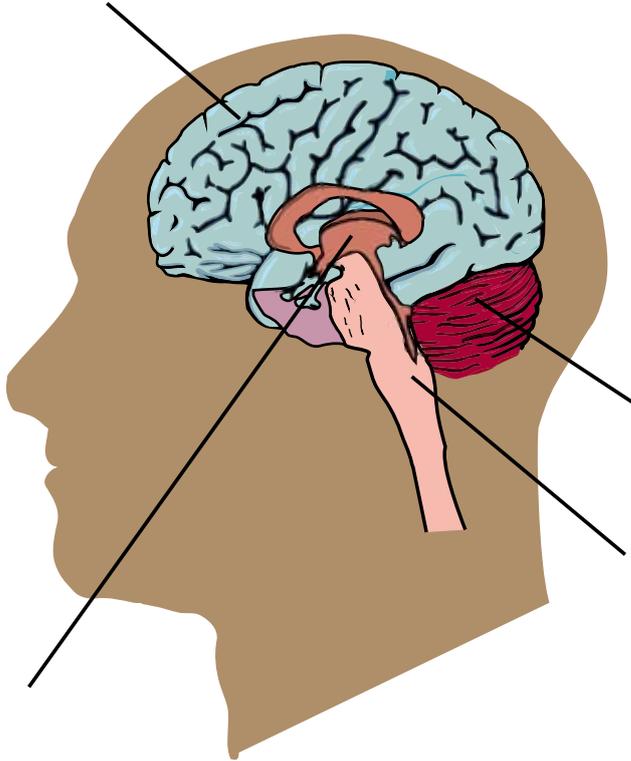
The cerebrum is the largest part of the brain and makes up about 85 per cent of the weight of the brain (usually about 1.4kg). The cerebrum is the part of the brain that deals with emotions and feelings and is divided into two hemispheres – right and left. Near the front of the cerebrum is the frontal lobe. This area is used for thinking, solving problems, speech and emotions. Sometimes people who damage this part of their brain have problems speaking or knowing what is right or wrong. The middle part of the cerebrum is the part that deals with senses like touch, temperature and pain. And, strangely, right at the back is the area which deals with what you see.

The cerebellum is at the back of your head underneath the cerebrum. This is the part of your brain that controls the muscles and movement. So, when you want to lift something with your right hand, this is the part of your brain which controls the movement of your arm, hand and fingers and coordinates everything so that you are able to carry out the action.

The limbic system is made up of a number of different areas that help control emotions and feelings. At the very centre is the thalamus which helps your brain know what is happening outside your body. This part of your brain sits directly on top of the brain stem. The only one of the senses directly controlled from this area is the sense of smell through the olfactory bulb. Finally, the brain stem is the part which connects your brain to the rest of your body through the spinal cord. It helps control your heart rate, blood pressure and breathing.

Activity 3

Can you label this diagram of the brain?



## The Brain

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**Level**

Pre-intermediate/Intermediate

**Topic**

The Brain

**Subject(s)**

Science

**Time (approx)**

Activity 1: 10 - 20 minutes

Activity 2: 10 - 20 minutes

Activity 3: 10 minute

**Preparation**

All activities: One photocopy for each student.

**Activity 1**

- 1 On the board write *The Brain* and ask the students to tell what they know about it.
- 2 Write up the ideas that the students give you.
- 3 Hand out the worksheet and ask the students to choose the answer they think is correct.
- 4 Put the students in pairs and get them to check and discuss their answers together.
- 5 Hand out the article and get the students to check their answers by reading through the text quickly.
- 6 Finally, check the answers with the class.

**Answers**

- 1c) a 1,000 billion  
 2a) three  
 3b) 1.4kg  
 4b) cerebrum  
 5c) movement  
 6a) smell

**Activity 2**

- 1 Hand out the worksheet and the article and explain that you want the students to find words in the text that match the definitions.
- 2 If you like, go through the first definition as an example. Read it out and ask the students where they'll find the word (paragraph 1). Give the students a couple of minutes to read through paragraph 1 and then see if anyone can give you the correct word: *release*.
- 3 Put the students in pairs and get them to work together reading the definitions and then finding the corresponding word in the text together.
- 4 Monitor and help where necessary.
- 5 Pair the pairs and get them to check their answers together.
- 6 Finally, check the answers with the class.

**Answers**

- |                     |                      |
|---------------------|----------------------|
| 1 <i>release</i>    | 6 <i>deal with*</i>  |
| 2 <i>power</i>      | 7 <i>damage</i>      |
| 3 <i>delicate</i>   | 8 <i>control*</i>    |
| 4 <i>protection</i> | 9 <i>coordinates</i> |
| 5 <i>prevent</i>    | 10 <i>connect*</i>   |

**Note:** In the text the words marked with a \* are in the third person.

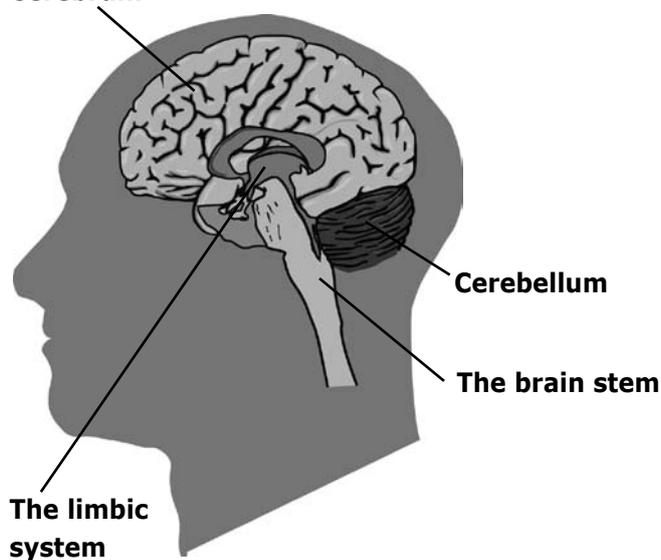
**Activity 3**

- 1 Ask the students to quickly read through the article again and label the diagram with the correct words from the text.
- 2 If you think your students need some help, write the four words / parts of the brain on the board: *limbic system, cerebellum, brain stem, cerebrum*.

- Put the students in pairs and get them to check and discuss their answers together.
- Monitor and help where necessary.
- Check the answers as a class using the model below.

### Answers

#### Cerebrum



### Useful websites

A really useful website which gives the students an interactive guide to the brain. A clear and detailed website packed full of interesting information.

<http://www.bbc.co.uk/science/humanbody/body/interactives/organs/brainmap/>

This site contains some listening material about the brain. The first section on how the brain works is very informative, although at just over 13 minutes long might need splitting up to make it manageable.

[http://www.bbc.co.uk/worldservice/sci\\_tech/features/health/thehumanbody/brain1.shtml](http://www.bbc.co.uk/worldservice/sci_tech/features/health/thehumanbody/brain1.shtml)

An intriguing look at the brain which is well worth a visit.

<http://www.sciencemuseum.org.uk/exhibitions/brain/index.asp>