My teen brain *for Schools*

My teen brain

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Section 1
Learning objectives

This work is designed to help you:

- understand yourself and what is happening to you at this stage of your life
- manage yourself better (your moods, feelings and relationships).

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At the end of the session

At the end of the session you will:

1. know about the main changes in the teenage brain
2. understand more about how memories are formed
3. have thought about how to manage stress or other strong emotions.

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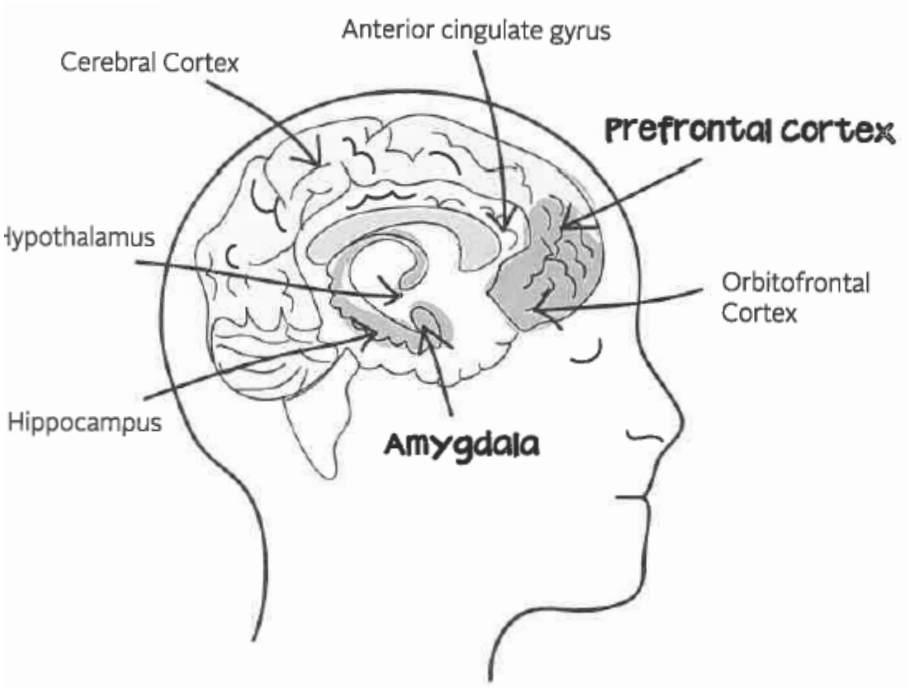
Section 2
The brain



The pre frontal cortex
is responsible for self control, planning, thinking ahead, problem solving and making decisions.

The amygdala
is part of the limbic system, the area of the brain associated with emotion, sensation seeking and arousal.

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Section 3
True or false quiz

True or false?

When I go to sleep, my brain goes to sleep too.

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True or false?

The brain is in two halves, with a bridge in the middle.

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True or false?

A robot can beat a human at chess, but a robot can never win at ping pong.

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True or false?

The bigger your brain the cleverer you are.

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True or false?

Your brain has 100 billion nerve cells, ten times more than all the people on the planet.

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True or false?

Eating pizza is good for your brain.

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True or false?

The brain changes more between the ages of 5 and 10 than it does between the ages of 11 and 16.

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Section 4
Change in the teenage years

Four main changes

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First change

The brain is maturing fast

This can lead to:

- new learning
- better memory
- more vocabulary
- better communication skills.

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Second change

There is increasing connectivity

This can lead to:

- two halves of the brain working better
- being able to use more parts of the brain.

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Third change

There is upheaval within the brain

This can lead to:

- confusion
- uncertainty
- not knowing what to think
- finding it difficult to make decisions.

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Fourth change

The hormone balance is changing rapidly

This can lead to:

- mood swings
- being irritable
- wanting to have fun
- (maybe) liking to take risks?

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Exercise

What changes have you experienced?

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Questions for discussion

How much change have you experienced yourself?

What has changed the most for you?

What did you put on the questionnaire?

Any other things that have changed that are not on the list?

Can we link this to the brain?

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Section 5 Memory and learning – Point 1

Key points about memory and learning

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One very important change that is happening to you is that your memory will improve during the teenage years

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Point 2

- To understand something about learning and memory it is essential to know a little bit about the brain and how it functions.
- The brain consists of billions of cells.
- And these are connected by nerve fibres.

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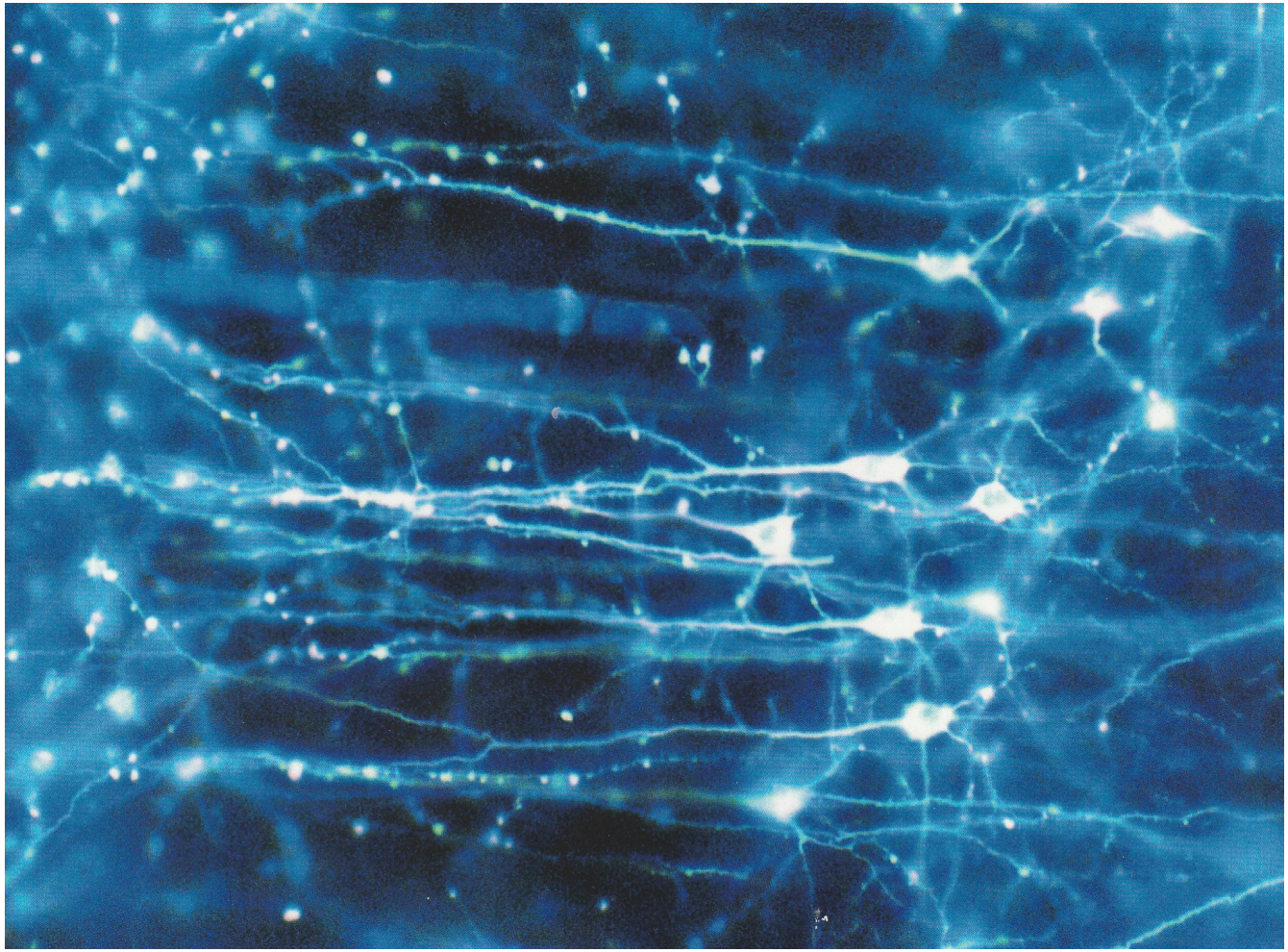

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Point 3

- The nerve fibres connect each cell to another cell.
- There is a tiny gap called a synapse.
- In the gap there are chemical messengers.
- These help or hinder the impulse as it passes on to the next cell.

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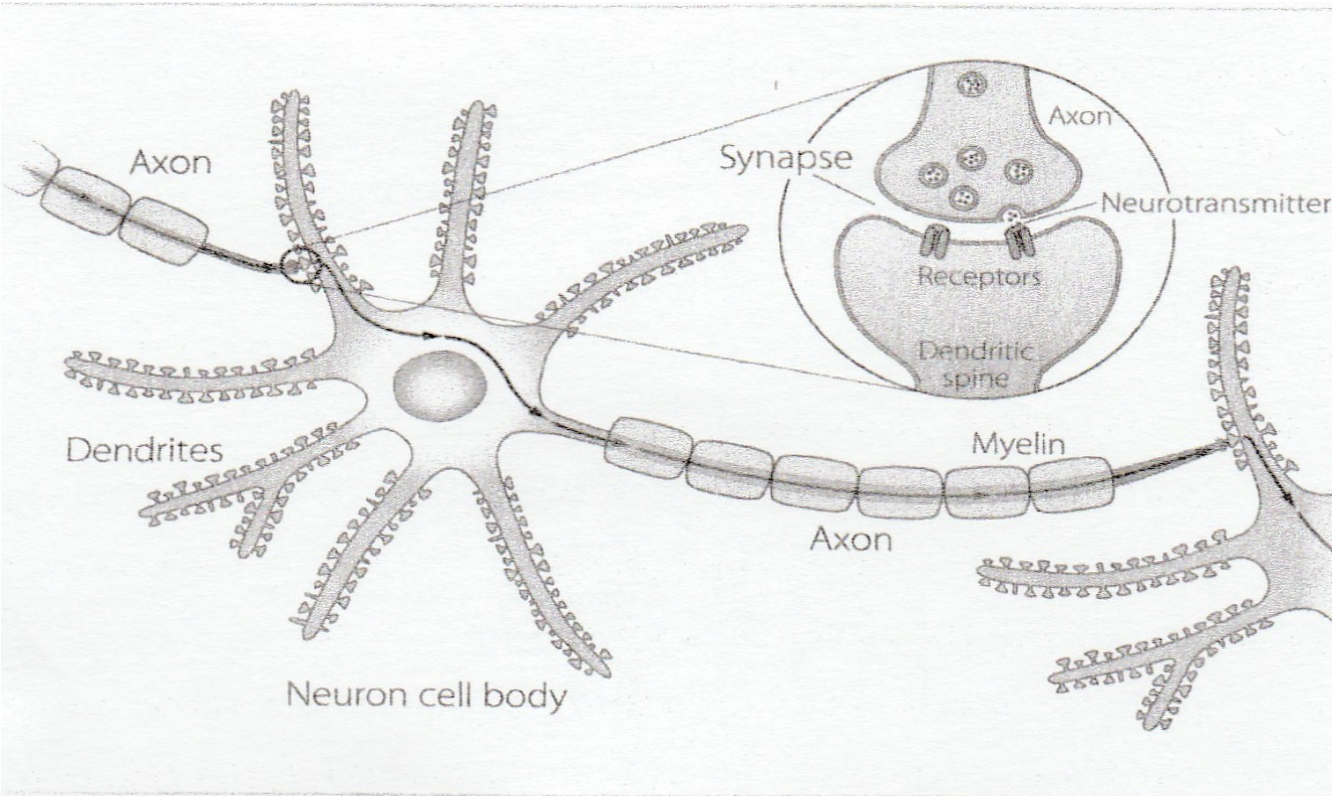

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Point 4

- Memories are formed in the same way as a path in the field.
- The first time you walk no trace is left.
- But if you walk over the field 100 times there will be a trace.
- This is how memory works.

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How memories are formed

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Point 5

The hippocampus plays a key role here

- Have a look at the image of the brain – you can see that it is located at a central place in the brain.
- This area of the brain receives information and manages the memory process.
- It is also involved in the retrieval of memories.
- Studies show that it becomes larger following major learning tasks.

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Optional exercise

Opening words from “A tale of two cities” by Charles Dickens.

“It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness.”

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What were you actually doing when you were trying to memorise these words?

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Point 6

- The synapse contains chemical messengers.
- Some will facilitate the sending of the impulse.
- Others will do the opposite.
- This process is essential otherwise the brain would be flooded with too much information.

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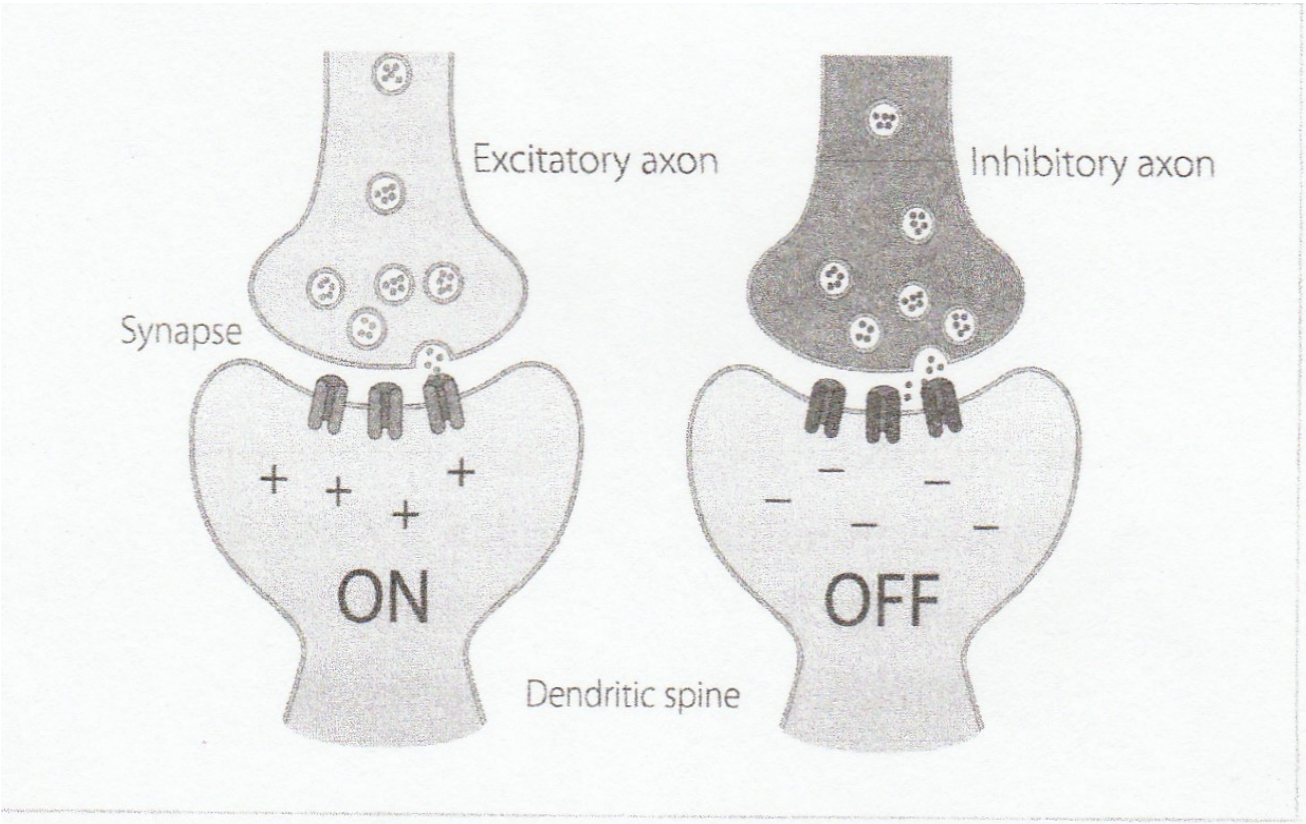

FIGURE 7B. **Excitatory and Inhibitory Synapses:** Excitatory axons release

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Point 7

- It may be useful to consider this as a railway network.
- Without signals the trains will bump into each other.
- The same would happen in the brain.
- In order to concentrate you have to inhibit some signals coming in to the brain, otherwise the brain would stop functioning.

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Sleep is affected by melatonin levels

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Point 8

- We now know that sleep in teenagers is affected by melatonin levels.
- Melatonin rises more slowly in the teenage years.
- In some, but not all teenagers, it becomes harder to get to sleep.
- Yet teenagers need their sleep!
- It may be harder for some teenagers to do well in school if they do not get enough sleep.

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Point 9

The melatonin effect can be overcome!

- No digital devices in the bedroom.
- Have a “wind down” period before sleep.
- Turn the lights low.
- Find ways to relax.
- Most important – get into good sleep routines.

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Point 10

- New research shows that sleep really matters.
- It is a time of memory consolidation.
- Also what is learnt later in the day is more likely to be remembered.
- This all matters for revision.

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Point 11

Four things that are useful for revision

- Think about how can you get stuff into long-term memory.
- Remember the path in the field – the more you walk the stronger the trace that is left.
- Time of day matters – the later the better.
- Sleep routines are really important – memories are laid down during the night.

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Section 6
Stress and emotion

How can we deal with stress and emotion?

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Stress

- A few minutes ago you all said you were more stressed as a teenager!
- So, how best to deal with this stress?

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Stress and the brain

- Have another look at the brain.
- On the one hand the sensible bit at the front – helping you to manage your feelings.
- Then on the other hand there is the primitive bit, overwhelming you with strong emotions.

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The question is

So – the question is:

how to manage stress or very strong emotions?

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Two possible approaches

- One way – talk things over with someone who will help you and give you good advice (sensible).
- Another way – go round slamming doors and shouting at the dog (emotional).

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Exercise

How do you deal with stress and other strong feelings?

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Five points to make about the exercise

1. There are constructive and not so constructive ways to deal with stress.
2. Different people deal with stress or strong emotion in different ways.
3. Different stresses may require different coping strategies.
4. We can all take control of our coping strategies.
5. You can beef up the prefrontal cortex!

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Section 7 - Conclusion

There are two elements to this final section:

- the first is to suggest some things that students can do to help healthy brain development
- the second is an evaluation sheet, or feedback form.

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Healthy brain development

There are things you can do to help healthy brain development. Here are four things that might help.

1. Be proactive in your use of media.
2. Be curious – expand your interests.
3. Practise making choices and decisions.
4. Be active – get oxygen to your brain.

Remember – there are things you can do!

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Feedback Form

What did you think?

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Thank you

I hope you enjoyed it

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