YOUR TEENAGER IS DRIVING YOU MAD?

Cavendish Connect
Student, Staff & Family Community

The Cavendish High Academy
A Special School in Cognition & Learning

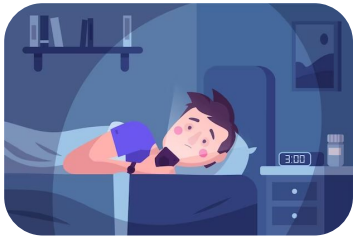
Three week course - *22/09/23 29/09/23 06/10/23*

Course Lead - *Donna Tofts*

Session break down

Session One

Teen Brain
Brain function
Brain development
Sleep



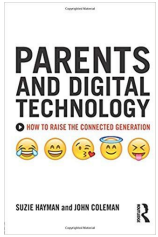
Session Two

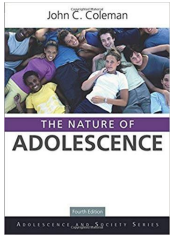
Hormones
Communication
Behaviour

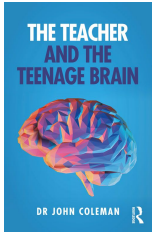
BEWARE:
HORMONAL TEENAGER INSIDE

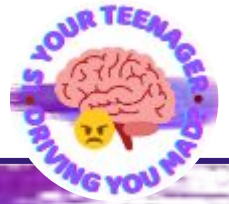
Session Three

Special Guest
Dr John Coleman









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The Team

Donna Tofts

Student and Family Liaison Manager

Student + and Family Liaison Manager

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Student, Staff & Family Community

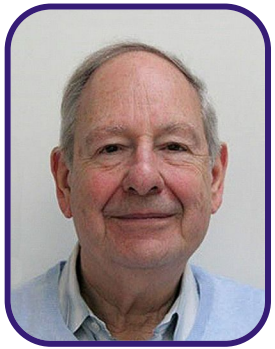
Guest Speaker

Dr John Coleman

Psychologist

Psychologist

https://www.jcoleman.co.uk/



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Is Your Teenager Driving You Mad?

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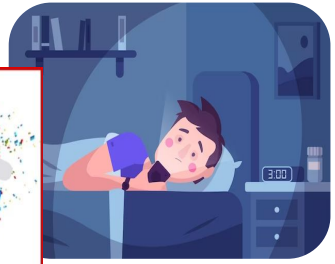
Session One

Sleep



Teen Brain

Brain function

Brain development

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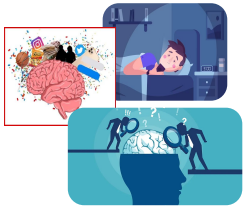
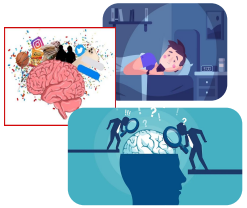


Session One

Why teenagers are important?

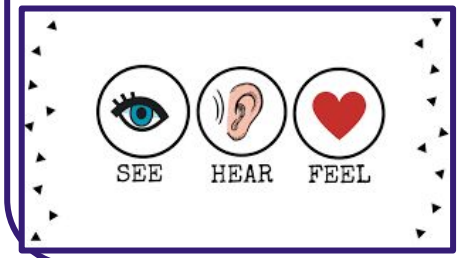
- It is a truly fascinating but also challenging stage of human development;
- Young people can be likeable! We can enjoy their enthusiasm, their idealism, and their energy;
- Parents of teenagers get a raw deal! There is too little information and too little support available for this group of parents.



Session One

Typical Teenage Behaviour

What is a teenager?



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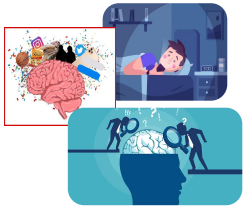
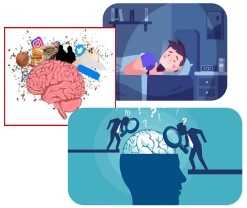
THE ADOLESCENT BRAIN
A SECOND WINDOW OF OPPORTUNITY
UNDERSTANDING ADOLESCENT BRAIN DEVELOPMENT
unicef



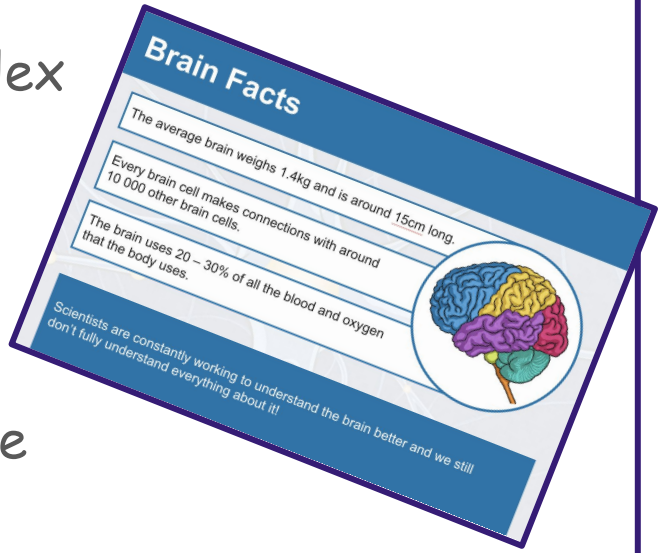
Session One

- We used to think the brain had stopped developing at the end of childhood;
- We have learnt that there is major change at this time;
- We have learnt about this change in the brain as a the result of the technology of scanning;
- New knowledge had altered the way we understand young people.



Session One

- The human brain is probably the most complex entity in nature;
- Approximately 100 billion nerve cells, or neurons, in the human brain;
- The very beginning of an exciting journey;
- Technology is advancing at an incredible rate - but we have a long way to go!



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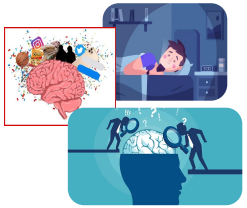
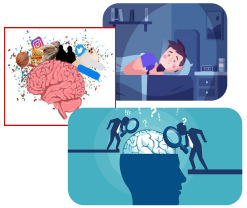


Session One

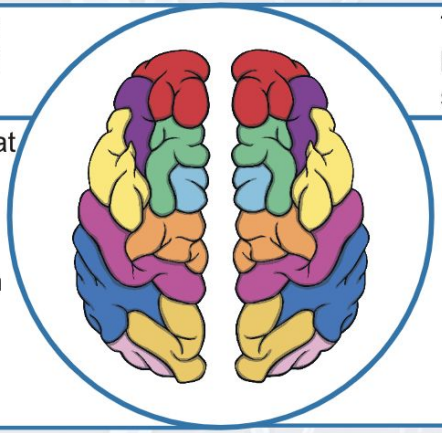
The Brain



Session One

The Hemispheres

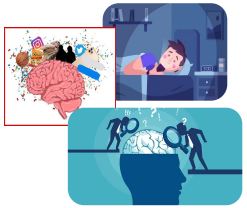
The left side of the brain controls the right side of the body.



The right side of the brain controls the left side of the body.

It used to be believed that each side of the brain was used for different abilities and skills, with the right side of the brain being the 'creative' side and the left hand being the 'logical' side.

However, more recent research has shown that many skills, e.g. responding to music, are split between areas of both hemispheres of the brain.

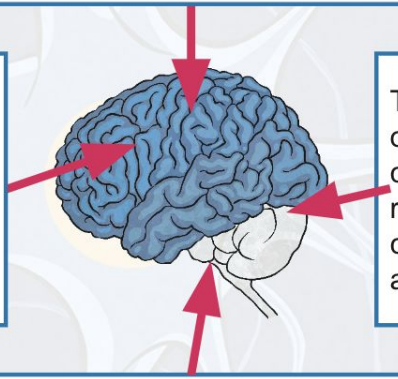


Session One

Three Main Areas

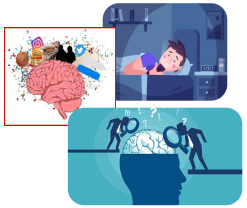
The cerebrum is responsible for the senses, thinking and memory.

The front and larger part of the brain is called the cerebrum and a human cerebrum is the largest of all animals.



The smaller and back part of the brain is called the cerebellum and is mainly responsible for motor control (your movements) and balance.

The brain stem is the part of the brain which is linked, by the spinal cord, to the rest of the body. A little like a superhighway, it is responsible for all the unconscious activities, such as breathing.

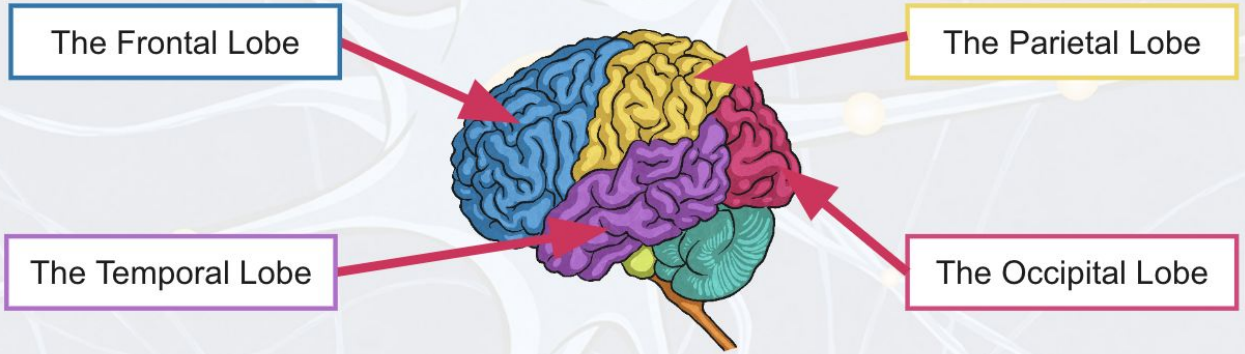


Session One

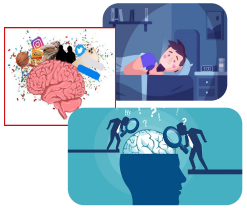
What does this mean for your child?

The Cerebrum Lobes

The cerebrum is split into different areas called ‘lobes’.



Each of the different lobes perform different functions and are linked to different senses.



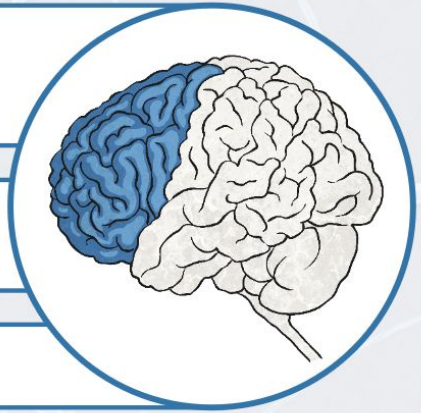
Session One

The Frontal Lobe

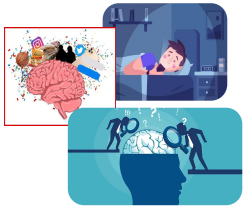
The frontal lobe (lobus frontalis) is the control panel for your personality and the way you communicate.

This area of the brain is where your spontaneity, judgement and impulse comes from.

It also controls your language and memory.



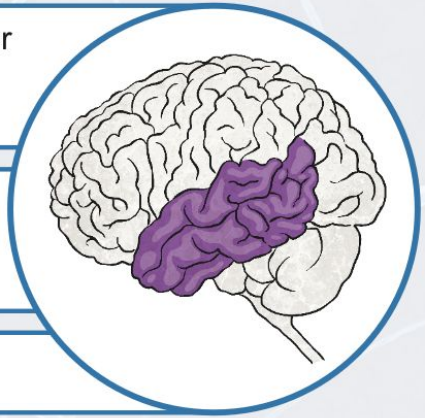
This is where you do your problem-solving and conscious motor control (movements).



Session One

The Temporal Lobe

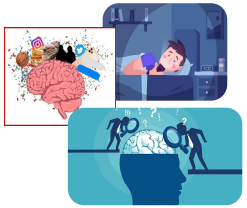
The temporal lobe (lobus temporalis) is located at either side of the brain and is linked closely to your hearing (it's close to the ears after all).



This part of the brain is where you process things you hear, into things that make sense, including language.

It is also responsible for object recognition.

The temporal lobe is also where long-term memories are processed.



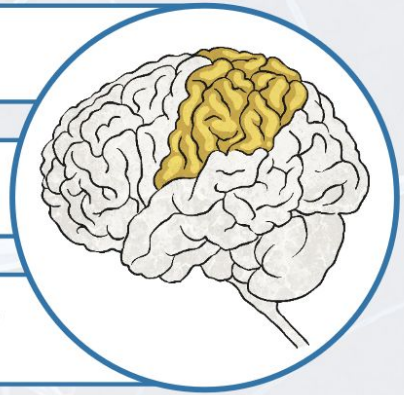
Session One

The Parietal Lobe

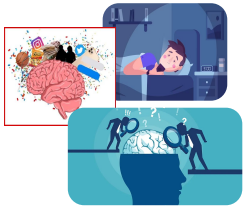
The parietal lobe (lubus parietalis) is all about the senses and interpreting things.

This is also the place for visual interpretation and the processing of language and maths.

The part is also responsible for your spatial awareness and navigational skills (proprioception).



The sense of touch is processed here, including being able to recognise a word someone is 'writing' on your skin through the sense of touch.



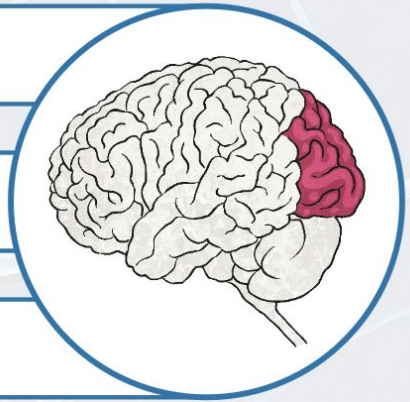
Session One

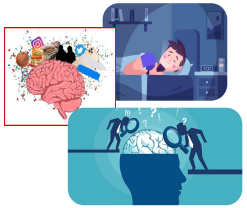
The Occipital Lobe

The occipital lobe (lubus occipitalis) is all about visual processing and it gets its information from the eyes.

Different areas of the occipital lobe look after spatial perception, colour and movement.

'Occipital' is Latin for 'back of the head'.



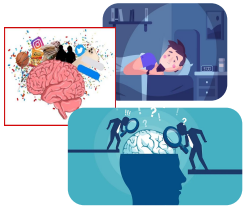


Session One

The Language and Reading Area

There are a few different lobes that are involved in language and reading.

This is because there are so many different skills involved in both these things.
Think how long it took you to learn to read and write!

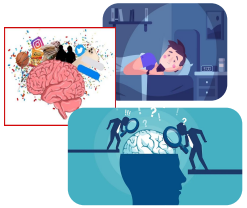


Session One

The Cerebellum

The cerebellum is the Latin word meaning ‘little brain’.

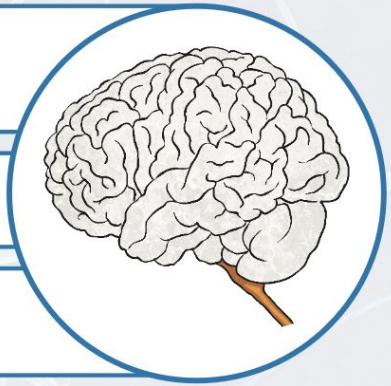
This part of the brain helps your motor skills (some movements) by controlling coordination, balance and timing.



Session One

The Spinal Cord

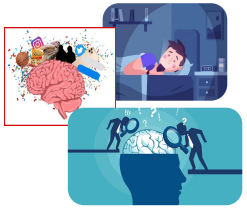
The spinal cord (truncus encephali) is the information superhighway of the nerves, connecting the brain to the rest of the body.



It runs from the brain to the bottom of your spine and is protected by the spinal column.

The brain and the spinal cord together form the central nervous system.

In adults, it is around 44cm long and can range from 6.4mm – 13mm wide at different points along the way.



Session One

Questions

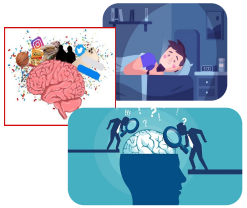
- What **two** things happen in the adolescent brain?
- What is the difference between brain development in children compared to adolescents?
- What does a myelin sheath do?
- What surprised you most in the video?


BEGIN to FIND THEIR
Passion
ABC
USE IT
OR LOSE
IT!

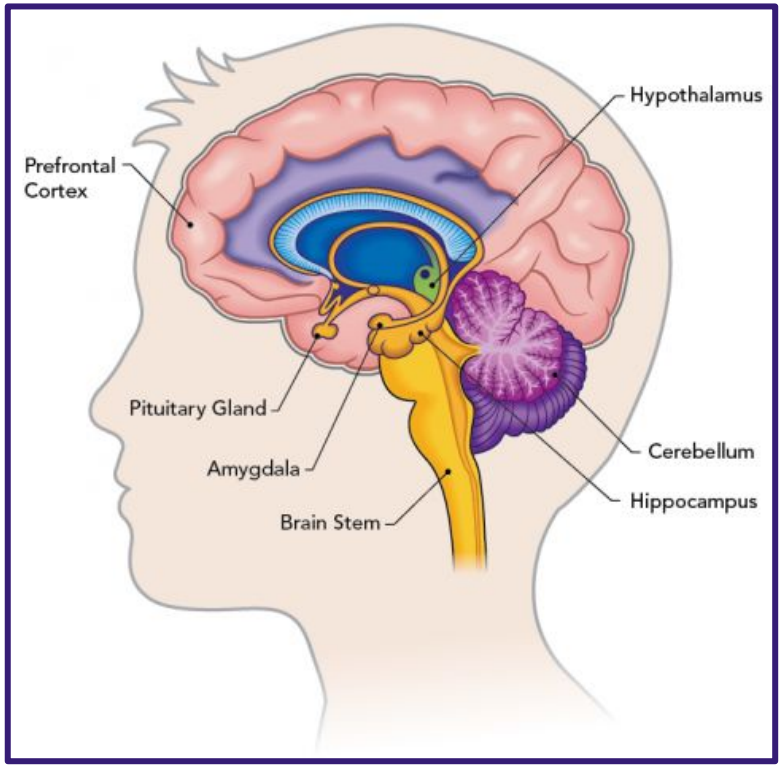
Session One

The benefits of adolescent brain development

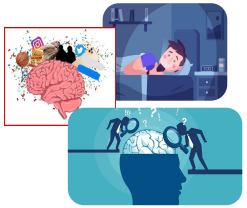
- The brain becomes more efficient
- Helps us specialise in activities
- Can empathize more with others and consider how our actions will affect other people
- Able to learn more complex information
- Can multi-task and process multiple pieces of information at once
- Can carry out more complex thought processes



Session One



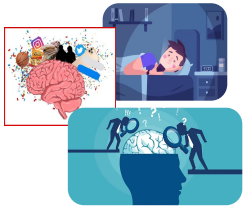
- The prefrontal cortex (thinking and reasoning)
- The amygdala (emotion, sensation and arousal)
- The hippocampus (memory)



Session One

What changes?

- The brain matures in all areas;
- The brain matures from back to front;
- There is an increase in grey matter at the end of childhood, followed by pruning;
- There is greater connectivity across the brain;
- The hormone balance undergoes upheaval and alteration.



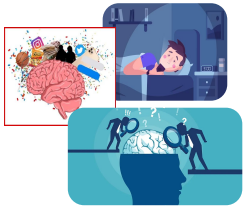
Session One

First Change

The brain is maturing fast

This can lead to:

- New learning
- Better memory
- More vocabulary
- Better communication skills.



Session One

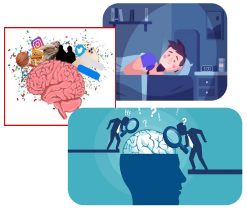
Second Change

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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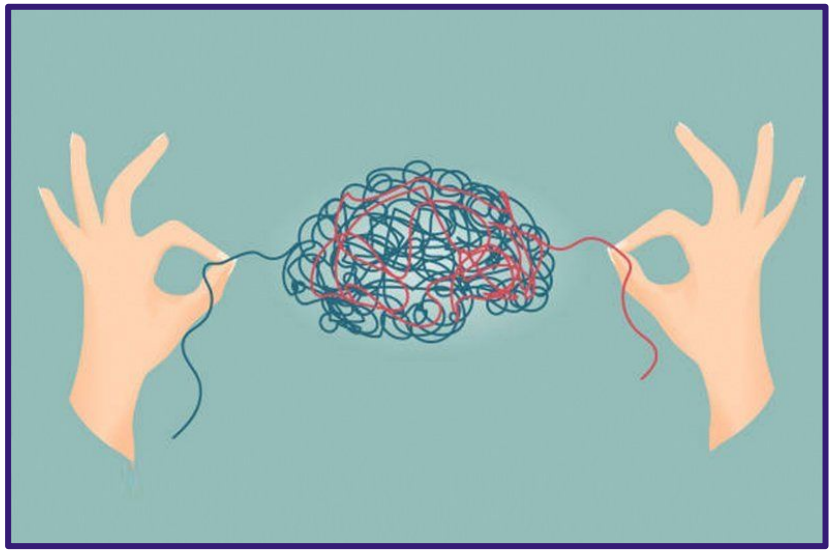
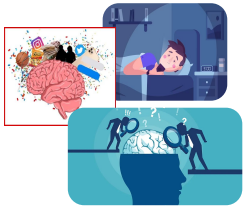


Third Change

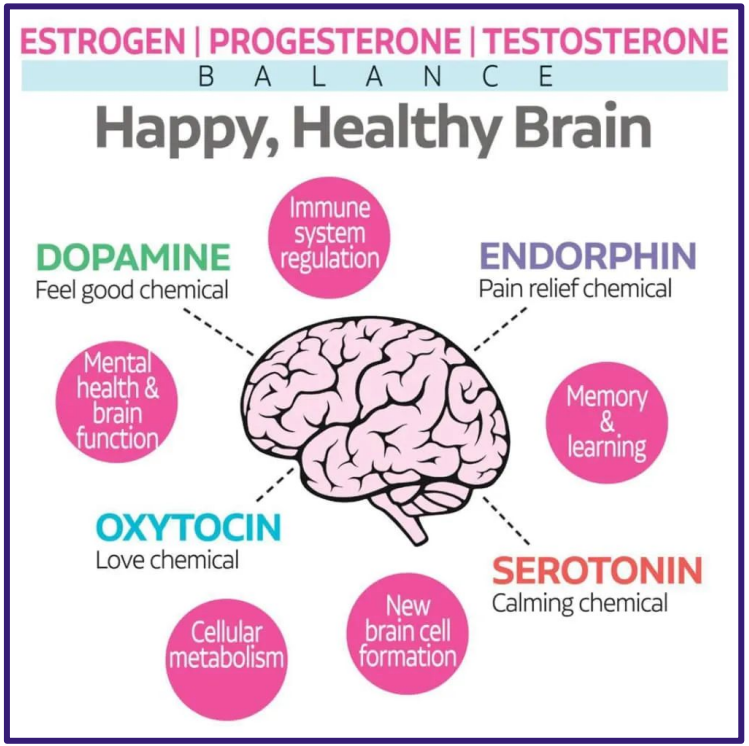
There is upheaval within the brain

This can lead to:

- Confusion
- Uncertainty
- Not knowing what to think
- Finding it difficult to make decisions.



Session One



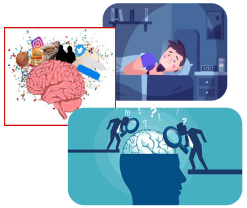
Fourth change

The hormone balance is changing rapidly

This can lead to:

- Mood swings
- Being irritable
- Wanting to have fun
- Liking to take risks?

Next week…

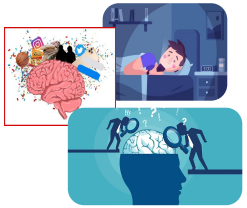


Session One

One very important change that is happening is a teen's memory will improve during the these years

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.
- 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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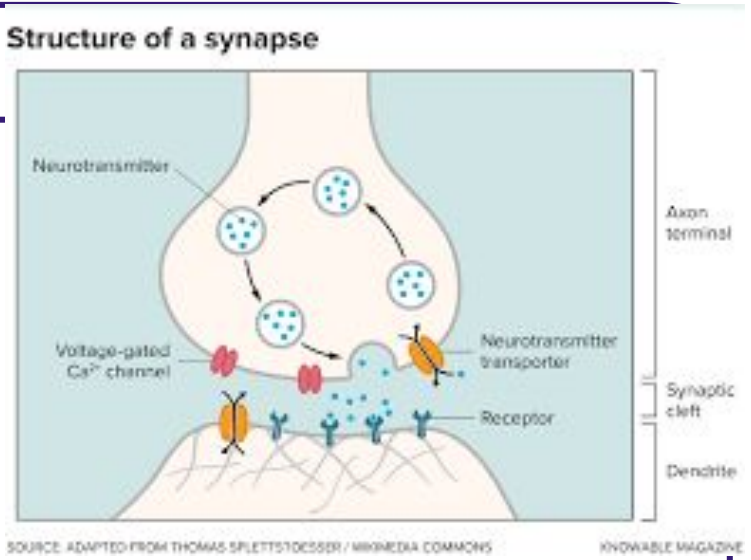

- The synapse contains chemical messengers.
- Some will facilitate the sending of the impulse.
- Others will do the opposite.
- This process is essential otherwise the brain would be flooded with too much information.

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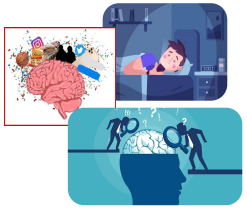
IS YOUR TEENAGER DRIVING YOU MAD?

The Cavendish High Academy
A Special School in Coquitlam & Lemmo



Session One

- 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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Synapses connect cells within the brain (called neurons) so that messages and information can be sent.

These images show the number of synapses in a brain at 3 different ages:

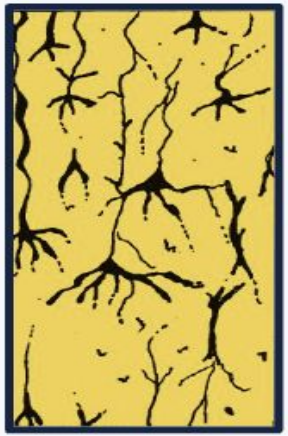
- Birth
- 7 years
- 15 years

A B C

But which is which?

Session One

Did you get it right?



Birth

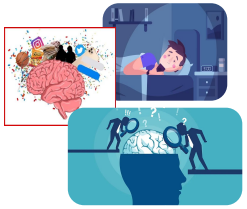
7 years

15 years

During adolescence, the number o
synapses in the brain are **'pruned'**

This means the neural connections are cut to make the brain more specialised and efficient.

Why might this be?



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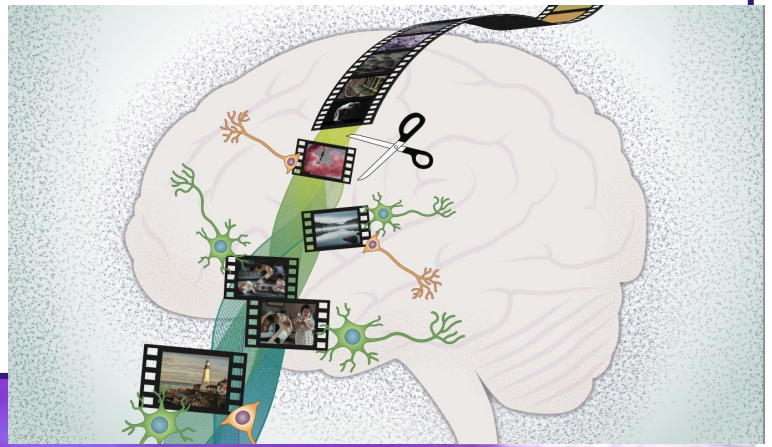
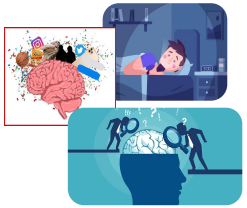
- Memories are formed in the same way as a path in the field.
- The first time you walk no trace is left.
- But if you walk over the field 100 times there will be a trace.
- This is how memory works.





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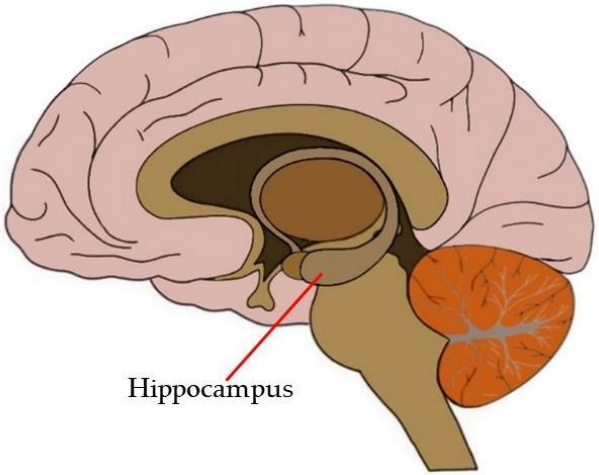
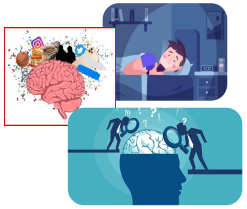


The hippocampus plays a key role here

- 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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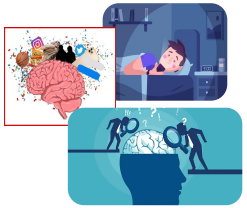
Back to the brain. Let's think a bit more about pruning.

- We have learnt that there is a major increase in gray matter at the end of childhood;
- The following years see a gradual decrease in this matter – this is known as pruning;
- In essence the brain concentrates on the useful neurons and connections, and lets the others die away;
- This is an essential process, but involves a really big reorganisation.
- A 17% reduction in gray matter.



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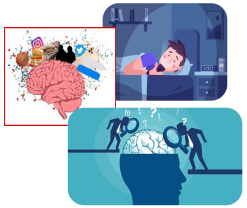
A summary

- A time of significant change;
- A time of upheaval in emotion regulation;
- Adults should recognise this as a stage;
- Remember that the brain and the environment interact;
- Adults have a key role in helping young people manage the changes.



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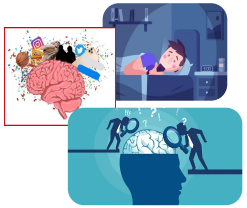
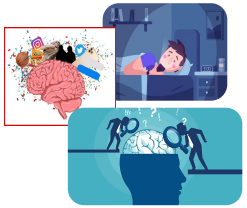
The role of adults

- This is a critical period, so the environment matters;
- Adults are a key element of the environment;
- Here are some roles for adults;

  Understanding, Managing the hormone balance, "Beefing up" the prefrontal cortex, Assisting with good routines



Sleep



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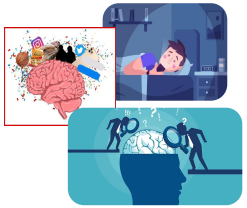
1. Do they struggle waking up in the morning?
2. Do they complain about being tired?
3. Do they take naps?
4. Do they catch up on sleep at weekends?



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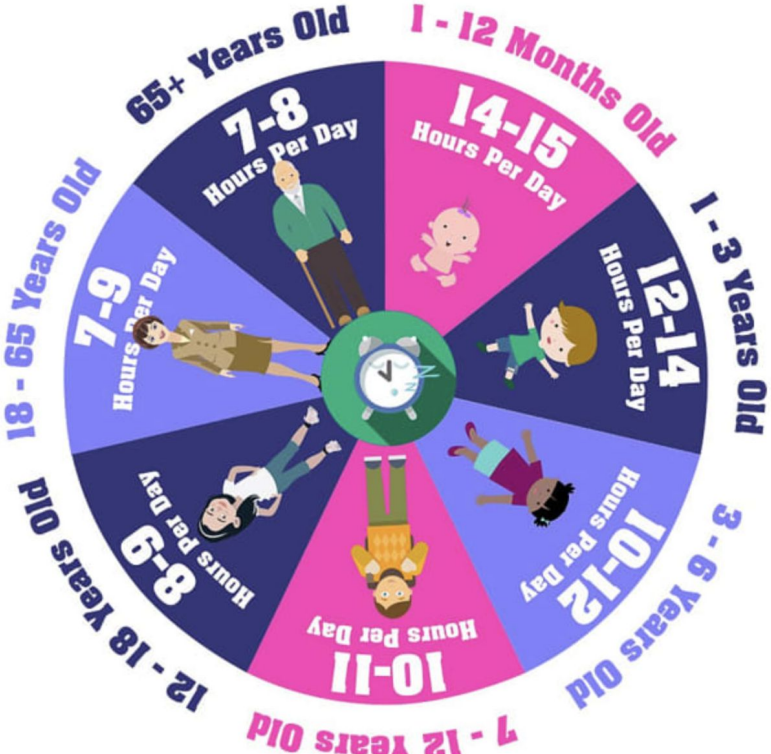
How much do they sleep?



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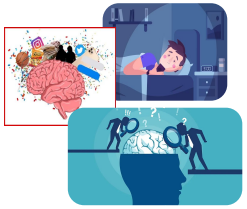
TEEN TIPS
YOU AND YOUR SLEEP
DELAYED
SLEEP PHASE



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Sleep is affected by melatonin levels

The altered pattern of sleep in adolescence changes due to biological reasons

- Melatonin rises more slowly in the teenage years.
- Melatonin is released later in teenagers than it is in adults
- Therefore they become sleepy at a different time

• 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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Is your teenager driving you mad?

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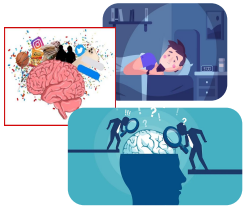

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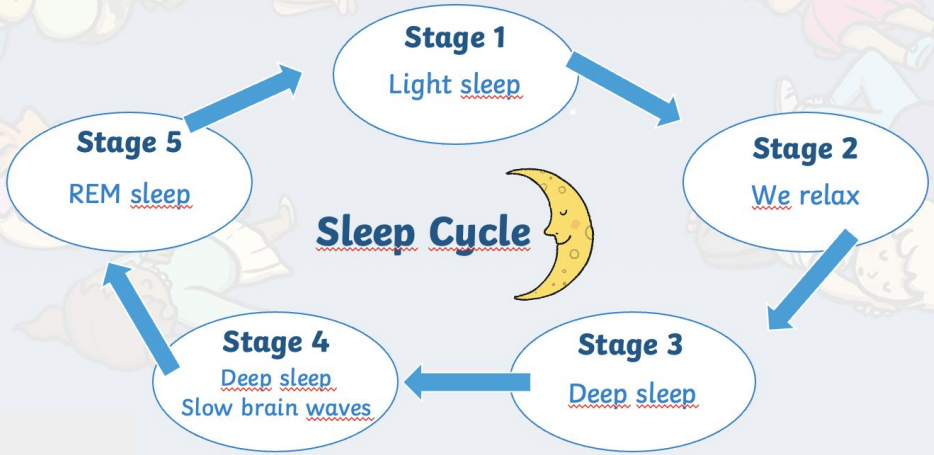
What Happens When We Sleep?

We don't just get into bed and sleep. There is a pattern to sleep, known as the sleep cycle. Everybody goes through these five stages. One full cycle can take around 90 minutes and is repeated many times throughout the night.



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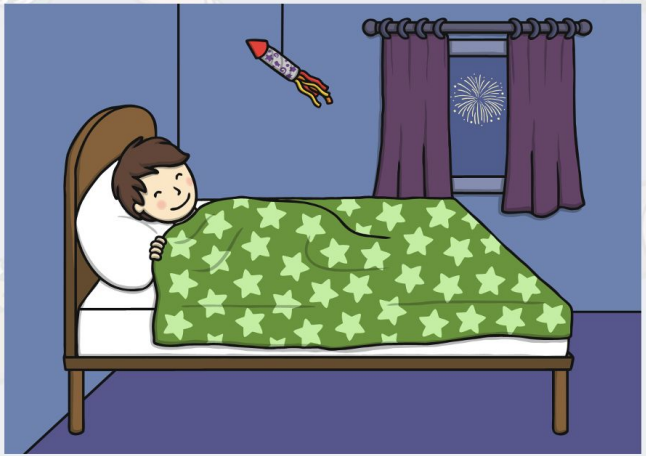
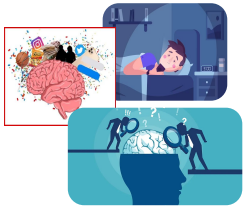
Stage 1

The first stage is quite a light sleep. Our eyes and muscles will slow down but we can be easily woken up from this stage. Sometimes, our muscles will tense and we get the feeling of falling!





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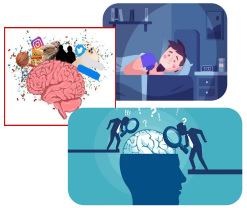
Stage 2

During stage 2, everything slows down to get ready for a deep sleep. Our eyes stop moving, our body temperature gets lower and our brain waves and heart rate slow down. In other words, we completely relax!



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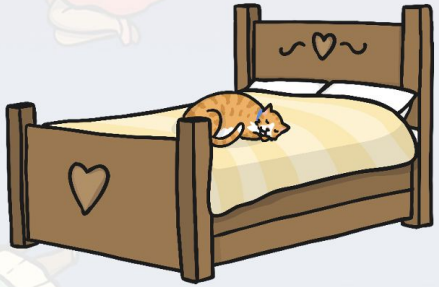
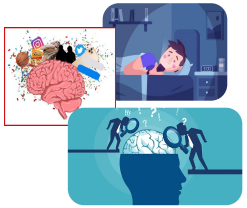
Stage 3

In the third stage of our sleep pattern, our brain activity changes yet again. Our slow brain waves (which are called delta waves) are interrupted with little bursts of faster waves. This is you in a deep sleep.



However, this is also the stage when some people can talk in their sleep or even sleep walk! This is rare but will usually happen when our cycle moves from non-REM to REM sleep.



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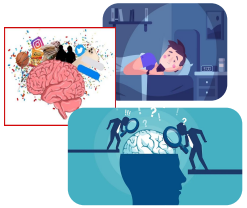
Stage 4

The fourth stage is the final non-REM stage of our cycle. We are now in a deep sleep with our brain waves mostly staying slow.

If you are woken up during this stage, you can feel a little confused for a couple of minutes.



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Stage 5

Finally, we enter REM (rapid eye movement) sleep. Our brain waves change yet again! During REM sleep, our brain waves look the same as when we are waking up. Our eyes move very quickly from side-to-side but stay closed. It is thought that this is when we dream the most!

After all of this, we go back to stage 1 and start again.

It is common to wake up between cycles and sometimes we aren't even aware of it!

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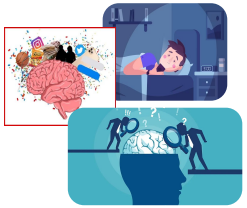


Growth hormones are released
Memory consolidation
Cleaning process

Best Sleep Hygiene Practices

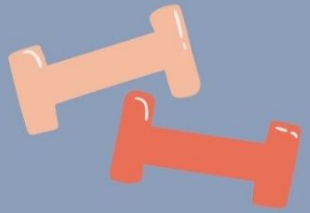
Go to sleep and wake same time

Meditate for 10+ minutes prior

Create a bedtime routine

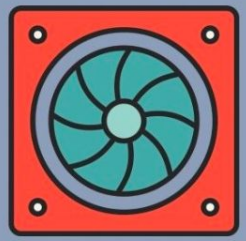
Switch off devices 1hour prior

Avoid large meals close to bed



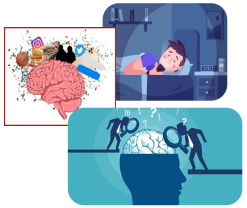
Get enough exercise through the day

Make your room dark as possible



Keep your room cool

No stimulants after lunch



Session One

Questions and Discussion

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