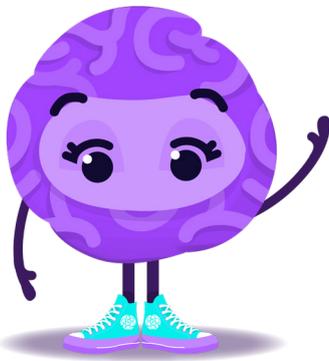




Lesson Plan

LEARNING & MEMORY



OBJECTIVE: LEARNING GOALS

- > Understand the difference between short and long term memory (STM & LTM) and how information moves from one to the other
- > Understand how learning happens in the brain
- > Review science-based tricks for better learning
- > Think about how to apply these to their studies

LESSON PLAN

Introduction activity

In small groups, ask the students to pick an episode of a TV show or a YouTube video they have all watched in the last couple of weeks, or an event they all went to. Once they have decided which show they will use, ask them not to talk about it.

Give them 5 minutes to write down in as much detail as possible what happened, without discussing it between them.

Now ask them to compare what they have written. Ask them to discuss:

- > What similarities are there between their answers?
- > What differences are there?
- > Why might there be differences?

Bring the class together for a group discussion, making sure to guide them to the realisations that:

- > We all remember things a bit differently
- > We are likely to remember the main points of a story- the surprising, emotional moments, and the things that move the story along
- > We are likely to forget or misremember smaller points- what the characters wore, exactly what was said.
- > If someone is particularly interested in one element (e.g. fashion, or music), they will remember more about that than other people will.

Wrap up the activity by explaining that:

- > While you are talking about TV, the same applies for what they learn in school
- > One of the big goals of revision is to make sure the most important parts stick
- > To do that, we have to move the information from short term to long term memory.

Activity- Short term memory experiment

Next, the students will be doing a test of their short term memory. Ask the students to get into pairs, and decide who will be the experimenter and who will be the subject. Give experimenters the Short Term Memory handout, without letting the subject see it. Give them time to work through it in their pairs. They can time the 30s on a clock or watch, or using their phones.

Once they have finished, discuss as a class:

Which experiment was hardest? Which was easiest? Why?

They should have found experiment 2 hardest, because they were distracted during the 30s gap. This meant they couldn't repeat the letters to themselves- most students will have done this during the gap in experiment 1

Which was easiest? Why?

Experiment 3 should be easiest, but only if the subject notices that the letters spell a word! Usually some students won't notice this, so won't find this one any easier.

- What does this tell us about short term memory?

It is limited- we can only hold an average of between 5-9 'bits' of information in our STM at a time.

This experiment had 8 letters, so was at the upper limit for most people.

We can keep information in STM longer by repeating it to ourselves.

The information is easily lost if we are distracted.

If we can 'chunk' the information into fewer 'bits' it is easier to remember it- this is what we did in experiment 3. If they noticed the words, they only had to remember 2 'bits' of information, not 8.

Watch: Learning in the brain

Now we are going to look at what actually happens in the brain when we learn something new.

 Learning in the brain animation

<https://tinyurl.com/braintasticlearning>



Activity- making new connections:

Ask the class to lift one of their legs slightly, and rotate the foot in clockwise circles, then try to draw a 6 in the air with the hand on the same side of the body (they must draw the 6 starting at the top).

They should find their foot reverses direction automatically!

Ask them to practice for a few minutes- does it get easier?

Because of the way our brains control our body movements, it is very difficult to move our arm and leg in opposite directions, on the same side of the body. And because drawing a 6 is basically making a circle anti-clockwise, the direction of our foot tends to change to match it. But with training and practice, our brains can learn to do difficult things, and they start to become easier with time.

This activity shows just how quickly our brains can learn new things, even things that feel really difficult when we start!

SUMMING UP

Our memories aren't perfect, and we will tend to remember some details about an event and not others.

- > To remember something long term, it has to pass from short term to long term memory.
- > This happens in the brain through the strengthening of synapses (the connections between neurons), or the growth of new ones.
- > To encourage this to happen, you need to repeat the fact or skill you are learning, preferably spacing out the repetitions.
- > This will give you strong, efficient synapses, that make recalling that fact much easier in the future.

If time is left

Ask the students to draw up their own revision plan, thinking about how they can space their subjects, and allow time for repetition.

Homework

Watch- 10 Top Tips for Learning and Memory
Ask them to think about the following questions:



- > Which of these tips do you already use?
- > Which could you use more?
- > How can you incorporate them into your revision plan?

<https://tinyurl.com/braintastictips>