

Learning Unit 1: Brainwave

Medium Term Plan

[Short Term Plan](#)

[Learning Headlines](#)

Skills Rubrics

[Knowledge Tweet](#)

Explaining the Theme

BRAINWAVE



Personal Goals



Learning Journey



The Big Idea

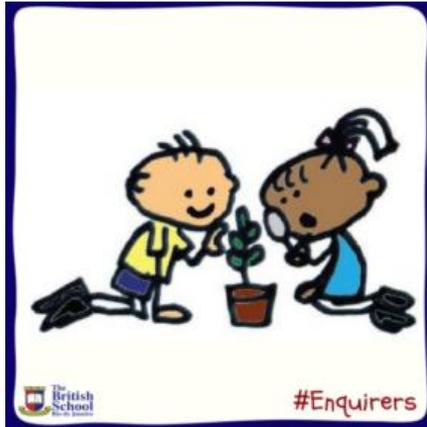
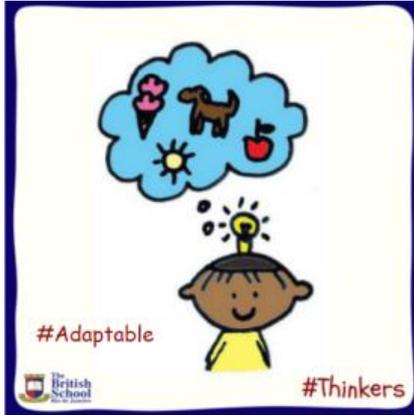
How do we learn and
how can we improve
our learning?

Our Focus Country

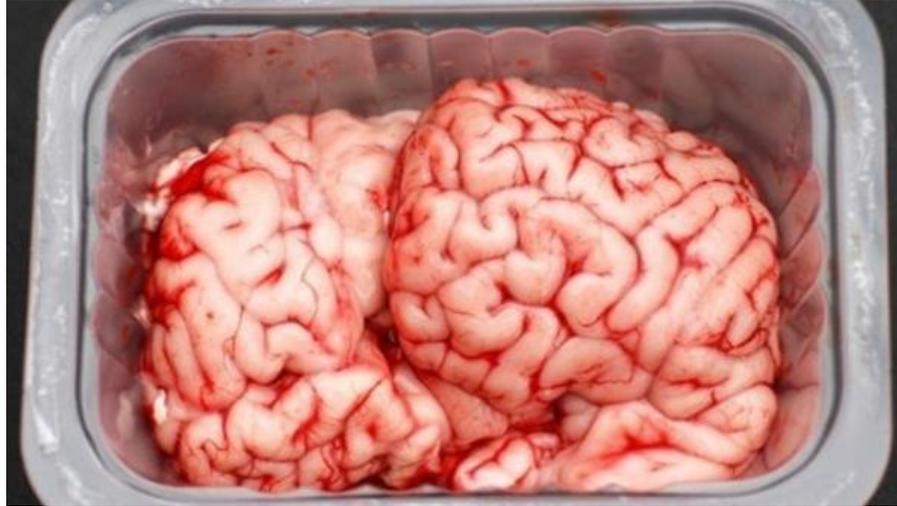
Brazil



Our Learner Profile Goals for this unit



Entry Point



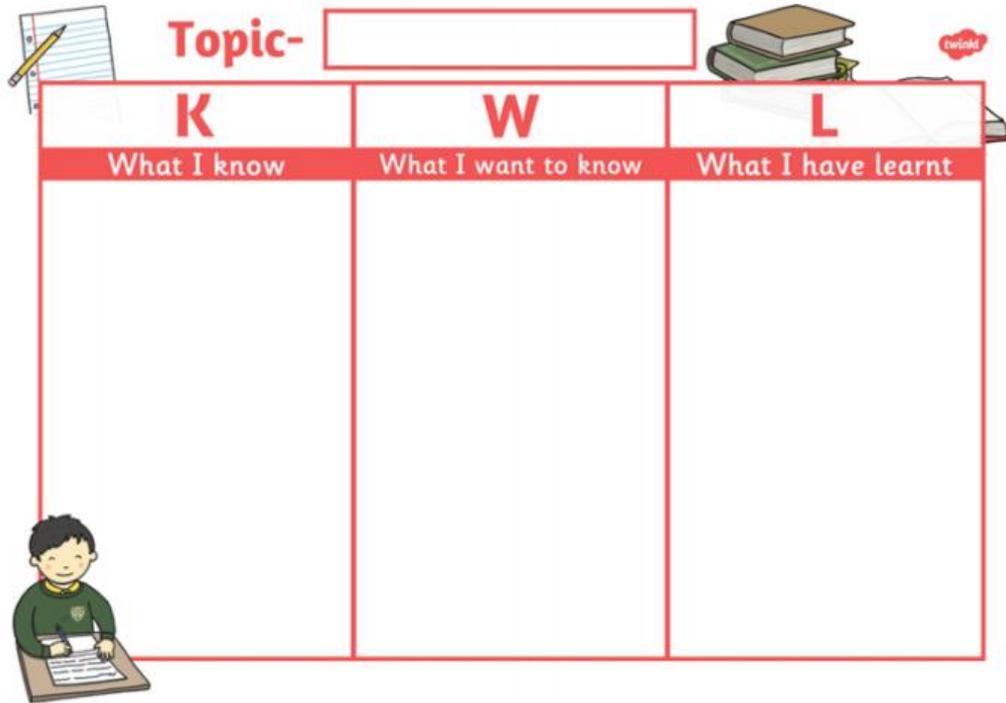
Observe and touch the cow's brain. Draw a picture of the brain in your exercise book and then write adjectives around your picture, which describe the brain!

Entry Point Task

In your exercise books, answer these questions about the brain:

1. Why do you think the brain is wrinkly? (Hint: think about the surface area of the brain).
1. Why is the brain pink?
1. Why do you think the brain is found inside the skull?

Knowledge Harvest



Topic-

K What I know	W What I want to know	L What I have learnt



I think...
I wonder...

For this lesson we are...



Lesson 1

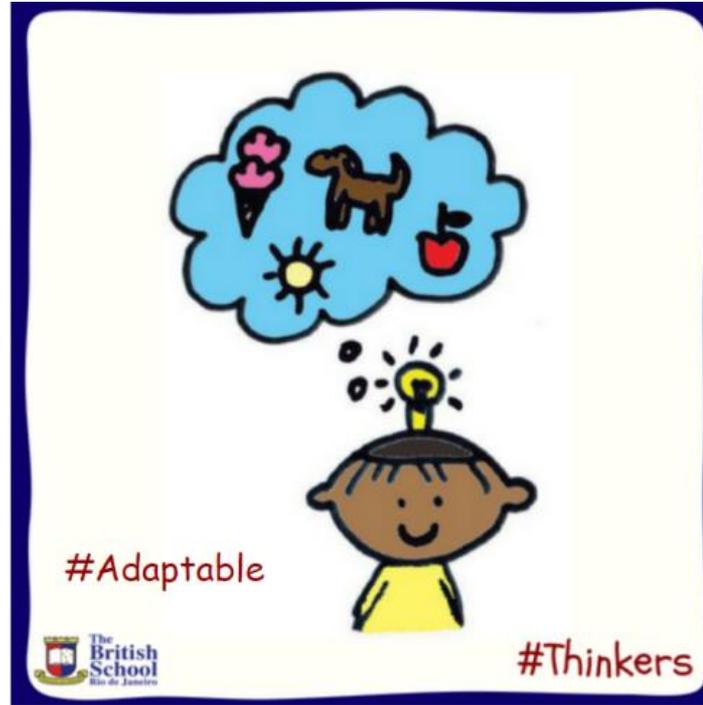
LO: Know about some of the recent evidence and research into the brain and learning

Must: Identify two similarities and differences between the brain and a computer.

Should: Identify at least three similarities and differences between the brain and a computer.

Could: Refer to published research about the brain.

Our learner profile goal for this lesson...



How are we going to demonstrate this?

Knowledge, Skills & Understanding

LO: Know about some of the recent evidence and research into the brain and learning		
Success Criteria	Me	T
Identify two similarities & differences between the brain and a computer.		
Identify at least three similarities & differences between the brain and a computer.		
Refer to published research about the brain.		

Science    QR

In a **knowledge** lesson we gain knowledge and learn new facts.

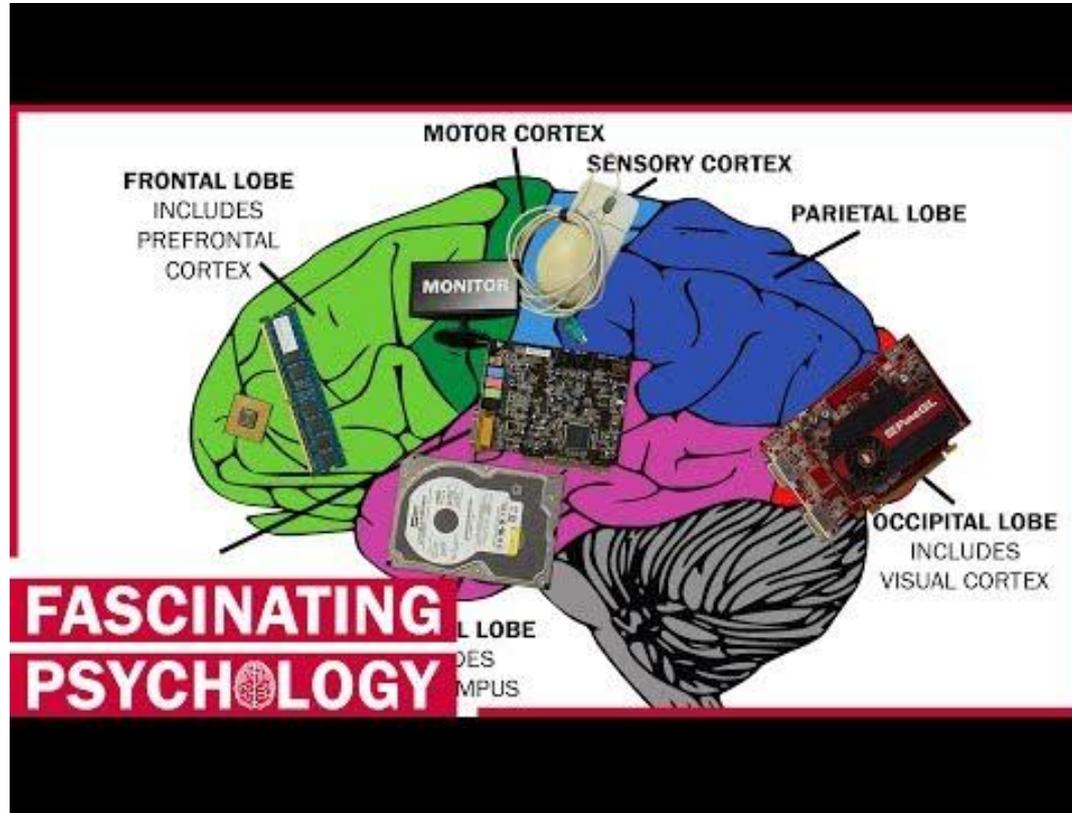
In a **skills** lesson we practice a new skill that we can use in other parts of our learning.

In an **understanding** lesson we apply our knowledge and skills to show what we have learnt.

**“The brain is like a
computer.”**

Discuss with a partner.

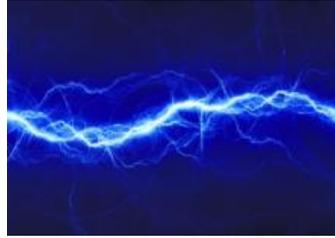
Video - The Brain & Computer, Similarities & Differences



The Brain & Computer, Similarities & Differences

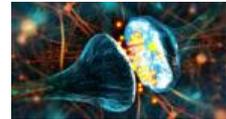
Similarity 1:

Both brains and computers use electrical signals to send messages.



Difference 1:

*Electrical signals in the brain pass along **neurons**.*



*Electrical signals in the computer pass along **wires**.*



Task - Complete the table

Are Brains like Computers?

Similarities

1. *Brains and computers use electrical signals to send messages.*

Differences

1. *Electrical signals in the brain pass along **neurons**. Electrical signals in the computer pass along **wires**.*

For this lesson we are...



Lesson 2

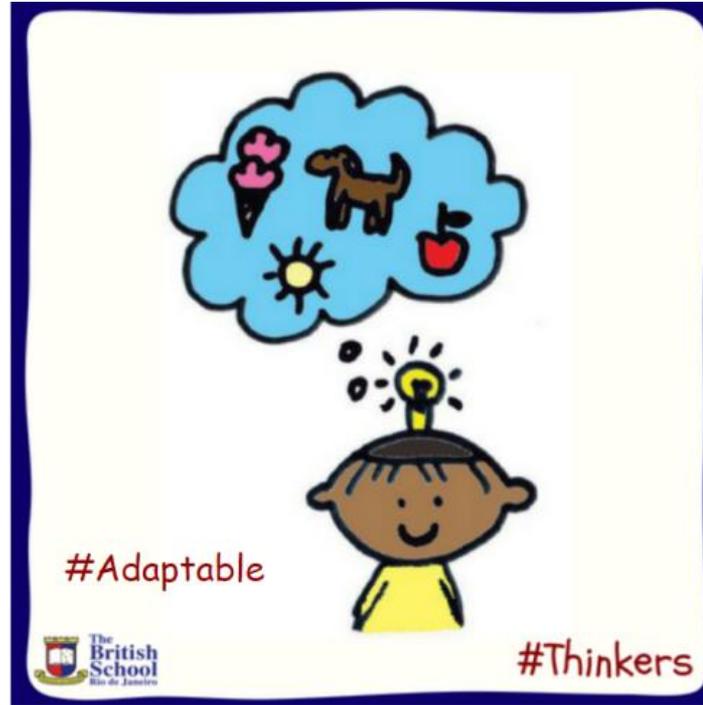
LO: Create a digital portfolio folder in the Google Drive

Must: Create a digital portfolio folder and IPC subfolder in the Google Drive. Share your main portfolio folder and QR code with your teacher.

Should: Create a mind map within your IPC subfolder that shows your knowledge so far about the brain.

Could: Find and include royalty free images to add to your mindmap.

Our learner profile goal for this lesson...



How are we going to demonstrate this?

Organising Information (in the brain)

The organisation of information in the brain, in which similar ideas are grouped together, is comparable to how the folder storage system is organised in a computer.



Bananas



Colour: yellow



Vitamin C

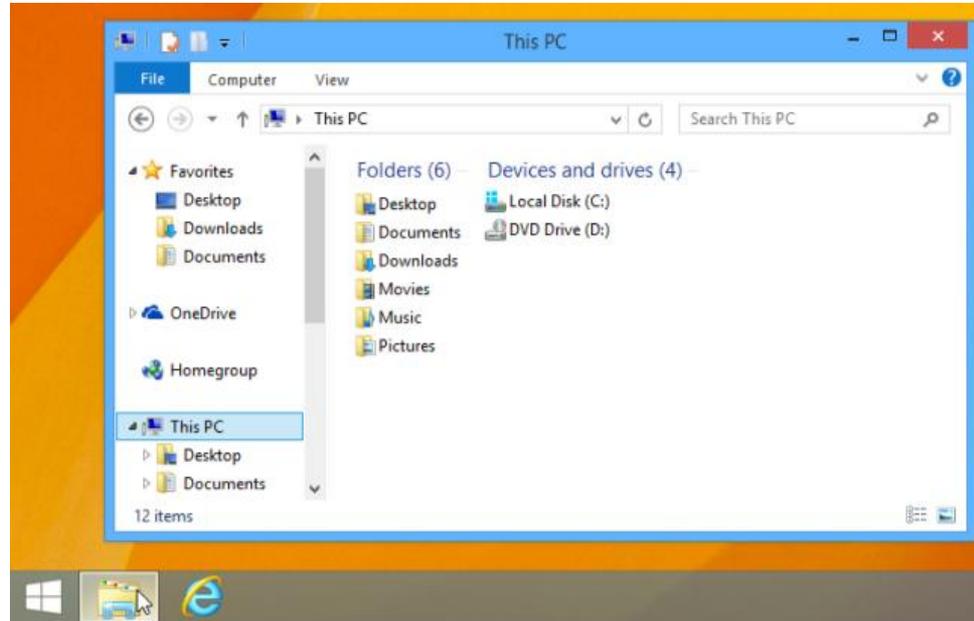


A type of fruit



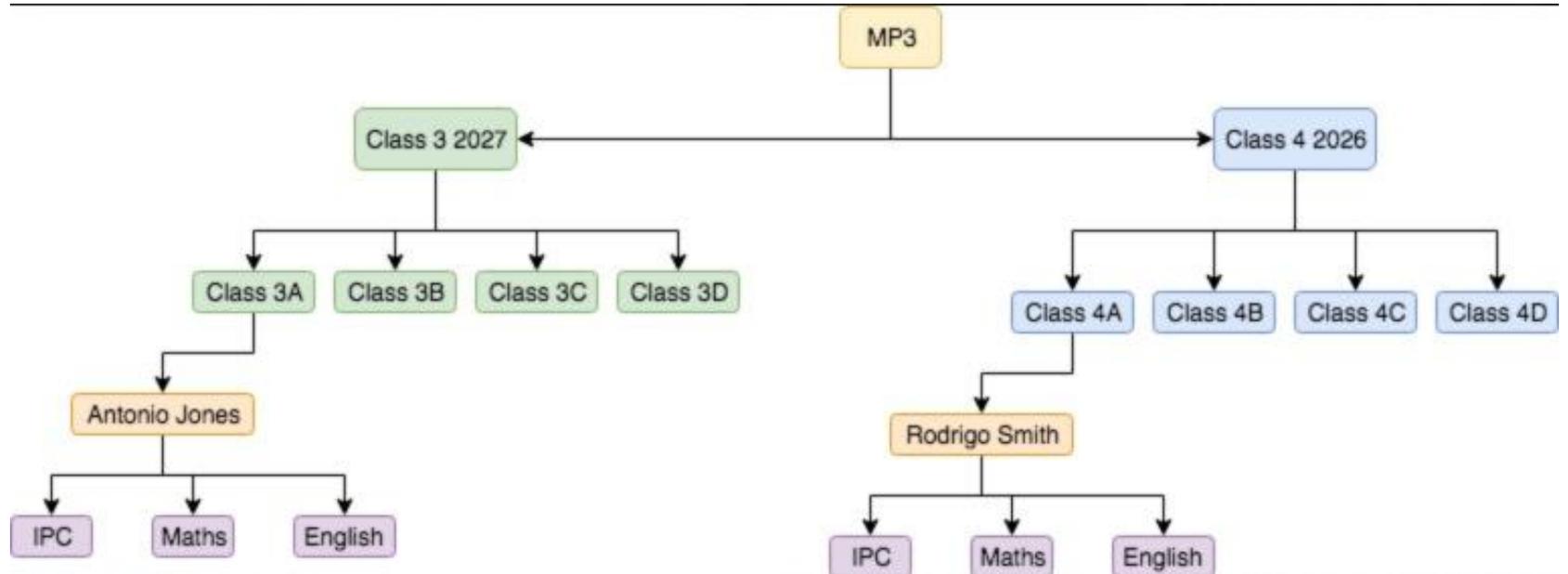
Organising Information (on a computer)

In fact, this is why we have folder information systems on computers, to help us quickly find and recall information - similar to how our brain groups similar ideas together!

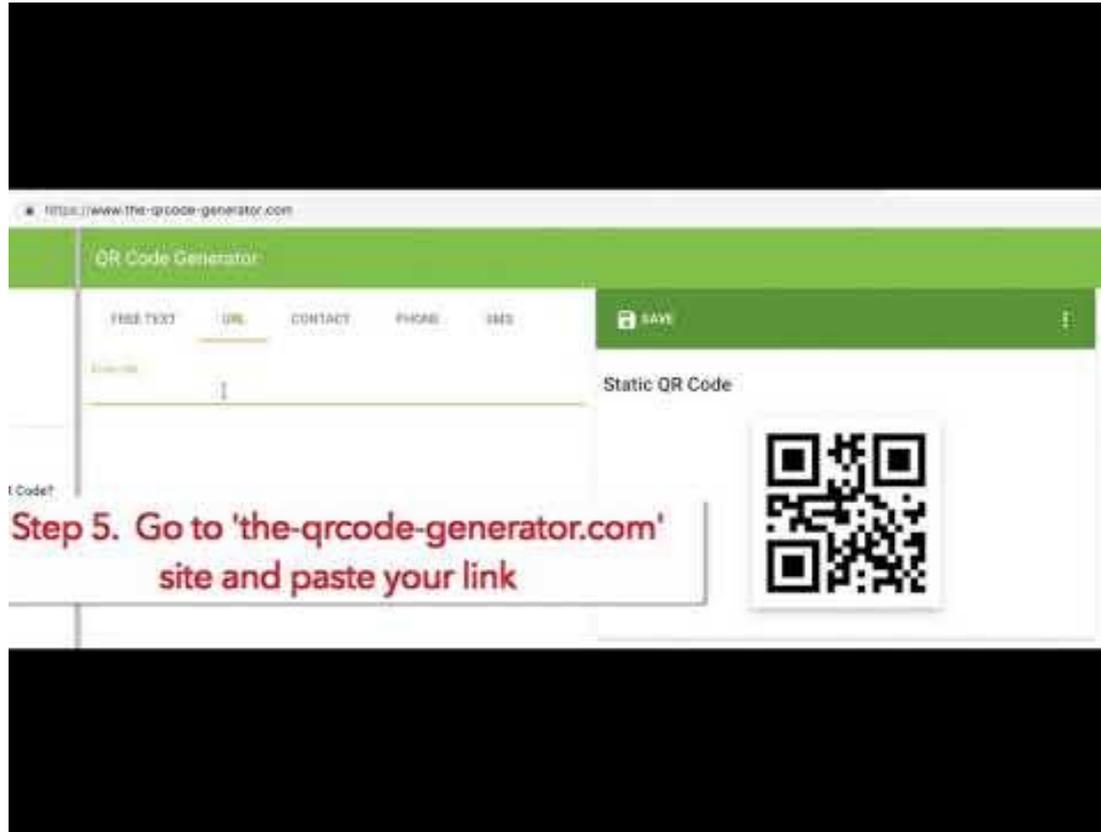


Task

You will create a digital portfolio folder on the Google Drive and share with your teacher. Then create 3 subfolders: 'IPC', 'Maths' and 'English'.



Watch this tutorial video



The screenshot shows a web browser window with the URL <https://www.the-qrcode-generator.com>. The page title is "QR Code Generator". There are five tabs: "FREE TEXT", "URL", "CONTACT", "PHONE", and "SMS". The "URL" tab is selected. Below the tabs is a text input field containing a link. To the right of the input field is a "SAVE" button. Below the input field, the text "Static QR Code" is visible. A QR code is displayed on the right side of the page. A red text box is overlaid on the bottom left of the screenshot, containing the text: "Step 5. Go to 'the-qrcode-generator.com' site and paste your link".

Step 5. Go to 'the-qrcode-generator.com' site and paste your link

For this lesson we are...



Lesson 3

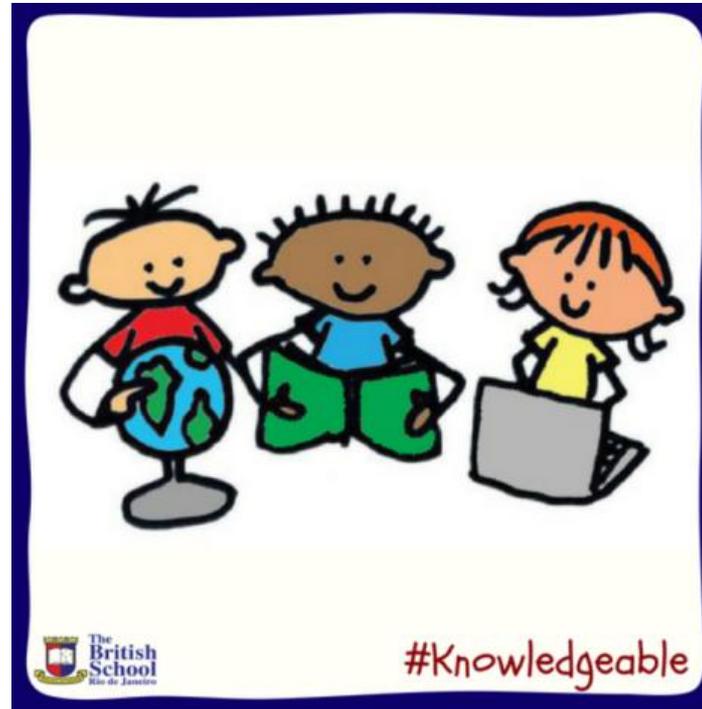
LO: To know about different areas of the brain and their function

Must: Copy and complete the sentences about the brain.

Should: Research and write notes about the brain. Take a photo of this and save this in your IPC subfolder.

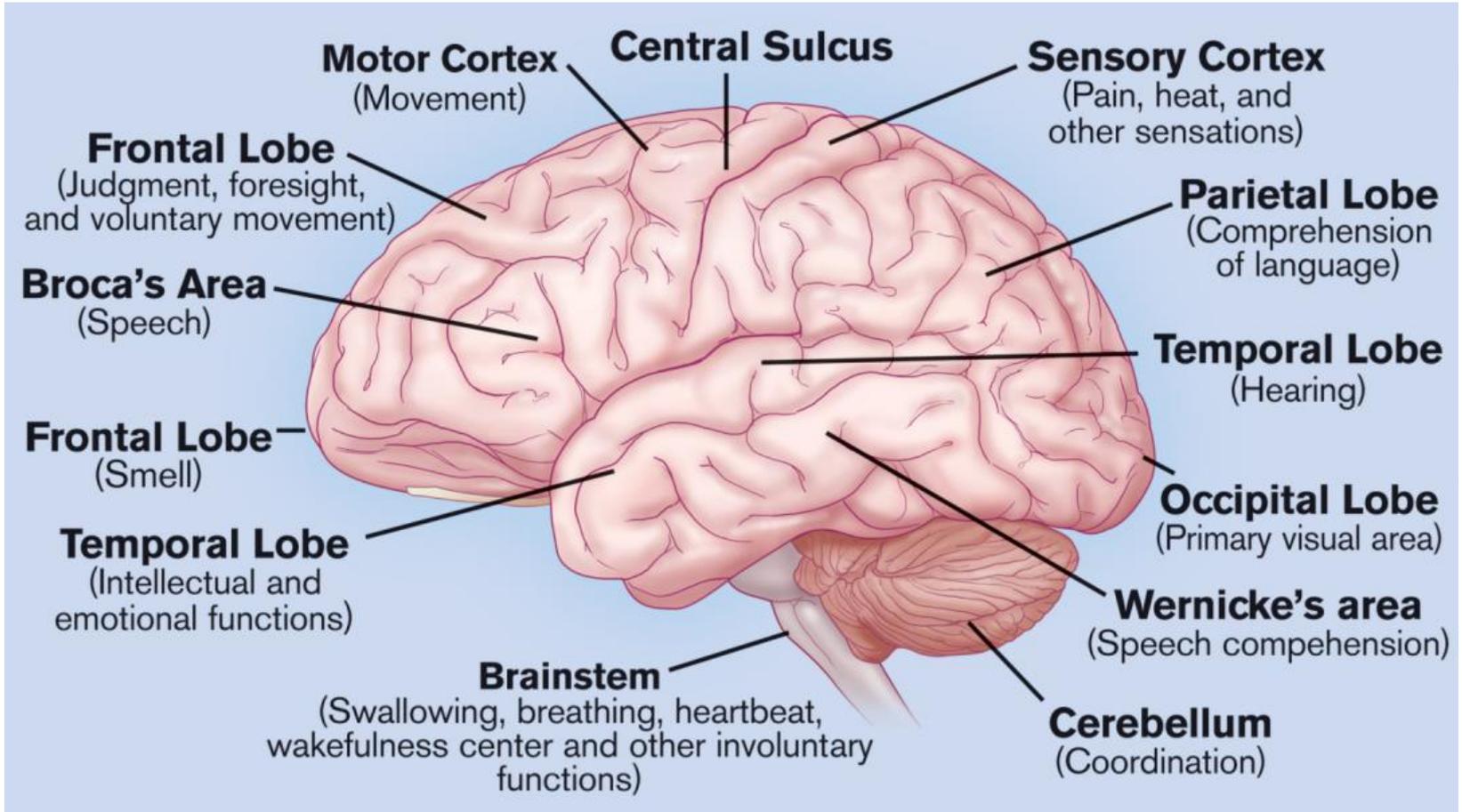
Could: Find and label a picture about the brain. Use Google Slides.

Our learner profile goal for this lesson...

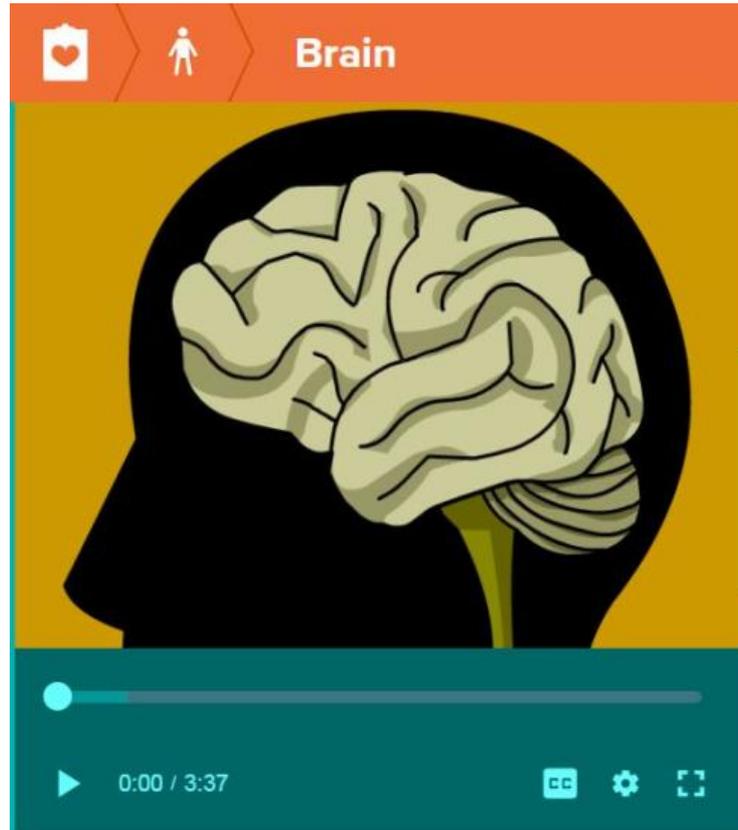


How are we going to demonstrate this?

The different parts of a brain

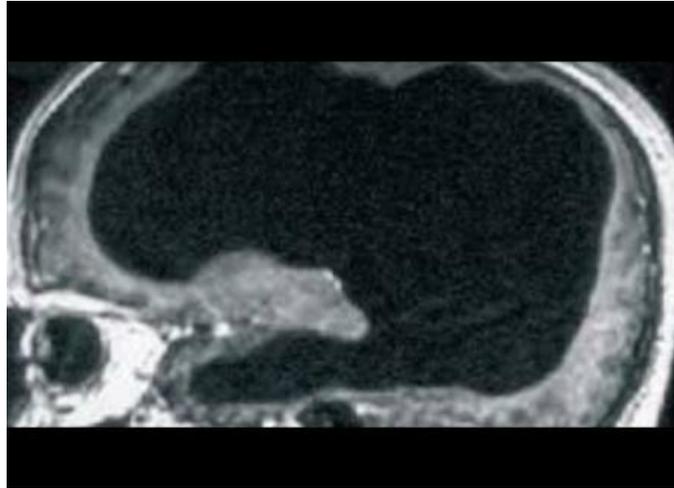


Video - The Brain



Video - An Interesting Case

Case Of Man Missing 90% Of Brain But
Functioning Normally Stuns Scientists



What can you conclude about the brain from this video?

Extension Tasks:

- 1. Use the University of Manchester website to research about the brain:**

<http://www.childrensuniversity.manchester.ac.uk/learning-activities/science/the-brain-and-senses/the-brain/>

- 2. Record key notes about the brain in your exercise book.**
- 3. Find pictures of the brain using the Internet. You should put together a Google Slide and label all images. Remember, make sure your Google Slide is saved in your Google Drive folder.**

For this lesson we are...



Lesson 4

LO: To know about neurons and their function

Must: Draw and label a diagram of a neuron.

Should: Write down the job of each part of a neuron.

Could: Write down an explanation about how neurons relate to your own learning.

Our learner profile goal for this lesson...



How are we going to demonstrate this?

Neurons and the Brain



Neurons and the Brain

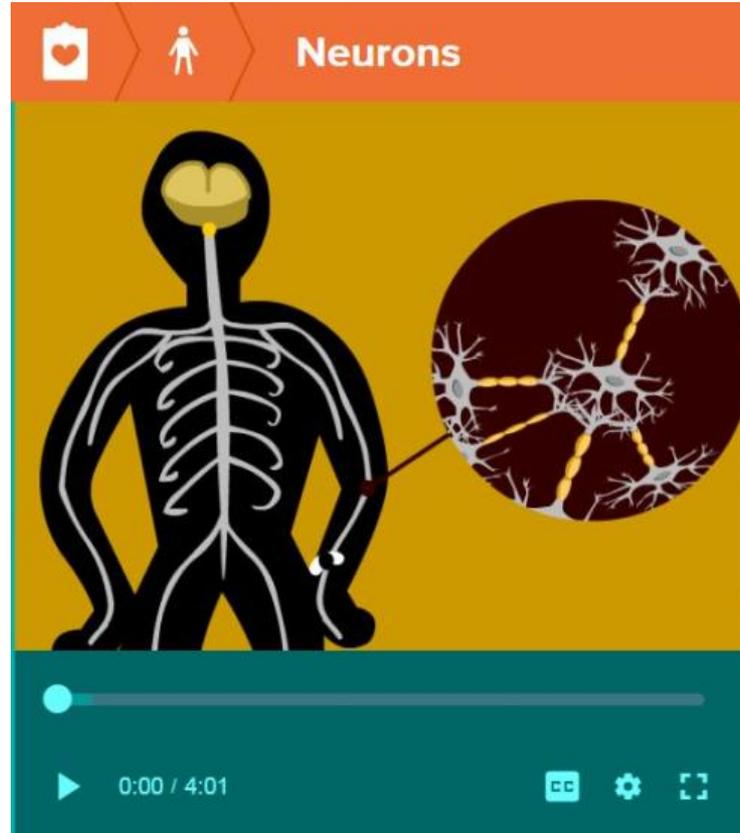
The palm of your hand represents the main body of a neuron, your fingers represent dendrites and your arm represents the axon. Neurons do only two things. First, they get switched on when stimulated by incoming information. Once stimulated, they try to make connections with other neurons. The axons send out the messages and the dendrites of another neuron receive them if they have something in common. This is how we learn. The brain creates these new connections whenever we have new experiences and learn new things. When we practise a hobby or skill, the associated neurons become stronger and develop more connections. The brain prioritizes these networks over others in order to be more efficient.

Neurons and the Brain

The more we practise and stick at something, the more likely we are to improve and become more efficient – as our neural connections will strengthen and grow. Our brain is not static, but is constantly changing to react to the things we do and experience.

This process is referred to as plasticity - the act of modifying our brain by strengthening the neural networks. You could liken it to muscles and exercise. The more we exercise, the stronger our muscles become. By repeating and practising an experience, our neural connections are strengthened also. The brain really is amazing!

Video - Neurons and the Brain



Tasks

1. Draw and label the diagram of a neuron in your exercise book. Use the words below:

Axon

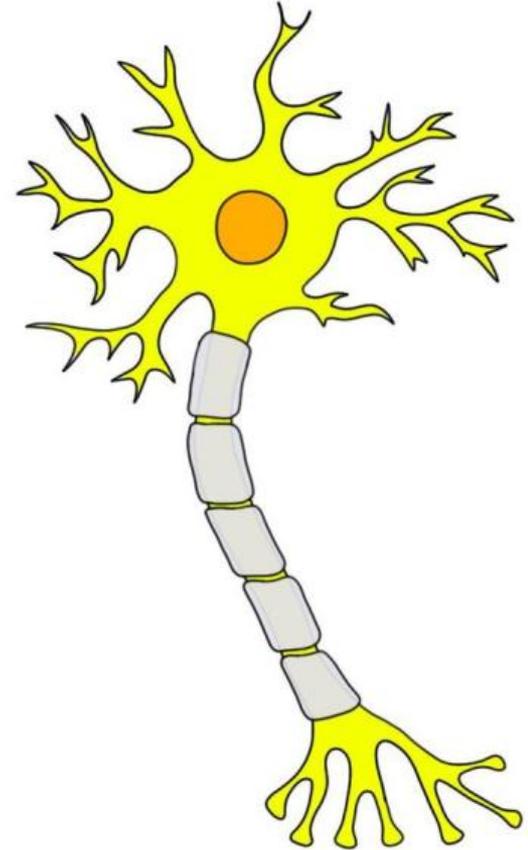
Cell Body

Dendrites

Myelin

Nucleus

2. Write down the job of each of these structures.



Tasks - Complete the Tweet Card

<p>Tweet Card</p>	<p>What do you know about the relationship between your neurons and learning?</p>
	
<p>Draw it!</p> <p>Write it!</p> <p>Prove it!</p>	
	

How does this relate to your own learning?



For this lesson we are...



Lesson 5

LO: Identify different types of intelligence

Must: Recognise that there are multiple types of intelligence.

Should: Match famous people according to the type of intelligence that they demonstrate.

Could: Reflect on your own strengths and weaknesses. Reflect on what you can do to improve different areas of your own intelligence

Our learner profile goal for this lesson...



How are we going to demonstrate this?

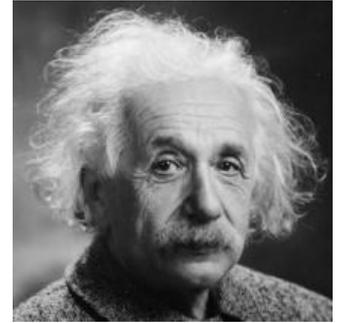
Video - Different types of intelligence



Task - The Brains of Famous People



Write a list of five famous people and put them into categories for why they are famous, e.g. musical, sports, science, etc.



Task - The Brains of Famous People

Using the groups of famous people from the beginning of the lesson, decide which of the following intelligences are most applicable to each group, justifying your decisions:

- Word smart
- Number smart
- Music smart
- Movement smart
- People smart
- Self-smart
- Organised smart
- Picture smart

Put this information together in a **famous people table**, which can be done in your exercise books.

For this lesson we are...



Lesson 6

LO: Know about some of the recent evidence and research into the brain and learning

Must: Identify two similarities and differences between the brain and a computer.

Should: Identify at least three similarities and differences between the brain and a computer.

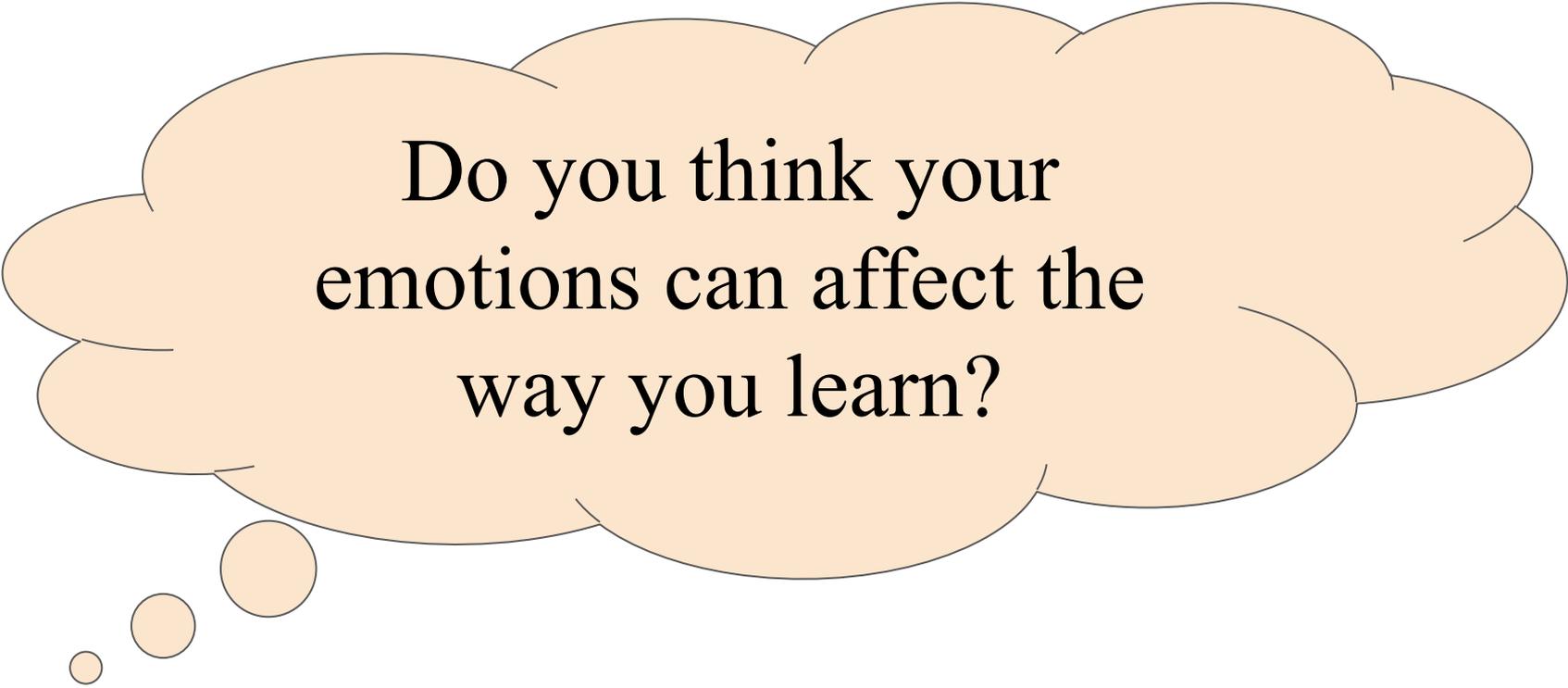
Could: Refer to published research about the brain.

Our learner profile goal for this lesson...

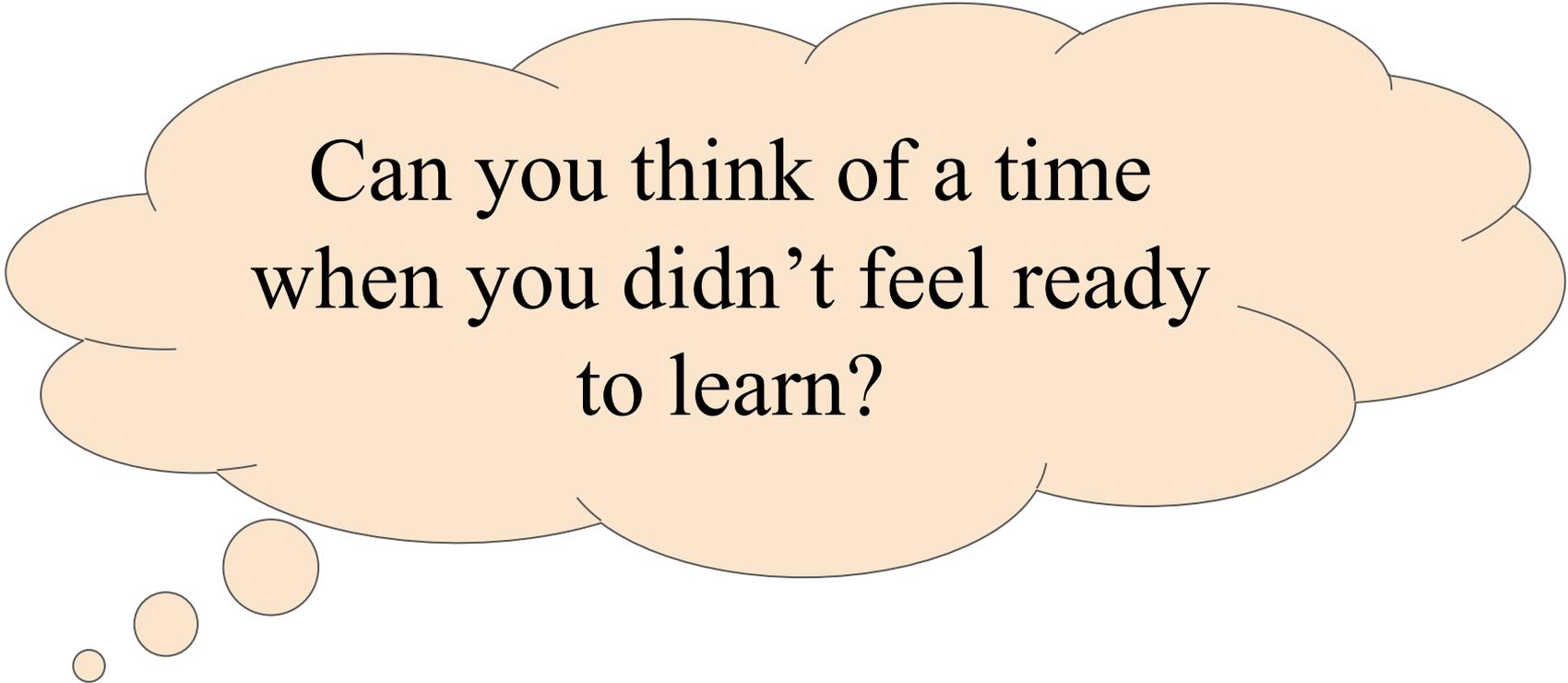


How are we going to demonstrate this?

Discussion - Our Emotions & Learning



Do you think your
emotions can affect the
way you learn?



Can you think of a time
when you didn't feel ready
to learn?

Discussion - Our Emotions & Learning

What emotions were you
feeling at the time?

Sad

Angry

Tired

Nervous

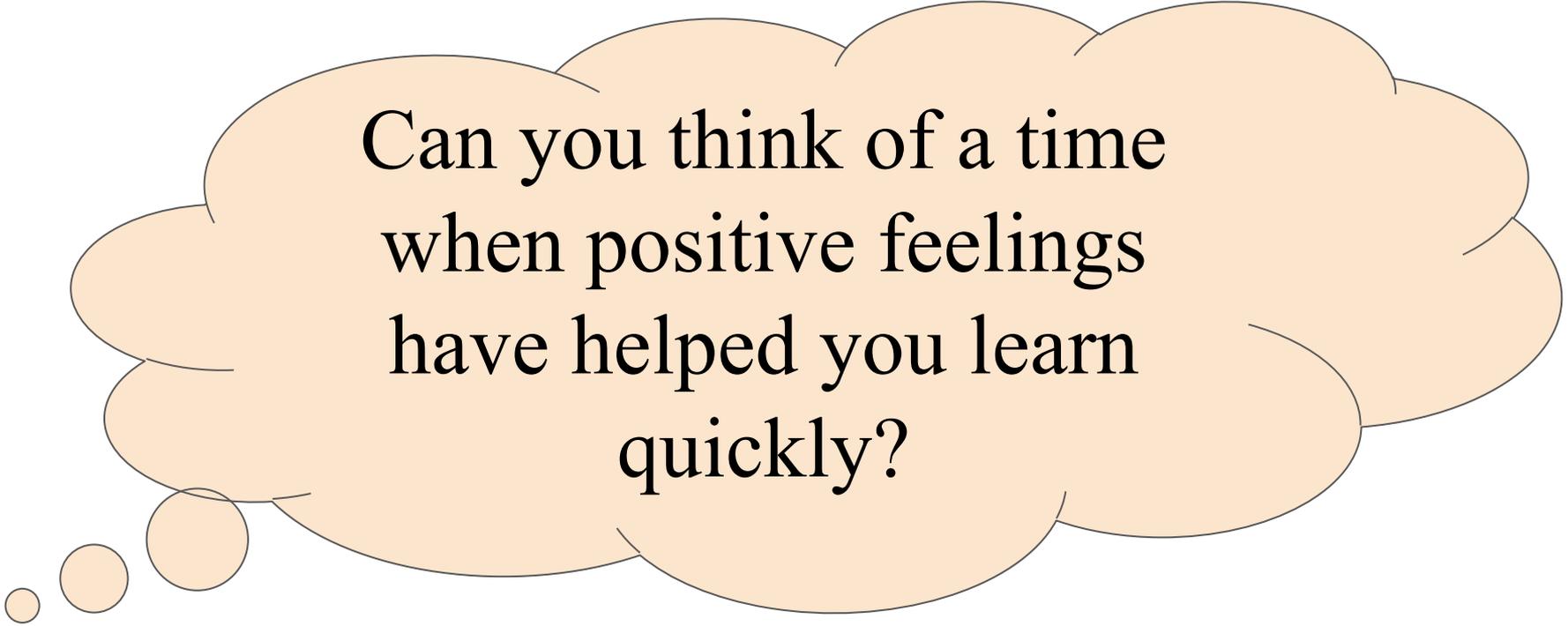
Hungry

Thirsty

Afraid

Anxious

Discussion - Our Emotions & Learning

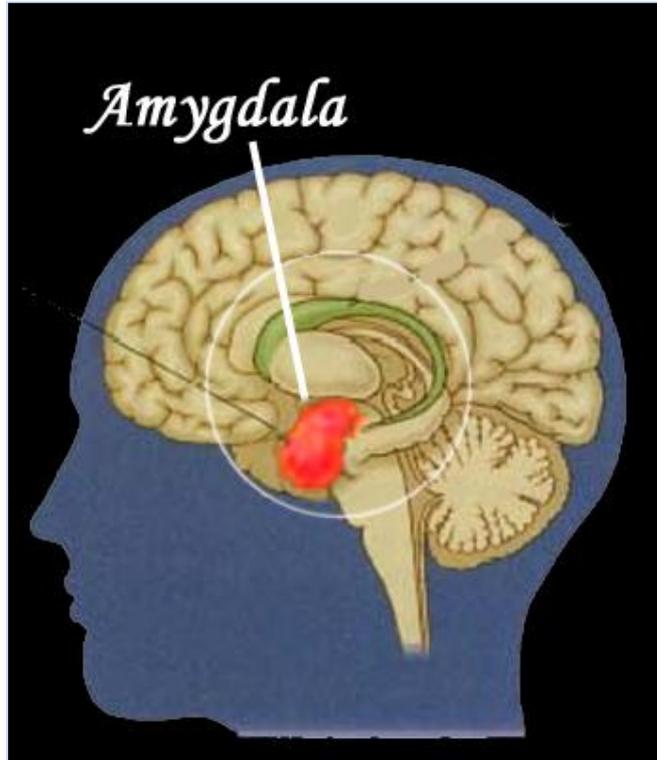


Can you think of a time
when positive feelings
have helped you learn
quickly?

How can we manage our emotions if we have this kind of response?



Our Emotions & Learning



The amygdala is the junction box of the brain. All input goes to the amygdala first where it is then sent to other parts of the brain. When we are frightened or stressed, the neurons in the amygdala immediately respond by putting us in a 'fight or flight' mode (it's the body's survival instinct that was so important to us when we were hunters and gatherers, living and surviving in the wild).

When our 'flight or fight' response is triggered:

Blood rushes from the extremities of the body to protect the main organs (which is why our hands go cold). Our heart beats faster to get more blood and oxygen to our muscles. We start perspiring so that our body will stay cool. Our brain goes into an 'automatic' response mode – the cortex (responsible for thinking) almost shuts down, making it very difficult to think rationally.

Video - How do emotions impact learning?



Task - Our emotions & learning

1. Complete the following sentences in your exercise books:

- *I learn well when I feel...*
- *I learn badly when I feel...*

2. Next, write a list of things that can be done, to create a more positive and supportive learning environment. Try and come up with at least three suggestions, exploring how these might be introduced and their positive benefits.

For this lesson we are...



Lesson 7

LO: Explain what it means to have a growth mindset and how this can be developed

Must: Answer the questions following the Growth Mindset video.

Should: Explain what is meant by neuroplasticity.

Could: Write a Growth Mindset journal entry.

Our learner profile goal for this lesson...



How are we going to demonstrate this?

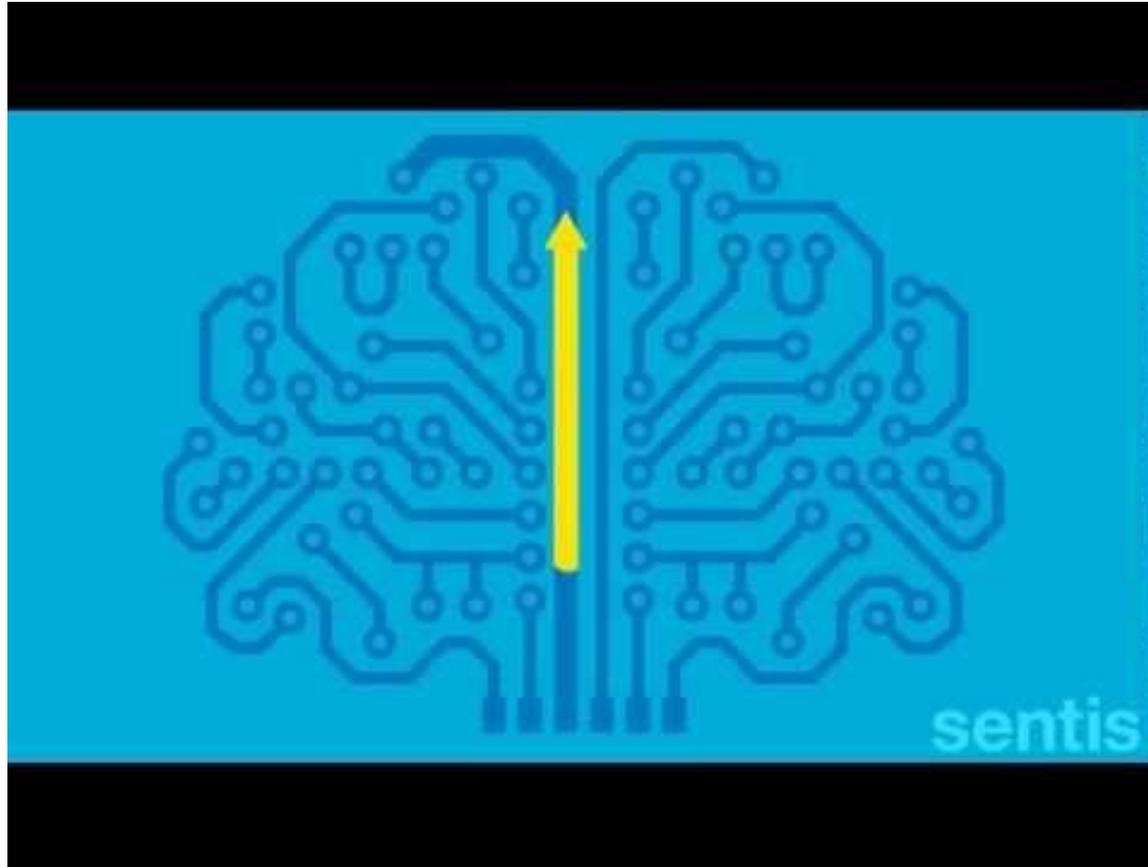
Video - Growth Mindset



Task - Answer these questions about the video

1. How do people become more intelligent? How does the diagram of the neurons “At birth vs. at age 6” demonstrate this?
1. How are our brains like muscles? Explain.
1. When do you think our brains grow the most? Why?

Video - Neuroplasticity



Task - Answer this question about the video

Explain in your own words what you understand by the term 'neuroplasticity'.

Growth Mindset

After neuroscientists found out that the brain is flexible, a new trend in education emerged: **Growth Mindset**. The growth mindset is based on the belief that people can change their intelligence or ability through hard work, practice, effort, and using the right strategies. Therefore, it is important for students to understand that the ability to learn is a skill that continues to grow over time.

Students with a growth mindset believe that intelligence can be developed. These students see effort as the key to success. They believe that ability can change as a result of effort, **perseverance**, and practice. They are more interested in learning, more eager to take on **challenges**, and more academically successful.

Video - Growth Mindset



Growth Mindset

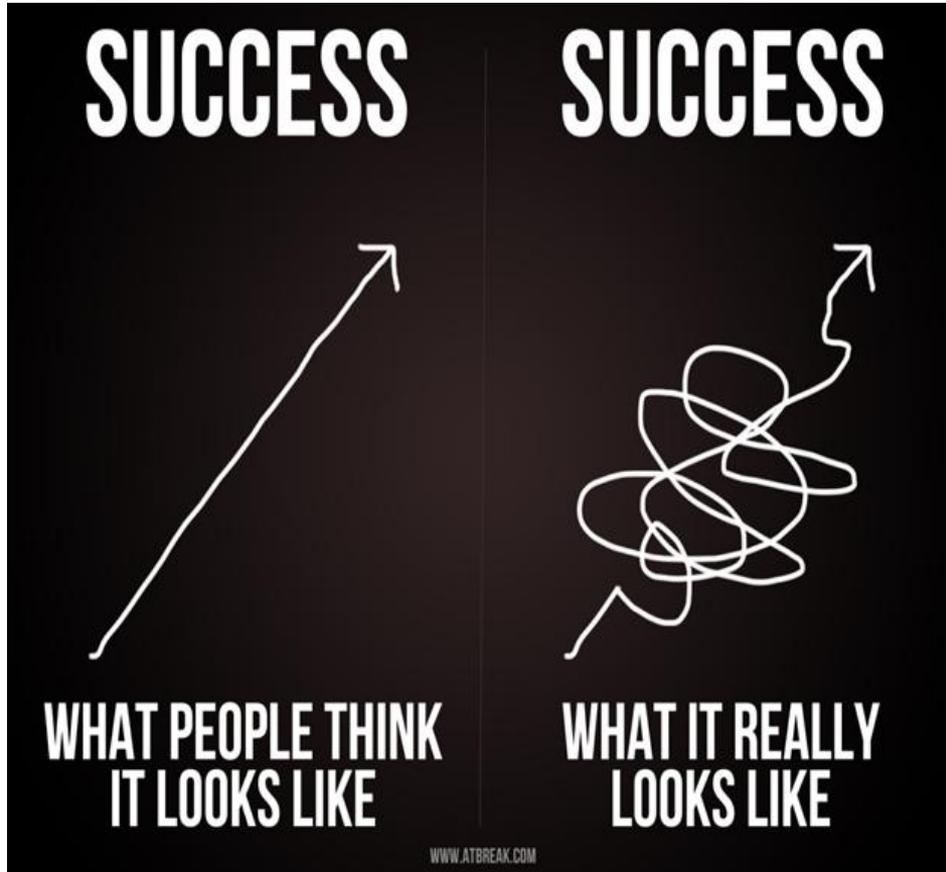
Students with a **fixed mindset**, on the other hand, believe that people are born with a certain amount of intelligence, and they can't do much to change that. For example, they might say "I just can't learn math." These students typically worry about not looking smart, get upset by mistakes, and give up sooner on difficult tasks. When they are faced with a challenge, they give up easily.

Growth mindset is not only about getting higher scores on tests and building better study habits. Having a growth mindset can give you the confidence you need to progress in other activities that the brain is involved in like sports, the arts, or social interactions. Do you want to try it?

Video - Growth Mindset

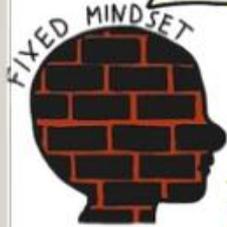


Growth Mindset



Growth Mindset

10 Growth Mindset Statements



What can I say to myself?



INSTEAD OF:

TRY THINKING:

I'm not good at this.

1 What am I missing?

I'm awesome at this.

2 I'm on the right track.

I give up.

3 I'll use some of the strategies we've learned.

This is too hard.

4 This may take some time and effort.

I can't make this any better.

5 I can always improve so I'll keep trying.

I just can't do Math.

6 I'm going to train my brain in Math.

I made a mistake.

7 Mistakes help me to learn better.

She's so smart. I will never be that smart.

8 I'm going to figure out how she does it.

It's good enough.

9 Is it really my best work?

Plan "A" didn't work.

10 Good thing the alphabet has 25 more letters!

@sylvia duckworth

The Iceberg Illusion

Success is an iceberg

SUCCESS!

WHAT PEOPLE SEE

Persistence



Failure



Sacrifice



Disappointment



WHAT PEOPLE DON'T SEE

Dedication



Hard work



Discipline



Extension Task

JOURNAL ENTRY: As part of our 'Growth Mindset' class, write a journal entry about a success story. Think about a time when you were successful at something and explain your journey to success.

Did you just wake up and be a brilliant skier? A pro tennis player? An amazing artist? A super reader?

What did the journey look like? How did you get there?

For this lesson we are...



internationally
minded

Lesson 8

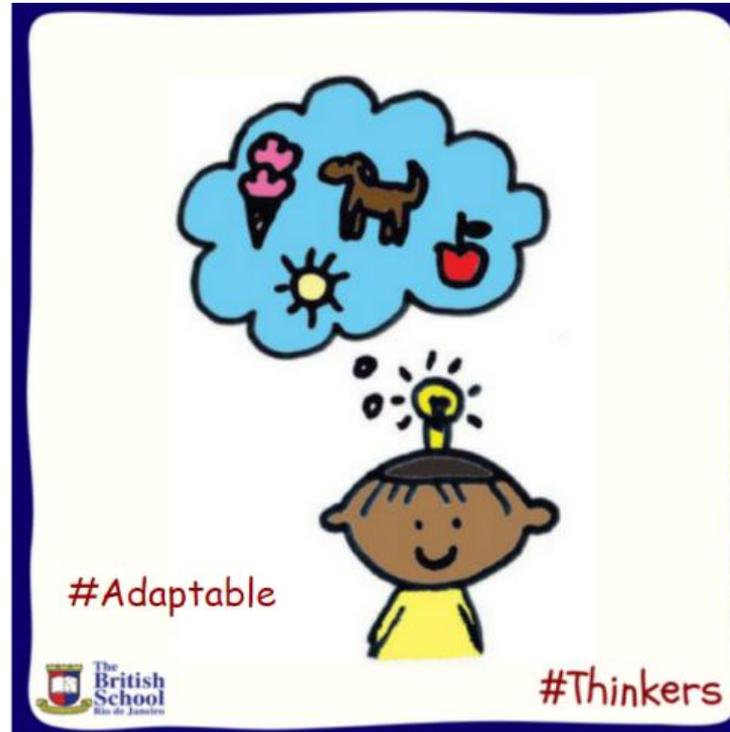
LO: Develop an understanding about what it means to be internationally-minded

Must: Read a newspaper article about a critical issue somewhere in the world.

Should: Read a newspaper article about a critical issue somewhere in the world.

Could: Make a video that describes, in your own words, what international-mindedness means .

Our learner profile goal for this lesson...



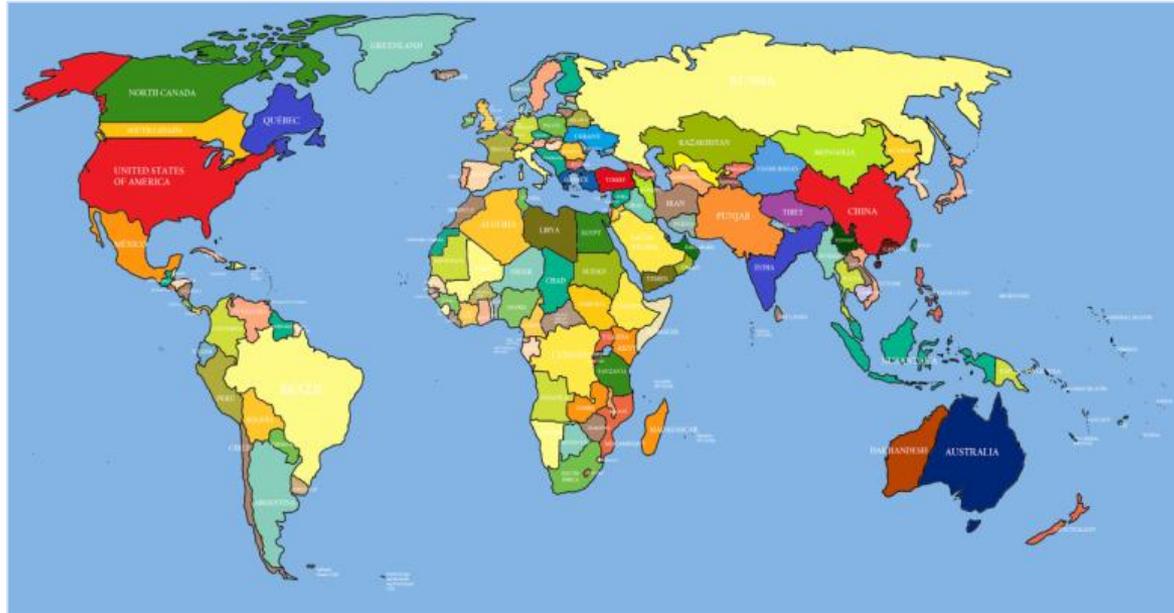
How are we going to demonstrate this?

International Mindedness



"At TBSRJ, we embrace our responsibilities as open-minded and empathetic global citizens who are proud of our own heritage whilst being respectful and appreciative of diverse cultures and beliefs."

Discussion - Why international mindedness is important



Video - The Kid President



Task - Answer these questions

1. Explain in your own words what international mindedness means?
2. Find a news article on a critical issue from somewhere around the world. Summarise it in your own words.
3. Make a video to go in your Google drive digital portfolio folder, to describe what international-mindedness means.

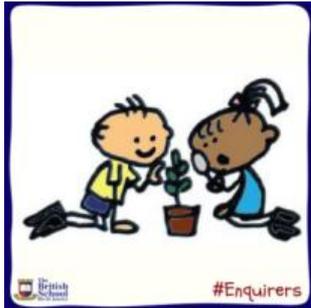
Extension task

Create a logo to communicate the idea of International Mindedness. How might it communicate a sense of ourselves, our school, Brazil and the world?

Time for Review

My IPC unit was...		
Knowledge	Skills	Understanding
These are all the new things I now know from this unit.	These are the things I have practiced during this unit.	These are the things I now understand after this unit.
I would still like to know this...		

Learner Profile Goals



For these lessons we are...

