

Starter

Use the word box provided to label the lobes of the brain below:

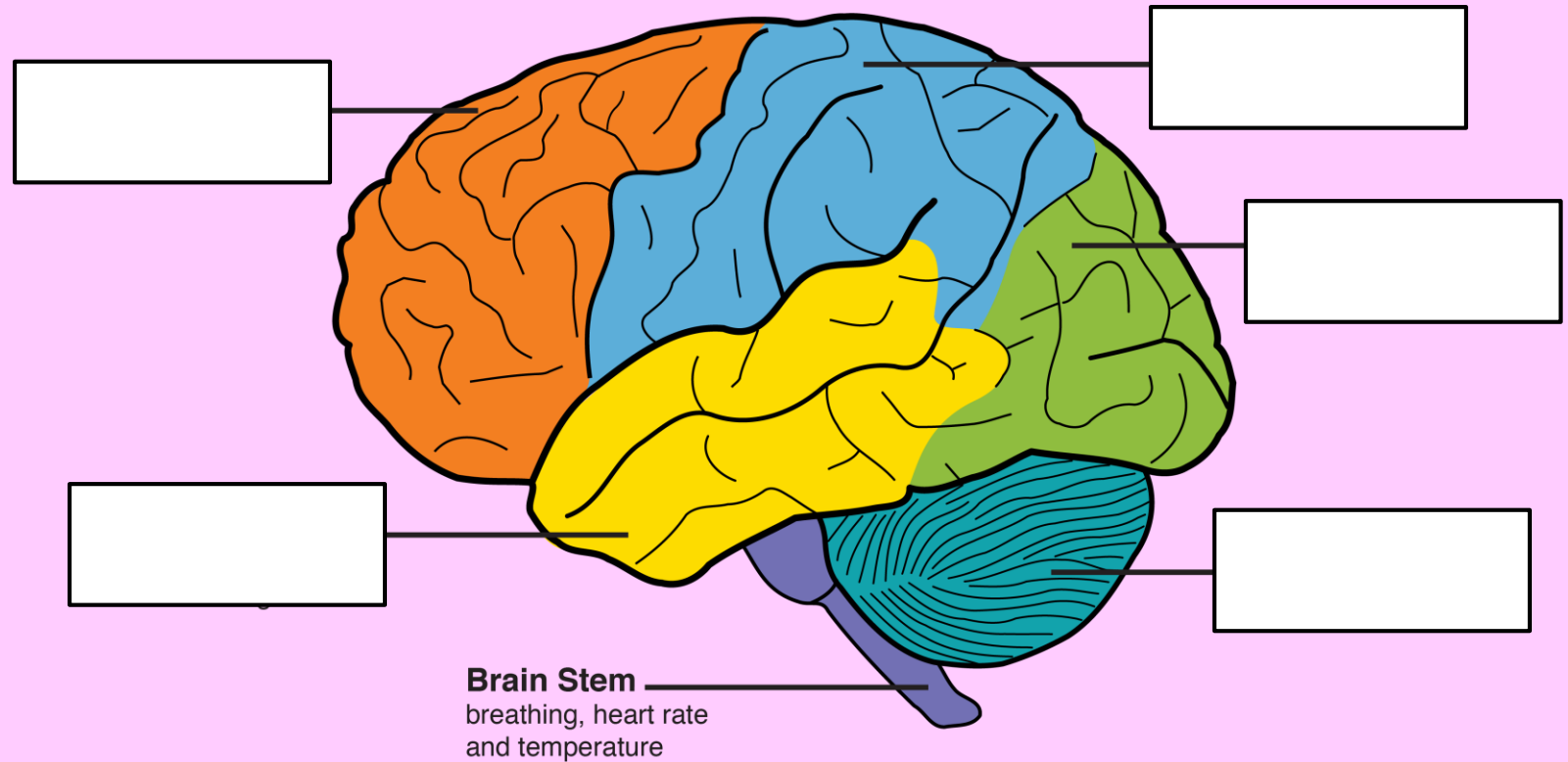
Occipital lobe

Temporal lobe

Parietal lobe

Cerebellum

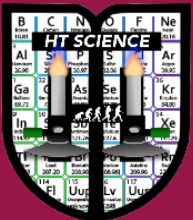
Frontal lobe



Learning objectives:

- ☐ Explore the usage of fluorescence imaging in tumour resection surgery.
- ☐ Recognise the introductory parameters of the OCR Biology A course.

Can you remember
the functions each
lobe controls?

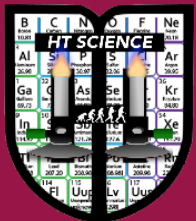


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Key words:

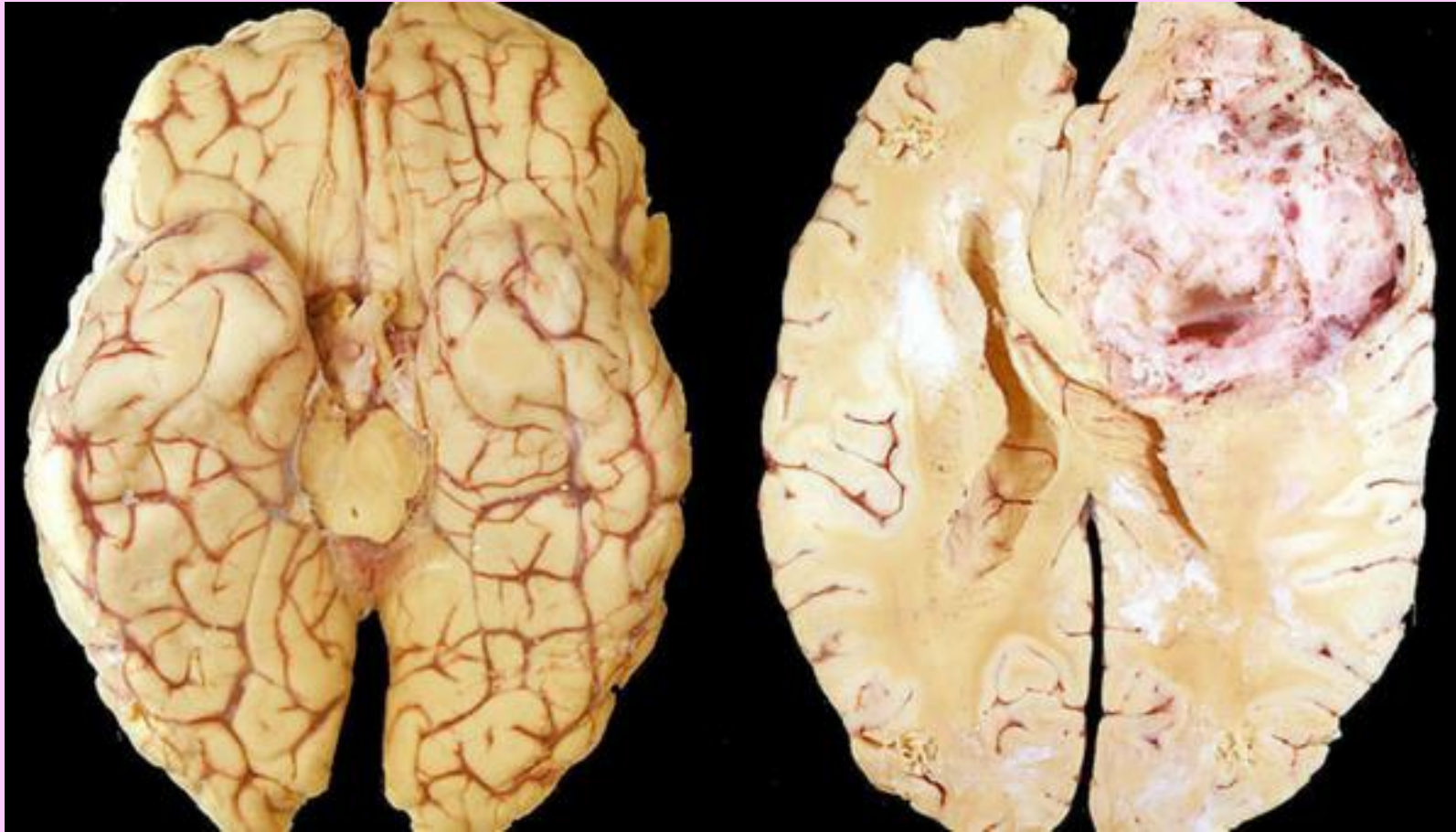
Tumour
Resection
Fluorescence imaging
Craniotomy
Parietal lobe
Occipital lobe
Cerebellum
Temporal lobe
Frontal lobe



Learning objectives:

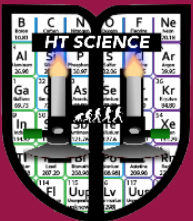
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Explanation



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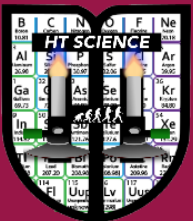


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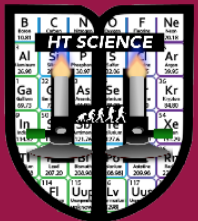


Checking Progress



1) You will receive a quarter section of a (jelly) brain, containing a tumour. Place this on the cutting tile and make a note of which lobe you have received.

2) Check to see if you can spot the tumour outline in your sample.

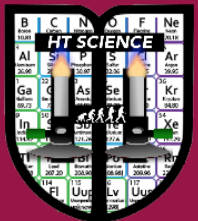


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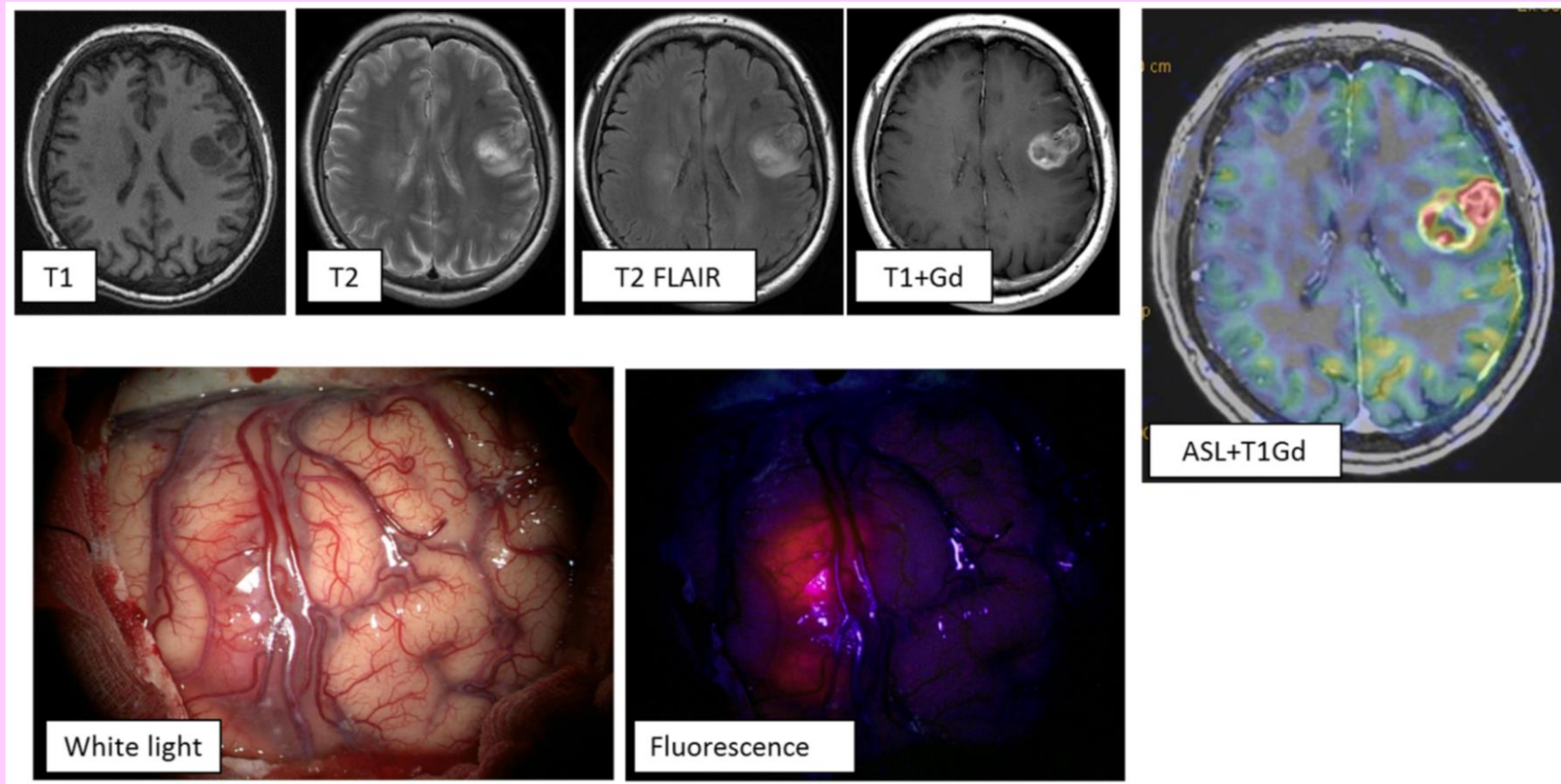
- 3) Now observe the tumour under a blacklight.
- 4) Using your scalpel, excise the tumour as accurately as possible.
- 5) After completing this exercise, can you think of the importance of fluorescent dyes in tumour resection surgery?



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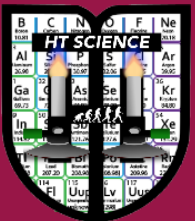
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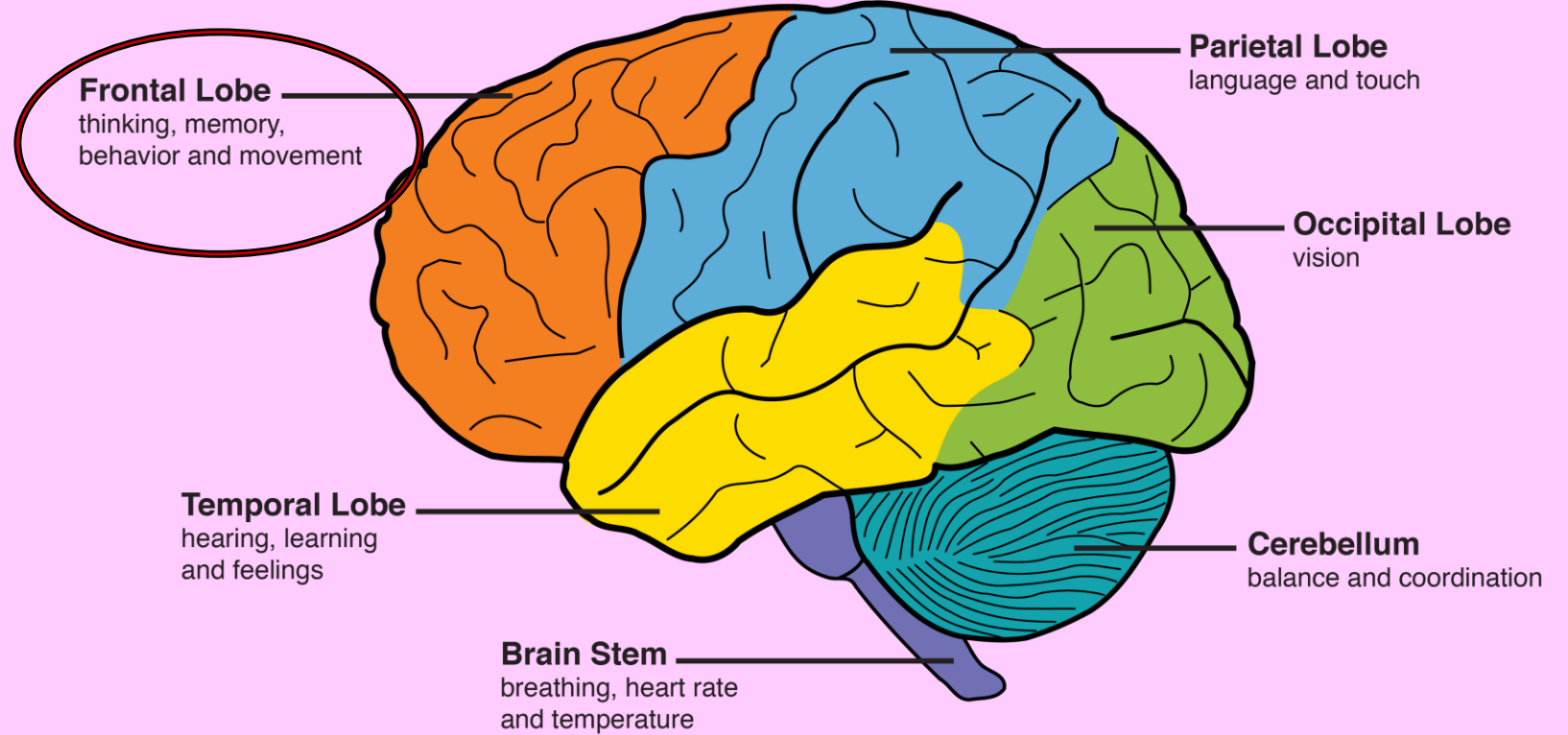
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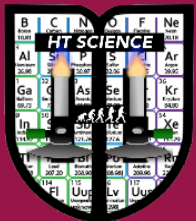


How does fluorescent dye distinguish between healthy brain tissue and tumour tissue?

Checking Progress



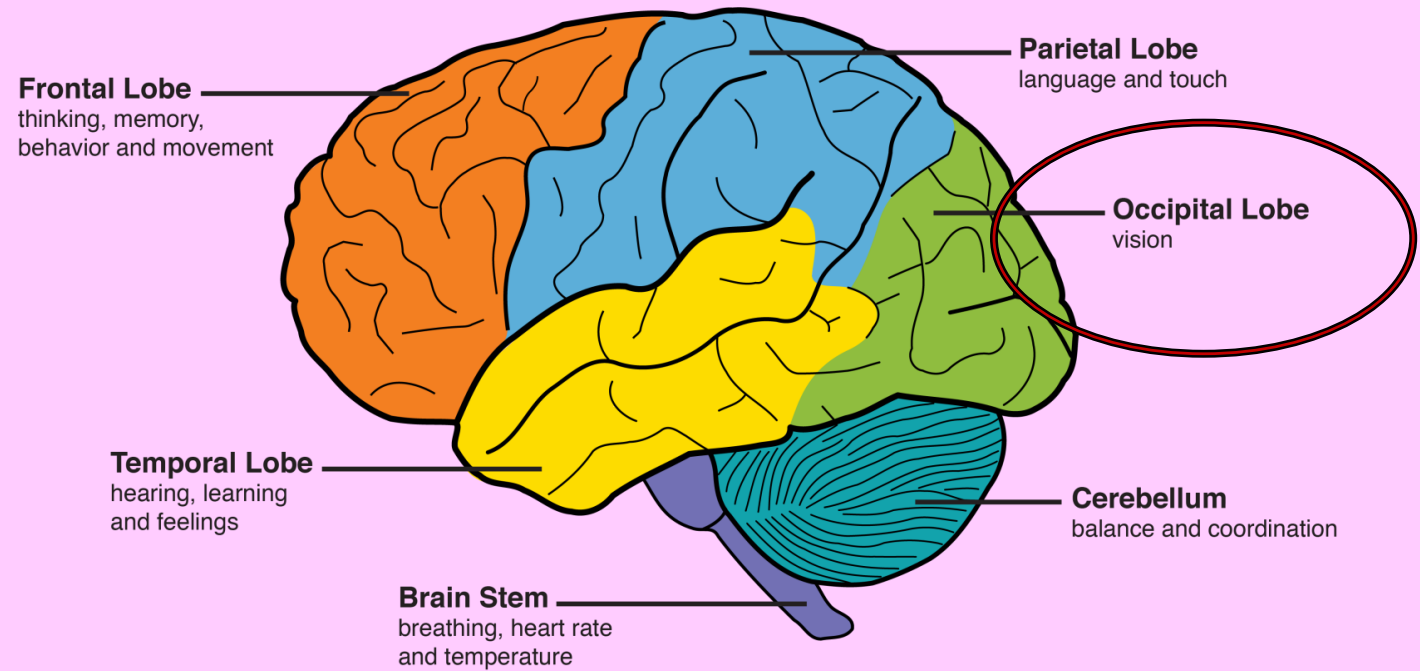
Good job! You were able to get most of the tumor out. Maria is recovering in her hospital room. When she wakes up, she is happy to see that her family is in the room with her. She tries to sit up in bed but is unable to. She becomes startled and then tries to move her arms and wiggle her fingers. She is unable to. Her family immediately calls for you. Something may have gone wrong. A part of the patient's brain must have been hurt during the surgery. What part of the brain do you think was hurt? Figure out which part was hurt so you can go back and fix it.



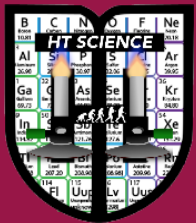
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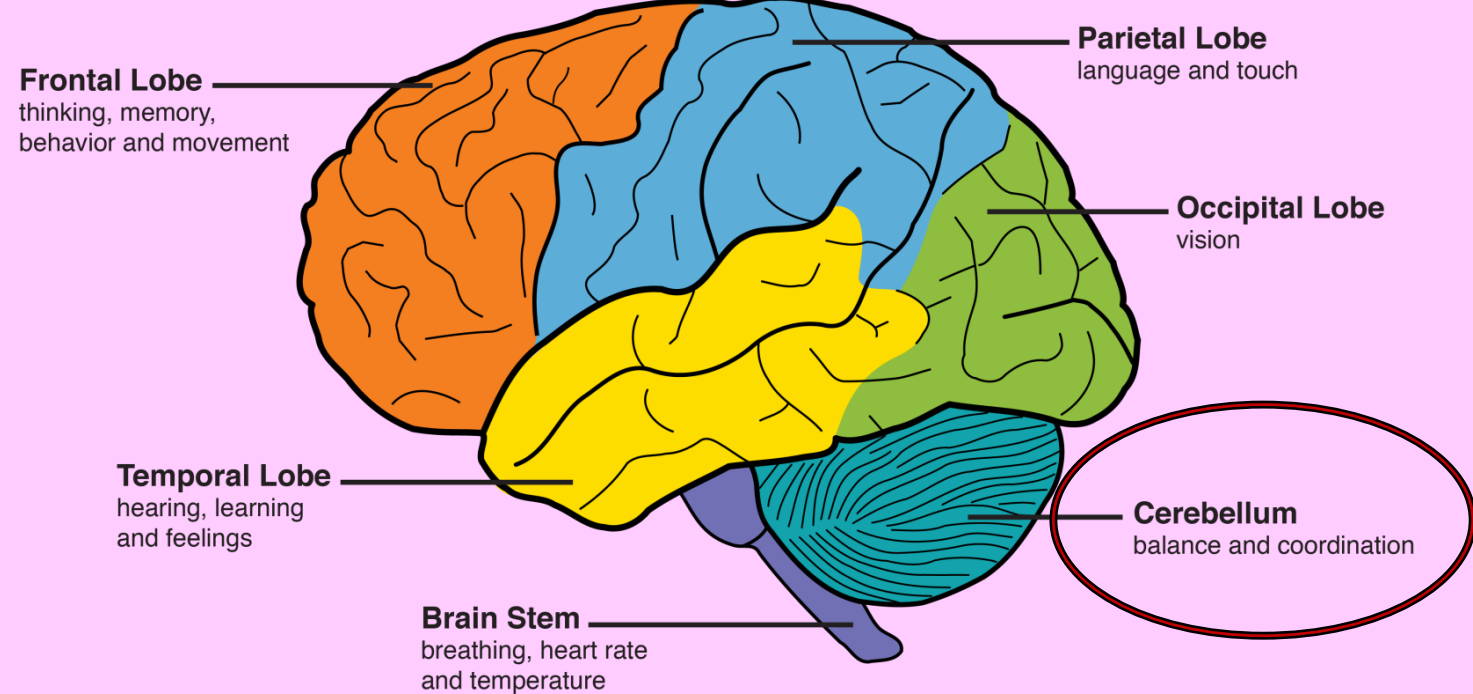
Good job! You were able to get most of the tumor out. Erin is recovering in her hospital room. After the patient wakes up, she says that she has a dull headache but that it doesn't hurt too much. While she is recovering, she watches TV to pass the time. While watching her show, she begins to see two TVs. She is startled by the change in vision and calls for her nurse. When the nurse walks in, the patient sees two of nurses. The nurse immediately notifies you. Something may have gone wrong. A part of the patient's brain must have been hurt during the surgery. What part of the brain do you think was hurt? Figure out which part was hurt so you can go back and fix it.



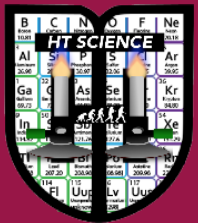
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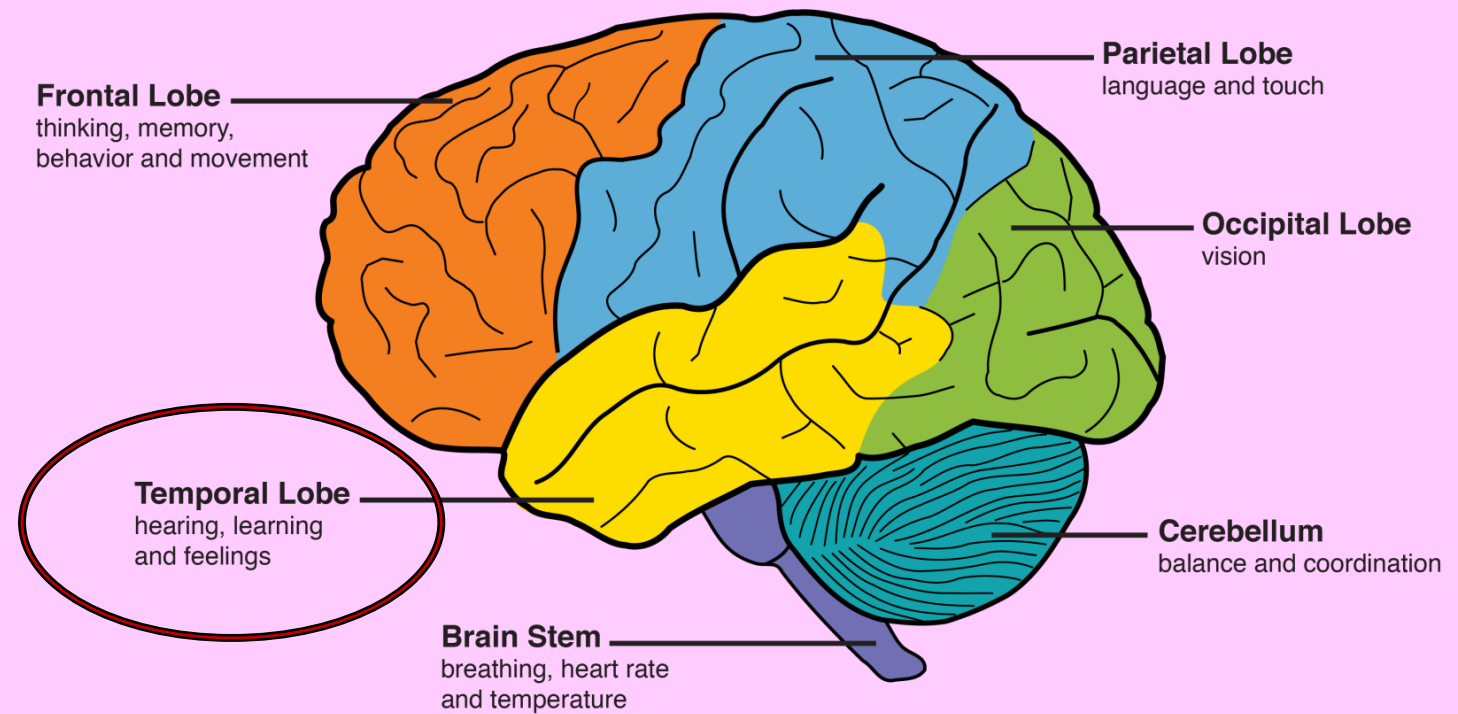
Good job! You were able to get most of the tumor out. Deandre is recovering in his hospital room. When he wakes up, he says that he feels okay except for a mild headache. He gets up to go to the bathroom. After taking a few steps, he begins to fall. He grabs on to the rail of his bed before falling. The patient tells the nurse that he is having trouble walking. When you check on Deandre, you notice that his steps are very jerky and unsteady. You think that something may have gone wrong. A part of the patient's brain must have been hurt during the surgery. What part of the brain do you think was hurt? Figure out which part was hurt so you can go back and fix it.



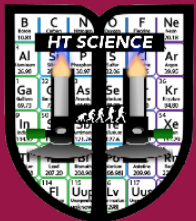
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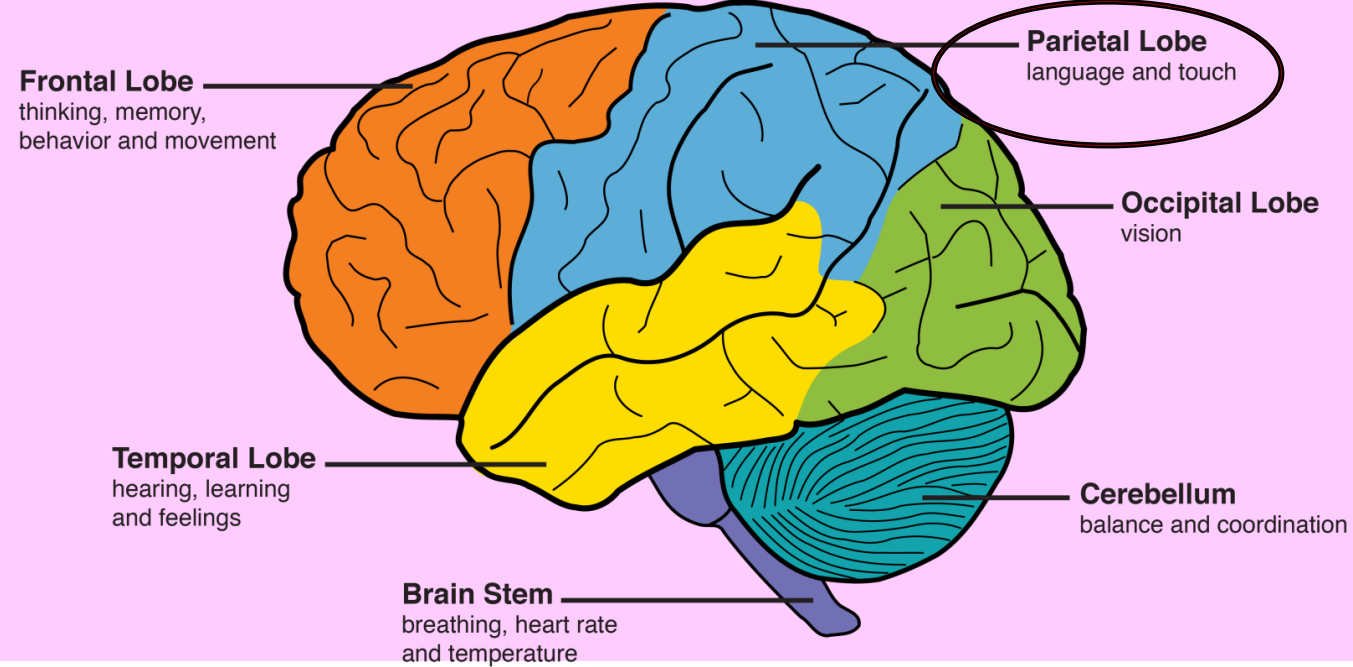
Good job! You were able to get most of the tumor out. The patient is recovering in her hospital room. The patient wakes up and she says that she feels okay. She is able to walk around her room without a problem. She does not complain of any symptoms. You check on her daily for the next few days and notice she seems sad all the time. This was unusual because she was very cheerful before the surgery. You suspect something may have gone wrong. A part of the patient's brain must have been hurt during the surgery. What part of the brain do you think was hurt? Figure out which part was hurt so you can go back and fix it.



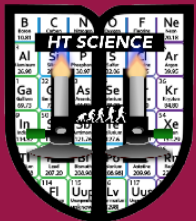
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Checking Progress



Good job! You were able to get most of the tumor out. Wallace is recovering in his hospital room. When the patient wakes up, he says he has a headache. You tell him a headache is common after surgery. A few hours later, the patient is given food from the cafeteria. The nurse notices that the patient is having difficulty getting the food in his mouth. Multiple times he misses his mouth and gets food on his cheeks. After finally taking a few bites, he complains that the food is really bland and tasteless. The nurse immediately notifies you. Something may have gone wrong. A part of the patient's brain must have been hurt during the surgery. What part of the brain do you think was hurt? Figure out which part of the brain was hurt so you can go back and fix it.



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Explanation

What's included

Development of practical skills in biology

Cell structure

Biological molecules

Nucleotides and nucleic acids

Enzymes

Biological membranes

Cell division, cell diversity and cellular organisation

Exchange surfaces

Transport in animals

Transport in plants

Communicable diseases, disease prevention and the immune system

Biodiversity

Classification and evolution

Communication and homeostasis

Excretion as an example of homeostatic control

Neuronal communication

Hormonal communication

Plant and animal responses

Photosynthesis

Respiration

Cellular control

Patterns of inheritance

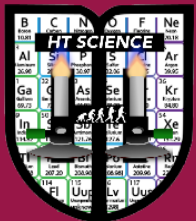
Manipulating genomes

Cloning and biotechnology

Ecosystems

Populations and sustainability

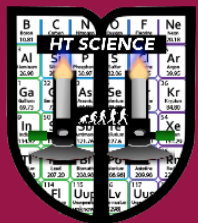
Emphasis throughout the course is on increasing knowledge, developing competence and confidence in practical skills and developing problem solving. You will learn how society makes decisions about scientific issues and how science contributes to the success of the economy and society.



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Learning objectives

- ☐ Explore the usage
- ☐ Recognise the int

How will you be assessed?

- Total of six hours assessment split over three examination papers (2 x 2 hours 15 minutes and 1 x 1 hour 30 minutes) taken at the end of the two year course.
- A wide range of question types including: multiple choice, short answer and extended response questions.
- Opportunity to demonstrate your knowledge of both theory and practical skills through the examinations.

To achieve a Practical Endorsement, through a range of experiments, you will become competent in:

- Following procedures
- Applying an investigative approach when using instruments and equipment
- Working safely
- Making and recording observations
- Researching, referencing and reporting.

Where can A Level Biology A take me?

- A Level Biology A is an excellent base for a university degree in healthcare, such as medicine, veterinary or dentistry, as well as the biological sciences, such as biochemistry, molecular biology or forensic science. Biology can also complement sports science, psychology, sociology and many more.
- A Level Biology A can open up a range of career opportunities including: biological research, medical, environmental, forensics, sports and science communication. The transferable skills you will learn, such as problem solving, are also useful for many other areas, such as law.

What are the benefits?

- An interesting and challenging learning experience, linking key biological ideas and understanding how they relate to each other.
- The development of transferable skills including: investigative, problem solving, research, decision making, mathematical skills and analytical skills.
- Opens up a range of possibilities for further study and careers associated with the subject.

Are you...

- Aiming to be a doctor, nurse or vet?
- Thinking of a career in research?
- Interested in the environment and the world around you?
- A problem solver?
- Interested in science?
- Keen on practical work?
- Studying other sciences or maths?

If so, A Level Biology A is for you.

Thought provoking questions

- How are all organisms related?
- What is the human impact on the biological world?
- How can genetics be used as evidence?
- What are mitochondria?
- How does the body function?

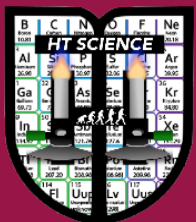
End & send

How can three surgeons, with open wounds on their hands, operate on a patient with only two surgical gloves so that nobody is directly exposed to anybody else's blood?

They can operate one at a time and can all operate one-handed.

Expectations

- ✓ **All equipment away**
- ✓ **All rubbish in the bin**
- ✓ **Everybody leaves in a calm manner.**



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