



University Learning in Schools

BIOLOGY

My brain during the day

Module Rationale

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Title of Module: My brain during the day
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Module Rationale	
Why did you chose your particular theme (consider: inspiration, ambition, creativity, new ways of thinking, pragmatism, tailoring research to exam requirements)?	New ways of thinking for students: it will help build their confidence as they are learning about how their brain works, and also how they can improve themselves.
What did you hope to achieve? (i.e. what was your over-arching objective?)	Gain deeper understanding of how our brain acts and can be trained.
How did you decide on the time frame for your module? (To fit to a half-term? To fit with an assessment cycle? Based module on x number of lessons of y length over z number of weeks)	It fits in with the module AQA B1.2 coordination and control with a link to B1.3 Drugs. The section will include 6 lessons, taught over 2 weeks.

Overview of Module What are the components?	
Lesson plans/rationale	6 lessons
Presentations	All lessons will have accompanied power points.
Resources required for pupils (books, lab equipment, computer facilities, etc.)	Lesson hand-outs with activity sheets included. Lesson 3 will require practical equipment to test reflexes.
Resources provided in lessons by teacher (text extracts, images, journal articles, etc.)	PPTs with hand-outs Resources for each lesson Case studies for students

Lesson	Objective	Key question (s)	Key concepts & terminology
1	<p>Introduction SoW + expectations</p> <p>To gain an understanding that differences in behavior are linked to differences in brain activity</p>	<ul style="list-style-type: none"> • How is our brain divided and organized? • Which part of the brain is more dominant than the other? (linking it to hemispheres) • What are the right and left hemispheres of the brain responsible for? 	<p>Left/right hemisphere Behaviour Brain symmetry Brain functionality</p> <p>Homework – recap, write up</p>
2	<p>Identify the different senses in our body</p> <p>Link the function of our senses to the effect they have on our behavior and responses</p> <p>Identify the effect of damage in a particular area of the brain on the functionality of our senses</p>	<ul style="list-style-type: none"> • What senses do we have to register our surroundings and help us to respond to changes in our surroundings? • What happens to our senses when certain brain areas do not develop? • What current research is available? 	<p>Brain specificity Brain areas (...) Sense organ Receptor cell</p> <p>Brain damage Brain condition</p>
3	<p>Label and annotate different neurons (sensory and motor neuron)</p> <p>Explain the function of a synapse</p> <p>Explain how signals are transmitted between neurons and identify structural differences</p>	<ul style="list-style-type: none"> • What different types of neurons are found in our body? • What specific functions do these different neurons have? • Why do we have synapses? • How are electrical signals passed between neurons? • What are the differences between neurons and nerves? 	<p>Sensory, relay and motor neuron Neurotransmitter Synapse Electrical/neuronal impulse Dendrite Axon</p>

4	<p>Give examples of reflexes</p> <p>Describe the sequence in a reflex arc</p> <p>Explain the importance of a reflex arc</p>	<ul style="list-style-type: none"> • What structures are involved in a reflex arc? • Why do we need reflexes? • What types of reflexes do we have? • Can you train to get better reflexes? • Can you stop a reflex from happening? 	<p>Sensory, relay, motor neuron</p> <p>Spinal cord</p> <p>Reflex</p>
5	<p>List different neurotransmitters in our body</p> <p>Describe the effect of drugs on neurotransmitters</p> <p>Explain the effect of drugs on neurotransmitters and the effect on our responses</p>	<ul style="list-style-type: none"> • Why are there legal/illegal drugs? • How are they classified? • What different neurotransmitters do we make in our body and why? • Why do different drugs have different effects? • How can we link the effect of neurotransmitters to e.g. ADHD 	<p>Neurotransmitter</p> <p>Serotonin</p> <p>Dopamine</p> <p>Stimulant</p> <p>Depressant</p>
6	<p>List different types of memory</p> <p>Describe how we can learn new things and form a memory</p> <p>Explain how brain plasticity helps us learn new things</p>	<ul style="list-style-type: none"> • What different types of memory do we recognize? • What brain areas are linked to the different types of memory? • What is plasticity? 	<p>Use it or lose it</p> <p>Synaptic plasticity</p> <p>Different memories</p> <p>Long term</p> <p>Short term</p>

Evaluation		
<i>What is the impact of the module? Consider the impact, if any, that planning, teaching and assessing the module has made on both pupil and teacher in each category:</i>		
Impact	On pupil	On teacher
Subject skills learned		
New conceptual understanding or new ways of thinking		

Reflection		
Stop	Start	Carry on
What should be excised or not repeated?	What should teachers add to the module next time it is taught?	What aspects worked well and should definitely be repeated next time the module is taught?