Scheme of Work for Biology Year 11 for 2018/19

All lessons will be based on Trilogy content for Autumn and Spring Terms. Where chapter numbers for Trilogy and Single Science differ, **Trilogy will be given in bold** and *Single Science in italics*.

Trilogy should aim to be finished by late Spring Term. Single Science Content will be done from late Spring onwards.

Lesson slides can be found at: \\STJdocs01\STAFFAREA\Departments\SCIENCE\GCSE\Biology\ under the relevant chapter headings.

U:\Departments\SCIENCE\GCSE\Independence resources\Biology\Huddle-ks4independencebiologypdfbooklets.zip

Chapter and Topic	Lesson	Outcomes	Suggested activities/resources	Homework
B10.1 Principles of homeostasis	Aut 1 L1	1. Name some human internal conditions that are controlled (G4). 2. Define homeostasis (G6). 3. Explain why internal conditions need to be maintained (G6). 4. Apply knowledge of enzymes and osmosis to explain in detail why internal conditions need to be maintained(G8).	Order text books	Embed:
B10.2 The structure and function of the nervous system	Aut 1 L2	1. Describe what a neurone and a nerve are (G4). 2. Describe how information is passed along neurons (G6).	Order stop clocks. Measure the speed of nerve conduction. Hold hands and squeeze. Get distance over time. Do repeats – reliability of data can be worked in.	**Embed**: Doddle: nervous system https://www.doddlelearn.co.uk/app/teacher/launch-content/a8c44da8-344d-4cd8-ae9c-df55bcd8e8d2
B10.3 Reflex actions (including the synapse)	Aut 1 L3	1. Describe why reflex actions are important (G4). 2. Describe the events involved in a reflex action (G6). 3. Describe how reflex actions are fast and automatic (G6). 4. Explain in detail how impulses travel across a synapse (G8).	Supporting: Reaction time: http://www.bbc.co.uk/science/humanbody/sleep/sheep/reaction_version5.swf (need to allow flash – won't work on iPads, but ideal if timetabled in CP3 again)	**Apply**: Kerboodle: B10 Homework: The human nervous system 1
Required practical: investigate the effect of a factor on human reaction time.	Aut 1 L4	1. Measure reactions times using repeats to increase accuracy (G4). 2. Evaluate a method and describe how accuracy could be increased (G6).	Supporting: Kerboodle: Required practical 7: Measuring reaction time.	**Apply**: Kerboodle: B10 Checkpoint quiz: The human nervous system

Chapter and Topic	Lesson	Outcomes	Suggested activities/resources	Homework
		3. Evaluate results in detail in order to discuss precision and accuracy (G8).	Can differentiate by set as there are 3 versions	
B11.1 Principles of hormonal control 11.4 The role of negative feedback	Aut 1 L5	1. Name some human internal conditions that are controlled (G4). 2. Define homeostasis (G6). 3. Interpret and explain diagrams of negative feedback control. (G6). 4. Apply knowledge of enzymes and osmosis to explain in detail why internal conditions need to be maintained (G8).	Supporting:	**Embed**: Doddle: reaction time https://www.doddlelearn.co.uk/app/teacher/launch-content/901216ec-0d69-4537-b330-2e33201b8390 Higher sets: B12 Homework: Homeostasis in action 1
B11.2 The control of blood glucose levels B11.3 Treating diabetes	Aut 1 L6	1. Match the pituitary gland, pancreas, thyroid, adrenal gland, ovary, and testes to their position on a diagram of the human body (G8). 2. Explain why the pituitary gland is known as a 'master gland' (G6). 3. Compare and contrast nervous and hormonal action (G8).	Supporting: Hormone definition sort cards. B11_1_Hormones_worksheet_1	**Apply**: Kerboodle: B11 Homework: Hormonal coordination 1
B11.5 Human reproduction **B12.2** (*B13.2*)Cell division in sexual reproduction	Aut 1 L7	1. Compare and contrast the changes to boys and girls during puberty (G6). 2. Explain how contraceptives work (G6) giving details of the hormones involved (G8).	Supporting:	**Apply**: Doddle: https://www.doddlelearn.co.uk/app/teacher/launch-content/51690b9b-f8a6-4d43-9a10-9638bcb7309e
B11.6 Hormones and the menstrual cycle	Aut 1 L8	1. Name the hormones involved in the menstrual cycle (G6). 2. Explain why fertility changes with age in men and women (G8). 3. Explain the role of each hormone in the menstrual cycle (G8).	Supporting:	**Challenge/independent work**: Reproduction booklet.
B11.7 The artificial control of fertility B11.8 Infertility treatments	Aut 1 L9	1. List the advantages and disadvantages of different contraceptives (G6). 2. Describe how FSH and IVF can be used to help treat infertility (G8).	Supporting:	**Challenge/independent work**: Reproduction booklet: completed and hand in.

Chapter and Topic	Lesson	Outcomes	Suggested activities/resources	Homework
		3. Evaluate the advantages and disadvantages of IVF (G8). 4. Use different viewpoints to make an informed decision on unused IVF embryos (G8).		
Test on B10 and B11	Aut 1 L10		Supporting:	**Challenge/interleaving**: Half-term HW incorporating TPGG & exam-style questions.
B12.3 *(B13.4)* DNA and the genome Introduce inheritance	Aut 2 L1		Supporting:	
B12.4 *(B13.7)* Inheritance in action **B12.5** *(BB13.8*) More about genetics	Aut 2 L2		Supporting:	
B12.6 *(B13.9)* Inherited disorders **B12.7** *(B13.10)* Screening for genetic disorders	Aut 2 L3		Supporting:	**Embed**: Doddle: inheritance https://www.doddlelearn.co.uk/app/teacher/launch-content/d4157f31-ea21-422a-a74c-fa71bc25572e
B13.1 *(B14.1)* Variation	Aut 2 L4		Include work on data skills Supporting:	
B13.3 *(B14.3)* Selective breeding (recap punnet squares)	Aut 2 L5		(recap punnet squares) Supporting:	**Embed: (top sets)** Kerboodle: B13 Homework: Reproduction 2
Test on B12 &B13 (Aut 2 weeks 1 to 5)	Aut 2 L6		Supporting:	
DIRT / TPGG	Aut 2 L7		Supporting:	

Chapter and Topic	Lesson	Outcomes	Suggested activities/resources	Homework
B13.2 *(B14.2)* Evolution by natural selection **B14.1** *(B15.5)* Evidence for evolution	Aut 2 L8		Supporting: 7. PiXL Independence _KS4_GCSE Biology_Inheritance, evolution and variation_Booklet.pdf	**Embed/interleaving**: Doddle: variation and evolution. https://www.doddlelearn.co.uk/app/teacher/launch-content/46af42f5-73f0-4d69-bcc6-7def307a445b
B14.2 *(B15.6)* Fossils and extinction **B14.3** *(B15.7)* More about extinction **B14.5** *(B15.9)* Classification **B14.6** *(B15.10)* New systems of classification	Aut 2 L9		Supporting:	**Embed**: Doddle: classification https://www.doddlelearn.co.uk/app/teacher/launch-content/80cc03ff-11b7-41ab-af38-1882bb463425
B13.4 *(B14.4)* Genetic engineering **B13.5** *(B14.7)* Ethics of genetic technologies **B14.4** *(B15.8)* Antibiotic resistant bacteria	Spr 1 L1		Supporting:	**Embed**: Doddle: Altering organisms https://www.doddlelearn.co.uk/app/teacher/launch-content/c6f393bc-b016-4e65-a23f-fe35fc6093ff
Test on B13 & B14	Spr 1 L2		Supporting:	
DIRT / TPGG	Spr 1 L3		Supporting:	
B15.1 *(B16.1)*The importance of communities **B15.2** *(B16.2)* Organisms in their environment	Spr 1 L4		Supporting: U:\Departments\SCIENCE\GCSE\Independence resources\Biology\Huddle-ks4independencebiologypdfbooklets.zip	

Chapter and Topic	Lesson	Outcomes	Suggested activities/resources	Homework
B15.3 *(B16.3)* Distribution and abundance	Spr 1 L5		Supporting:	Apply: Kerboodle: B16 Homework: Adaptations, interdependence, and competition 1
Required practical: measure the population size of a common species in a habitat	Spr 1 L6		Supporting:	**Embed**: Doddle: practical investigation https://www.doddlelearn.co.uk/ app/teacher/launch-content/5b04d575-f3c1-4481-98d6-02b87a82251d
B15.4 *(B16.4)* Competition in animals **B15.5** *(B16.5)* Competition in plants	Spr 1 L7		Supporting:	Self-study: **B15.6 & B15.7** *(B16.6 & B16.7)*: adaptations in plants and animals
				https://www.doddlelearn.co.uk/ app/teacher/launch-content/621675e6-483e-4a0d-9f6d-bab777f33b8d
B16.1 *(B17.1)*Feeding relationships4	Spr 1 L8		Supporting:	Embed: Doddle: feeding relationships https://www.doddlelearn.co.uk/ app/teacher/launch-content/7337c59f-7a4c-47f4-b77c-38f94bfe3ff5
B16.2 *(B17.2)* Materials cycling **B16.3** *(B17.3)* The carbon cycle	Spr 1 L9		Supporting:	
B17.2 *(B18.2)* Land and water pollution **B17.3** *(B18.3)* Air pollution	Spr 2 L1		Self-study: **B17.1** *(B18.1)* The human population explosion Supporting:	

Chapter and Topic	Lesson	Outcomes	Suggested activities/resources	Homework
B17.4 *(B18.4)* Deforestation and peat destruction **B17.5** *(B18.5)* Global warming	Spr 2 L2		Supporting:	Embed: Doddle: Humans and the Environment – plastics in the environment https://www.doddlelearn.co.uk/app/teacher/launch-content/9dd8be4b-7227-4165-8530-78b9d894789b
B17.6 *(B18.7)*Maintaining biodiversity 242	Spr 2 L3		Supporting:	
Trilogy and Single Science split				
Test on B15 to B17 (mini-exam)	Spr 2 L4			
DIRT / TPGG	Spr 2 L5			
	Spr 2 L6			
	Spr 2 L7			
	Spr 2 L8			
	Spr 2 L9			

Chapter and Topic	Lesson	Outcomes	Suggested activities/resources	Homework
Trilogy and Single Science split				
B17.4 Rates of decomposition Required practical: investigate the effect of temperature on the rate of decay of fresh milk	Spr 2 L4		Supporting:	
B18.10 Factors affecting food security *B18.11* Making food production efficient *B18.12* Sustainable food production	Spr 2 L5		Supporting:	
B17.1 Feeding relationships *B18.8* Trophic levels and biomass	Spr 2 L6		Supporting:	
Test on *B16* to *B18* (mini-exam)	Spr 2 L7		Supporting:	
B12.2 Removing waste products *B12.3* The human kidney	Spr 2 L8		Supporting:	Self-study: B10.4 The brain, *B10.5 The eye Prepared booklet available
B12.4 Dialysis – an artificial kidney *B12.5* Kidney transplants	Spr 2 L9		(link with antibodies (B5.9) Supporting:	Embed: Kerboodle: B12 Checkpoint quiz: Homeostasis in action B12 Homework: Homeostasis in action 2
B11.9 Plant hormones and responses *B11.10* Using plant hormones	Sum 1 L1		Supporting:	

Chapter and Topic	Lesson	Outcomes	Suggested activities/resources	Homework
Required practical: investigate the effect of light or gravity on newly germinated seedlings	Sum 1 L2		Supporting:	
B14.5 Cloning *B14.6* Adult cell cloning	Sum 1 L3		Self-study: *B13.3* The best of both worlds Supporting:	
B13.5 DNA structure and protein synthesis	Sum 1 L4	DNA structure and protein synthesis	Supporting:	**Embed**: Kerboodle: B13 Homework: Reproduction 1
B13.6 Gene expression and mutation	Sum 1 L5	Gene expression and mutation	Supporting:	
B15.2 Theories of evolution B15.3 Accepting Darwin's ideas	Sum 1 L6	Theories of evolution and accepting Darwin's ideas	Self-study: *B15.1* The history of genetics Supporting:	
B15.4 Evolution and speciation	Sum 1 L7	Evolution and speciation	Supporting:	