**Year 8 Biological Science Program 2018**

**Science Understanding for Biological Sciences**

***Cells are the basic units of living things and have specialised structures and functions.***

***Elaborations:***

* examining a variety of cells using a light microscope, by digital technology or by viewing a simulation
* distinguishing plant cells from animal or fungal cells
* identifying structures within cells and describing their function
* recognising that some organisms consist of a single cell
* recognising that cells reproduce via cell division
* describing mitosis as cell division for growth and repair

***Multi-cellular organisms contain*** [***systems***](http://www.australiancurriculum.edu.au/Glossary?a=S&t=systems) ***of organs that carry out specialised functions that enable them to survive and reproduce.***

***Elaborations:***

* identifying the organs and overall function of a system of a multicellular organism in supporting the life processes
* describing the structure of each organ in a system and relating its function to the overall function of the system
* examining the specialised cells and tissues involved in structure and function of particular organs
* comparing similar systems in different organisms such as digestive systems in herbivores and carnivores, respiratory systems in fish and mammals
* distinguishing between asexual and sexual reproduction
* comparing reproductive systems of organisms

**Science as a Human endeavor**

1. considering how advances in technology, combined with scientific understanding of the functioning of body systems, has enabled medical science to replace or repair organs

**Assessment Outline**

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| **Item** | **Weighting** | **Date** |
| Quiz  | 10% | 19 October |
| Mid Topic Test | 40% | 9 November |
| Research task: Animal Comparison | 10% | Out 19 OctDue 2 Nov |
| Investigation | Contributes towards Investigation grade | 8 |
| Final Topic Test | 40% | 9 |

**Program**

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| **Week of Program/****Term**  | **Outcomes** | **Activities*** **Worksheet on Shared Drive**
* **Experiment on Shared Drive**
* **Pearson Chapter Questions**
* **Pearson Experiment**
 | **Assessments** |
| 1(Wk 10 17-21 Sept) | * Recall that cells are the basic units of living things
* Recall the parts of a light microscope
* Calculate the magnification of a microscope

= *ocular x objective magnification** Define the field of view of a microscope
* Use a light microscope to examine a variety of cells
 | **Year 8 Pearson - Chap 2, pg. 39****Microscope activity pg. 46****Preparing an met mount – onion slide**<https://www.brainpop.com/games/virtuallabsusingthemicroscope/>[http://det.wa.edu.au/det-learning-resources/viewLearningResource/[28169]33459/index.html](http://det.wa.edu.au/det-learning-resources/viewLearningResource/%5B28169%5D33459/index.html) Interactive using microscopes<http://learn.genetics.utah.edu/content/begin/cells/scale/>Shows cell size and scale - nice! |  |
| 2(Wk 1 9-12 Oct) | * Distinguish plant cells from animal cells or fungal cells
* Identify the main structures within cells and describe their functions *(nucleus, cell membrane, cytoplasm, ribosomes. Mitochondria, chloroplast)*
* recognising that some organisms consist of a single cell
* Recall some examples of specialised animal and plant cells
* Recognise that cells reproduce via cell division *(mitosis only)*
* Describe the purposes of Mitosis
 | **Year 8 Pearson - Chap 2.2, pg. 48**<http://www.kscience.co.uk/animations/plant_cell.swf> **Year 8 Pearson – Chap 2.3, pg. 57****Looking at Pond water pg. 63****Organelle flash card templates**<http://www.cellsalive.com/mitosis.htm> - animation of mitosis**Clickview Mitosis**[**https://online.clickview.com.au/share/embed?shareCode=4e03dc15&a=false**](https://online.clickview.com.au/share/embed?shareCode=4e03dc15&a=false) |  |
| 3(Wk 2 15-19 Oct) | * Understand that multicellular organisms have an organised hierarchy:
	+ Cells 🡪 tissues 🡪 organs 🡪 systems
* Examining the specialised cells and tissues involved in the structure and function of particular organs;
* Recall the main organs in the digestive system
 | **Year 8 Pearson – Chap 2.4, pg. 65****Where in my body. Pg. 72****Year 8 Pearson – Chap 3.1, pg. 79****CLICKVIEW** | **Quiz** **Friday 19th Oct*****Hand out Research Task*** |
| 4(Wk 3 22-26 Oct) | * Recall the main organs in the digestive system
* Describe the structure of these organs, relating their functions to the overall function of the system
* Compare the digestive system in different organisms (herbivores and carnivores)
 | **NOTE: students only need to label and describe basic organs of these next 3 systems** |  |
| 5(Wk 4 29 Oct – 2 Nov) | * Recall the main organs in the respiratory system
* Describe the structure of these organs, relating their functions to the overall function of the system
* Compare the respiratory system in different organisms (respiratory system in fish and mammals)
 | **Year 8 Pearson – Chap 3.2, pg. 89****Fish gills dissection (previous)****Measuring lung capacity:** http://www.biologycorner.com/worksheets/lungcapacity.htmlCLICKVIEW Plants - Roots, Leaf Function and Respiration (only respiration chapter) | **Research Task Due** **Friday 2nd Nov** |
| 6(Wk 5 5-9 Nov) | * Recall the main organs in the cardiovascular system
* Describe the structure of these organs, relating their functions to the overall function of the system
* Can name chambers of heart, blood vessels attached to heart and order of blood flow
* Summarise how the three systems (digestion, respiratory and cardiovascular) are related and important in terms of survival:
	+ *Glucose, Oxygen (respiration)🡪 ATP*
	+ *Transport to cells*
 | **Year 8 Pearson – Chap 3.3, pg. 99****Clickview – Anatomy: Functional body systems (chapter 5 and 6; worksheet on shared drive)****Heart dissection, pg. 106** | **Mid Topic Test Friday 9th Nov** |
| 7(Wk 6 12-16 Nov) | * Distinguish between sexual and asexual Reproduction
* Recall the types of asexual reproduction
* Define the terms: Life cycle, development, growth, metamorphosis, fertilisation, copulation, parental care
* Be able to label a life cycle (incomplete vs. complete)
* Be able to label the reproduction parts of a flowering plant
* Describe the process of pollination
 | **Year 8 Pearson – Chap 4.1 and 4.2****Flower dissection (previous)****NOTE: students will not be doing, Chap 4.3 & 4.4** |  |
| 8(Wk 7 19-23 Nov) | ***Pulse Rate & Exercise (INVESTIGATION)*** | Investigation Week | **Investigation – Friday 23rd Nov** |
| 9(Wk 8 26-30 Nov) |  | Revise and Test Week | **Final Topic Test Friday 30th Nov** |