**Year 8 Biological Science Program 2017**

**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** |
| Cell Quiz | 10% | Friday  21st July 2017 |
| Mid Topic Test | 40% | Wednesday  2nd August 2017 |
| Research task: Animal Comparison | 10% | Friday  4th August 2017 |
| Investigation | Contributes towards Investigation grade | Friday  25th August 2017 |
| Final Topic Test | 40% | Thursday  31st August 2017 |

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| **Week of Program** | **Date** | **Outcomes** | **Activities**  **Worksheet on Shared Drive**  **Experiment on Shared Drive**  **Pearson Chapter Questions**  **Pearson Experiment** | **Assessments** |
| 1 | 19 Jun - 25 Jun  (Term 2 Week 9) | * 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/*](http://learn.genetics.utah.edu/content/begin/cells/scale/)  Shows cell size and scale - nice! |  |
| 2 | 26 Jun –  2 Jul  (Term 2 Week 10) | * 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*](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*](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 | 17 Jul –  23 Jul  (Term 3 Week 1) | * 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**  ***Hand out Research Task*** |
| 4 | 24 Jul –  30 Jul  (Term 3 Week 2) | * 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 | 31 Jul –  6 Aug  (Term 3 Week 3) | * 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.html* CLICKVIEW Plants - Roots, Leaf Function and Respiration (only respiration chapter) | **Research Task Due**  **Mid Topic Test**  **(cells and digestive system)** |
| **Week of Program** | **Date** | **Outcomes** | **Activities**  **Worksheet on Shared Drive**  **Experiment on Shared Drive**  **Pearson Chapter Questions**  **Pearson Experiment** | **Assessments** |
| 6 | 7 Aug –  13 Aug  (Term 3 Week 4) | * 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** |  |
| 7 | 14 Aug – 20 Aug (Term 3 Week 5) | * 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 | 21 Aug – 27 Aug (Term 3 Week 6) | ***Pulse Rate & Exercise (INVESTIGATION)*** | *Investigation Week* | **Investigation** |
| 9 | 28 Aug –  3 Sep  (Term 3 Week 7) |  | *Revise and Test Week* | **Final Topic Test** |