**Biology 12 Unit Plan**

**Instructor:** Joshua Amiel

**Subject / Grade**: Biology 12 (Circulation Unit)

**Science 12 PLO’s:**

C3: Describe the inter-relationships of the structures of the heart.

C4: Analyse the relationship between heart rate and blood pressure.

C5: Analyse the functional interrelationships of the vessels of the circulatory system.

C6: Describe the components of blood.

C7: Describe the inter-relationships of the structures of the lymphatic system.

**Summative Assessment**

Visual vocabulary cards (10%); Google Forms (10%); Board games (10%); Section quizzes (10% x 2); Dissection (5%); Lab (15%); Collaborative activities (2.5% x 4); Unit Exam (20%).

**Resources:**

Inquiry into Life Textbook; Visual Vocabulary Cards; Laboratory Materials.

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| **Date** | **Lesson Topic** | **Subject PLO’s** | **Student Activities** | **Teacher Activities** |
| Feb. 10 / Feb. 11 | Ch. 12 The heart (pages 198-204). | C3: Describe the inter-relationships of the structures of the heart. | * Establish 5 classroom expectations. * Add *atria, ventricles, coronary arteries* and *veins, anterior* and *posterior vena cava, aorta, pulmonary arteries* and *veins, pulmonary trunk* to visual vocabulary cards. * “What is a pulse?” Collaborative research activity **(2.5%)**. * Google Form check for understanding/homework (provide in class time). | * Guide a student-led discussion about behavioural expectations in class. * Lead the group similarities vs. differences ice-breaker. * Inquiry session about closed vs. open systems and human circulation. * Introduce Google Forms homework platform. * Review Google Forms and identify areas of confusion. |
| Feb. 4 / Feb. 5 | Ch. 12 The heart (pages 198-204). | C3: Describe the inter-relationships of the structures of the heart. | * Add *atrioventricular valves, chordae tendineae, semi-lunar valves,* and *septum* to visual vocabulary cards. * Cow heart dissection and animal circulatory system worksheet **(5%)**. * Google Form check for understanding/homework (provide in class time). | * Clarify any areas of confusion identified from previous check for understanding. * Trace the flow of blood through a mammalian heart and contrast with other taxa. * Introduce cow heart dissection. * Grade worksheet. * Review Google Forms and identify areas of confusion. |
| Feb. 10 / Feb. 11 | Ch. 12 The heart (pages 198-204).  Ch. 12 Heart rate and blood pressure (pages 198-204). | C3: Describe the inter-relationships of the structures of the heart.  C4: Analyse the relationship between heart rate and blood pressure. | * Add *sinoatrial* and *atrioventricular node,* and *Purkinje fibres* to visual vocabulary cards. * Heart rate and blood pressure lab **(15%)**. * Inside-outside circle collaborative review for quiz (outdoors if weather permits). * Homework: bring in the name of your favourite board game. * Google Form check for understanding/homework (provide in class time). | * Clarify any areas of confusion from Google Form. * Electrical signals in the heart video. * Introduce heart rate and blood pressure lab. * Provide examples of good and bad labs and co-construct a rubric with the students. * Discuss components of a lab. * Review Google Forms to identify confusion. |
| Feb. 12 / Feb. 13 | Ch. 12 Heart rate and blood pressure (pages 198-204).  Ch. 12 The vascular system (pages 198-199, 204, 206-207, 212, and 411). | C4: Analyse the relationship between heart rate and blood pressure.  C5: Analyse the functional inter-relationships of the vessels of the circulatory system. | * Hand in visual vocabulary cards. * Heart quiz **(10%)**. * Add *subclavian arteries* and *veins, jugular veins, carotid arteries,* and *mesenteric arteries* to visual vocabulary cards. * Create a board game – translational activity for blood vessels in the body **(20%)**. * Google Form check for understanding/homework (provide in class time). | * Clarify any areas of confusion from Google Form. * Final opportunity to ask questions before the quiz. * Introduce the vascular system. * Provide rubric for board game translational activity. * Assess vocabulary cards. * Review Google Forms to identify confusion. |
| Feb. 16 / Feb. 17 | Ch. 12 The vascular system (pages 198-199, 204, 206-207, 212, and 411). | C5: Analyse the functional inter-relationships of the vessels of the circulatory system. | * Add *hepatic vein, hepatic portal vein, renal arteries* and *veins,* and *iliac arteries* and *veins* to visual vocabulary cards. * Create a board game – translational activity for blood vessels in the body. * Google Form check for understanding/homework (provide in class time). | * Clarify any areas of confusion from Google Form. * Assist students in completing their board games. * Review Google Forms to identify confusion. |
| Feb. 18 / Feb. 19 | Ch. 12 The vascular system (pages 198-199, 204, 206-207, 212, and 411). | C5: Analyse the functional inter-relationships of the vessels of the circulatory system. | * Exchange and play board games, complete peer review. * Additional time to complete any missing/incomplete vocabulary cards. * Google Form check for understanding/homework (provide in class time). | * Clarify any areas of confusion from Google Form. * Grade board games based on rubric. * Review Google Forms to identify confusion. |
| Feb. 20 / Feb. 23 | Ch. 12 The vascular system (pages 198-199, 204, 206-207, 212, and 411). | C5: Analyse the functional inter-relationships of the vessels of the circulatory system. | * Hand in visual vocabulary cards. * Blood pressure and vascular system quiz **(10%)**. * Compare and contrast foetal/adult blood circulation worksheet **(2.5%)**. * Add *umbilical vein* and *arteries, oval opening, venous duct,* and *arterial duct* to visual vocabulary cards. * Google Form check for understanding/homework (provide in class time). | * Clarify any areas of confusion from Google Form. * Final opportunity to ask questions before the quiz. * Guest Speaker: Mother to child transmission of HIV. * Assess visual vocabulary cards. * Review Google Forms to identify confusion. |
| Feb. 24 / Feb. 25 | Ch. 10 The vascular system (pages 299-306). | C6: Describe the components of blood. | * Add *capillary-tissue fluid exchange, red blood cells, white blood cells, plasma,* and *platelets* to visual vocabulary cards. * The components of blood activity (includes a visual representation of antigens and antibodies; **2.5%**). * Google Form check for understanding/homework (provide in class time). | * Clarify any areas of confusion from Google Form. * Describe capillary-tissue fluid exchange. * The story of vaccination video. * Review Google Forms to assess conceptual change. |
| Feb. 26 / Feb 27 | Ch. 10 The vascular system (pages 315-321). | C7: Describe the inter-relationships of the structures of the lymphatic system. | * Add *lymph capillaries, lymph nodes,* and *lymph veins* to visual vocabulary cards. * Jigsaw activity with oral presentations for circulatory malfunctions **(2.5%)**. * Complete “Circulatory Malfunctions” worksheet in preparation for “Emergency Room” review. | * Clarify any areas of confusion from Google Form. * Review and hand out the oral presentation rubric. |
| Mar. 2 / Mar. 3 | Ch. 10 The vascular system (pages 322-325). | C3-C7: Complete review. | * “Emergency Room” review for circulatory system unit. * Additional time to complete visual vocabulary cards. * Google Form check for understanding/homework (provide in class time). | * Set-up “ER” review and hand out prizes for top medical staff. |
| Mar. 4 / Mar. 5 | Ch. 11 The respiratory system (pages 342-359). | C8: Analyse the functional inter-relationships of the structures of the respiratory system. | * Hand in visual vocabulary cards **(10%)**. * Unit exam **(20%)**: The circulatory system. * Participate in an inquiry session about the inter-relationship between the circulatory system and the respiratory system. * Google Form check for understanding/homework (provide in class time). | * Clarify any areas of confusion from Google Form. * Final opportunity to ask questions before the exam. * Introduce the respiratory system and show inter-relationship with the circulatory system. * Assess visual vocabulary cards. * Review Google Forms to assess conceptual change. |