**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.
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| 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.
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| 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.
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| 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.
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| 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.
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| 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.
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| 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.
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| 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.
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| 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.
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| 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.
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| 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.
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