COURSE OUTLINE: ANATOMY AND PHYSIOLOGY 12 (BIOLOGY 12)

Teacher: Ms. Mile
Email: smile@sd44.ca
Classroom: A203
Website: www.milescience.weebly.com
Tutorial time: In person before school or lunch time in room A203.

Course Description:

Anatomy and Physiology 12 will allow you to develop, through inquiry, an interest in and an understanding of cell and human biology. Three big ideas will address a wide variety of learning outcomes. Homeostasis is maintained through physiological processes; gene expression, through protein synthesis, is an interaction between genes and the environment; and the organ systems have complex interrelationships to maintain homeostasis.

New BC Anatomy and Physiology 12 Curriculum:


Units that will be covered...

Big Ideas

<table>
<thead>
<tr>
<th>Big Ideas</th>
<th>RELATED CONCEPTS</th>
</tr>
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<tbody>
<tr>
<td>Homeostasis</td>
<td>Biological Molecules, Enzymes &amp; Metabolic Pathways, Feedback Loops, and Transport Across a Cell Membrane.</td>
</tr>
<tr>
<td>DNA and Cells</td>
<td>DNA Structure and Function, DNA Replication, Gene Expression, Protein Synthesis, Genomics and Biotechnology.</td>
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<tr>
<td>Organization</td>
<td>Organ systems have complex interrelationships to maintain homeostasis.</td>
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<tr>
<td>Gene expression</td>
<td>Structural and functional interdependence of the following systems: Digestive, Cardiovascular, Respiratory, Nervous, Urinary, and Reproductive.</td>
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Required Materials:
3 ring binder
Agenda (digital or book)
Pens, pencils, and ruler

Textbook:
Anatomy and Physiology 12 Student Resource (2018) Roger Prior

Textbook Chapter References:

Cell Biology
- Unit A: Chemistry of Life and Organic Molecules.........................pg. 6-18
- Unit D: Cell Structure and Function..........................pg. 50-59

Cell Processes and Applications
- Unit C: Membrane Structure and Function..............................pg. 38-47
- Unit B: Metabolism Energy and Enzymes................................pg. 22-34
- Unit E: DNA: Replication, Transcription and Translation............pg. 64-79

Human Body Systems
- Unit F: Digestive System................................................pg. 84-93
- Unit G: Cardiovascular System..........................................pg. 98-114 & 120
- Unit H: Respiratory System............................................pg. 126-134
- Unit I: Nervous System................................................pg. 138-153
- Unit J: Urinary System................................................pg. 158-165
- Unit K: Reproductive System..........................................pg. 170-184
- Unit G Immune & Lymphatic System....................................pg. 114-119

Assessment:
- Class work: quizzes, individual and/or group assignments, published labs, practice design labs.
- Summative assessments: projects, major assignments, quizzes and tests, design labs, Mid-Year Test
- Terms 1 & 2 Science 12 Term Paper (information on library website)
- Term 3 Final Test

Assessment in this course will be based on the curricular competencies of BC’s New Curriculum and will be influenced by a similar scale used in the IB DP program and Marzano’s Depth of Knowledge criteria

Marking Criteria

<table>
<thead>
<tr>
<th>Score</th>
<th>Letter Grade Equivalent</th>
<th>What it means</th>
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<tbody>
<tr>
<td>7</td>
<td>A+ = 95-100%</td>
<td>In addition to Score 5 performance, in-depth inferences and applications that go beyond what was taught. Very few errors.</td>
</tr>
<tr>
<td>6</td>
<td>A- = 86-94%</td>
<td>In addition to Score 5 performance, partial success at inferences and applications that go beyond what was taught.</td>
</tr>
<tr>
<td>5</td>
<td>B = 77-85%</td>
<td>No major errors or omissions regarding any of the information and/or processes (simple or complex) that were explicitly taught.</td>
</tr>
<tr>
<td>4</td>
<td>C+/B = 67-76%</td>
<td>No major errors or omissions regarding the simpler details and processes and partial knowledge of the more complex ideas and processes.</td>
</tr>
<tr>
<td>3</td>
<td>C =54-66%</td>
<td>No major errors or omissions regarding the simpler details and processes but major errors or omissions regarding the more complex ideas and processes.</td>
</tr>
<tr>
<td>2</td>
<td>C- = 45-53%</td>
<td>Partial knowledge of the simpler details and processes but major errors or omissions regarding the more complex ideas and processes</td>
</tr>
<tr>
<td>1.0</td>
<td>F = 40-44%</td>
<td>With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes</td>
</tr>
<tr>
<td>0.5</td>
<td>F = 30-40%</td>
<td>With help, a partial understanding of some of the simpler details and processes but not the more complex ideas and processes</td>
</tr>
<tr>
<td>0.0</td>
<td>F = 0-30%</td>
<td>Even with help, no understanding or skill demonstrated</td>
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Levels will be recorded for the following categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Tasks</th>
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<tbody>
<tr>
<td><strong>A– Knowledge and Understanding</strong></td>
<td>- recall, select and use knowledge of scientific facts, concepts and techniques in a variety of familiar and unfamiliar contexts, including those related to First Peoples, the local community and other cultures.</td>
<td>- activities, assignments, quizzes, and tests.</td>
</tr>
</tbody>
</table>
| **B – Inquiring & Planning**    | - questioning/predicting: make observations, formulate and predict hypotheses.  
- planning/conducting: plan methods to collect reliable data, collect and record data, apply concepts of accuracy to experimental procedures.  
- processing/analyzing: seek patterns and connections in data, describe relationships between variables, perform calculations, construct and interpret graphs, models, and/or diagrams. | - student designed labs and published lab exercises.                  |
| **C – Evaluating, applying & innovation** | - evaluate methods and describe possible improvements to methods and quality of data, analyze the validity of information in primary and secondary sources, find solutions to problems at a local/or global level.  
- use knowledge of scientific concepts to draw conclusions that are consistent with evidence. | - student designed labs, published lab exercises, research based presentations and projects, quizzes and tests. |
| **D – Communication & Research** | - create models to describe, construct evidence-based arguments, use appropriate scientific language and representations.  
- express and reflect on a variety of perspectives and worldviews. | - research based presentations and projects.                         |

**Carson Graham Science 12 Term Paper**

Each student taking a Science 12 course will write a paper worth 10% of their mark for Terms 1 & 2. The skills necessary will be developed in all science courses, and only one paper is required per term. Students taking more than one science course will choose which area of study they approach each term. The mark received on each term paper will apply to all science courses.

The Science 12 term paper will be assessed on the following criteria:

**Research Question:** The extent to which the purpose of the paper is specified.

**Introduction:** The extent to which the introduction makes clear how the topic chosen is significant and worthy of investigation.

**Research:** The extent to which the research is planned and an appropriate range of sources has been consulted that is relevant to the research question.

**Knowledge & Understanding of the topic:** The extent to which the writer demonstrates a thorough understanding of the topic being studied.

**Communication:** The extent to which the paper is written clearly.