

Course: Biology 12

Teacher: Steven Pace

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Course Website: www.stevenpace.weebly.com

Course Description:

Biology 12 investigates the processes and structures which make up the human body. The course will examine structures at the cellular level (biochemistry, cell biology) and organ systems (including digestive, respiratory, cardiovascular, urinary, immune, and nervous systems). Students will need to demonstrate how small-scale changes at the chemical and cellular level can impact a human being. At the conclusion of the course, students will understand through inquiry, labs, and projects how the human body maintains homeostasis.

Summer Learning Beliefs:

Summer Learning provides an engaging learning environment where all students can challenge themselves academically and fulfill their learning goals. To ensure this, students will:

- abide by the student Code of Conduct
- adhere to the Academic Honesty policy
- adhere to the *Summer Learning* Student Engagement policy
- respect themselves and others
- attend every class and be punctual
- inquire, think, and participate to the best of their ability
- access technology in class when instructed to do so and for learning purposes only
- challenge themselves and have fun learning

All Summer Learning policies can be accessed at:

<https://www.sd44.ca/school/summer/policies/Pages/default.>

Learning Plan:

	Evidence of Learning (Assessment)	Learning Plan
80%	<ul style="list-style-type: none"> enzymes lab cell biology project DNA scavenger hunt heart lab exam group respiratory disorder presentation design a pathogen and its potential impact on humans design a kidney dissection research project on the nervous system cell biology test and quizzes body systems test and quizzes 	<p><i>What the student will know:</i></p> <p>Cell Biology:</p> <ul style="list-style-type: none"> cellular compounds and biological molecules incl. water, organic molecules (carbohydrates, lipids, proteins, nucleic acid, ATP) protein structure and function enzymes and metabolic pathways feedback loops metabolism DNA and cells (replication, protein synthesis, transcription/translation, mutations, biotechnology, cloning) cell biology (focusing on organelles) cell membranes and transport across the cell membrane <p>Human Physiology:</p> <ul style="list-style-type: none"> levels of organization tissues are organized into four groups organ systems and how they are interconnected to maintain homeostasis; digestive, cardiovascular and lymphatic, respiratory, urinary, immune, reproductive, and nervous system functional interrelationships between body systems nutrition and lifestyle differences affect human health medical connections to body systems <p><i>What the student will do:</i></p> <p>Questioning and predicting:</p> <ul style="list-style-type: none"> Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest. Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world. Formulate multiple hypotheses and predict multiple outcomes. <p>Planning and conducting:</p> <ul style="list-style-type: none"> Collaboratively and individually plan, select, and use appropriate investigation methods, including lab experiments, to collect reliable data. Address ethical, cultural, and/or environmental issues associated with their proposed methods.

		<p>Processing and analyzing data and information:</p> <ul style="list-style-type: none"> • Experience and interpret the local environment. • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge sources as information. • Seek and analyze patterns, trends, and connections in data. • Construct, analyze, and interpret graphs. • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence. • Analyze cause-and-effect relationships. <p>Evaluating:</p> <ul style="list-style-type: none"> • Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty and possible explanations and conclusions. • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled. • Connect scientific explorations to careers in science. • Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources. <p>Applying and innovating:</p> <ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through individual or collaborative approaches. • Co-operatively design projects with local and/or global connections and applications. • Contribute to finding solutions to problems at a local and/or local and/or global level through inquiry. • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations. <p>Communicating:</p> <ul style="list-style-type: none"> • Communicate scientific ideas, information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions and representations. • Express and reflect on a variety of experiences, perspectives, and worldviews through place.
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		Big Ideas: <ul style="list-style-type: none"> The body strives to maintain homeostasis; with emphasis on cell biology and organ systems All living things are made of cells, which contain DNA and cell structures that allow cells to survive and reproduce Organ systems have complex interrelationships to maintain homeostasis
20%	School Based Summative Assessment	<ol style="list-style-type: none"> enzyme lab fetal pig lab exam design an organism individual project, with emphasis on four organ systems, which lives in a unique environment
100%		

Grade Boundaries:

An “A” student will/can....

Produce high quality, frequently innovative work. Communicate scientific ideas to connect and synthesize concepts and skills learned over time. Consistently demonstrate sophisticated critical and creative thinking. Collect, present, and (correctly) transform experimental data. Interpret, analyze and critique scientific findings and experimental data. Frequently transfers knowledge, skills, and use concepts to solve non-routine problems.

A “B” student will /can ...

Sometimes produces high quality, innovative work. Communicate scientific ideas to compare and critique concepts and skills learned over time. Consistently demonstrate a degree of critical and creative thinking. Collect and present scientific data in an appropriate manner. Assess, interpret, and revise scientific findings and experimental data. Transfer knowledge, skills, and use concepts to consistently solve routine problems correctly with few mistakes.

A “C” student will /can ...

Produce work of an acceptable quality. Communicate a basic understanding of scientific concepts and operate superficially within a scientific contextual framework. Display an emergent level of application when it comes to critical thinking skills. Collect scientific data in an appropriate manner. Be inflexible in the use of knowledge and skills, requiring support even in familiar classroom situations. Make attempts to use knowledge, skills and scientific concepts to solve routine problems, with occasional mistakes.

Celebration of Learning:

The 2018 Celebration of Learning is shaped around “Ways of Knowing”. This is vital in the sciences, particularly biology, because each student takes a different learning approach when tackling the subject material.

Our class will collaborate to create one Pecha Kucha presentation. A Pecha Kucha presentation uses imagery and spoken word. Each student is responsible for preparing 3 slides of images and 30 seconds of spoken content about the ways in which we know.

Resources:

Resources
<ul style="list-style-type: none">• BC Biology 12 Textbook
<ul style="list-style-type: none">• www.stevenpace.weebly.com
<ul style="list-style-type: none">• IG: space_teacher