



SCIENCE DEPARTMENT

COURSE: Grade 11 SciTech Biology

COURSE CODE: SBI3UR

OVERARCHING LEARNING GOALS

<p>Scientific Investigation and Skills and Career Exploration</p> <ul style="list-style-type: none"> • Demonstrate scientific investigation skills in four areas: initiating and planning, performing and recording, analysing and interpreting and communicating. • Identify and describe a variety of careers related to the fields of science under study, and identify scientists, including Canadians, who have made contributions to those fields. 	<p>Genetics Processes</p> <ul style="list-style-type: none"> • Understand and investigate concepts, processes, and technologies related to genetics and heredity. • Analyse social and ethical implications of genetic research. • Analyse data to solve basic genetics problems involving monohybrid and dihybrid crosses.
<p>Diversity of Living Things</p> <ul style="list-style-type: none"> • Analyse the effects of human activities on biodiversity. • Investigate the principles of scientific classification. • Understand the diversity of living organisms in terms of taxonomy and phylogeny. 	<p>Animals: Structure and Function</p> <ul style="list-style-type: none"> • Understand animal anatomy and physiology. • Investigate the connections and functional responses of the respiratory and circulatory systems of animals. • Describe disorders of the respiratory, circulatory, and digestive systems.
<p>Evolution</p> <ul style="list-style-type: none"> • Analyse advantages and disadvantages of an artificial selection technology. • Evaluate the impact of environmental changes on natural selection and endangered species. • Understand and investigate the theory, evidence, and mechanisms of micro and macro-evolution. 	<p>Plants: Anatomy, Growth, and Function</p> <ul style="list-style-type: none"> • Evaluate the importance of sustainable use of plants to Canadian society and other cultures. • Investigate the structures and functions of plant tissues, and factors affecting plant growth. • Understand the diversity of vascular plants.

SUCCESS CRITERIA

For each unit, I can explain, describe, and use all relevant terminology and concepts in a variety of contexts.

Biodiversity

- I can describe unifying and distinguishing characteristics of organisms from each kingdom.
- I can classify, and draw biological diagrams of, representative organisms from each kingdom.
- I can create and apply a dichotomous key to identify and classify organisms from each kingdom.
- I can compare and contrast the structure and function of different types of prokaryotes, eukaryotes, and viruses.
- I can explain key structural and functional changes in organisms as they have evolved over time.

Evolution

- I can explain and describe the contributions of various individuals to the theory of evolution.
- I can describe various evidence of evolution and use them to create and analyse phylogenetic trees.
- I can explain the theory of evolution using a variety evolutionary mechanisms including natural selection.
- I can define the concept of speciation, and explain the process by which new species are formed.
- I can explain the process of adaptation of individual organisms to their environment.

Genetic Processes

- I can explain and model the phases in the process of meiosis.
- I can use the Punnett square and probability methods to solve basic genetics problems involving monohybrid crosses, incomplete dominance, codominance, dihybrid crosses, and sex-linked genes.
- I can explain a variety of genetic concepts and processes according to Mendelian laws of inheritance.
- I can describe genetic disorders caused by chromosomal abnormalities or other genetic mutations.
- I can describe reproductive technologies and explain how they can increase species genetic diversity.

Animals: Structure and Function

- I can explain, the anatomy, function, and relationship of the circulatory, respiratory, and digestive systems.
- I can describe disorders related to the respiratory, digestive, and circulatory systems.
- I can use equipment to monitor functional responses of the respiratory and circulatory systems to stimuli.
- I can perform a dissection of a representative animal to analyse the relationships between a variety of systems.

Plants: Anatomy, Growth, and Function

- I can describe the structures of tissues in vascular plants, and explain mechanisms of transport in plants.
- I can compare and contrast monocot and dicot plants in terms of their structures and evolutionary processes.
- I can explain the reproductive mechanisms of plants in natural reproduction and artificial propagation.
- I can describe the various factors that affect plant growth.
- I can explain the process of ecological succession, including the role of plants in the survival of organisms.

ASSESSMENT & EVALUATION

TERM EVALUATION – 70%

Assessment and evaluation in this course will be based on provincial curriculum expectations. Evaluation throughout the course and the final evaluation will incorporate four broad categories:

Knowledge and Understanding	Thinking/ Inquiry	Communication	Application
-knowledge of content -understanding of content	-planning and performing lab investigations -problem solving, critical thinking processes and skills	-expression and organization of ideas and information -use of conventions and terminology	-making connections to society, technology and the environment -transfer of knowledge and skills to unfamiliar contexts

Students will also receive descriptive feedback as part of the learning process which may not be assigned a mark. More detailed information regarding the Port Credit Secondary School Assessment and Evaluation policy can be found in the Student Agenda.

FINAL EVALUATION – 30%

The final evaluation will consist of an in-class, practical culminating task and/or a formal written exam.

LEARNING SKILLS

The following learning skills will be taught and assessed throughout the course and rated on the report card:

***Responsibility**

***Independent Work**

***Initiative**

***Organization**

***Collaboration**

***Self-regulation**

These skills will not be included in the final numeric mark. However, it is important to remember that the development of these skills is critical to academic achievement and does have a direct bearing on the final mark.