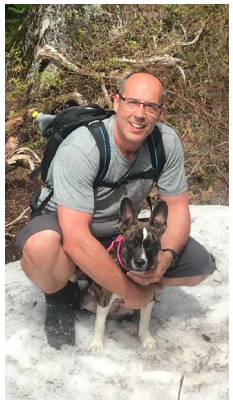

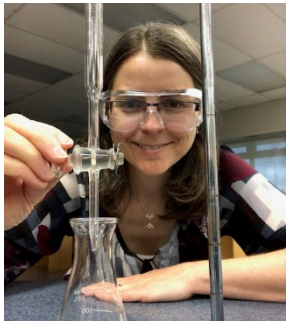

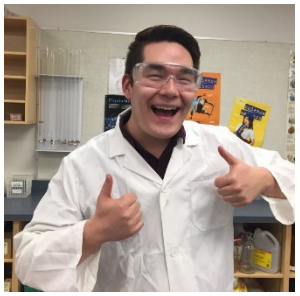

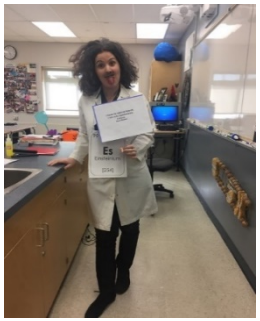

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2020
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Byrne Creek Community School

Senior Science and Advanced Placement Programs

SCIENCE DEPARTMENT

"IMAGINATION IS MORE IMPORTANT THAN KNOWLEDGE." ALBERT EINSTEIN

BYRNE CREEK COMMUNITY SCHOOL

Students are encouraged to carefully choose which Science 11 course(s) that best suit their interests and academic pursuits. Requirements for graduation and post-secondary institutions must also be considered. To view the BC Ministry of Education Sciences curriculum in detail, go to:

https://curriculum.gov.bc.ca/curriculum/science

CHEMISTRY11

Chemistry is the central discipline that connects the branches of science, since matter and its reactions affect every aspect of our world. A strong basis in chemistry is useful for all science pathways. Chemistry 11 reviews and deepens students' understanding of atoms and molecules, reactions, and chemical naming. It then introduces the mole concept as a tool for mathematical analysis of chemical reactions. Through this course students will develop practical laboratory skills along with their ability to answer questions using scientific experiments. It is recommended that students have a comfortable background with math and science and a C+ average in Science 10 to enter this course.

CHEMISTRY12

Welcome to the "why" of chemistry! More challenging, more theoretical and more intriguing than Chemistry 11 – Chemistry 12 delves deeper into the central principles governing chemical interactions. Reaction kinetics and equilibrium are explored in the contexts of solubility, acid/base chemistry, and oxidation/reduction reactions. As Chemistry 12 is more demanding in its reasoning and mathematical problem-solving, we strongly recommend that students have at least a C+ grade in chemistry, a strong math background, and enjoy laboratory work.

CHEMISTRY 11 HONOURS

Teacher recommendation required.

This course should be considered the first year of a two-year program that leads to the completion of Advanced Placement Chemistry 12. This course deals with the topics of Chemistry 11 in greater depth and includes some topics from A.P. Chemistry 12. The presentation of material is not linear, therefore it is required that students enroll for both years of the program (11 HONOURS followed the next year by 12 AP)

CHEMISTRY 12 ADVANCED PLACEMENT

This is a higher-level chemistry course that is equivalent to a first-year university offering. Topics will include reaction types, atomic and molecular structure, equilibrium, kinetics, quantum mechanics, and thermodynamics, to name only a few. The program is an integrated two-year program which covers provincial grade 11 and 12 topics, as well as first year university. The presentation of material is not linear, therefore it is required that students enrol for both years of the program (11 Honours followed by 12 AP). Prerequisite: Chemistry 11 Honours.

SENIOR SCIENCE COURSE DESCRIPTIONS

LIFE SCIENCES 11

Life Sciences 11 concentrates on unity and diversity, form and function of organisms, the theory of evolution, and ecological relationships. It is designed to foster a sense of wonder about the world and its organisms while encouraging a sense of responsibility to sustain it. There is a large amount of information incorporated in this course. Therefore, you will be required to maintain good study habits and dedicate your time to reading and learning the material to understand its applications. This course requires a significant amount of reading and written comprehension to communicate proficient learning.

ANATOMY AND PHYSIOLOGY 12

Anatomy and Physiology 12 focuses on human biology and the compounds that comprise our bodies. It allows students to develop an appreciation for how our diverse body systems work together to maintain homeostasis. In this course, students will learn about cell structure, biochemical processes, and organ systems. In addition to this, students will study how the body may respond to illnesses and/or infections. This course encourages students to develop a stronger sense of interest in human anatomy and become more curious about biological processes. This course requires a significant amount of reading and written comprehension to communicate proficient learning.

BIOLOGY 11 HONOURS / 12 ADVANCED PLACEMENT

Teacher recommendation required.

Biology 11 Honours is the first half (first semester) of the AP Biology program. It includes more intensive coverage of the topics in Life Sciences 11 as well as additional material from the AP Biology University level curriculum.

Biology 12 AP (Advanced Placement) is the second half (second semester) of the AP Biology program. It is a higher-level Biology course equivalent to a first-year university offering. In addition to the Biology 12 curriculum, topics will include Molecules and Cells, Heredity and Evolution, and Organisms and Populations. The AP Biology course is designed to enable students to develop advanced inquiry and reasoning skills, such as designing a plan for collecting data, analyzing data, applying mathematical routines, and connecting concepts in and across domains. This course will prepare students for the Biology College Board Advanced Placement Exam. After showing themselves to be qualified on the AP Exam (graded on a 5-point scale), some students, in their first year of college, are permitted to take upper-level courses in biology or register for courses for which biology is a prerequisite.

PHYSICS 11

Physics 11 will cover four big ideas: Motion, Forces, Energy and Waves with a major focus on describing how objects move in one-dimension and two-dimensions. This course serves as a foundation for many post-secondary courses in science, engineering and kinesiology as well as for Physics 12. A willingness to work in the language of math is crucial in this course as equation manipulation and right-angle trigonometry will be used extensively; creative and critical thinking will be practiced regularly.

PHYSICS 12

Physics 12 is developed around four big ideas: Frames of Reference, Forces (linear and circular), Fields Interaction, and Momentum Conservation. Students will build upon their knowledge and skills developed in Physics 11 with additional study on physical laws, their related theories, and the mathematical relationships. As this course is a continuation of Physics 11, a willingness to work in the language of math is required.

PHYSICS ADVANCED PLACEMENT

Teacher recommendation required.

Advanced Placement (AP) Physics I is an intensive study in a range of physics topics including Kinematics (linear and rotational), Forces, Energy, Momentum, Torque, Circuits, and Waves. This course demands motivated students who are enthusiastic to address the material quickly and who will complete independent study on the concepts. Fluency in the language of math is critical in this course as equation manipulation and trigonometry will be used regularly. There is an opportunity to complete an AP Exam associated with AP Physics I.

AP Physics II, which explores Fluids, Electric Force and Fields, Electromagnetism, and Optics, may be pursued after AP Physics I or Physics 12, upon recommendation by a physics teacher.

SCIENCE FOR CITIZENS 11

Science for Citizens 11 invites students to explore scientific concepts and processes that are relevant to their daily lives. It focuses on application of knowledge to real-world situations, and helps students build their skills in the areas of evidence-based decision making and scientific literacy. This course incorporates hands-on and project-based learning as often as possible. The curriculum in Science for Citizens is flexible, allowing each class to pursue topics of interest. Possible units include human health, environmental science, forensics, household chemistry, disaster preparedness, lab skills and procedures (including workplace safety), forces and machines, engineering/design, and more. Because the topics in this course are not the same from year to year, some post-secondary programs do not accept Science for Citizens as a science entrance requirement. Students wishing to pursue post-secondary studies should check their program requirements when selecting a Science 11 course.