

MATERIAL COVERED:

The Science 10 course is divided into four main sections.

Electricity

- Electricity and Magnetism
- Electricity and Radioactivity

Physical Science

- Chemistry
- Chemical reactions

Earth Science

- Geology
- Earthquakes

Life Science

- Cells
- Genetics

TEXTBOOKS:

The course uses the following text:

Science Probe 10

(ISBN 0-17-604717-4, Nelson Canada)

EVALUATION:

This course works on a mastery system. You must pass the mastery tests in each unit to the 80% level before you can go on. In addition, there are cumulative tests from time to time. These can only be taken once, so it is essential to study hard and do your best work on them. Projects may only be submitted once. They are treated like cumulative tests. Your school mark for the course is based 60% on the mastery tests and 40% on the cumulative tests.

Students are reminded that this is a provincially examinable course. The mark you receive from your teacher only counts for 80% of your final mark for the course. The other 20% comes from the provincial exam you must write. Be sure to ask your teacher for a practice provincial exam, available from the Ministry of Education website, www.bced.gov.bc.ca, that you can write and mark before you write the real thing.

GOAL

The goal of this unit is to study static, current electricity, and magnetism.

OBJECTIVES

While completing this unit you will:

- Become familiar with the characteristics of static electricity.
- Describe static electricity at the atomic level.
- Understand what is meant by the terms electric current, voltage, and electric circuits.
- Learn about electrical resistance and Ohm's Law.
- Describe the concepts of magnetic force and magnetic fields.
- Out line what are magnets and electromagnetism?
- Explain what is an electric generator and alternating current?

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 10, *Static and Current Electricity*, Chapter 3 & *Magnetism and Electricity*, Chapter 4.
- Ask your teacher for the Unit 1 worksheets.
- Turn to page 42 in Chapter 3, read and answer the questions in the Unit 1 Worksheets.
- Turn to page 65 in Chapter 4, read and answer the questions in the Unit 1 Worksheets.
- When you have completed your *Study Workbook*, ask your teacher for the answer key in order to check and review your work.
- When you are ready, ask your teacher for the Unit 1 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to study household electrical energy and radioactivity.

OBJECTIVES

While completing this unit you will:

- Learn about the units which measure work, energy, and power.
- Describe what is meant by the terms efficiency and energuide labels.
- Identify the characteristics of household electrical circuits.
- Examine tips to prevent electrical overload and promote safety
- Explain the concept of electromagnetic radiation.
- Identify the components of atomic radiation.
- Examine the effects of radiation on living organisms.
- Understand the terms nuclear fission, reactors, and nuclear fusion.

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 10, *Using Electricity in Your Home*, Chapter 5 & *Radiation and Nuclear Energy*, Chapter 7.
- Ask your teacher for the Unit 2 worksheets.
- Turn to page 88 in Chapter 5, read and answer the questions in the Unit 2 Worksheets.
- Turn to page 134 in Chapter 7, read and answer the questions in the Unit 2 Worksheets.
- When you have completed your *Study Workbook*, ask your teacher for the answer key in order to check and review your work.
- When you are ready, ask your teacher for the Unit 2 Test. Remember, you must get 80% to pass, so studying hard is essential.
- Study your worksheet notes and reread the chapters assigned for Units 1 & 2 to prepare for the Cumulative #1 Test. This test may only be taken once and you must get 50% in order to pass.

GOAL

The goal of this unit is to study Chemical elements, formulas and compounds.

OBJECTIVES

While completing this unit you will:

- Learn about properties and the structure of the atom.
- Identify the keys components of Bohr's model of electron arrangement.
- Describe the organization of the elements and periodic table.
- Identify the chemical families.
- Explain the composition and classifying of compounds.
- Outline the practical uses of acids, neutralizing bases, and salts.
- Understand the concept of electron transfer and making Ionic compounds.
- List the rules for writing formulas for Ionic compounds.
- Understand the concept of electron sharing and making Covalent bonds.
- List the rules for writing formulas for Covalent compounds.

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 10, *Elements and the Periodic Table*, Chapter 8 & *Chemical formulas and Compounds*, Chapter 9.
- Ask your teacher for the Unit 3 worksheets.
- Turn to page 163 in Chapter 8, read and answer the questions in the Unit 3 Worksheets.
- Turn to page 185 in Chapter 9, read and answer the questions in the Unit 3 Worksheets.
- When you have completed your *Study Workbook*, ask your teacher for the answer key in order to check and review your work.
- When you are ready, ask your teacher for the Unit 3 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to study chemical reactions and equations.

OBJECTIVES

While completing this unit you will:

- Learn about physical changes, chemical reactions and their equations.
- Be able to balance a chemical equation.
- Classify different types of chemical reactions.
- Describe the relationship between chemical reactions and energy.
- Explain the concept of replacement reactions.
- Outline the tasks of a clinical pharmacist.

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 10, *Chemicals*, Chapter 10 & *Practical Applications of Electrochemistry*, Chapter 11.
- Ask your teacher for the Unit 4 worksheets.
- Turn to page 213 in Chapter 10, read and answer the questions in the Unit 4 Worksheets.
- Turn to page 233 in Chapter 11, read and answer the questions in the Unit 4 Worksheets.
- When you have completed your *Study Workbook*, ask your teacher for the answer key in order to check and review your work.
- When you are ready, ask your teacher for the Unit 4 Test. Remember, you must get 80% to pass, so studying hard is essential.
- Study your worksheet notes and reread the chapters assigned for Units 3 & 4 to prepare for the Cumulative #2 Test. This test may only be taken once and you must get 50% in order to pass.

GOAL

The goal of this unit is to study geological time.

OBJECTIVES

While completing this unit you will:

- Describe time and changes which happened over geological time.
- Examine the nature of rock and various physical structures.
- Analyze the difference between relative and absolute age.
- Learn about dating sedimentary rocks.
- Identify various fossil evidence used in establishing geological time frames.

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 10, *Geological Time*, Chapter 12.
- Ask your teacher for the Unit 5 worksheets.
- Turn to page 255 in Chapter 12, read and answer the questions in the Unit 5 Worksheets.
- When you have completed your *Study Workbook*, ask your teacher for the answer key in order to check and review your work.
- When you are ready, ask your teacher for the Unit 5 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to study earthquakes and the earth's interior.

OBJECTIVES

While completing this unit you will:

- Compare and contrast the language of earthquakes.
- Describe the method for measuring earthquakes.
- Understand the process of seismology in locating areas of earthquake activity.
- Identify and predict high-risk earthquake areas in British Columbia and the west coast.
- Examine the various layers that make up the earth's interior.

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 10, *Earthquakes and the Earth's Interior*, Chapter 13.
- Ask your teacher for the Unit 6 worksheets.
- Turn to page 280 in Chapter 13, read and answer the questions in the Unit 6 Worksheets.
- When you have completed your *Study Workbook*, ask your teacher for the answer key in order to check and review your work.
- When you are ready, ask your teacher for the Unit 6 Test. Remember, you must get 80% to pass, so studying hard is essential.
- Study your worksheet notes and reread the chapters assigned for Units 5 & 6 to prepare for the Cumulative #3 Test. This test may only be taken once and you must get 50% in order to pass

GOAL

The goal of this unit is to study basic cell structure, theory, and how cells reproduce.

OBJECTIVES

While completing this unit you will:

- Learn about the basic building block of life, the cell.
- Describe the processes for moving materials in and out of cells.
- Explain the processes of photosynthesis and cellular respiration.
- Understand how cells control their internal activities.
- Examine a variety of single cell organisms.
- Identify certain sexually transmitted diseases and limits to cell development.
- Examine the different processes of cellular reproduction.
- Compare and contrast asexual and sexual reproduction.

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 10, *The Cell*, Chapter 15 & *Reproduction*, Chapter 16.
- Ask your teacher for the Unit 7 worksheets.
- Turn to page 329 in Chapter 15, read and answer the questions in the Unit 7 Worksheets.
- Turn to page 356 in Chapter 16, read and answer the questions in the Unit 7 Worksheets. Complete the reading up to page 372. You are **not required to study** section 16.4.
- When you have completed your *Study Workbook*, ask your teacher for the answer key in order to check and review your work.
- When you are ready, ask your teacher for the Unit 7 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to learn about heredity and recent advances in genetics.

OBJECTIVES

While completing this unit you will:

- Describe the experiments and conclusions of Gregor Mendel's experiments.
- Examine the concept of alleles and genetic material.
- Learn about genetic probability and patterns of inheritance.
- Understand how sex type is determined in humans.
- Explain various methods of manipulating reproduction.
- Identify methods of manipulating genes and factors which lead to cell mutation.
- Discuss the benefits and hazards of gene splicing and the potential misuse of genetics.

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 10, *Heredity*, Chapter 17 & *Recent Advances in Genetics*, Chapter 18.
- Ask your teacher for the Unit 8 worksheets.
- Turn to page 386 in Chapter 17, read and answer the questions in the Unit 8 Worksheets.
- Turn to page 408 in Chapter 18, read and answer the questions in the Unit 8 Worksheets.
- When you have completed your *Study Workbook*, ask your teacher for the answer key in order to check and review your work.
- When you are ready, ask your teacher for the Unit 8 Test. Remember, you must get 80% to pass, so studying hard is essential.
- Study your worksheet notes and reread the chapters assigned for Units 7 & 8 to prepare for the Cumulative #4 Test. This test may only be taken once and you must get 50% in order to pass.

GOAL

The goal of this project is to research and write a report about Environmental issues in Canada.

OBJECTIVES

While completing this unit you will:

- Learn about man-made sources of pollution.
- Examine the topic of toxic waste and what to do with it.
- Identify the causes of air pollution and harm to the Ozone layer.
- Describe sources of water pollution and what to do about sewage.
- Research ways to control and combat pollution.
- Choose a research topic from the list your teacher gives you.
- Conduct research in the classroom, the school library or through the Internet on your topic.
- Present your findings in a report which follows the format recommended by your teacher.

WHAT TO DO IN THIS UNIT

- This project uses the textbook *Science Probe 10*, People and Pollution, Chapter 20, as well as other resources from your classroom, your school library, and the Internet.
- Ask your teacher for the Environmental Issues worksheet.
- Turn to page 461 in Chapter 20, then quickly read about the various pollution topics. It contains a list of suggested topics for your project. If you wish to research and report on a topic of your own choosing, you must get your teacher's approval for the topic before you start. **It is extremely important that you write your project in your own words!**
- **Be sure to discuss the expectations for the format of this project with your teacher.**
- This project may only be handed in once, so be sure that you do your best work on it. This project takes the place of Cumulative #5. You must complete this project to finish the course.

Congratulations, you have finished Science 10!