

MATERIAL COVERED:

The Science 9 course is divided into three main sections.

Life Science - Body Systems and the factors affecting them

- Relate the structures and functions of organs and organ systems
- Describe how organ systems monitor, regulate, and respond to environmental changes
- Identify the interrelation of body systems
- Explore current and emerging biomedical technologies
- Explain how hormones, environmental chemicals, and common drugs affect one's body
- Distinguish the different ways that raw materials, diet, lifestyle help maintain a healthy body
- Identify disease causing agents and their diseases on the body system

Physical Science, Chemistry - Elements, Compounds, and Chemical reactions

- Describe how elements are characterized by the nature of their particles
- Predict the properties of elements based upon their position in the periodic table
- Write formulae and names for simple compounds.
- Compare and contrast physical and chemical change
- Explore the Law of Conservation of Mass and other factors affecting chemical reactions

Physical Science, Earth & Space - The Solar System, the Universe, Force and Energy

- Describe the organization of the solar system
- Compare distances and ways of measuring objects in space
- Explain how stars are classified and describe the life cycles of different sized stars
- Compare astronomical discoveries with our current understanding of the universe
- Explore the relation between thermal energy, temperature, and heat capacity
- Analyse the relationship between force, motion, and mass
- Explain energy input-output devices using the concepts of force, work, and power
- Evaluate various mechanical systems that do work, and use or make power

TEXTBOOKS:

The course uses the following text:

Science Probe 9

(ISBN 0-17-604716-6, 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. Your school mark for the course is based 60% on the mastery tests and 40% on the cumulative tests.

GOAL

The goal of this unit is to gain a better understanding of your living body.

OBJECTIVES

While completing this unit you will:

- Become familiar with body needs and essential nutrients for energy
- Describe the term Proteins, the nutrients necessary for growth and repair
- Understand what is meant by minerals and vitamins
- Learn why water is the most essential nutrient of all
- Describe the importance of fibre in your diet
- Outline and explain the concept of food processing
- Explain what is proper nutrition and diet
- Describe what is meant by the terms stomach, digestion, and storage
- Identify the characteristics and features of the intestines
- Explain how to take care of your own digestive system

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 9, *Nutrition*, Chapter 6 & *Digestion*, Chapter 7.
- Ask your teacher for the Unit 1 worksheets.
- Turn to page 98 in Chapter 6, read and answer the questions in the Unit 1 Worksheets.
- Turn to page 133 in Chapter 7, 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 gain a better understanding of your living body.

OBJECTIVES

While completing this unit you will:

- Learn about the need to breathe
- Describe the process of breathing and what happens in a single breath
- Explain how to take care of your respiratory system
- Identify the characteristics of blood
- Explore the heart and blood circulatory system
- Understand what it takes to keep your blood circulation system healthy

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 9, *Respiration*, Chapter 8 & *Circulation & Excretion*, Chapter 9.
- Ask your teacher for the Unit 2 worksheets.
- Turn to page 150 in Chapter 8, read and answer the questions in the Unit 2 Worksheets.
- Turn to page 170 in Chapter 9, 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 investigate matter and learn some fundamental chemistry.

OBJECTIVES

While completing this unit you will:

- Learn about matter and changes in matter
- Identify the keys components of chemical reactions
- Explain the concept of mass and chemical change
- Identify the different elements and their symbols
- Learn about and write different chemical formulas
- Describe the make up of different chemical compounds

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 9, *Changes in Matter*, Chapter 2 & *Symbols and Formulas*, Chapter 3.
- Ask your teacher for the Unit 3 worksheets.
- Turn to page 20 in Chapter 2, read and answer the questions in the Unit 3 Worksheets.
- Turn to page 42 in Chapter 3, 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 learn some more about chemistry and common household chemicals.

OBJECTIVES

While completing this unit you will:

- Learn about the energy found in chemical reactions
- Be able to identify the factors affecting the rate of chemical reactions
- Describe the relationship between metals and corrosion
- Explain the concept of acids and bases
- Outline the chemicals found in the average household
- Identify common hazardous chemical products

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 9, *Controlling Chemical Reactions*, Chapter 4 & *Household Chemicals*, Chapter 5.
- Ask your teacher for the Unit 4 worksheets.
- Turn to page 60 in Chapter 4, read and answer the questions in the Unit 4 Worksheets.
- Turn to page 80 in Chapter 5, 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 explore the universe, the solar system, and the stars.

OBJECTIVES

While completing this unit you will:

- Describe the sun and take a look at its planets
- Examine the nature of other objects found in space
- Learn about our most important star called the sun
- Identify various stars you can see in the evening sky
- Analyse the distances, colours, temperatures, and brightness of different stars
- Discuss changing ideas about our universe
- Describe the tools of the modern day astronomer
- Understand the terms galaxies, star clusters, nebulas, quasars, pulsars, and black holes

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 9, *The Solar System*, Chapter 13, *The Stars*, Chapter 14, *Exploring the Universe*, Chapter 15, *History of the Universe*, Chapter 16.
- Ask your teacher for the Unit 5 worksheets.
- Turn to page 264 in Chapter 13, read and answer the questions in the Unit 5 Worksheets.
- Turn to page 291 in Chapter 14, read and answer the questions in the Unit 5 Worksheets.
- Turn to page 318 in Chapter 15, read and answer the questions in the Unit 5 Worksheets.
- Turn to page 343 in Chapter 16, 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 discover the importance of energy and the energy around you.

OBJECTIVES

While completing this unit you will:

- Compare and contrast the forms of energy and energy measurement
- Describe the processes of energy transformations
- Understand the Law of Conservation of Energy
- Review several alternative energy resources
- Examine the concepts of force and work
- Identify several machines that do work for us
- Discuss the concept of the efficiency of machines
- Explore the terms temperature, thermal energy, and heat
- Understand what is meant by heat capacity and heat transfer
- Describe the changing states of matter

WHAT TO DO IN THIS UNIT

- This unit uses the textbook Science Probe 9, *Energy Use in our Society*, Chapter 17, *Energy Transformations and Alternative Energy Resources*, Chapter 18, *Simple Machines*, Chapter 19, & *Thermal Energy and Heat*, Chapter 20.
- Ask your teacher for the Unit 6 worksheets.
- Turn to page 364 in Chapter 17, read and answer the questions in the Unit 6 Worksheets.
- Turn to page 385 in Chapter 18, read and answer the questions in the Unit 6 Worksheets.
- Turn to page 410 in Chapter 19, read and answer the questions in the Unit 6 Worksheets.
- Turn to page 435 in Chapter 20, 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 project is to research and write a report about current Fitness & Health issues.

OBJECTIVES

While completing this unit you will:

- Learn about the factors which affect your level of fitness
- Examine how body mass and flexibility affects overall fitness
- Understand how self improvement programs can help make you more fit & well
- Identify your own level of health and fitness
- Research and write a brief essay project on a topic of your choice

WHAT TO DO IN THIS UNIT

- This project uses the textbook Science Probe 9, *Fitness & Health*, Chapter 10, as well as other resources from your classroom, your school library, and the Internet.
- Turn to page 192 in Chapter 10, then quickly read about the various fitness and health topics. Ask your teacher for the Fitness & Health worksheet. 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. **Plagiarism is never acceptable. It is extremely important that you write your project in your own words!**
- **Be sure to review 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 the Cumulative #4. You must complete this project to finish the course.

Congratulations, you have finished Science 9!