

MATERIAL COVERED:

The Science 10 course is divided into four major parts:

- Life Science: Sustainability of Ecosystems
- Physical Science: Elements, Compounds, Reaction, and Radioactivity
- Physical Science: Motion
- Earth and Space Science: Energy Transfer in Natural Systems

TEXTBOOK:

The course uses the following text:

BC Science Probe 10 (ISBN-13: 978-0-17-629072-6), Nelson

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 are tests you can take only once, so studying before them is essential to doing well. Your final mark for the course is based 60% on mastery tests and 40% on cumulative tests.

PROVINCIAL EXAM

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, or get one or more from the B.C. Ministry of Education website: www.bced.gov.bc.ca/exams, that you can write and mark before you write the real thing.

GOAL

The goal of this unit is to better understand how the interaction of biotic and abiotic components of the environment determines the distribution of life on Earth and the health of ecosystems.

OBJECTIVES

After completing this unit you will be able to:

- Understand that living things are connected to each in complex interrelationships.
- Identify biotic and abiotic characteristics responsible for shaping a community.
- Understand nutrient cycles within ecosystems.
- Understand how energy flows within ecosystems.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 1 Worksheet.
2. In the textbook, read Chapter 2, starting on page 20.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 1 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 2 Review on page 46 to ensure that you are ready to write the Unit Test.
7. 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 better understand how biological communities interact within an ecosystem and what the effects are of their interactions.

OBJECTIVES

After completing this unit you will be able to:

- Understand that the biosphere contains distinct biological communities.
- Describe how species adapt to change in the environment and how it leads to adaptive radiation.
- Explain how species in communities interact in many different ways.
- Demonstrate an understanding of how succession is an indication of change in an ecosystem.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 2 Worksheet.
2. In the textbook, read Chapters 3 & 4, starting on p. 50.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 2 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the chapter reviews to ensure that you are ready to write the Unit Test.
7. When you are ready, ask your teacher for the Unit 2 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to understand how humans and natural phenomena affect Earth's ecosystems.

OBJECTIVES

After completing this unit you will be able to:

- Explain how ecosystems naturally change over time.
- Explain how the impact of natural phenomena can alter ecosystems.
- Explain how human activities affect and change ecosystems.
- Demonstrate an understanding of how introduced species can alter ecosystems.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 3 Worksheet.
2. In the textbook, read Chapter 5, starting on p. 106.
3. Remember to read the whole chapter before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 3 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the "Check Your Understanding" sections at the end of the sub-chapters and complete the chapter review on to ensure that you are ready to write the Unit Test.
6. When you are ready, ask for the Unit 3 Test. You must get 80% to pass, so studying hard is essential.
7. **Reread** the chapters assigned for Units 1-3 and go over your worksheets in preparation for Cumulative Test #1. To check your understanding of this section, you may want to complete the Review beginning on p. 142.
8. When you are prepared, ask your teacher for Cumulative Test # 1. **Remember, you may only write this test once**, so you have to study carefully to do well on it.

GOAL

The goal of this unit is to explain how atomic theory gives us a way to visualize matter that is too small to be viewed directly so we can understand and predict changes we see in our everyday world..

OBJECTIVES

After completing this unit you will be able to:

- Distinguish between atoms, ions, and molecules.
- Describe the arrangement of electrons in atoms, ions, and molecules.
- Write names and formulas for ionic and covalent compounds.
- Draw and interpret Bohr diagrams.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 4 Worksheet.
2. In the textbook, read Chapters 6 & 7, starting on p. 148.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 4 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the chapter reviews to ensure that you are ready to write the Unit Test.
6. When you are ready, ask your teacher for the Unit 4 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to explain how atomic theory gives us a way to visualize matter that is too small to be viewed directly so we can understand and predict changes we see in our everyday world

OBJECTIVES

After completing this unit you will be able to:

- Distinguish between atoms, ions, and molecules.
- Describe the arrangement of electrons in atoms, ions, and molecules.
- Write names and formulas for ionic and covalent compounds.
- Draw and interpret Bohr diagrams.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 5 Worksheet.
2. In the textbook, read all of Chapter 8, and Chapter 9 (Sections 9.1 and 9.2 only), starting on p. 200.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 5 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the chapter reviews to ensure that you are ready to write the Unit Test.
6. 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 show how after studying the types of reactions and the factors that affect reaction rates, you will be able to predict the outcome of reactions you have never seen.

OBJECTIVES

After completing this unit you will be able to:

- Classify reactions as one of six different types.
- Predict the identity of the products of a chemical reaction.
- Identify factors that affect the rate of a chemical reaction.
- Define the rate of a chemical reaction.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 6 Worksheet.
2. In the textbook, read Chapter 9 (Sections 9.3 and 9.4 only), starting on p. 239.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 6 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the chapter review on p. 266 to ensure that you are ready to write the Unit Test.
6. When you are ready, ask your teacher for the Unit 6 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to understand the uses and effects of nuclear reactions, and the issues related to the production and use of nuclear energy.

OBJECTIVES

After completing this unit you will be able to:

- Define isotopes in terms of atomic number and atomic mass.
- Relate radioactive decay to changes in the nucleus.
- Explain half-life using rates of radioactive decay.
- Compare fission and fusion.
- Illustrate radioactive decay, fission, and fusion using nuclear equations.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 7 Worksheet.
2. In the textbook, read Chapters 10 & 11, starting on p. 274.
3. Remember to read the whole chapter before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 7 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the chapter reviews to ensure that you are ready to write the Unit Test.
6. When you are ready, ask for the Unit 7 Test. You must get 80% to pass, so studying hard is essential.
7. **Reread** the chapters assigned for Units 4-7 and go over your worksheets in preparation for Cumulative Test # 2. To check your understanding of this section, you may want to complete the Review beginning on p. 268.
8. When you are prepared, ask your teacher for Cumulative Test # 2. **Remember, you may only write this test once**, so you have to study carefully to do well on it.

GOAL

The goal of this unit is to understand how describing and analyzing motion allow us to predict the motion of objects.

OBJECTIVES

After completing this unit you will be able to:

- Define distance, speed, displacement, time interval, and average velocity.
- Understand the difference between vectors and scalars.
- Analyze graphically the relationship between displacement and time interval for objects displaying characteristics of uniform motion.
- Explain the relationship of displacement and time interval to average velocity for objects displaying characteristics of uniform motion.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 8 Worksheet.
2. In the textbook, read Chapter 12, starting on p. 340.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 8 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. If your teacher is having you use it, complete the Chapter 8 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the chapter review on p. 370 to ensure that you are ready to write the Unit Test.
7. When you are ready, ask your teacher for the Unit 8 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to investigate objects whose velocity is changing.

OBJECTIVES

After completing this unit you will be able to:

- Define acceleration.
- Demonstrate the relationship of velocity, time interval, and acceleration.
- Determine acceleration given initial velocity, final velocity, and time interval.
- Distinguish and give examples of positive, negative, and zero acceleration.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 9 Worksheet.
2. In the textbook, read Chapter 13, starting on p. 372.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 9 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the chapter review on p. 398 to ensure that you are ready to write the Unit Test.
6. When you are ready, ask your teacher for the Unit 9 Test. Remember, you must get 80% to pass, so studying hard is essential.
7. **Reread** the chapters assigned for Units 8-9 and go over your worksheets in preparation for Cumulative Test # 3. To check your understanding of this section, you may want to complete the Review beginning on p. 400.
9. When you are prepared, ask your teacher for Cumulative Test # 3. **Remember, you may only write this test once**, so you have to study carefully to do well on it.

GOAL

The goal of this unit is to understand the process of thermal energy transfer, what causes the weather, and how better to predict it.

OBJECTIVES

After completing this unit you will be able to:

- Define heat, thermal energy, and atmospheric pressure.
- Describe Earth's sources of thermal energy.
- Describe how energy transfer affects the atmosphere.
- Identify weather conditions caused by high or low atmospheric pressure.
- Understand how wind, latitude, albedo and other factors affect climate.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 10 Worksheet.
2. In the textbook, read Chapters 14 & 15, starting on p. 404.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 10 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the "Check Your Understanding" sections at the end of the sub-chapters and complete the chapter reviews to ensure that you are ready to write the Unit Test.
6. When you are ready, ask your teacher for the Unit 10 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to increase your understanding the causes and effects of climate change.

OBJECTIVES

After completing this unit you will be able to:

- Explain how natural phenomena can affect climate.
- Describe how human activities can influence climate.
- Describe how climate change affects natural systems.
- Evaluate possible responses to climate change.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 11 Worksheet.
2. In the textbook, read Chapter 16, starting on p. 454.
3. Remember, it is best to read the whole chapter to get an overview of the content before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 11 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 16 Review on p. 484 to ensure that you are ready to write the Unit Test.
6. When you are ready, ask your teacher for the Unit 11 Test. Remember, you must get 80% to pass, so studying hard is essential.

GOAL

The goal of this unit is to understand Plate Tectonic Theory as an explanation of geological events such as mountain formation, the location of continents, earthquakes and volcanic eruptions.

OBJECTIVES

After completing this unit you will be familiar with:

- Define, describe, and analyze the processes and features associated with plate tectonics.
- Explain tectonic plate movement and its effects.
- Explain the factors that contribute to the motion of tectonic plates.
- Relate plate tectonics to the layers of Earth.
- Identify sources of heat within Earth.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 12 Worksheet.
2. In the textbook, read Chapters 17 & 18, starting on p. 492.
3. Remember to read the whole chapter before attempting to answer the worksheet questions.
4. Answer the questions in the Unit 12 Worksheet. This will help you organize and understand what you have read. Ask your teacher if you should hand in your worksheet for marking.
5. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the chapter reviews to ensure that you are ready to write the Unit Test.
6. When ready, ask for the Unit 12 Test. You must get 80% to pass, so studying hard is essential.
7. **Reread** the chapters assigned for Units 10-12 and go over your worksheets in preparation for Cumulative Test #4. To check your understanding of this section, you may want to complete the Reviews beginning on p. 486 and p.538.
8. When you are prepared, ask your teacher for Cumulative Test #4. **Remember, you may only write this test once**, so you have to study carefully to do well on it.
9. Go over your work from Units 1–12 in preparation for writing the practice Provincial Exam.
10. Ask your teacher for Cumulative Test #5, which is a practice Provincial e-Exam. Follow the instructions on the test for how to log on to the e-Assessment website, write the exam, and hand in your marked exam for recording.

Congratulations! You’ve finished Science 10!