

MATERIAL COVERED:

The Science 10 course is divided into four major parts:

- Life Science: Sustaining Earth's Ecosystems
- Physical Science: Chemical Reactions and Radioactivity
- Physical Science: Motion
- Earth and Space Science: Energy Transfer in Natural Systems

TEXTBOOK:

The course uses the following text:

BC Science 10 (ISBN-13: 978-0-07-098465-3), McGraw-Hill Ryerson

OTHER USEFUL RESOURCES:

- *BC Science 10 Student Workbook (ISBN-13: 978-0-07-098461-5)*, McGraw-Hill Ryerson
- Resource Web site at <http://www.bcscience.com/bc10/>

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.

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:

- Describe the factors that influence the characteristics and distribution of biomes on Earth.
- Identify biotic and abiotic characteristics of biomes and ecosystems.
- Explain the interaction of biotic and abiotic components of biomes and ecosystems.
- Relate plant and animal adaptations to environmental conditions in biomes and ecosystems.
- Understand the biotic interactions among populations and communities in ecosystems.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 1 Worksheet.
2. In the textbook, read Chapter 1, starting on page 2.
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. If your teacher is having you use it, complete the Chapter 1 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 1 Review on page 52 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 energy flows and nutrient cycles can help us appreciate how our activities affect ecosystems and the organisms living in them.

OBJECTIVES

After completing this unit you will be able to:

- Explain how energy flows through food chains, food webs, and food pyramids..
- Describe how nutrients are cycled in an ecosystem.
- Explain how chemicals can accumulate and cause harm to organisms in ecosystems.
- Demonstrate an understanding of how human activities affect biodiversity.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 2 Worksheet.
2. In the textbook, read Chapter 2, starting on p. 54.
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. If your teacher is having you use it, complete the Chapter 2 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 2 Review on p.104 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 changes in biotic and abiotic factors as a result of natural events and human activities occur continually in ecosystems.

OBJECTIVES

After completing this unit you will be able to:

- Explain how species adapt to changes in their environments.
- 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 3, 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. If your teacher is having you use it, complete the Chapter 3 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 3 Review on p.148 to ensure that you are ready to write the Unit Test.
7. When you are ready, ask for the Unit 3 Test. You must get 80% to pass, so studying hard is essential.
8. **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 **Unit 1 Review** beginning on p. 160.
9. 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.
- Balance chemical equations.
- Explain the law of conservation of mass as it applies to chemical reactions.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 4 Worksheet.
2. In the textbook, read Chapter 4, starting on p. 166.
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. If your teacher is having you use it, complete the Chapter 4 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 4 Review on p. 216 to ensure that you are ready to write the Unit Test.
7. 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 show how an understanding of organic chemistry helps us to understand the world around us and the processes that occur within us as well.

OBJECTIVES

After completing this unit you will be able to:

- Distinguish among acids, bases, and salts by examining their chemical formulas and properties.
- Explain the significance and uses of the pH scale, with reference to common substances.
- Write names and formulas of acids, bases, and simple organic compounds.
- Examine chemical reactions that involve acids, bases, and organic compounds.
- Describe organic compounds.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 5 Worksheet.
2. In the textbook, read Chapter 5, starting on p. 218.
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. If your teacher is having you use it, complete the Chapter 5 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 5 Review on p. 252 to ensure that you are ready to write the Unit Test.
7. 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 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.
- Explain how atoms have a structure that determines their properties.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 6 Worksheet.
2. In the textbook, read Chapter 6, starting on p. 254.
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. If your teacher is having you use it, complete the Chapter 6 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 6 Review on p. 282 to ensure that you are ready to write the Unit Test.
7. 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 Chapter 7, starting on p. 284.
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. If your teacher is having you use it, complete the Chapter 7 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 7 Review on p. 326 to ensure that you are ready to write the Unit Test.
7. When you are ready, ask for the Unit 7 Test. You must get 80% to pass, so studying hard is essential.
8. **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 **Unit 2 Review** beginning on p. 328.
9. 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 displacement, time interval, and average velocity.
- 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 8, **starting on p. 338**.
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 8 Review on p. 376 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 9, starting on p. 378.
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. If your teacher is having you use it, complete the Chapter 9 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 9 Review on p. 406 to ensure that you are ready to write the Unit Test.
7. When you are ready, ask your teacher for the Unit 9 Test. Remember, you must get 80% to pass, so studying hard is essential.
8. **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 **Unit 3 Review** beginning on p. 408.
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.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 10 Worksheet.
2. In the textbook, read Chapter 10, **starting on p. 418**.
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. If your teacher is having you use it, complete the Chapter 10 section in the Student Workbook.
6. Use the "Check Your Understanding" sections at the end of the sub-chapters and complete the Chapter 10 Review on p. 460 to ensure that you are ready to write the Unit Test.
7. 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 11, starting on p. 462.
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. If your teacher is having you use it, complete the Chapter 11 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 11 Review on p. 502 to ensure that you are ready to write the Unit Test.
7. 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 Chapter 12, starting on p. 504.
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. If your teacher is having you use it, complete the Chapter 12 section in the Student Workbook.
6. Use the “Check Your Understanding” sections at the end of the sub-chapters and complete the Chapter 12 Review on p. 538 to ensure that you are ready to write the Unit Test.
7. When ready, ask for the Unit 12 Test. You must get 80% to pass, so studying hard is essential.
8. **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 **Unit 4 Review** beginning on p. 540.
9. 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.

GOAL

The goal of this unit is to prepare for and write a practice Provincial Exam.

OBJECTIVES

After completing this unit you will be familiar with:

- Logging in to the e-Assessment website.
- Navigating around the Provincial Exam.
- The format an e-Assessment Provincial Exam takes.
- Submitting your Provincial Exam once finished.

WHAT TO DO IN THIS UNIT

1. Ask your teacher for the Unit 13 Worksheet, which will show you how to log in to the e-Assessment website to write the practice Provincial Exam.
2. When you are prepared, write the practice Provincial Exam. **Remember, you may only write this test once**, so you have to study carefully to do well on it.
3. This exam will count as your Cumulative Test #5, so do your best work on it.
4. Have your practice exam marked and recorded.

Congratulations! You've finished Science 10!