

## MATERIAL COVERED:

The Science 8 course is divided into four main sections.

- Life Science - Cells and Systems
- Physical Science - Fluids & Dynamics
- Earth and Space Science - Water Systems on Earth
- Physical Science - Optics

## RESOURCES:

The course uses the following resources:

*BC Science Probe 8 Textbook*

(ISBN 0-17-629060-5, Nelson)

*Website*

<http://www.nelson.com/bcscienceprobe8/student/default.html>

## COURSE DESIGN:

The course units have been organized by chapters of the textbook so that the content covered in each “unit” test will be one chapter of the book. This should make it easier for the grade 8 student to master the content before being tested. The cumulative tests cover all three chapters in each section.

## INQUIRY INVESTIGATION (LABS):

Not all classrooms are equipped with science equipment. Your teacher will tell you whether you are required to do the Inquiry Investigations (labs) in each chapter. **If you don't have the lab facilities, you are still required to read the content covered in each Inquiry Investigation**, as it will usually have vocabulary that will appear on tests.

## 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 this course is based 60% on the average of the mastery tests and 40% on the average of the cumulative tests.

## GOAL

The goal of this unit is to learn about cells as the basic unit of life.

## OBJECTIVES

While completing this unit you will:

- Demonstrate understanding of the characteristics of living and non-living things
- Demonstrate understanding of the nature of cells
- Describe the similarities and differences between plant and animal cells
- Understand how technology helps us learn about the structure and function of cells
- Describe how substances move into and out of cells

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 1**.
- Ask your teacher for the Unit 1 Worksheets.
- In the textbook, read **all** of Chapter 1, then once you are done, go back and answer the questions in the Unit 1 Worksheet. **Remember to ask your teacher if you need to do the Inquiry Investigations.**
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.36, then answer the Review Key Ideas and Vocabulary questions starting on p.38.
- For practice, you can also take the self quiz by clicking on the Chapter 1 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 1 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- 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 understand how cells and cell systems work independently and together.

## OBJECTIVES

While completing this unit you will:

- Investigate how unicellular and multicellular organisms perform the same basic functions
- Describe how cells are specialized to carry out specific functions
- Describe how cells increase efficiency when they are organized into tissues
- Learn how groups of tissues are organs and groups of organs are organ systems
- Investigate how some diseases are caused when microscopic living things invade cells
- Describe how your health depends on how well your cell systems work together

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 2**.
- Ask your teacher for the Unit 2 Worksheets.
- In the textbook, read **all** of Chapter 2, then once you are done, go back and answer the questions in the Unit 2 Worksheet. **Remember to ask your teacher if you need to do the Inquiry Investigations.**
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.60, then answer the Review Key Ideas and Vocabulary questions starting on p.62.
- For practice, you can also take the self quiz by clicking on the Chapter 2 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 2 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- 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 learn how the human body systems work.

## OBJECTIVES

While completing this unit you will:

- Investigate the two main types of systems animals have
- Understand how animal systems cannot function properly without other systems
- Learn how humans have a natural system that protects them from foreign invaders.

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 3**.
- Ask your teacher for the Unit 3 Worksheets.
- In the textbook, read **all** of Chapter 3, then once you are done, go back and answer the questions in the Unit 3 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.88, then answer the Review Key Ideas and Vocabulary questions starting on p.90.
- For practice, you can also take the self quiz by clicking on the Chapter 3 Self Quiz link at:  
<http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 3 link on this page:  
<http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- When you are ready, ask your teacher for the Unit 3 Test. Remember, you must get 80% to pass, so studying hard is essential.
- Re-read Chapters 1-3 and go over your worksheets in preparation for the Cumulative Test.
- Do the Review Cells and Systems questions starting on p. 94.
- You may take the self quiz by clicking on the Unit A Self Quiz link at:  
<http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- When you are ready, ask your teacher for Cumulative Test #1. **Remember, you may only write this test once**, so you have to study hard to do well on it.

## GOAL

The goal of this unit is to understand the properties fluids.

## OBJECTIVES

While completing this unit you will:

- Investigate fluid flow
- Describe the fluid properties of viscosity, density and buoyancy
- Explain how kinetic molecular theory explains the behaviour of fluids
- Describe how temperature affects fluid density and buoyancy

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 4**.
- Ask your teacher for the Unit 4 Worksheets.
- In the textbook, read **all** of Chapter 4, then once you are done, go back and answer the questions in the Unit 4 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.136, then answer the Review Key Ideas and Vocabulary questions starting on p.138.
- For practice, you can also take the self quiz by clicking on the Chapter 4 Self Quiz link at:  
<http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- For further investigation, click on the Chapter 4 link on this page:  
<http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- 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 learn how fluids are put to use in modern society.

## OBJECTIVES

While completing this unit you will:

- Understand how knowledge of the properties of fluids is important in technology
- See how an object immersed in a fluid experiences pressure
- Investigate how forces can be transferred through confined fluids
- Describe how the temperature and volume of a fluid affect each other
- Investigate how work is made easier by machines that use fluids

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 5**.
- Ask your teacher for the Unit 5 Worksheets.
- In the textbook, read **all** of Chapter 5, then once you are done, go back and answer the questions in the Unit 5 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.164, then answer the Review Key Ideas and Vocabulary questions starting on p.166.
- For practice, you can also take the self quiz by clicking on the Chapter 5 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- For further investigation, click on the Chapter 5 link on this page: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- 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 fluids and living things.

## OBJECTIVES

While completing this unit you will:

- Learn how fluids are important to both natural and human-made systems
- Understand that the human circulatory system is a hydraulic system
- Understand that the human respiratory system is a pneumatic system
- See how human activities affect natural fluid systems

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 6**.
- Ask your teacher for the Unit 6 Worksheets.
- In the textbook, read **all** of Chapter 6, then once you are done, go back and answer the questions in the Unit 6 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.180, then answer the Review Key Ideas and Vocabulary questions starting on p.182.
- For practice, you can also take the self quiz by clicking on the Chapter 6 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 6 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- When you are ready, ask your teacher for the Unit 6 Test. Remember, you must get 80% to pass, so studying hard is essential.
- Re-read Chapters 4-6 and go over your worksheets in preparation for the Cumulative Test.
- Do the Review Fluids questions starting on p. 186.
- You may practice by taking the self quiz by clicking on the Unit B Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- When you are ready, ask your teacher for Cumulative Test #2. **Remember, you may only write this test once**, so you have to study hard to do well on it.

## GOAL

The goal of this unit is to learn about the water cycle.

## OBJECTIVES

While completing this unit you will:

- Learn that water is not distributed equally on Earth
- All water on Earth circulates through the water cycle and is affected by many factors
- Water, as solid and a liquid, can change the shape of the land
- Water systems are managed to protect them from human activities

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 7**.
- Ask your teacher for the Unit 7 Worksheets.
- In the textbook, read **all** of Chapter 7, then once you are done, go back and answer the questions in the Unit 7 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.214, then answer the Review Key Ideas and Vocabulary questions starting on p.216.
- For practice, you can also take the self quiz by clicking on the Chapter 7 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 7 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- 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 water features on Earth.

## OBJECTIVES

While completing this unit you will:

- Understand how the Earth's shape determines how water flows over it
- Describe how the movement of glaciers erodes the landscape
- Learn how temperature differences cause movement within a body of water
- Understand how large bodies of water affect both weather and climate
- See how ocean waves shape geological features and are also affected by them
- Understand how ocean tides are affected by geological features

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 8**.
- Ask your teacher for the Unit 8 Worksheets.
- In the textbook, read **all** of Chapter 8, then once you are done, go back and answer the questions in the Unit 8 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.248, then answer the Review Key Ideas and Vocabulary questions starting on p.250.
- For practice, you can also take the self quiz by clicking on the Chapter 8 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 8 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- 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 water and our world.

## OBJECTIVES

While completing this unit you will:

- Learn that many areas covered by water remain unexplored
- Understand that human use of natural resources affects water systems
- Investigate how marine ecosystems require proper conditions for the inhabitants to survive
- Learn about fish farms

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 9**.
- Ask your teacher for the Unit 9 Worksheets.
- In the textbook, read **all** of Chapter 9, then once you are done, go back and answer the questions in the Unit 9 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.276, then answer the Review Key Ideas and Vocabulary questions starting on p.278.
- For practice, you can also take the self quiz by clicking on the Chapter 9 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 9 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- When you are ready, ask your teacher for the Unit 9 Test. Remember, you must get 80% to pass, so studying hard is essential.
- Re-read Chapters 7-9 and go over your worksheets in preparation for the Cumulative Test.
- Do the Review Water Systems on Earth questions starting on p. 282.
- You may practice by taking the self quiz by clicking on the Unit C Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- When you are ready, ask your teacher for Cumulative Test #3. **Remember, you may only write this test once**, so you have to study hard to do well on it.

## GOAL

The goal of this unit is to investigate the sources and properties of light.

## OBJECTIVES

While completing this unit you will:

- Understand that light can be produced by both artificial and natural sources
- Investigate how light may be reflected, transmitted, or absorbed
- Learn that visible light is part of the energy that comes from the sun
- Understand that visible light is just part of the electromagnetic spectrum

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 10**.
- Ask your teacher for the Unit 10 Worksheets.
- In the textbook, read **all** of Chapter 10, then once you are done, go back and answer the questions in the Unit 10 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.308, then answer the Review Key Ideas and Vocabulary questions starting on p.310.
- For practice, you can also take the self quiz by clicking on the Chapter 10 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 10 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- 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 investigate mirrors and lenses.

## OBJECTIVES

While completing this unit you will:

- Understand how light reflects off surfaces in a predictable way
- See how images produced by optical devices can have different characteristics
- Understand how a mirror reflects light
- Investigate how light may change direction when passing through a transparent material
- Learn how lenses produce images by refracting light.

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 11**.
- Ask your teacher for the Unit 11 Worksheets.
- In the textbook, read **all** of Chapter 11, then once you are done, go back and answer the questions in the Unit 11 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.336, then answer the Review Key Ideas and Vocabulary questions starting on p.338.
- For practice, you can also take the self quiz by clicking on the Chapter 11 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 11 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- 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 investigate light and vision.

## OBJECTIVES

While completing this unit you will:

- Understand that the human eye and a camera function similarly
- Learn how technology can correct some vision problems
- Describe how special structures in the eye allow us to see colours
- Describe how white light and other colours are formed
- Describe how telescopes are used

## WHAT TO DO IN THIS UNIT

- This unit uses the textbook *BC Science Probe 8*, **Chapter 12**.
- Ask your teacher for the Unit 12 Worksheets.
- In the textbook, read **all** of Chapter 12, then once you are done, go back and answer the questions in the Unit 12 Worksheet.
- To check your understanding of this unit, go over the Key Ideas and Vocabulary starting on p.362, then answer the Review Key Ideas and Vocabulary questions starting on p.368.
- For practice, you can also take the self quiz by clicking on the Chapter 12 Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- For further investigation, click on the Chapter 12 link on this page: <http://www.nelson.com/bcscienceprobe8/student/weblinks.html>
- When you are ready, ask your teacher for the Unit 12 Test. Remember, you must get 80% to pass, so studying hard is essential.
- Re-read Chapters 10-12 and go over your worksheets in preparation for the Cumulative Test.
- Do the Review Optics questions starting on p. 368.
- You may practice by taking the self quiz by clicking on the Unit D Self Quiz link at: <http://www.nelson.com/bcscienceprobe8/student/quizzes.html>
- When you are ready, ask your teacher for Cumulative Test #4. **Remember, you may only write this test once**, so you have to study hard to do well on it.
- **Congratulations! You have finished Science 8!**