

Material Covered:

The course is comprised of the following four units:

Continuity of Life: Cells derive from cells

- Importance of cell reproduction
- Asexual reproduction
- Sexual reproduction
- Reproduction and life's variety

Electron arrangement affects atom's chemical nature

- Studying matter
- Periodic table
- Atomic theory
- Chemical compound formulas

Electricity

- Electrical energy and charges
- Electrical circuits
- Practical applications and sustainable electrical energy

Earth's interconnected spheres

- Connections and sustainability
- Role of the Sun's energy
- Energy/matter interactions
- Promoting sustainability

Textbook:

- *BC Science Connections 9*

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Notebook:

Your notebook should be neatly organized, as this will help you study for tests. Label the unit and topic headings clearly at the top of the page. Answer questions fully, so that the information makes sense and can be used later for studying. Show what page number in the textbook the information comes from so you can look it up again easily.

Projects:

Each topic has a final test but there is also the option to do a project. You may choose to showcase your knowledge by taking a test, doing a project, or a combination of both. Each section has suggested topics for you to investigate called inquiries in the textbook. Or, you can negotiate your own topic with your teacher. Be sure to get permission first if you are investigating your own topic!

Grading:

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 only take once, so studying before them is essential to do well. Your class mark for the course is based 60% on the mastery unit tests or projects and 40% on the projects.

Goal:

The four topics in this theme examine how the continuity of life depends on cells being derived from cells. The goal of this unit is to investigate why the reproduction of cells is important.

Key Concepts:

While completing this unit you will investigate how:

- Reproduction ensures that life exists beyond its present generation.
- Reproduction transfers genetic information from parents to offspring.

What to Do in this Unit:

- This unit uses Topic 1.1 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 1 Worksheet.
- Read Topic 1.1 beginning on page 2. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 1 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The four topics in this theme examine how the continuity of life depends on cells being derived from cells. The goal of this unit is to investigate the different ways living things reproduce asexually.

Key Concepts:

While completing this unit you will investigate how:

- Bacteria reproduce through binary fission
- Eukaryotic cells reproduce via the cell cycle
- Yeasts reproduce by budding
- Molds reproduce with spores
- Plants have many ways of asexual reproduction

What to Do in this Unit:

- This unit uses Topic 1.2 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 2 Worksheet.
- Read Topic 1.2 beginning on page 20. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 2 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The four topics in this theme examine how the continuity of life depends on cells being derived from cells. The goal of this unit is to investigate how living things reproduce sexually.

Key Concepts:

While completing this unit you will investigate how:

- Zygotes are produced when male and female reproductive cells combine
- Reproductive cells are formed by the process of meiosis
- Human zygotes develop in stages
- Sexual reproduction takes many different forms

What to Do in this Unit:

- This unit uses Topic 1.3 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 3 Worksheet.
- Read Topic 1.3 beginning on page 44. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 3 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The four topics in this theme examine how the continuity of life depends on cells being derived from cells. The goal of this unit is to investigate how reproduction contributes to the variety of life on Earth.

Objectives:

While completing this unit you will investigate how:

- Asexual reproduction results in many genetically identical offspring in a short time
- Sexual reproduction results in genetically varied offspring

What to Do in this Unit:

- This unit uses Topic 1.4 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 4 Worksheet.
- Read Topic 1.4 beginning on page 62. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!

- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 4 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

- The cumulative assessment for this theme is an inquiry project into a topic of your choosing. Ask your teacher for the Inquiry Project #1 worksheet, then read and complete the work there.

Goal:

The five topics in this theme examine how the electron arrangement of atoms impacts their chemical nature. The goal of this unit is to investigate how and why we study matter, and how the periodic table organizes elements.

Objectives:

While completing this unit you will investigate how:

- Matter and its interactions make up our world
- Safety is key when working with matter
- Elements are the building blocks of matter
- Elements can be organized by their properties
- Elements are organized in groups and periods in the modern periodic table
- Elements are classified as metals, non-metals, and semi-metals

What to Do in this Unit:

- This unit uses Topic 2.1 and 2.2 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 5 Worksheet.
- Read Topic 2.1 beginning on page 82, followed by Topic 2.2 starting on page 100. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 5 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The five topics in this theme examine how the electron arrangement of atoms impacts their chemical nature. The goal of this unit is to investigate how the patterns in the periodic table can be explained by atomic theory.

Objectives:

While completing this unit you will investigate how:

- Atomic structure can be shown using simple diagrams
- Elements in the same chemical groups have similar electron arrangements

What to Do in this Unit:

- This unit uses Topic 2.3 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 6 Worksheet.
- Read Topic 2.3 beginning on page 122. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 6 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The five topics in this theme examine how the electron arrangement of atoms impacts their chemical nature. The goal of this unit is to investigate how compounds are formed when elements combine.

Objectives:

While completing this unit you will investigate how:

- Compounds are responsible for Earth's huge variety of matter
- Ions form ionic compounds
- Molecules form covalent compounds
- Covalent bonding also occurs in elements and network solids

What to Do in this Unit:

- This unit uses Topic 2.4 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 7 Worksheet.
- Read Topic 2.4 beginning on page 136. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 7 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The four topics in this theme examine how the electron arrangement of atoms impacts their chemical nature. The goal of this unit is to investigate how we name compounds and write their formulas.

Objectives:

While completing this unit you will investigate how:

- The composition of an ionic compound is communicated by its chemical name
- You can determine the formula of an ionic compound from its name
- More than one ion are formed by multivalent metals
- More than one atom is necessary to form a polyatomic ion
- Covalent compounds' names and formulas reflect their molecular structure

What to Do in this Unit:

- This unit uses Topic 2.5 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 8 Worksheet.
- Read Topic 2.5 beginning on page 154. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 8 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.
- The cumulative assessment for this theme is an inquiry project into a topic of your choosing. Ask your teacher for the Inquiry Project #2 worksheet, then read and complete the work there.

Goal:

The five topics in this theme examine how electric current is the flow of electric charge. The goal of this unit is to investigate how electrical energy is part of your world and how electrical charges behave

Objectives:

While completing this unit you will investigate how:

- Reproduction ensures that life exists beyond its present generation.
- Reproduction transfers genetic information from parents to offspring.

What to Do in this Unit:

- This unit uses Topic 3.1 and 3.2 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 9 Worksheet.
- Read Topic 3.1 beginning on page 184 followed by 3.2 beginning on page 202. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 9 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The five topics in this theme examine how electric current is the flow of electric charge. The goal of this unit is to investigate how charges flow through an electrical circuit.

Objectives:

While completing this unit you will investigate how:

- Electrical charges in cells are separated by chemical energy
- Charges can only flow through conductors, not insulators
- An electric current is formed by moving electrical charges
- Loads resist the flow of current
- Conductors must form a closed loop for current to flow

What to Do in this Unit:

- This unit uses Topic 3.3 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 10 Worksheet.
- Read Topic 3.3 beginning on page 212. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 10 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The five topics in this theme examine how electric current is the flow of electric charge. The goal of this unit is to investigate the practical application of circuits and how electrical energy can be sustainably generated and used.

Objectives:

While completing this unit you will investigate how:

- Ohm's Law relates voltage, current, and resistance in a circuit
- Loads in a circuit may be connected in series or parallel
- Practical home circuits are parallel circuits
- Electrical energy use is measured
- Informed choices help you use electrical energy sustainably
- Renewable energy sources are sustainable sources for electrical energy

What to Do in this Unit:

- This unit uses Topic 3.4 and 3.5 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 11 Worksheet.
- Read Topic 3.4 beginning on page 234 followed by topic 3.5 beginning on page 250. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 11 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.
- The cumulative assessment for this theme is an inquiry project into a topic of your choosing. Ask your teacher for the Inquiry Project #3 worksheet, then read and complete the work there.

Goal:

The five topics in this theme examine how Earth's spheres are interconnected. The goal of this unit is to investigate how the ideas of connections and sustainability help us think about Earth's spheres.

Objectives:

While completing this unit you will investigate how:

- We are all connected
- Sustainability ensures balanced systems
- Scientifically literate people can spot bias in information sources

What to Do in this Unit:

- This unit uses Topic 4.1 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 12 Worksheet.
- Read Topic 4.1 beginning on page 278. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!

- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 12 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The five topics in this theme examine Earth's spheres are interconnected. The goal of this unit is to investigate how the Sun's energy plays a role in Earth's spheres.

Objectives:

While completing this unit you will investigate how:

- Earth's surface and atmosphere absorbs and reflects solar energy
- Solar energy is redistributed by global winds
- Ocean currents redistribute thermal energy
- Photosynthesis and cellular respiration put solar energy into the biosphere

What to Do in this Unit:

- This unit uses Topic 4.2 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 13 Worksheet.
- Read Topic 4.2 beginning on page 296. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 13 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The five topics in this theme examine Earth's spheres are interconnected. The goal of this unit is to investigate what interactions supply energy and cycle matter through Earth's spheres.

Objectives:

While completing this unit you will investigate how:

- Producers transfer energy to consumers and decomposers
- The biosphere is sustained by interactions that provide a constant flow of energy
- Solar energy and gravity drives the water cycle
- The carbon cycle works
- The nitrogen cycle works
- The phosphorous cycle works

What to Do in this Unit:

- This unit uses Topic 4.3 and 4.4 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 14 Worksheet.
- Read Topic 4.3 beginning on page 310 followed by Topic 4.4 beginning on page 320. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!
- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 14 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The five topics in this theme examine Earth's spheres are interconnected. The goal of this unit is to investigate our actions promote sustainability.

Objectives:

While completing this unit you will investigate how:

- Individuals can make a difference
- Sustainable practices and responsible choices benefit all life

What to Do in this Unit:

- This unit uses Topic 4.5 in the *BC Science Connections* textbook.
- Ask your teacher for the Unit 15 Worksheet.
- Read Topic 4.5 beginning on page 340. Remember it is best to read the whole chapter to get an overview of the content before you attempt to answer the questions on the worksheet.
- Answer the questions on the worksheet and be sure you know the definitions of the words in bold found throughout the chapter. At least some of them are sure to be on the test!

- If you have chosen to skip the Student Inquiry portion of the worksheet, then when you are ready, ask your teacher for the Unit 15 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

- The cumulative assessment for this theme is an inquiry project into a topic of your choosing. Ask your teacher for the Inquiry Project #1 worksheet, then read and complete the work there.

Congratulations! You've finished Science 9!