Physical Geography 12 Course Outline

Course Description:

Physical Geography 12 uses the five themes of geography (location, place, human/environmental interaction, movement, and regions) to explore the world we live in and how it works.

Material Covered:

The Physical Geography 12 course is comprised of the following three themes:

The Earth's Surface and Tectonic Plates

- Introduction to Physical Geography
- The Earth's Surface and Tectonic Processes
- Events Under the Surface

Weather, Climate, and Gradational Processes

- Gradational Processes
- More Gradational Processes
- The Sun
- Our Atmosphere

Energy Resources and Environmental Challenges

- The Biosphere
- Forests and Erosion
- Energy Resources
- Global Climate Change

Projects:

At the end of each theme, there is a project for you to complete. Each of the theme projects has suggested guiding questions for you to investigate, or you can negotiate your own topic with your teacher.

Textbook(s):

This course uses the textbooks	*Studies in Physical Geography (1st edition)*	ISBN: 978-0-9735999-8-5
	Energy and Environment (1st edition)	ISBN: 978-0-9735999-7-8

Assessment:

Your final mark for the course is based 40% on the Unit Worksheets, 30% on the Unit Tests, and 30% on Projects. What you get as a final mark will be commensurate with how much effort you put in. Work hard and enjoy the process!

Unit Topic: Introduction to Physical Geography

Goal:

The goal of this unit is to introduce students to the themes of geography while engaging with geographical thinking concepts and key skills used in the field.

Objectives:

After completing this unit, students will be able to:

- Use the five themes of geography to break down the study of physical geography into more attainable sections.
- Begin to implement the use of geographical thinking concepts.
- Demonstrate a general understanding of geographic data.
- Provide definitions for each of the spheres.

Curricular Competencies:

- **Sense of Place** - Students will be able to assess the significance of places by identifying the physical and/or human features that characterize them.
- **Geographical importance** - Students will be able to evaluate features or aspects of geographic phenomena to explain what makes them worthy of attention or recognition.
- **Evidence and interpretation** - Students will be able to use geographic inquiry processes and geographic literacy skills to ask questions; gather, interpret, and analyze data and ideas from a variety of sources and spatial/temporal scales; and communicate findings and decisions.

What to Do in this Unit:

- Ask your teacher for the Unit 1 Worksheet. The work you do there counts for marks.
- 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 by:
- Reading the *Introduction* in *Studies in Physical Geography (1st edition)* pages i-ii.
- Watching the following video on YouTube: https://youtu.be/vlVVaZhRAEA
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 1 Test.

Unit Topic: The Earth's Surface and Tectonic Processes

Goal:

The goal of this unit is to develop an understanding of the key components that make up the Earth and to expand students' working knowledge of the ways in which the Earth's many components work with and against one another.

Objectives:

After completing this unit, you will be able to:

- Describe the layers of the Earths structure.
- Define, using examples, continental drift and plate tectonics.
- Engage with the processes that contribute to deformation of the Earth's surface.
- Demonstrate a well-rounded understanding of the Earths structure, processes, and geographic thinking concepts used in this unit.

Curricular Competencies:

- **Patterns and trends** - Draw conclusions about the variation and distribution of geographic phenomena over time and space.
- **Evidence and interpretation** - Use geographic inquiry processes and geographic literacy skills to ask questions; gather, interpret, and analyze data and ideas from a variety of sources and spatial/temporal scales; and communicate findings and decisions.
- **Geographical importance** - Students will be able to evaluate features or aspects of geographic phenomena to explain what makes them worthy of attention or recognition.

What to Do in this Unit:

- Ask your teacher for the Unit 2 Worksheet. The work you do there counts for marks.
- Read Chapters 1 – 4, *Earths Structure, Continental Drift, Plate Tectonics,* and *Deformation of the Earth's Surface* beginning on page 3 of *Studies in Physical Geography.*
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 2 Test.

Unit Topic: Events Under the Surface

Goal:

The goal of this unit is to introduce the inner workings of the earth, and how these events influence the world above the surface.

Objectives:

After completing this unit, you will be able to:

- Explain the elements of the rock cycle.
- Describe the formation of fossil fuels.
- Discuss the connection between the events below the surface, and those experienced at surface level.
- Engage with the idea of future events that may impact human life.
- Demonstrate their ability to make connections between the content of this unit and those that have preceded it.

Curricular Competencies:

- **Geographical value judgments -** Evaluate how particular geographic actions or events affect human practices or outcomes.
- **Sense of place -** Assess the significance of places by identifying the physical and/or human features that characterize them.
- **Evidence and interpretation** - Use geographic inquiry processes and geographic literacy skills to ask questions; gather, interpret, and analyze data and ideas from a variety of sources and spatial/temporal scales; and communicate findings and decisions.

What to Do in this Unit:

- Ask your teacher for the Unit 3 Worksheet. The work you do there counts for marks.
- Read chapters 5, 7, 8, and 9, *Composition of the lithosphere, Fossil fuels, Earthquakes, Volcanism* beginning on page 11 of *Studies in Physical Geography (1st edition).*
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 3 Test.

- When you are ready, ask your teacher for Project #1

Unit Topic: Gradational Processes

Goal:

The goal of this unit is to introduce students to the area of physical geography that studies the ways in which the earth continually changes. This is the first of two units on gradational processes that will help to build student understanding of the important role these processes play in shaping the world as we see it today.

Objectives:

After completing this unit, you will be able to:

- Demonstrate an introductory knowledge of the gradational processes discussed in this unit.
- Discuss the ways in which these naturally occurring processes have the potential to impact human life.
- Use geographic reasoning skills to locate information critical to providing a well-rounded comprehension of the subject matter.
- Describe the processes they have learnt about, continuing to build on the knowledge they gained in the previous unit.

Curricular Competencies:

- **Patterns and trends** - Draw conclusions about the variation and distribution of geographic phenomena over time and space.
- **Geographical value judgments -** Evaluate how particular geographic actions or events affect human practices or outcomes.
- **Geographical importance** - Students will be able to evaluate features or aspects of geographic phenomena to explain what makes them worthy of attention or recognition.

What to Do in this Unit:

- Ask your teacher for the Unit 4 Worksheet. The work you do there counts for marks.
- Read chapters 10, 11, and 12, *Weathering, Mass Wasting, and Rivers and Valleys* beginning on page 41 of *Studies in Physical Geography.*
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 4 Test.

Unit Topic: More Gradational Processes

Goal:

The goal of this unit is to continue the development of student's knowledge of gradational processes and the important roles they play in the shaping of the earth we see before us today. This is the second of two units that engage with the concept of gradational processes.

Objectives:

After completing this unit, you will be able to:

- Demonstrate a developing knowledge of the gradational processes discussed in this unit.
- Discuss the ways in which these naturally occurring processes have the potential to impact human life.
- Use geographic reasoning skills to locate information critical to providing a well-rounded comprehension of the subject matter.
- Describe the processes they have learnt about, continuing to build on the knowledge they gained in the previous unit.

Curricular competencies:

- **Patterns and trends** - Draw conclusions about the variation and distribution of geographic phenomena over time and space.
- **Geographical value judgments -** Evaluate how particular geographic actions or events affect human practices or outcomes.
- **Geographical importance** - Students will be able to evaluate features or aspects of geographic phenomena to explain what makes them worthy of attention or recognition.

What to Do in this Unit:

- Ask your teacher for the Unit 5 Worksheet. The work you do there counts for marks.
- Read chapters 13, 14, 15, and 16, *The Work of Glacial Ice, Wave Action and Coastal Landforms, The Work of Groundwater, Wind and Desert Landscapes* beginning on page 50 of *Studies in Physical Geography.*
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 5 Test.

Unit Topic: The Sun

Goal:

The goal of this unit is to develop students understanding of the important role the sun plays in the development of the physical geography on planet earth.

Objectives:

After completing this unit, you will be able to:

- Describe the reasons for different geographic phenomenon that are primarily influenced by the sun.
- Engage with the multitude of different impacts the sun has on the way humans experience earth.
- Work with geographic thinking concepts to come to understand the role of the sun on land and at sea.
- Discuss the importance of the sun with regards to the development of weather systems around the world.

Curricular Competencies:

- **Geographical value judgments -** Evaluate how particular geographic actions or events affect human practices or outcomes.
- **Sense of place -** Assess the significance of places by identifying the physical and/or human features that characterize them.

What to Do in this Unit:

- Ask your teacher for the Unit 6 Worksheet. The work you do there counts for marks.
- Read chapter 17, *The Sun: Our Heat Source* beginning on page 84 of *Studies in Physical Geography.*
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 6 Test.

Unit Topic: The Atmosphere

Goal:

The goal of this unit is to build upon the knowledge gained in the previous unit by engaging with the different facets that comprise the earth's atmosphere. Breaking down the atmosphere into digestible segments will allow for students to engage with the content in a meaningful fashion.

Objectives:

After completing this unit, you will be able to:

- Describe the different spheres that comprise earth's atmosphere using correct geographic terminology.
- Break down each individual sphere by conducting an analysis of the role of each.
- Engage with the natural and human caused impacts faced by the atmosphere.
- Comprehend the many areas of life on earth's surface that are influenced by the interactions of the spheres.

Curricular Competencies:

- **Evidence and interpretation** - Use geographic inquiry processes and geographic literacy skills to ask questions; gather, interpret, and analyze data and ideas from a variety of sources and spatial/temporal scales; and communicate findings and decisions
- **Geographical value judgments -** Evaluate how particular geographic actions or events affect human practices or outcomes.
- **Patterns and trends -** Draw conclusions about the variation and distribution of geographic phenomena over time and space.

What to Do in this Unit:

- Ask your teacher for the Unit 7 Worksheet. The work you do there counts for marks.
- Read chapters 18, 19, 20, and 21, *The atmosphere, Air masses, Global winds, The water cycle beginning* on page 92 of *Studies in Physical Geography.*
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 7 Test.

- When you are ready, ask your teacher for Project #2.

Unit Topic: The Biosphere

Goal:

The goal of this unit is to break down the sphere we humans inhabit in more detail, providing a detailed look at the components of the only sphere supporting life.

Objectives:

After completing this unit, you will be able to:

- Describe the elements that comprise biomes and ecosystems
- Engage in discussions about the impact human life is continuing to have on the biosphere.
- Provide detailed definitions of some of the key elements discussed in this unit.
- Discuss some of the ways in which humans are attempting to reduce the negative impact we are currently having on the biosphere.

Curricular Competencies:

- **Interactions and associations** - Identify and assess how human and environmental factors and events influence each other.
- **Patterns and trends -** Draw conclusions about the variation and distribution of geographic phenomena over time and space.
- **Geographical value judgments -** Evaluate how particular geographic actions or events affect human practices or outcomes.

What to Do in this Unit:

- Ask your teacher for the Unit 8 Worksheet. The work you do there counts for marks.
- Read chapters 29, 30, 31, and 32 *The biosphere as a system, Structures of ecosystems, Biomes, and Humans: a damaging influence beginning* on page 130 of *Studies in Physical Geography.*
- 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 hand in to your teacher when complete.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 8 Test.

Unit Topic: Forests and Erosion

Goal:

The goal of this unit is to help students develop their understanding of the roles of forests and processes of erosion within the biosphere. This unit will build upon those that have come before it, allowing students to make connections between knowledge gained in previous units and this one.

Objectives:

After completing this unit, you will be able to:

- Describe the importance of the role played by trees in the stabilization of ecosystems.
- Discuss the different forms of erosion, their causes, and their impacts on other systems within the biosphere.
- Engage with the different types of soil that comprises the ground we walk on, comparing one to another, and discovering the important role humans play in the preservation of this critical part of the biosphere.
- Define some of the factors that are playing a contributing role in climate and biome changes.

Curricular Competencies:

- **Evidence and interpretation** - Use geographic inquiry processes and geographic literacy skills to ask questions; gather, interpret, and analyze data and ideas from a variety of sources and spatial/temporal scales; and communicate findings and decisions
- **Patterns and trends -** Draw conclusions about the variation and distribution of geographic phenomena over time and space.

What to Do in this Unit:

- Ask your teacher for the Unit 9 Worksheet. The work you do there counts for marks.
- Read chapters 33, 34, 35, 36, and 37, *Forests of the world, Climate change triggers biome changes, Soil, Soil degradation, World erosional hotspots beginning* on page 145 of *Studies in Physical Geography*.
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 9 Test.

Unit Topic: Energy Resources

Goal:

The goal of this unit is to introduce students to some of the key resources we rely upon as sources of energy. This unit will cover a selection of these resources to ensure that students get an opportunity to engage with some of the predominant sources of energy being used today.

Objectives:

After completing this unit, you will be able to:

- Describe each of the different sources of energy and their role in the current global demand for energy.
- Engage with some of the impacts energy resource extraction is having on all of the spheres.
- Discuss green and renewable alternatives to fossil fuels.
- Compare and contrast the available resources currently being used to produce energy.

Curricular Competencies:

- **Evidence and interpretation** - Use geographic inquiry processes and geographic literacy skills to ask questions; gather, interpret, and analyze data and ideas from a variety of sources and spatial/temporal scales; and communicate findings and decisions
- **Patterns and trends -** Draw conclusions about the variation and distribution of geographic phenomena over time and space.
- **Patterns and trends -** Draw conclusions about the variation and distribution of geographic phenomena over time and space.
- **Geographical value judgments -** Evaluate how particular geographic actions or events affect human practices or outcomes.

What to Do in this Unit:

- Ask your teacher for the Unit 10 Worksheet. The work you do there counts for marks.
- Students will be directed to specific page ranges within chapters 2, 3, 4, 5, 7, 8, and 9. *Coal, Oil, Gas, Natural gas, Hydro power, Solar power, Wind power, and Geothermal power* beginning on page 11 of *Energy and Environment.*
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 10 Test.

Unit Topic: Global Climate Change

Goal:

The goal of this unit is to introduce students to the wide variety of ways in which the climate is changing around the world. This unit will provide an overview of some of the key areas that are currently being impacted by the rapidly changing environment.

Objectives:

After completing this unit, you will be able to:

- Explain the causes of change impacting each of the topic areas covered in this unit.
- Describe the impact human extraction and continued burning of fossil fuels is having on the planet.
- Discuss areas in which humans have the potential to slow or reverse the effects of global climate change.
- Define the key elements of global warming and its role within the larger scope of this unit, climate change.

Curricular Competencies:

- **Value judgments** - Make reasoned ethical judgments about controversial actions in the past and/or present, and determine whether we have a responsibility to respond.
- **Evidence and interpretation** - Use geographic inquiry processes and geographic literacy skills to ask questions; gather, interpret, and analyze data and ideas from a variety of sources and spatial/temporal scales; and communicate findings and decisions
- **Patterns and trends -** Draw conclusions about the variation and distribution of geographic phenomena over time and space.
- **Geographical importance** - Students will be able to evaluate features or aspects of geographic phenomena to explain what makes them worthy of attention or recognition.

What to Do in this Unit:

- Ask your teacher for the Chapter 11 Worksheet. The work you do there counts for marks.
- Students will be directed to specific page ranges within chapters 14, 15, 17, 18, and 21. *Oceans, Fresh water, Global warming, Polar ice and sea levels, Resource management* beginning on page 11 of *Energy and Environment.*
- 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.
- When you have finished the worksheet, hand it in for marking, and when you are ready, ask your teacher for the Unit 11 Test.

- When you are ready, ask your teacher for the Energy Resources and Environmental Challenges - Project #3

- **Congratulations! You've finished Physical Geography 12!**