Photo by Aaron Burden on Unsplash

New SCIENCE Curriculum

Earth Systems Grade 6

October 19, 2023

Facilitator: Chris Zarski & Ted Zarowny

Alberta Regional Professional Development Consortia
Adult learning for students' sake

Acknowledgment of Land and People

In the spirit of reconciliation, we want to acknowledge that this gathering is taking place on traditional lands across the province of Alberta, home to many diverse First Nations, Métis and Inuit peoples. We acknowledge that this land is a traditional meeting ground giving voice to its original peoples and the story of creation of this country in a way that history has forgotten.

The Honorable Harvest - Robin Kimmerer

Photo by Chris Lawton on Unsplash

Agenda

1. Spiraling Curriculum - Concepts
2. Spiraling Curriculum - Skills and Procedures
3. Spiraling Curriculum - Understanding
4. Spiraling Curriculum - Transfer
5. Teaching for Transfer
6. Surface Level Activities
7. Deep Level Activities
8. Transfer and Assessment
9. Resources

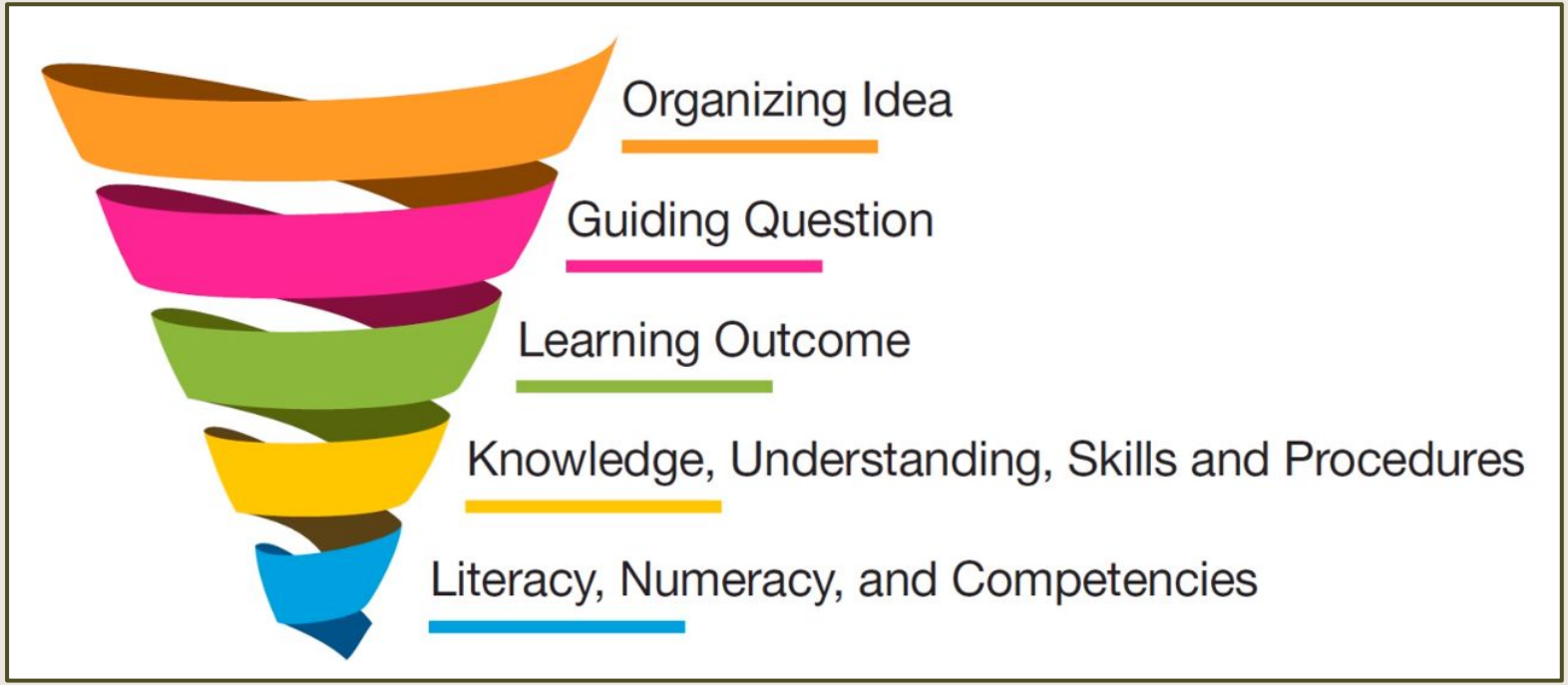
01

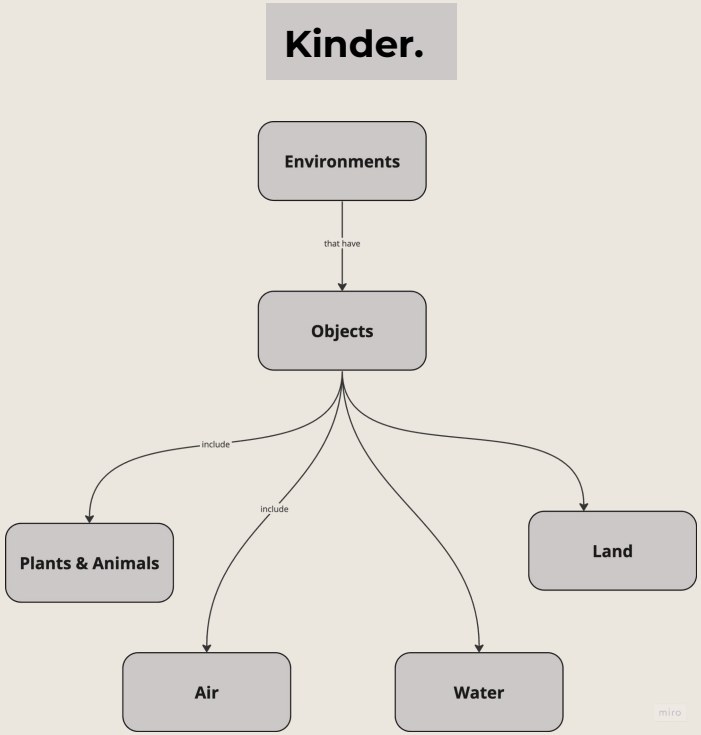
Spiraling Curriculum Concepts

Spiraling Curriculum

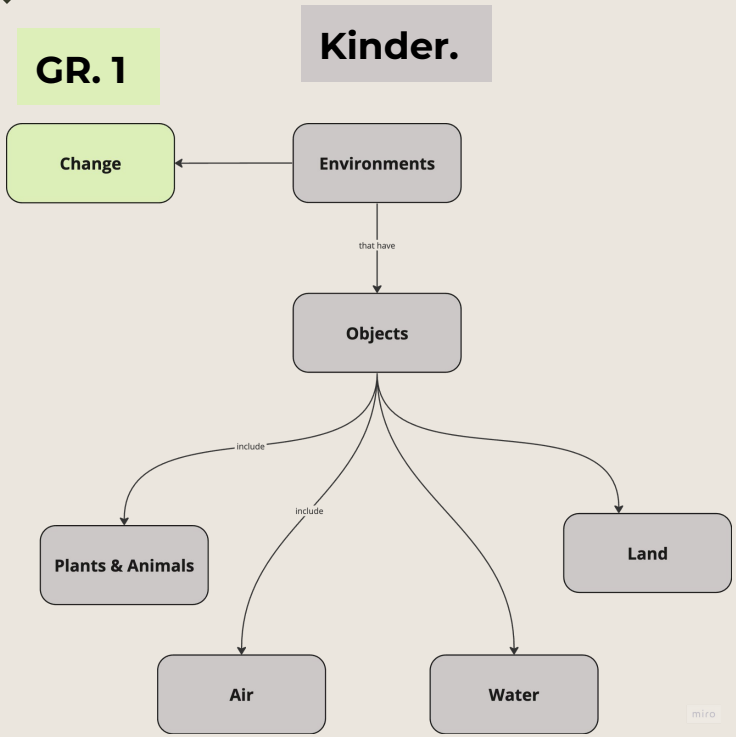
Guiding Framework Document

New LearnAlberta

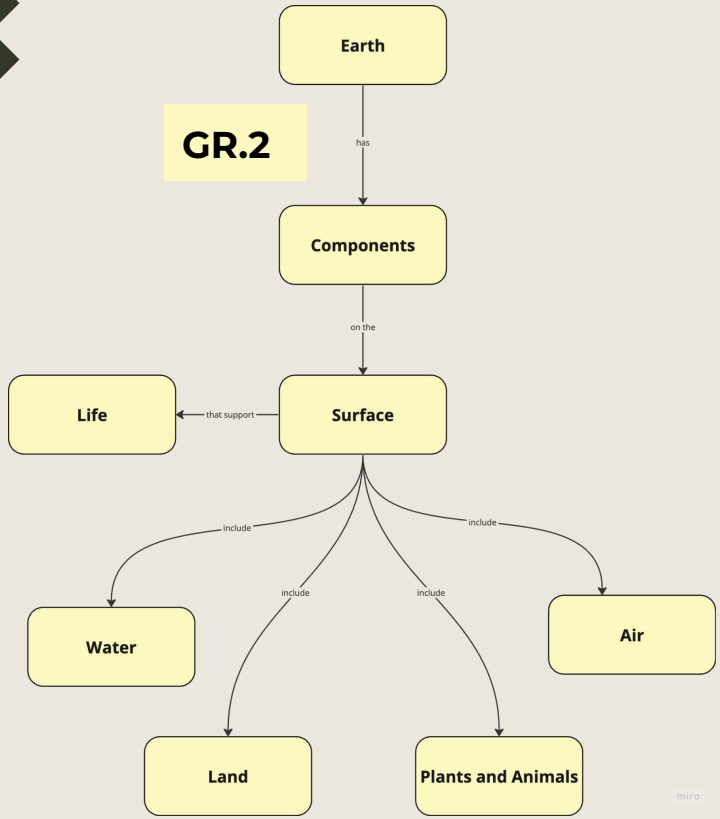




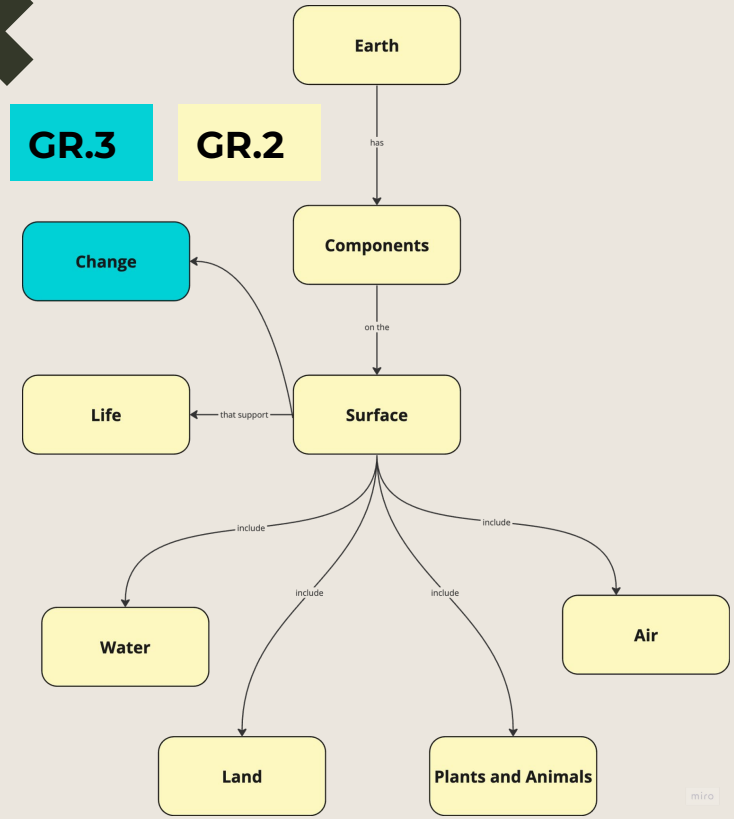
Spiraling and Growing Concepts



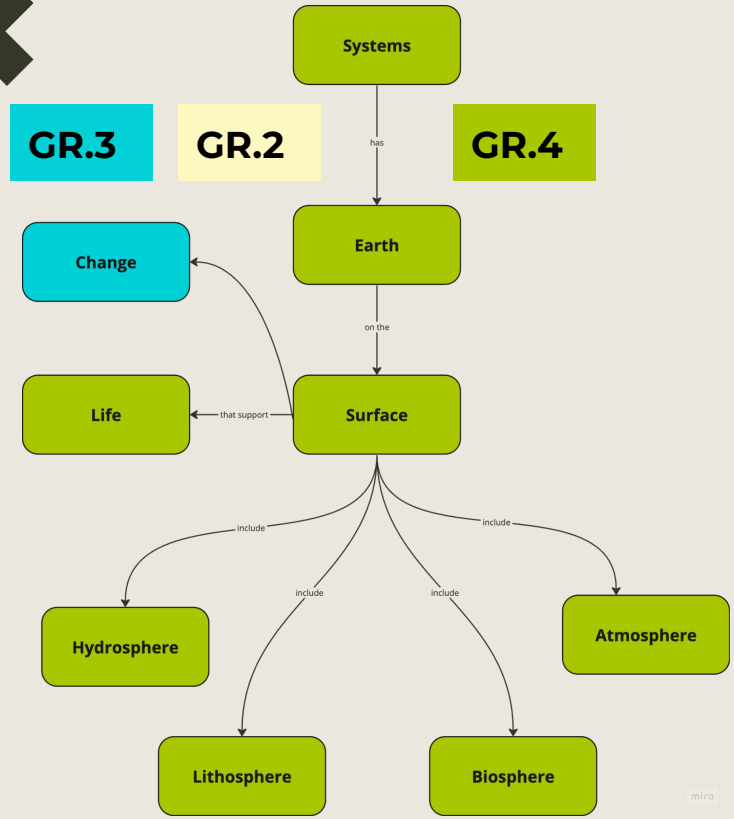
Spiraling and Growing Concepts



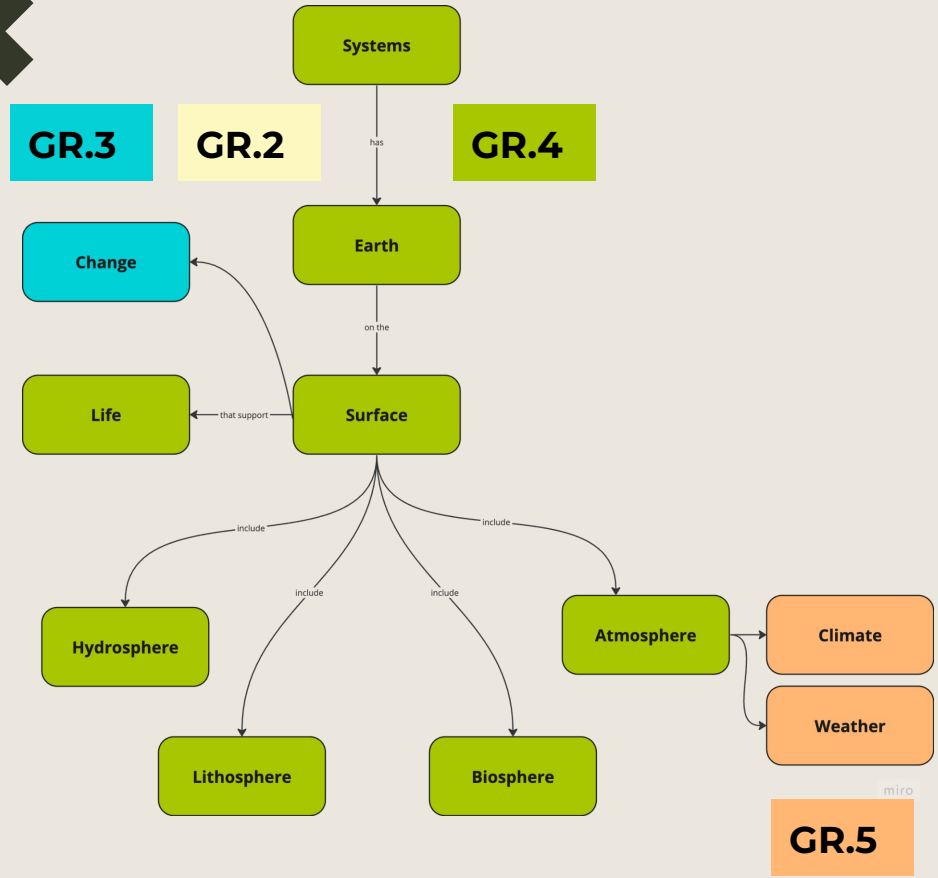
Spiraling and Growing Concepts



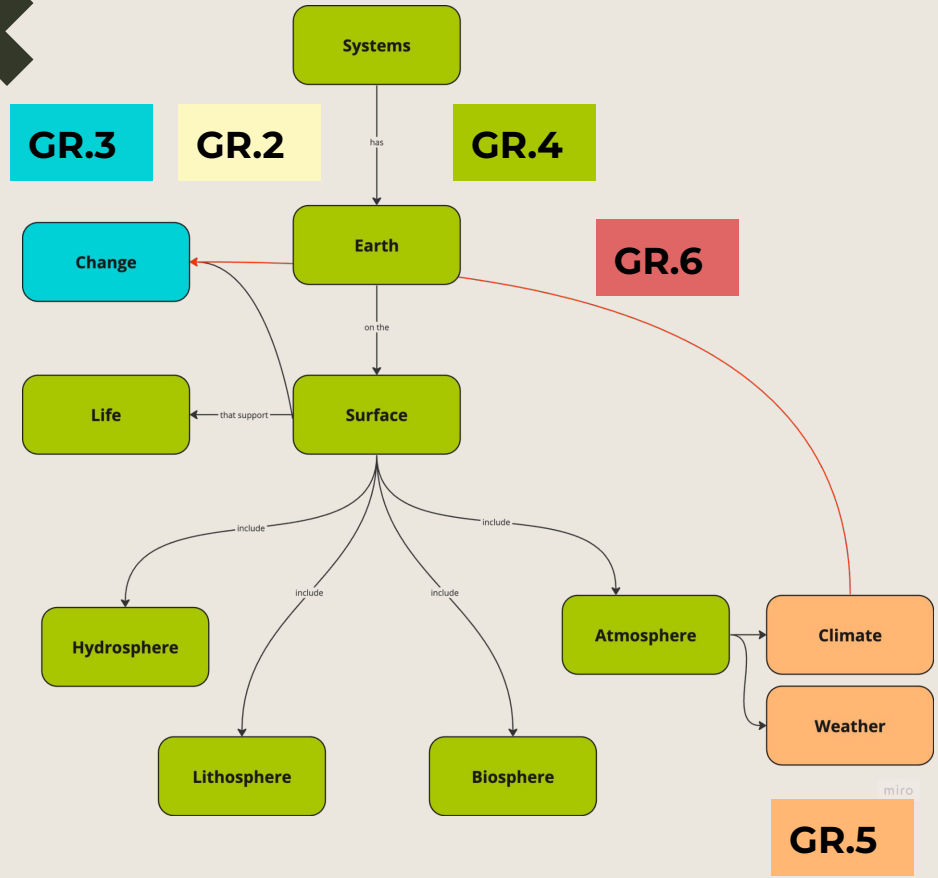
Spiraling and Growing Concepts



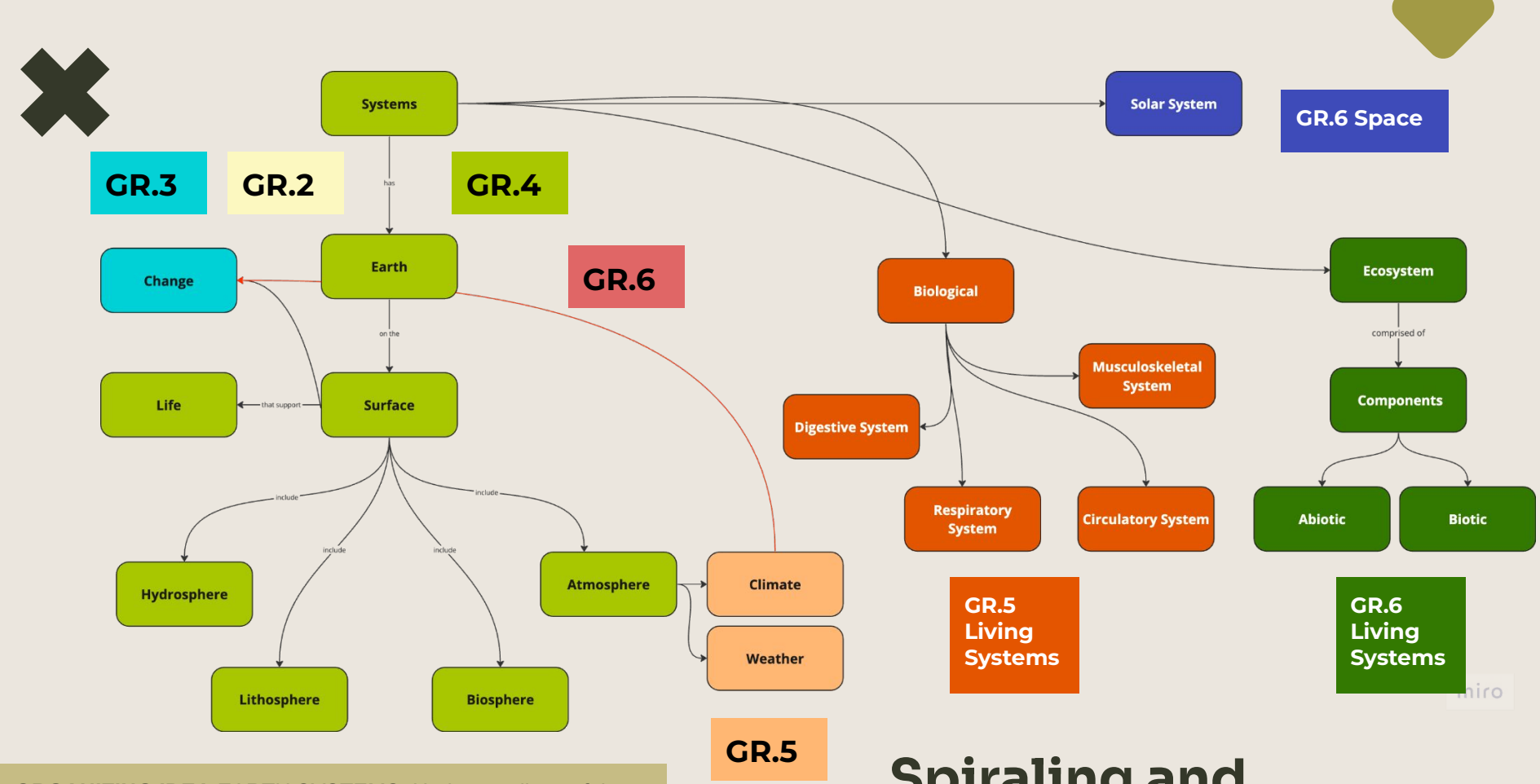
Spiraling and Growing Concepts



Spiraling and Growing Concepts

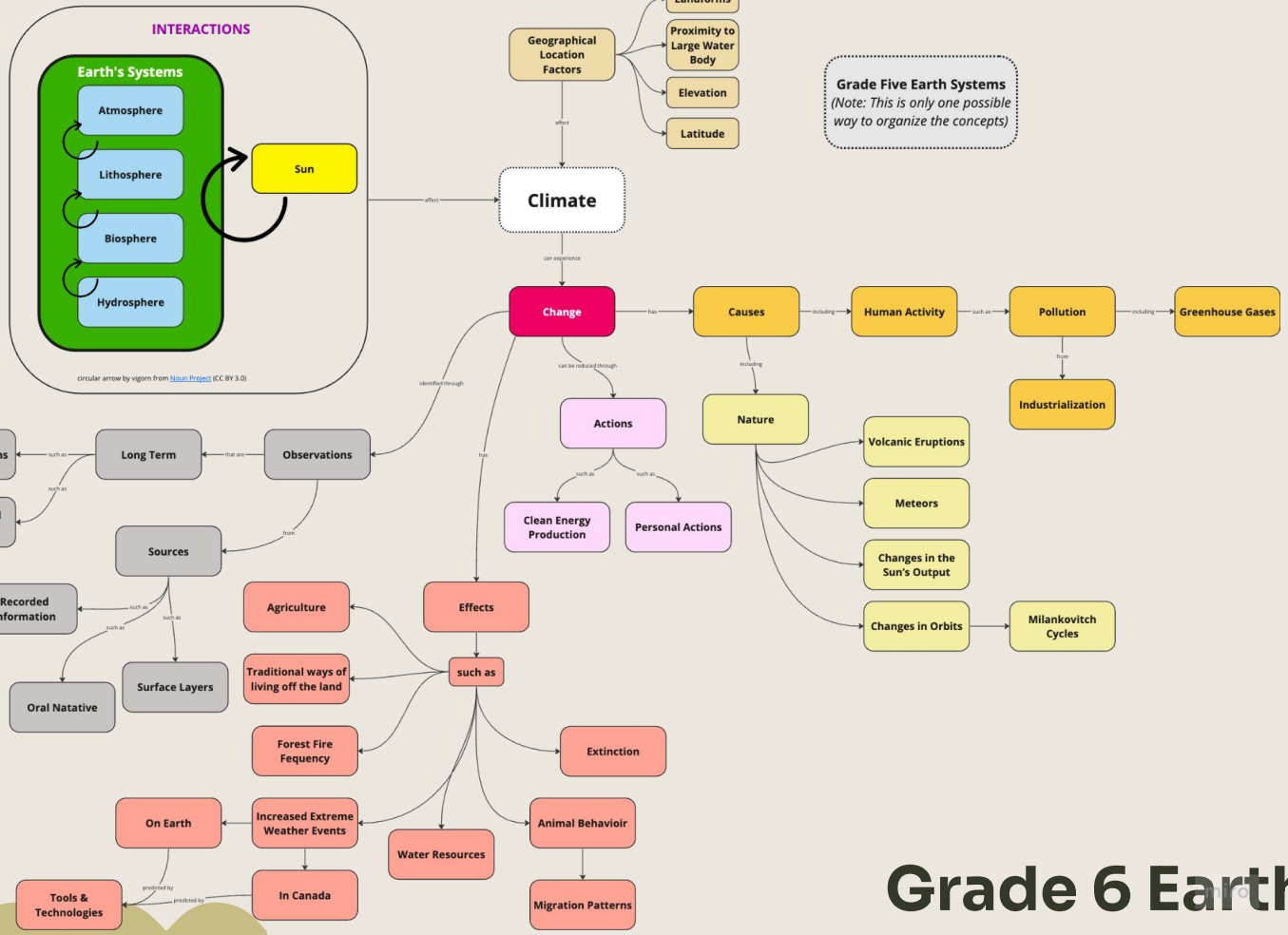


Spiraling and Growing Concepts



ORGANIZING IDEA:EARTH SYSTEMS: Understandings of the living world, Earth, and space are deepened by investigating natural systems and their interactions.

Spiraling and Growing Concepts



Grade 6 Earth Systems

EARTH SYSTEMS

Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
Guiding Question: *How can environments be explored?*	**Guiding Question:** *In what ways can environments change?*	**Guiding Question:** *How can Earth's components and relationship to the Sun be understood?*	**Guiding Question:** *What visible changes can be identified through examination of Earth's surface?*	**Guiding Question:** *How does Earth sustain life?*	**Guiding Question:** *How can climate and its effects be understood?*	**Guiding Question:** *What factors affect climate?*
Learning Outcome: *Children examine and describe surrounding environments.*	**Learning Outcome:** *Students analyze environments and investigate interactions and changes..*	**Learning Outcome:** *Students investigate Earth & its landforms, & its bodies of water & and its relationship to the Sun.*	**Learning Outcome:** *Students analyze changes in Earth's surface and explain how layers of the landscape hold stories of the past.*	**Learning Outcome:** *Students investigate the systems of Earth and reflect on how interconnections sustain life.*	**Learning Outcome:** *Students analyze climate and connect it to weather conditions and agricultural practices.*	**Learning Outcome:** *Students investigate climate, changes in climate, and the impact of climate change on Earth.*
	KEY CONCEPTS				**KEY CONCEPTS**	
Animal	Change	Axis	Bodies of Water	Care	Weather	Climate Change
Environment	Change: Seasonal	Bodies of Water (wetland, river, lake, glacier, ocean)	Cause	Action	Climate	Interaction
Exploration: Senses	Change: Seasonal: Environment	Components of Earth: land,water, air, plants, human, animals.	Change	Change	Climate Zones	Climate Change Causes
Human	Change: Seasonal: Human Activities	Day	Earth's Surface	Conservation	Patterns	Climate Change: Effects
Objects Natural	Change: Sudden	Earth's Surface	History	Environment	Climate Characteristics	Climate Factors (Location)
Objects: Human-Made	Change: Seasonal: Plants and Animals	Landforms	Human Activities	Interaction	Climate Factors	Personal Actions
Plant	Environment: Responsibility: Care	Life	Intergenerational Knowledge	Interconnection	Weather: Tools: Measuring	Climate Change Observations
Shared Space	Environment	Revolution	Landscape	Life	Weather: Prediction	Extreme Weather
Wonder	Hibernation	Rotation	Landscape Layers	Lithosphere | Hydrosphere | Biosphere | Atmosphere	Climate & Human Activity	Traditional Knowledge
FNMI: Ways of Living Connected to Land	Migration	Saltwater & Freshwater Bodies	Natural Events	Natural Resources	Climate & Animal Activity	FNMI: Impact of climate change on way of living
	Observation: Senses	Water Flow	Plant & Animal Activity	Responsibility	Climate and Agriculture	
	Seasons	Year	Soil	Spheres	Agriculture: Sustainable Practices	
	FNMI: Sense of responsibility and care with nature.		Time	Sunlight	Agriculture: Conservation Practices	
	FNMI: Products made from plants and animals.		Wind | Water | Ice	Systems	Agriculture: Sustainable Harvesting	
			FNMI: Knowledge of Earth's Surface	Water Resources	Intergenerational Observation	
				FNMI: Interconnectedness of Earth Systems	FNMI: Long-term climate observations	
				FNMI: Laws of Nature and Sacredness of Water	FNMI: Observations and weather predictions	
				FNMI: Conservation		

[Link: Concept Progressions (ARPDC)]

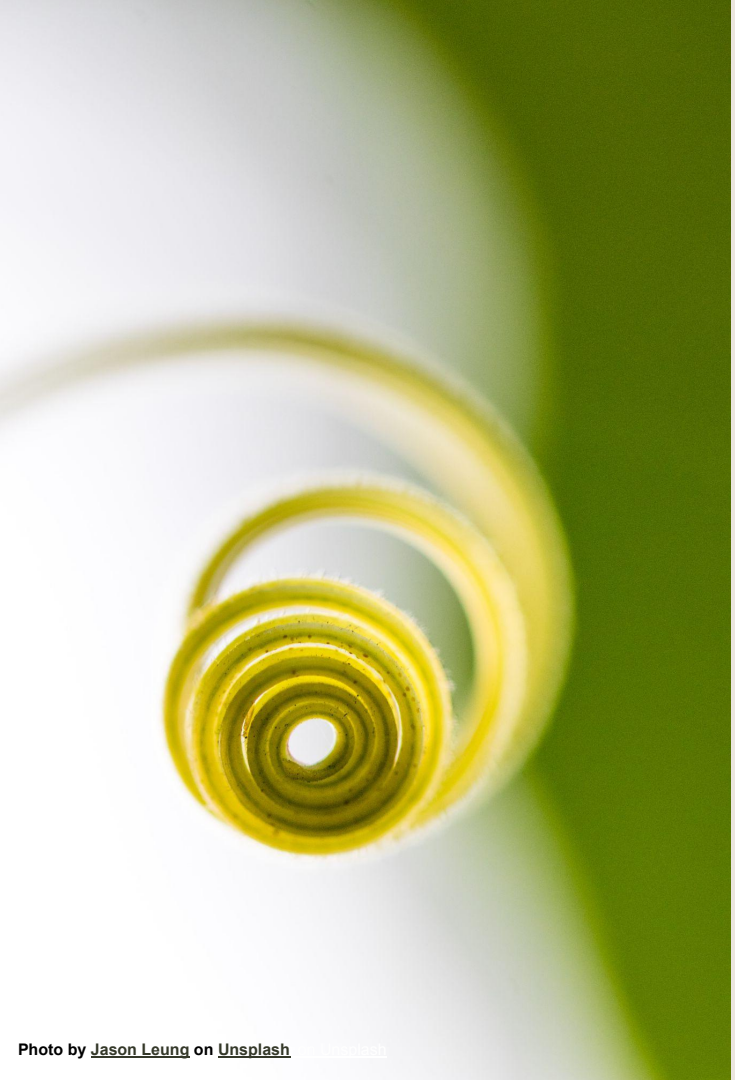


Photo by Jason Leung on Unsplash

02

Spiraling Curriculum

Skills & Procedures

“Skills and procedures **are what students do to demonstrate their knowledge and understanding.** They are specific skills, methods, tools, strategies, and processes that students will develop as they achieve the learning outcome.”

Guiding Framework

Learner Outcome Verbs				
	Grade			
	K	1	2	3
Apply Creativity				
Analyze				
Describe				
Examine				
Explain				
Explore				
Follow Instructions				
Interpret Instructions				
Investigate				
Relate				

Learner Outcome Verbs

Verbs are the skills and procedures that students do or perform to demonstrate knowledge and understanding.

Learner outcome verbs are those verbs that are identified in the learner outcome

Grade 6 Earth Systems Learner Outcome

Students **investigate** climate, changes in climate, and the impact of climate change on Earth.

Skills & Process Verbs	Grade			
	K	1	2	3
Ask Questions				
Classify (Sort)				
Compare (find similarities and differences)				
Conclude				
Create				
Demonstrate Safety				
Describe				
Design				
Discuss				
Examine				
Explain				
Explore				
Investigate				
Observe				
Predict				
Record Data/Observations				
Relate				
Represent				

6ES1 Learning Outcome: *Students **investigate** climate, changes in climate, and the impact of climate change on Earth.*

6ES1.1 Understanding: *Complex interactions between humans, Earth's systems, and the Sun can impact climate and climate change.*

6ES1.1 Skills and Procedures

- Describe possible impacts on climate due to interactions between the Sun and Earth's systems.
- Relate impacts of natural processes and human activities on climate change.
- Identify personal actions that may affect global climate change.
- **Investigate** and relate impacts of natural processes and human activities on climate change.

Photo by zero take on Unsplash

03

Spiraling Curriculum Understanding

“Understanding is about putting pieces of knowledge into **logical and meaningful order** with other knowledge.”

Guiding Framework

Knowledge	Understanding
• **Agricultural Practices** • **Climate** • **Weather Events** How can these three concepts can be put into a **logical and meaningful order?** 	• **Climate** and **weather events** influence **agricultural practices.** **OR** • **Agricultural practices** are researched and tested to adapt to **climate** and **weather events.**

Image Credit: **Question** by Francisco Garcia Gallegos from Noun Project (CC BY 3.0)

Knowledge	Understanding 5ES1.3
Climate and **weather events** may influence agricultural practices by affecting components such as ● crop type ● crop production ● animal population ● soil quality ● water access	**Climate** and **weather events** influence **agricultural practices.**

Photo by Rohan Makhecha on Unsplash

04

Transfer

Concepts Transfer (Different Contexts)

Knowledge	precipitation extreme weather	climate change

Photo by Chris Gallagher on Unsplash

Photo by YODA Adaman on Unsplash

Understandings Transfer (Different Contexts)

Understanding	**Climate change over time can affect land, plants, humans, and other animals in a variety of ways.**

Photo by Chris Gallagher on Unsplash

Photo by YODA Adaman on Unsplash

Photo by Erik Gazi on Unsplash

05

Teaching for Transfer

Phases of Learning

Hattie, Fisher & Frey: *Visible Learning for Literacy* (2016)

Surface

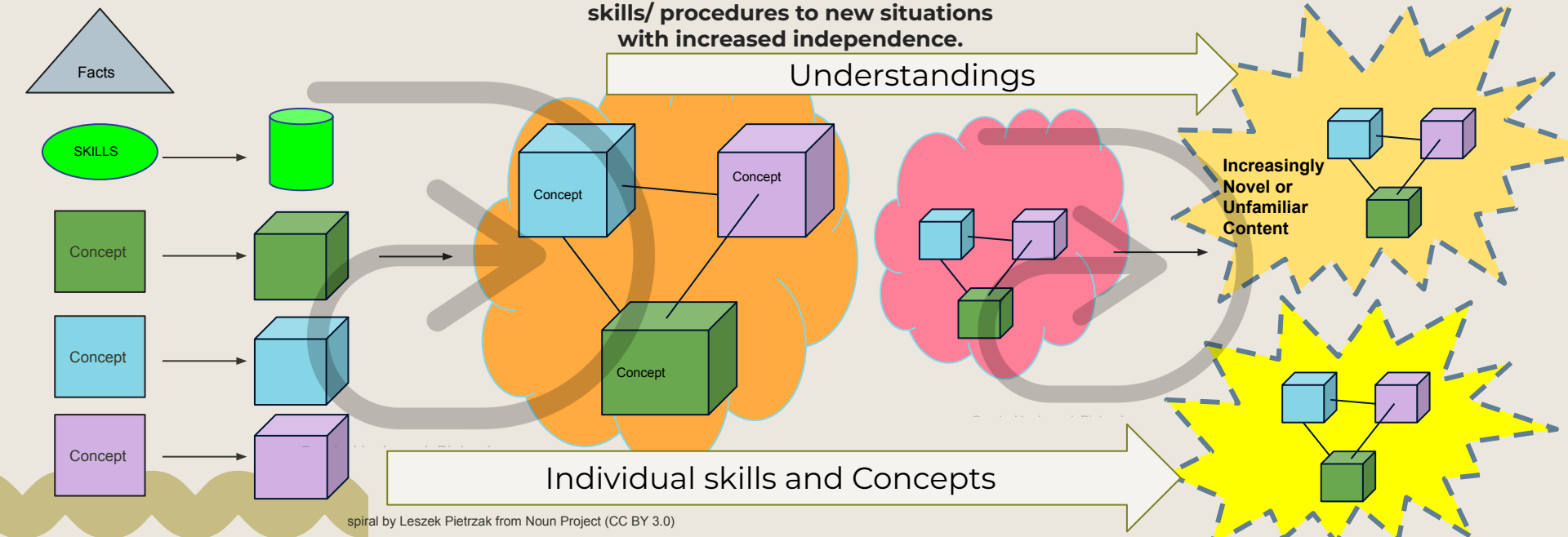
Students are first exposed to individual skills, concepts and their related knowledge.

Deep

Students make connections between concepts to create deeper understanding and appropriately skills/ procedures to new situations with increased independence.

Transfer

Students apply concepts, understandings and skills to a variety of novel and unfamiliar contexts.



spiral by Leszek Pietrzak from Noun Project (CC BY 3.0)

Planning

Begin With the End In Mind

Stephen R. Covey, 1989

Backward by Design

Grant Wiggins & Jay McTighe, 1998

Learning Outcome
Students investigate climate, changes in climate, and the impact of climate change on Earth.
Understandings
6ES1.1 Complex interactions between humans, Earth's systems, and the Sun can impact climate and climate change.
5ES1.2 Climate change over time can affect land, plants, humans, and other animals in a variety of ways.
5ES1.3 Identifying changes in climate relies on observations and measurements from different points in time.

Learning Outcome

Students investigate climate, changes in climate, and the impact of climate change on Earth.

What will students do to demonstrate their learning?

This organizing idea is a good fit for Project Based Learning and taking action.

Possible Assessment: Students investigate (research) the natural and human causes to climate change. Use the causes as examples of interactions between Earth's Spheres, the sun, and Human activity. Students represent their conclusions on an infographic.

What will students need to know and/or understand in order to be successful?

Elements of an Effective Infographic | Interaction | Cause/Effect | Earth's Spheres | Factors that Affect Climate | Steps of an Investigation

What will students need to be able to do in order to be successful?

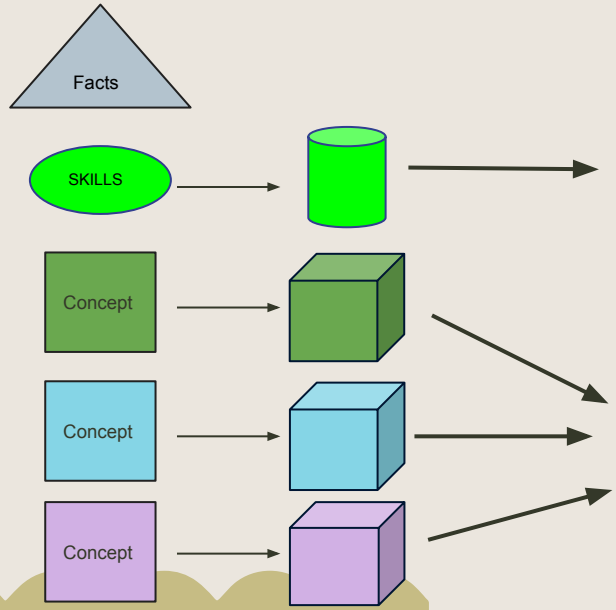
Create an Infographic | Research | Investigate

Phases of Learning

Hattie, Fisher & Frey: *Visible Learning for Literacy* (2016)

Surface

Students are first exposed to individual skills, concepts and their related knowledge.



Create an Infographic | Research | Investigate

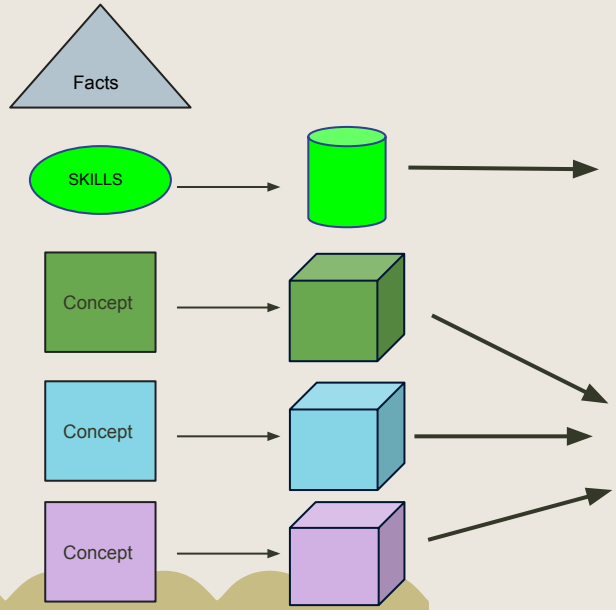
Effective Infographic | Interaction | Cause/Effect | Earth's Spheres | Factors that Affect Climate | Investigation

Phases of Learning

Hattie, Fisher & Frey: *Visible Learning for Literacy* (2016)

Surface

Students are first exposed to individual skills, concepts and their related knowledge.



Create an Infographic | Research | Investigate

Pre Assessment for Prior Learning

Effective Infographic | Interaction | Cause/Effect | Earth's Spheres | Factors that Affect Climate | Investigation

Prior Learning

What *concepts* from previous grades are important?

Environments

To the Teacher: Ask if anyone has heard the word...what do they think it means. You could start a list of words (explanations) on chart paper or the board that could be used to create a definition of what it means and what it includes.

The following 3 slides, focus on what they see and not on differentiating between natural and man-made. After discussing their notices and wonders, ask again what they think am environment is.

What is an environment?

How would you describe it in your own words?

What is an Environment?: Concept Attainment

Man-Made or **Natural**?

What do these mean?

Coman, Mirela & Cioruța, Bogdan-Vasile. (2019). 2019 (57) - From Human-Environment Interaction to Environmental Informatics (III): the Social-Ecological Systems dynamics in Knowledge-based Society.

The Earth System

https://epod.usra.edu/blog/2001/01/the-earth-system.html

Landforms of Alberta

Plateaus
Head Smashed In Buffalo Jump

UNESCO

Hills
Cypress Hills

Mountains
Mount Edith Cavell

Prairies
Drumheller Prairies

Valleys
Dinosaur Provincial Park

UNESCO

Landforms on Earth have varying characteristics.

Slopes

Zhang Yu @ Dreamtime

Size

Terrain

Peyto Lake @Pixabay20

Water, Water Everywhere!

Earth's surface is covered mostly by bodies of water.

Do you have any water near where you live or go to school? What type of water is it?

Landforms - What are they?

Write down the terms in the picture. Listen for what they are in the presentation.

Water

Water on Earth's Surface

- oceans
- glaciers
- lakes
- wetlands
- rivers

Water in Alberta

- glaciers
- lakes
- wetlands
- rivers

What are the characteristics of the different ‘waters’ in Alberta?

Glaciers

Glaciers are huge, thick masses of ice. They form when lots of snow falls in one location for many years. Over time–decades or centuries–the snow on the bottom gets squished down by the weight of falling new snow. This compressed snow becomes ice, forming a glacier.
Can a glacier move? Explain.
National Parks Service

Lakes

Source: Lily Uits Learning - How are lakes formed?

Rivers

Important characteristics of a river.
Source: Study ‘n’ Learn

Wetlands

Wetlands are areas where the land does not drain well. The ground in a wetland is saturated, or full of water. Often the ground is covered with shallow water. Wetlands are usually classified as swamps, marshes, or bogs.
Source: Britannica for Kids

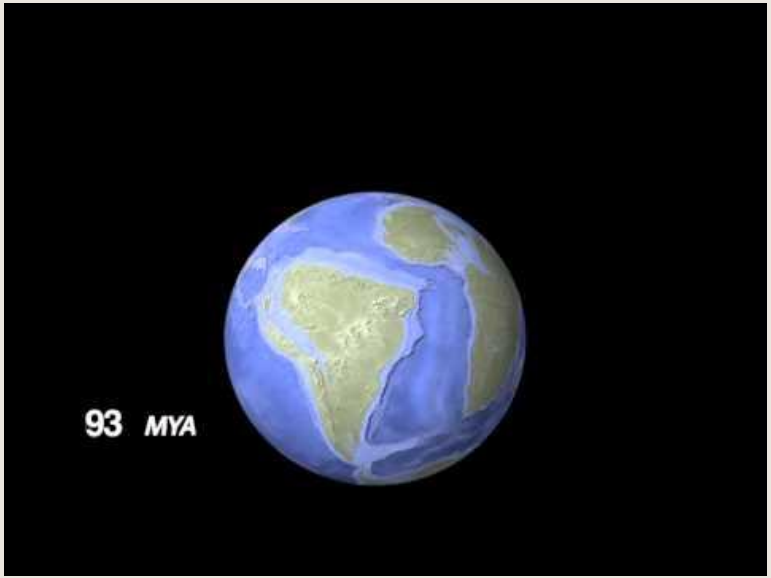
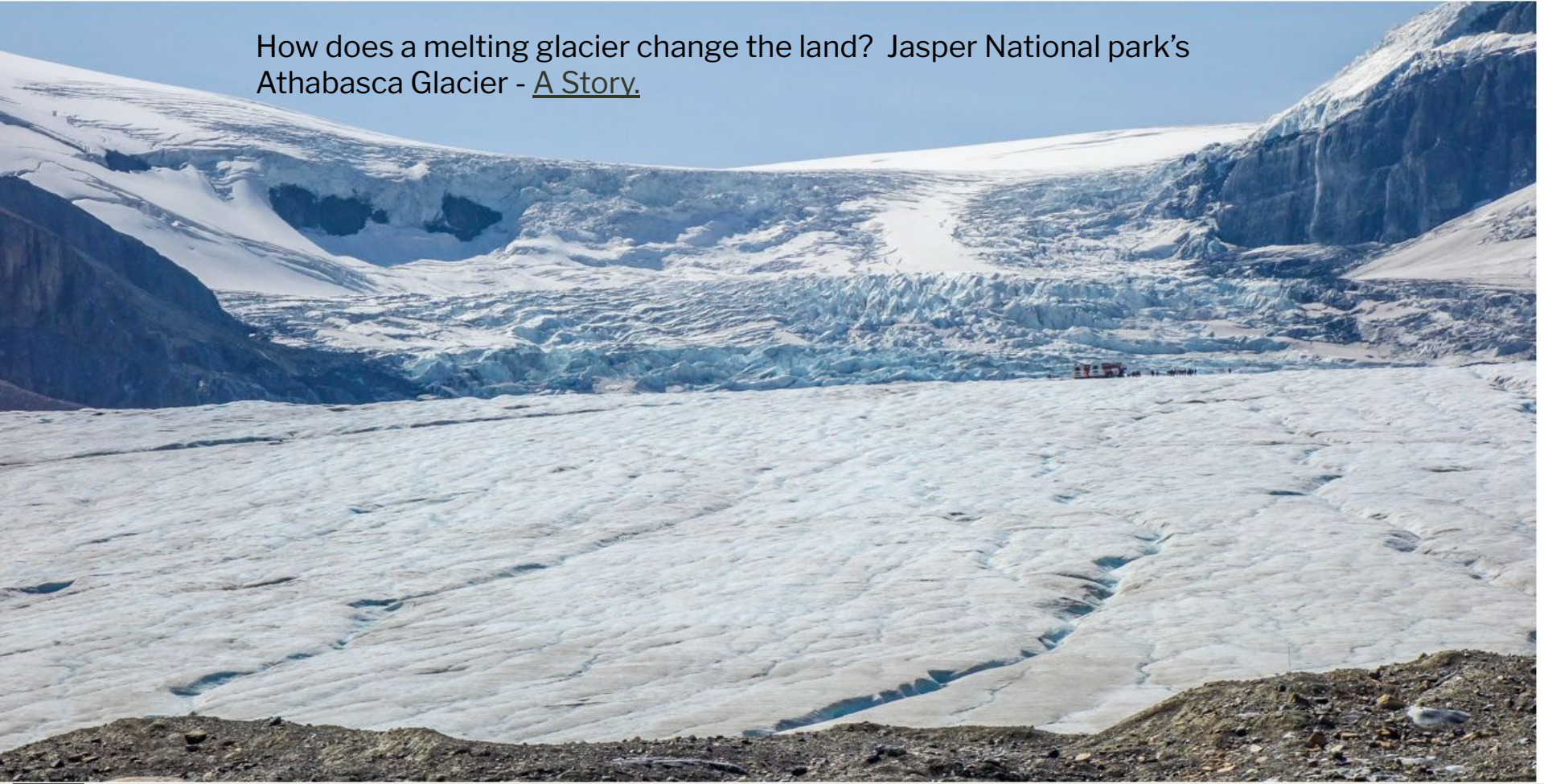


Plate Movement over the last 200 Million Years Ago to Today

How do you think it will look in the next 200 Million Years? Why can’t we feel the movement?

How does human activity change the face of the earth?

How does a melting glacier change the land? Jasper National park's Athabasca Glacier - A Story.



The Athabasca Glacier On-Top.ca
http://www.on-top.ca/Outings/2021/Toe-of-the-Athabasca-Glacier-August-2021.html

Water Cuts Through Rock

Summer

Winter

Water changing forms can change the landscape overtime. Explain.

Discuss how human, plant and animal activities can cause changes to land on Earth.

ID 114533895 © Valio84sl | Dreamstime.com

landfill ID 190396454 © Rodrigo Oscar | Dreamstime.com

Pine Beetle

ID 56468756 © Stephan Pietzko | Dreamstime.com

Our Friends of the Past - **Dinosaurs**

Excavating

Fossils

albertosaurus
edmontosaurus
nodosaur
tyrannosaur

Dino Cache: Grande Cache's World Class **Trackway**.
People and Peaks Production

Grande Prairie

Dinosaur Provincial Park

Source:

Title:

Weathering and Soil

Description:

notes on different types of weathering and soil horizons – PowerPoint PPT presentation

Number of Views:

236

Slides:

36

Provided by:

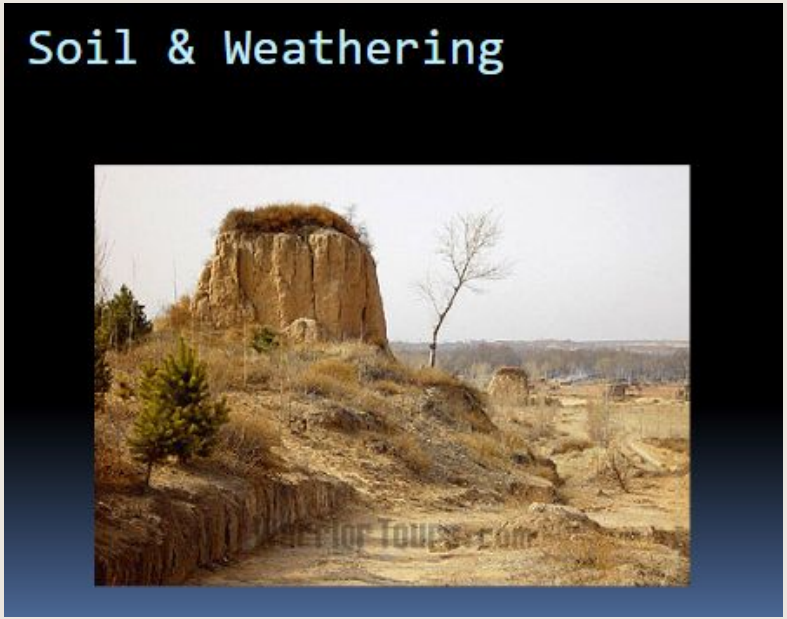
taralynn36

Category:

Medicine, Science & Technology

Tags:

erosion | soil | soil_horizon | weathering



Link

Conservation

Conservation is the preservation and protection of Earth's systems from pollution, depletion, or extinction.

- **Protection means keeping something safe and making sure it doesn't get hurt or damaged.**
- **Preservation means taking care of things and keeping them safe for the future.**

Note: Habitats are environments where plants or animals establish a home. (Gr. 3 Earth Systems)

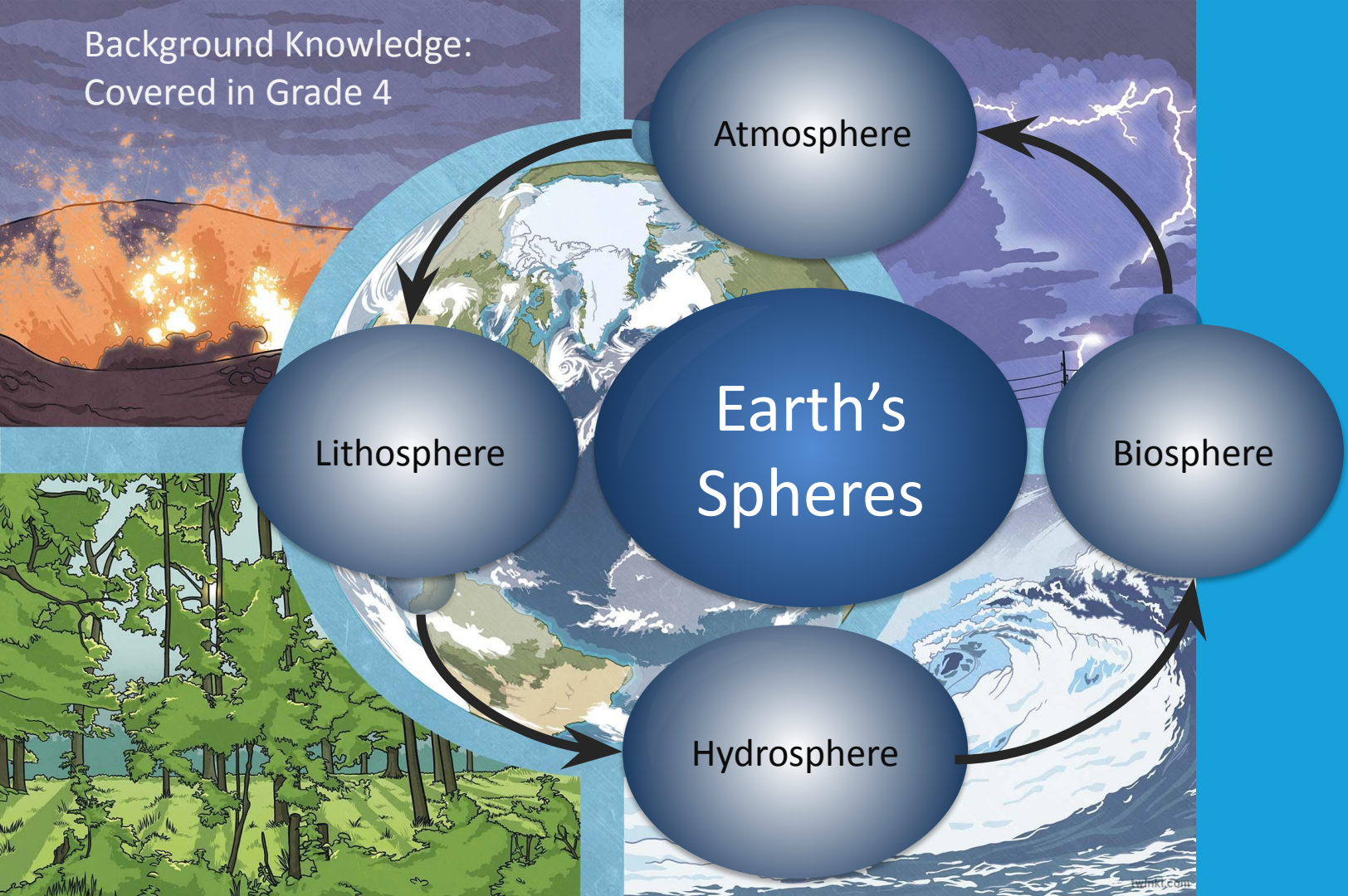
What are examples of conservation in these videos?

Grade 4

Earth Systems: Welcome to Aboard Spaceship Earth! Our 4 Spheres…

Edmonton Regional LEARNING CONSORTIUM

Background Knowledge:
Covered in Grade 4



Grade 4

Earth's Spheres

Brainstorm with a partner. Name the four spheres.
[note to teacher: students would not be expected to explain specifics of any of the spheres after these initial introductions]

Sources to Consider

Water for Living Things

Simply Science - Water sources for animals; adaptations for plants

Science Learning Hub
Covers all Earth Systems

Earth and Life Science - contains an module and quiz (Government of the Philippines)

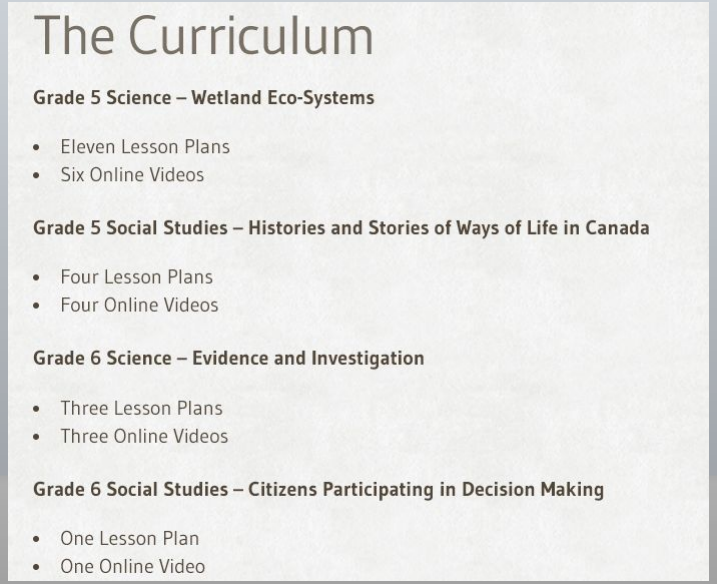
Connect the Spheres: Earth Systems Interactions. (NASA Education)

Sources to Consider

Related to Earth's Spheres

Respecting the Water

Sacred Relationships



The Curriculum

Grade 5 Science – Wetland Eco-Systems

- Eleven Lesson Plans
- Six Online Videos

Grade 5 Social Studies – Histories and Stories of Ways of Life in Canada

- Four Lesson Plans
- Four Online Videos

Grade 6 Science – Evidence and Investigation

- Three Lesson Plans
- Three Online Videos

Grade 6 Social Studies – Citizens Participating in Decision Making

- One Lesson Plan
- One Online Video

Grade 5

Let's Play *Misconception*!

There are common misconceptions about weather that adults hold. This activity could be used to start your Unit with students as well. They may not know all the terminology but allow them to explore what they know using a 1 - 2- 4 approach. There are 16 cards so you may wish to make two sets before randomly handing out one card to each student.

Weather misconceptions & introduction activity.

Possible Unit

A second line of text could go here

- Let's Play Misconception
- Weather vs Climate
- Climate and Our Agricultural Practices
- Making and Using Tools that Measure Weather
- First nations, Metis and Inuit People's
- Resources

Weather vs Climate - aren't they the same thing? (Surface - Grade 5)

Weather

Weather is a short term condition experienced in a region. Weather can be experienced minute to minute, hour by hour or daily. It is our day-to-day changes.

Climate

Climate refers to the average weather pattern over a long period of time (generally 30 years).

Climate is dependent on:

Geographical location

Terrain

Altitude

Proximity to water

Based on the geographical location, the earth can be divided into three major climatic zones:

Polar - Cold Zones

Temperate - warm and cold - they have 4 seasons

Tropical - north and south of the equator - very little seasonal

Watch the following video and pause the recording to answer the questions at the end.

Tools

Sunlight on Earth

Classroom Demonstrations: The Seasons demo 1

Tools

Clouds

Can I make my own cloud?

Temperature

How to read a thermometer.

Make My Own!

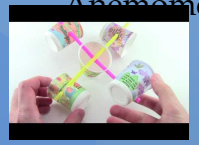
Precipitation

- Build your own rain gauge

(Government of Canada)

Wind

- Making an Anemometer



How to make an anemometer (wind speed meter)

Humidity

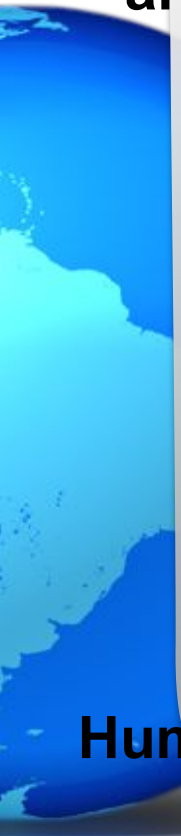
Making a Hygrometer

Migration & Hibernation and Seasons

Animal senses to weather changes - severe weather

Weather patterns and cycles can be used to predict weather conditions and animal behaviour.

(some link to grade 3 & 4 ES)



Human Activity

Plant Life Cycles

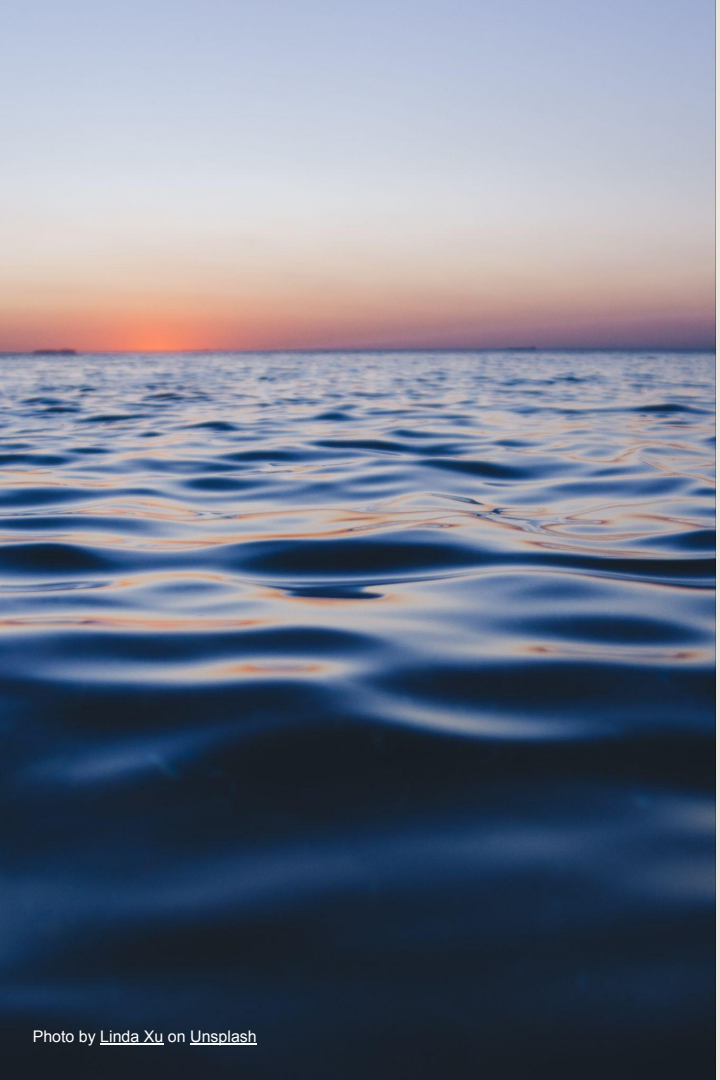


Photo by Linda Xu on Unsplash

06

Surface Level Activities – Factors Affecting Climate

Surface Level Instructional Approaches

INTENT: Introduce and begin developing Individual Concepts (Knowledge) and Skills and Procedures

- Concept Attainment Strategy
- Frayer Model
- SEEI (State - Explain - Exemplify - Illustrate)
- Card Sorts/Classify
- Students Making/Finding examples & non-examples.
- Show a photo. Ask students how the concept you are studying is evident in the photo (eg. symmetry, empathy, authority, conflict, etc.)
- Diamond Ranking.
- Making Analogies("diversity" is like …, "motivation" is like …," our senses are like …")
- Case Studies

Sample Activities (Surface)

While planning surface activities, consider these ideas.

Broad Concepts & Skills

- System (Under Revision) (Grade 2 - Components)
- Relationship
  - Concept Map
  - Cause and Effect
  - Dependence
  - Affect/Effect
  - Interaction
  - Interconnection
- Representation
- Human Activity
- Compare and Contrast
  - Criteria
  - Similarity and Difference
- Investigation (From Grade 2 Scientific Methods)
  - Asking Questions (Notice and Wonder)
  - Observing (Using senses)
  - Analyzing
  - Prediction and Predicting
  - Conclusion
  - Sample Introduction to Research as an Investigation (Gr. 3)
    - One Point Research Rubric (Gr. 4-6)
    - Research Information Gathering
- Evaluating (Under Construction)

Warming Up Our Brains

Earth's Spheres Games and Activities

Earth's Spheres Jeopardy - up to 10 teams

Factors Affecting Climate

Climate Change: The Facts (2019) We're just two degrees away from a climate catastrophe. If the rate of global warming continues, we'll reach the threshold for permanent environmental damage within 40 years. But we have the power to prevent it. Using dramatic user-generated content and emotional first-hand testimony, this film delivers the facts about global warming simply and strikingly. Intimate stories get inside the lives of the people affected by climate change, and those fighting it. And world-leading experts reveal the developments that are redefining our horizons. This is the greatest challenge we've faced. And the human race can rise to it.

Investigating Climate Through Factors

Consider a Case Study Approach

What factors affect climate?

Sun, water, air and land

Indigenous Ways of Knowing and the Scientific World

Natural Processes and Human Impact

Extreme Weather Events

Climate Change Over Time

Could be a Case Study

Location

Climate Change Connection.org

How will students be engaged to move from Surface to Deep? Perhaps their Transfer assignment comes upfront.

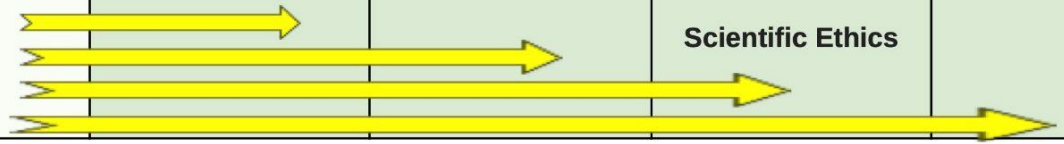
Climate Change
Causes and Impacts

This Alberta Government Site acts as a good outline for the key ideas being investigated in this organizing idea.

Climate change in Alberta (Government of Alberta)

Investigations 4-6

Grade 2	Grade 3	Grade 4	Grade 5	GRADE 6
Procedures scientists use to guide investigations include: 1) Asking **Questions** 2) Making **Predictions** 3) **Planning** the Investigation 4) **Observing** and **recording data** 5) Reaching **Conclusions** *(**analyzing** data is used in Grade 1)* 6) **Discussing** Observations and Conclusions	**Data** • Accuracy • Objectivity • Sources (Accurate & Trustworthy) **Analyzing** • Techniques	**Data** • Descriptive (qualitative) • Numbers (quantitative) • Relevance **Evidence** • Data that supports the conclusion becomes evidence • Reliability • Validity **Système international d'unités** • international system of units	**Phenomena** • facts or events that can be observed **Bias** **Variables** • Manipulated (independent) • Responding (dependent) • Controlled **Experiment** • Controlled Experiment **Evidence Communication** • Representation • Clarity & Accuracy **Scientific Ethics**	**Explanations** • Hypothesis • Testable (falsifiable) • Use of reliable objective data and evidence • Describe natural phenomena • Use of variety of texts and representations



RESEARCH Grades 4-6 Rubric Link

Areas to Grow	Criteria	Things that Glow
	❒ I collect information for a specific audience or purpose.	
	❒ I gather and organize information from multiple sources to enhance or clarify understandings.	
	❒ I consider the content of information to determine its use.	
	❒ I reference the source of information when using someone else's ideas.	
	❒ I reflect on information gathering processes and revise if necessary.	
	❒ I verify the accuracy of information collected from a variety of sources.	

The criteria are based on the Research and Information Management Competencies for Division 1 & 2 (NewLearn Alberta).

Example

Evaluating Information Sources: Websites (University of Waterloo)
Assessing Website Credibility (Old Learn Alberta)

Investigation

- Asking Questions
- Making Predictions
- Planning the Investigation
- Observing and Recording Data
- Reaching Conclusions (Analyzing)
- Discussing Observations and Conclusions

Research Information Collection Sheet (Gr. 4-6)*

The field names are in part based on the Research and Information Management Competencies for Division 1 & 2 (NewLearn Alberta).

Name_____

What is the purpose of my research? (Research Question)
Who will be my audience?

Data Gathered and Sources of Information

Source 1

Type of Source (Video, Book, Magazine, Article) Other: _____
Title:
Author:
URL:
Date:

Key Information:

Source Verification (Steps Taken To Verify Accuracy and Trustworthiness)

Example

- **Evaluating Information Sources: Websites (University of Waterloo)**
- **Assessing Website Credibility (Old Learn Alberta)**

Infographic

[What is an Infographic?]

[Infographic Examples]

[5 Key Elements of a Successful Infographic]

Surface Level Practice Ideas:

~ Best Sandwich Ever
~ Recess Do's and Don'ts
~ How to Watch a Hockey Game
~ etc.

Natural Causes of Climate Change

Changes in Orbits

Milankovitch (Orbital) Cycles and Their Role in Earth's Climate (NASA)

Changes in Sun's Solar Output

What Is the Sun's Role in Climate Change? (NASA)

Understanding Global Change: Solar Radiation (University of California)

Volcanic Eruptions

Article: How do volcanoes affect world climate? (Scientific American)

Video: Meteorologist explains how volcanic eruptions affect the climate (Dr. Brian Toon; University of Colorado)

Meteors

Article: Meteorite impacts: The good and the bad (Dr G. R. Osinski, Professor at Western University)

What Happens When Large Meteorites Fall to Earth? (American Museum of Natural History)

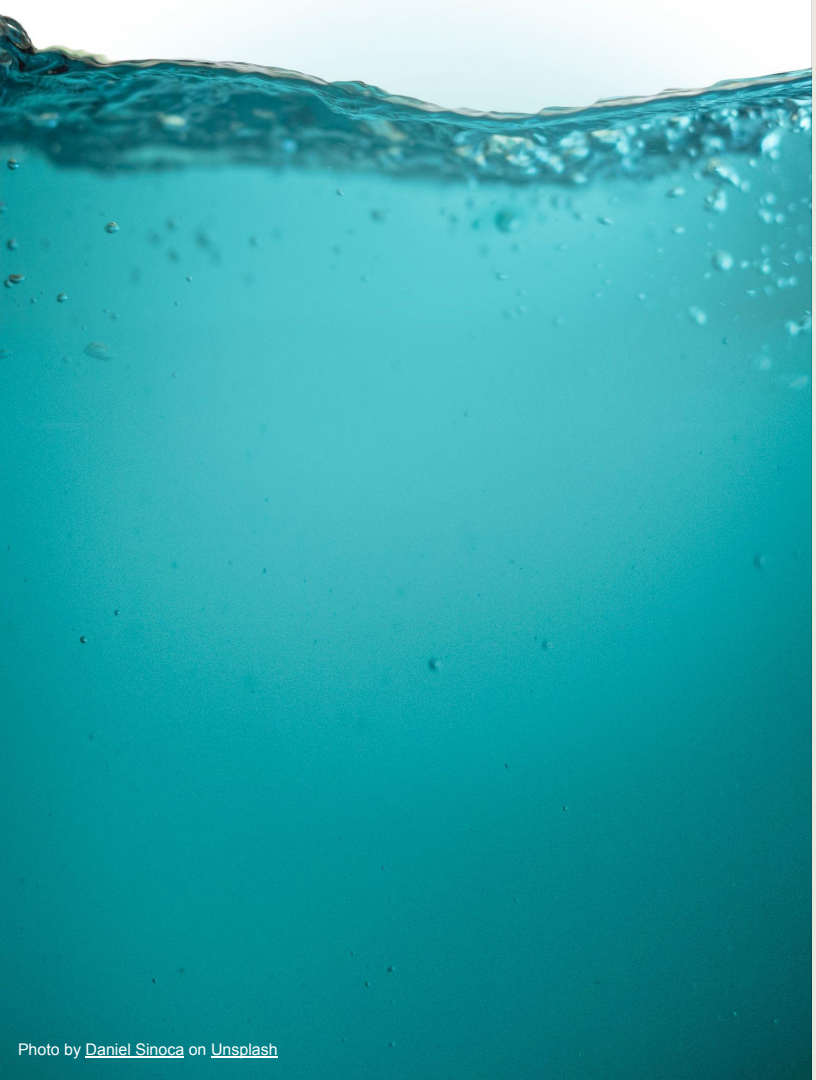


Photo by Daniel Sinoca on Unsplash

07

Deep Level Activities

How can Conservation Agriculture and Sustainable Harvesting practices be applied to our home garden?

Climate and Agricultural Practices

Conservation Agriculture

Minimally disturbing the soil
Source

Maintaining Soil Covers

Rotating Crops

Sustainable Harvesting

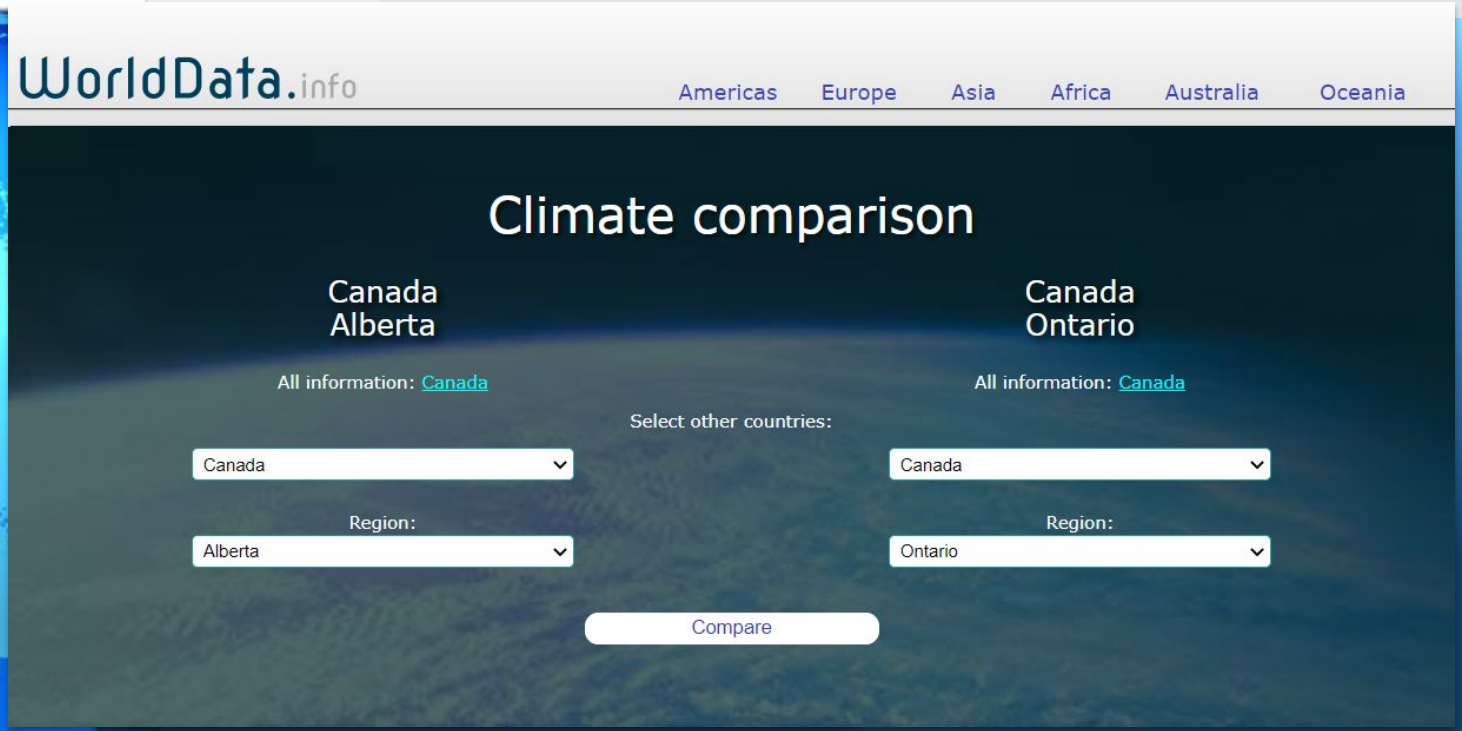
Crop rotation

Companion Planting

Limiting hunting and trapping

Considering future harvests

Alberta or Ontario?



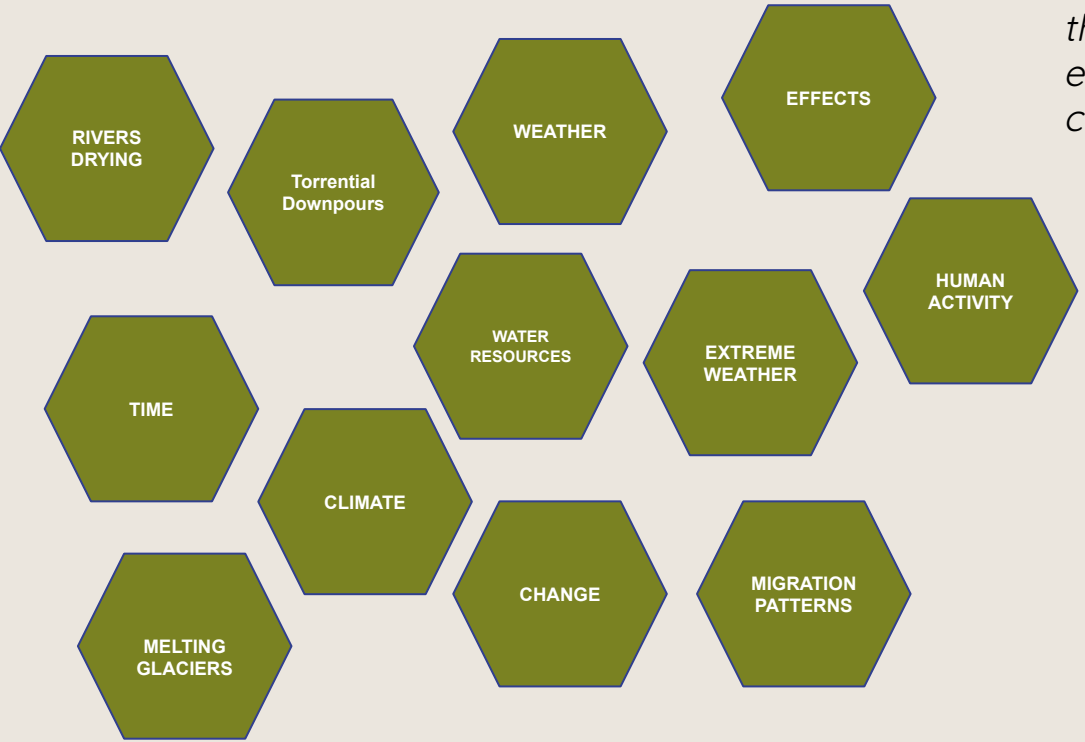
Link

How does analyzing long-term climate data and observations help us make decisions about relocating?

Where does this data come from: computer modelling, historical data, satellite imaging, traditional knowledge

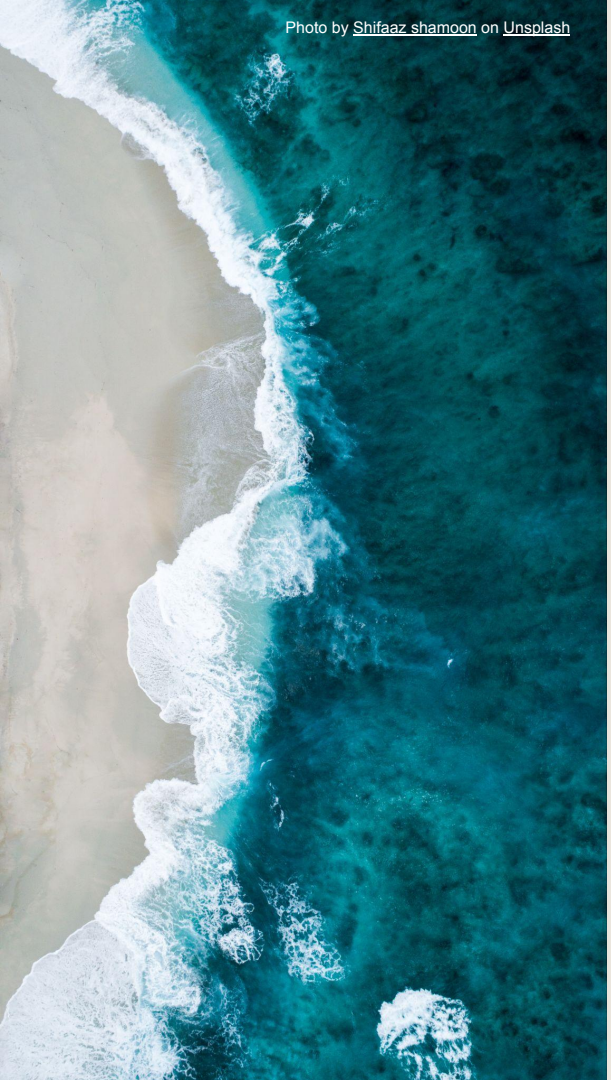
Hexagonal Thinking

Thinking about Relationships and Interactions



Task: *Arrange these hexagons so that they are connected. Be prepared to explain why you made the connections that you did.*

One possible solution.



08

Transfer & Assessment

Resources

Sources to Consider

Climate and Weather

Planet Earth http://bit.ly/PlanetEarthPlaylist
Blue Planet http://bit.ly/BluePlanetPlaylist
Planet Earth II http://bit.ly/PlanetEarthIIPlaylist
Planet Dinosaur https://bit.ly/PlanetDinosaurPlaylist

Curriculum Support Document - Living Systems an Example

Centre for Science Education - UCAR-
Weather Trail - Take a Virtual Field Trip
Classroom Activities
Culminating Task (Transfer)

Muskrat Magazine
Covers all Earth Systems

Wright, J. and Johnson, D. Indigenous Knowledge and Cultural Weather Perspectives. Government of Saskatchewan. 2007.

Sources to Consider

Related to Earth's Spheres

NATIONAL GEOGRAPHIC | Learn with us

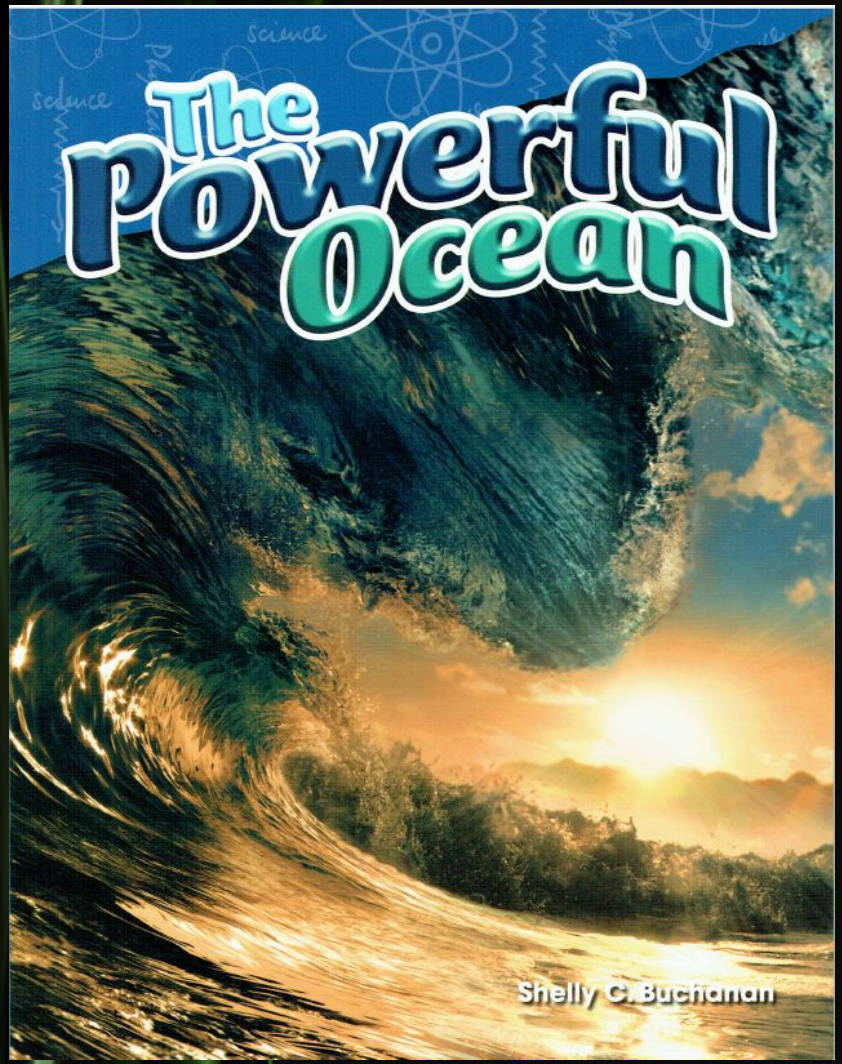
Consider searching for Atmosphere, Lithosphere, Biosphere, and Hydrosphere and using materials provided for individual classroom use only.

Earth's Spheres Part 1

Earth's Spheres Part 2

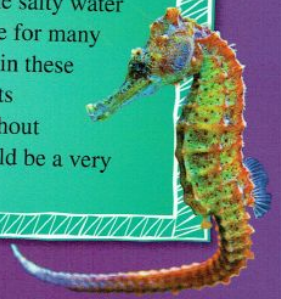
Earth's Spheres Games and Activities

Earth's Spheres Jeopardy - up to 10 teams



The Powerful Ocean

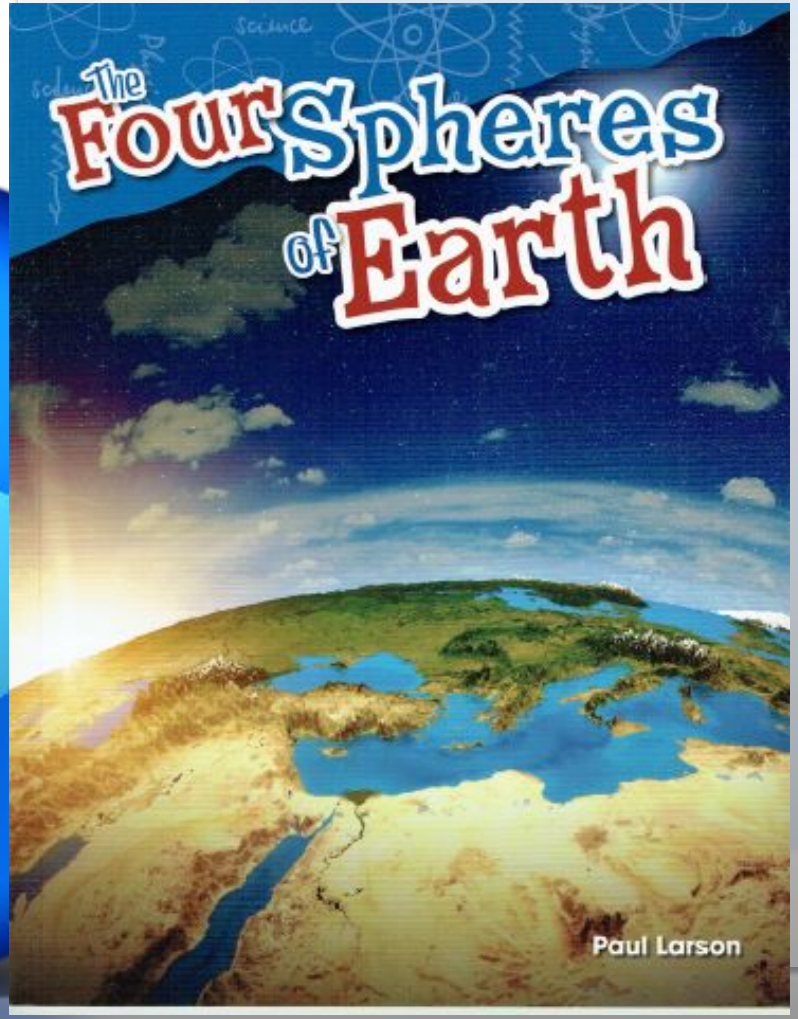
The ocean is beautiful, powerful, and refreshing. It's home to many amazing and unique creatures. The salty water provides the perfect home for many plants and animals. Within these waters are choppy currents and strong tides. But without the ocean, our world would be a very different place.

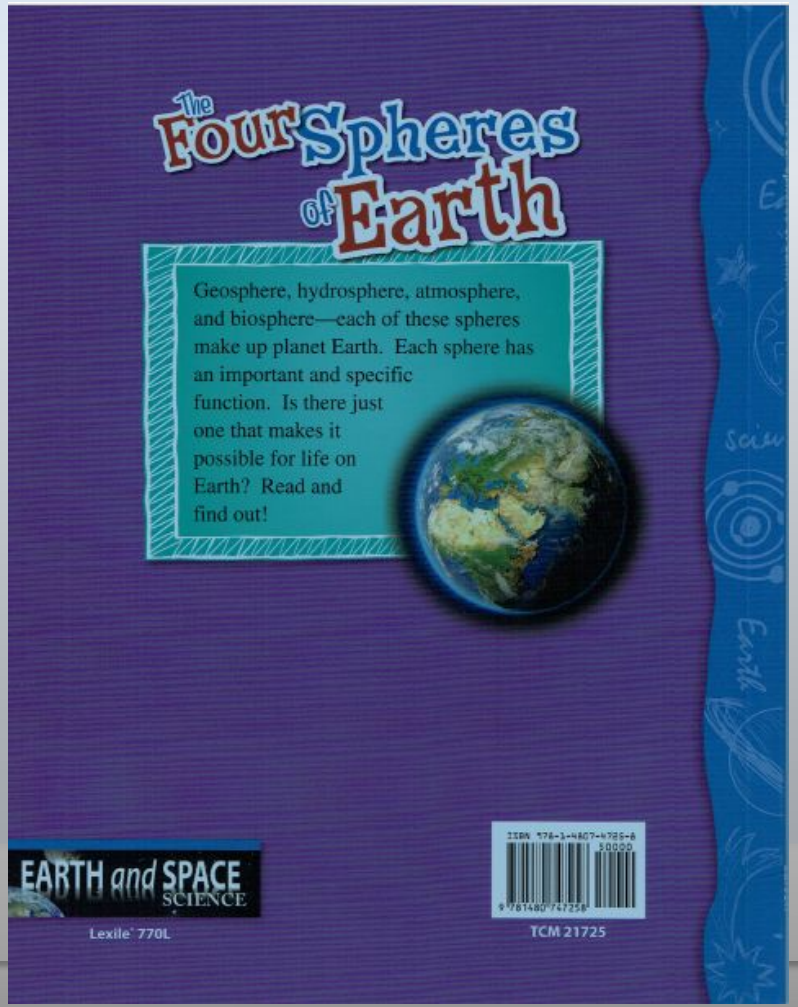


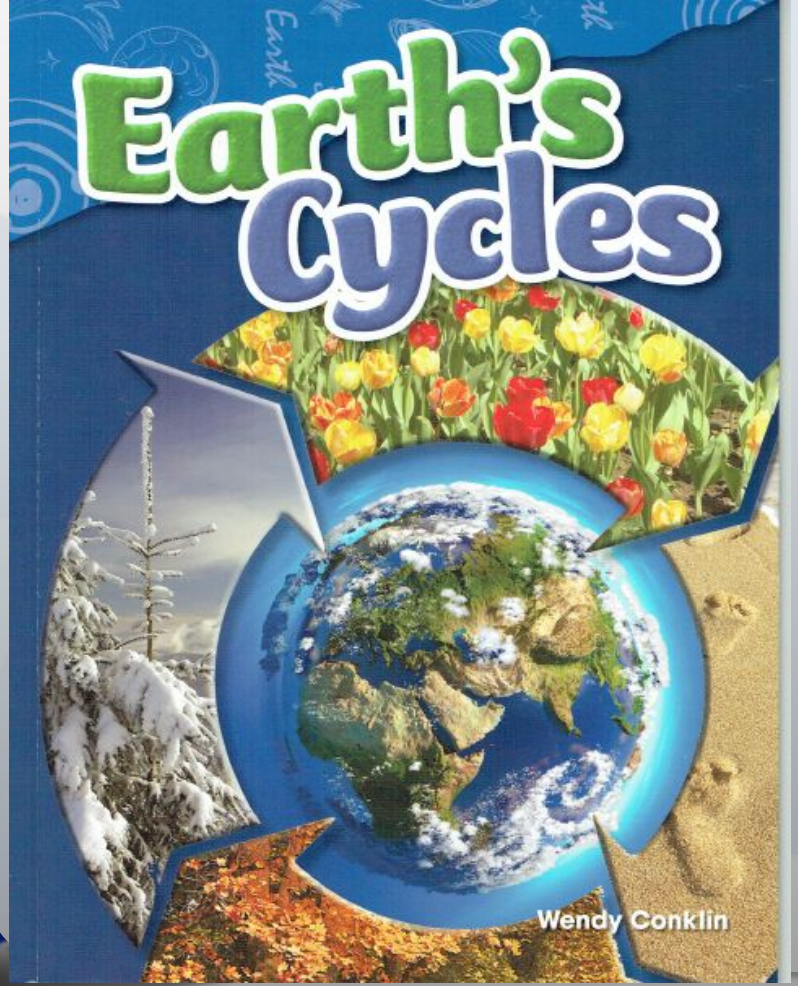
EARTH and SPACE SCIENCE

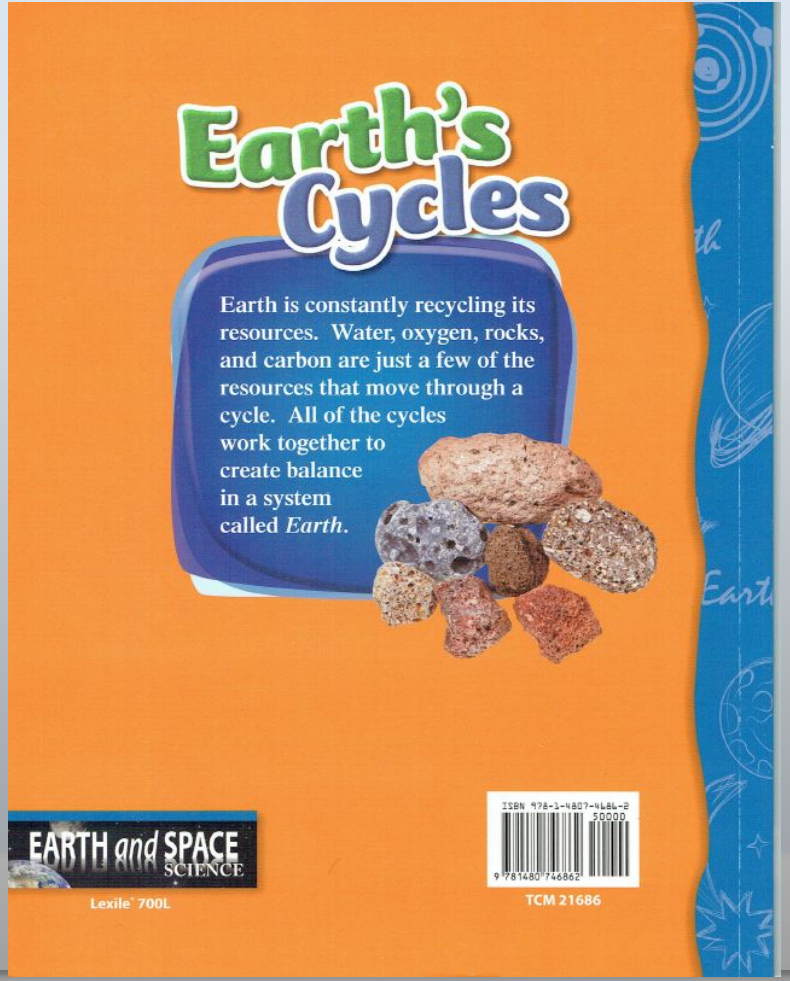
Lexile® 780L

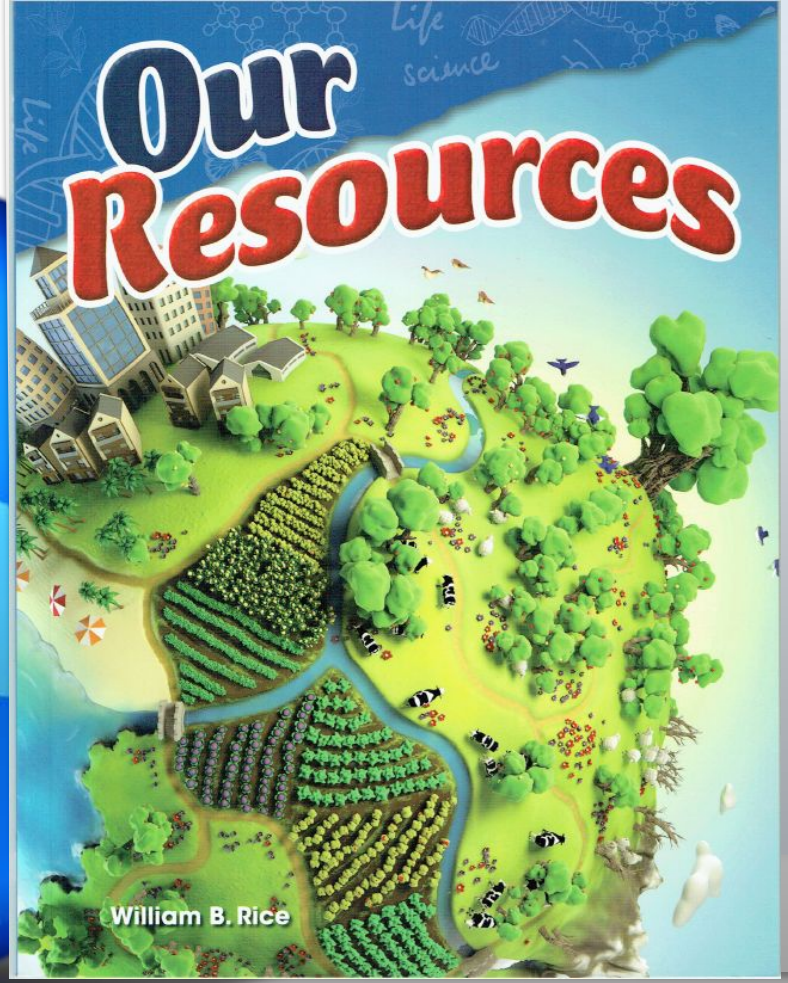
ISBN 978-1-4807-4726-5
TCM 21726

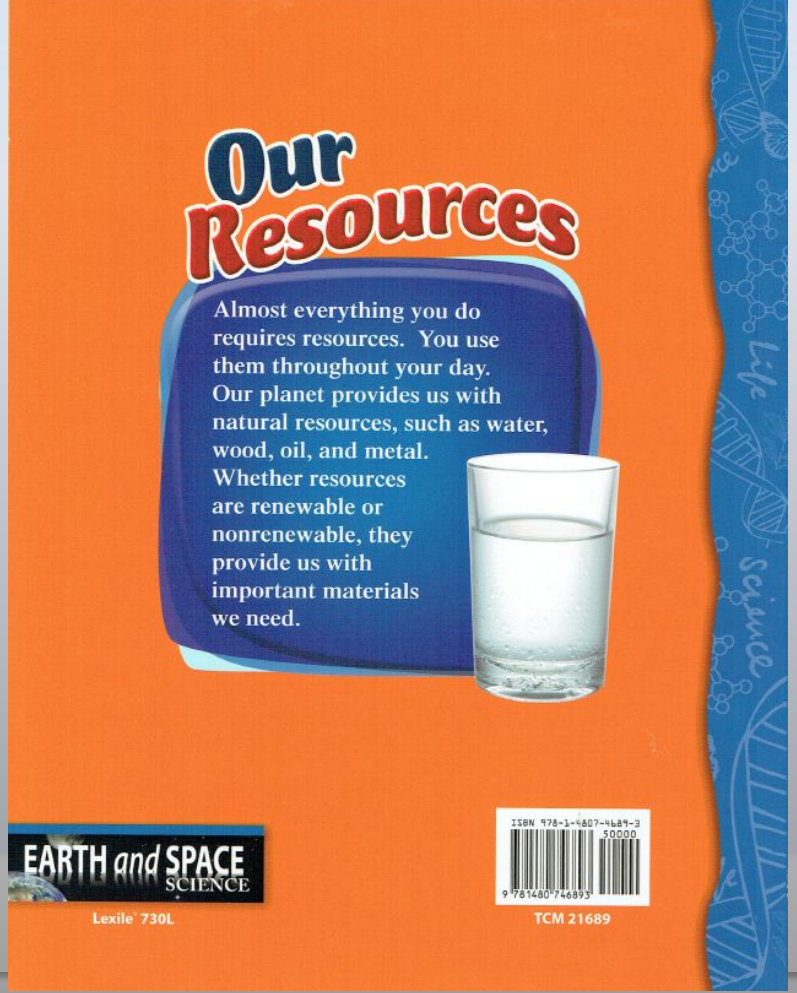

The Four Spheres of Earth
Paul Larson


The Four Spheres of Earth
Geosphere, hydrosphere, atmosphere, and biosphere—each of these spheres make up planet Earth. Each sphere has an important and specific function. Is there just one that makes it possible for life on Earth? Read and find out!
EARTH and SPACE SCIENCE
Lexile® 770L
TCM 21725


Earth's Cycles
Wendy Conklin


Earth's Cycles
Earth is constantly recycling its resources. Water, oxygen, rocks, and carbon are just a few of the resources that move through a cycle. All of the cycles work together to create balance in a system called *Earth*.
EARTH and SPACE SCIENCE
Lexile® 700L
TCM 21686


Our Resources
William B. Rice


Our Resources
Almost everything you do requires resources. You use them throughout your day. Our planet provides us with natural resources, such as water, wood, oil, and metal. Whether resources are renewable or nonrenewable, they provide us with important materials we need.
EARTH and SPACE SCIENCE
Lexile® 730L
TCM 21689

Computer Science
Angela Dearing

- What exactly IS Computer Science?
- What does successful integration of Computational Thinking across the grades look like?
- How can we teach it and support each other integrating computational thinking into instructional practices effectively when we've never taken a computer science course ourselves?

Video: Grade 6 Earth Systems Connections to CS
Slide Deck: Gr 6 Earth Systems CS Connections.pdf

Posted and Upcoming Sessions (ARPDC)

Have been Completed Before the End of June

- Introductory Videos
- Living Systems - May 1 (Grade 1) +
- Matter - June 8 (Kindergarten) +

Coming in the Next School Year
Fall (6-8 weeks apart)

- Earth Systems (Oct 10 - 19)
- Energy (November 20 - 29)
- Space (Feb 5, 6, 12)

Check the CARC or ERLC website for registrations

Thanks!

Do you have any questions?

chris.zarski@arpdc.ab.ca

ted.zarowny@erlc.ca

Photo by Gaelle Marcel on Unsplash