

Geo Facts

TEACHER'S GUIDE

GeoFacts explores core geography topics as it takes readers around the world through biomes, natural features and resources, natural disasters, and human impact on the natural environment. This informative series advocates for geo-literacy by encouraging readers to analyze maps, statistics, and facts to explore the characteristics of locations, human settlement patterns, and natural disasters. Visual learners and all levels of readers will access vibrant pictures, infographics, and text features that support comprehension. Case studies provide detailed examples of the people, land, and wildlife in each location to help students expand their knowledge and inquiries about geography. A quiz at the end of each book tests the reader's comprehension.

GeoFacts supports provincial and state standards for human and physical Geography and develops spatial skills by incorporating a variety of infographics, charts, and graphs relating to geographic concepts. The information presented provides a springboard for further inquiry and research into the natural world and human impact on the natural processes that surround us. Environmental issues and challenges permeate the discussion of the natural and human populations. Students will be equipped with the vocabulary to discuss, debate, and explore issues that affect wildlife, humans, and all stakeholders that try to understand and interact with nature. The inquisitive nature of students will be sparked by the many visuals and easily accessible text features that show the diversity of the natural world.

List of Books in Series:

GeoFacts Biomes

GeoFacts Earthquakes

GeoFacts Earth's Resources

GeoFacts Mountains

GeoFacts Population and Settlement

GeoFacts River and Coast

GeoFacts Volcano

GeoFacts Water Cycle

PACING CHART AND VOCABULARY

Lesson Plan Title	Pacing
1. "What's The Same and Different?": Compare and Contrast Two Geographic Elements	4 class periods*
2. Sustainability Fact Poster or Infographic	3-4 class periods
3. Forces that Shape Our World	5 class periods

* 1 class period = 40-60 minutes

The following are vocabulary examples that when defined and applied can be used in effective persuasive writing and oral texts. They are drawn from across the series.

Vocabulary	
Adaptation	Greenhouse gases
Biodiversity	Habitat
Biomes	Immigration
Condensation	Imports/Exports
Coniferous	Irrigates
Convection currents	Mantle
Deciduous	Migration
Deforestation	Photosynthesize
Ecosystems	Precipitation
Emigration	Push/Pull Factors
Epicenter	Seismology
erosion	Sustainability
Evaporation	Tectonic Plates
Geothermal energy	Transpiration

* 1 class period = 40-60 minutes

ACCOMMODATION STRATEGIES

Accommodations provide equal access to learning and equal opportunity to demonstrate what is learned. Accommodations allow a student access to the subject or course without any changes to the knowledge and skills the student is expected to demonstrate.

Educators are encouraged to adapt the instructional approach, activities, and assessments included in this guide to best meet the diverse interests, needs, and abilities of their students. Possible accommodations may include:

Instructional Strategies

- Break tasks into parts with accompanying time lines
- Provide extra time for processing of oral information.
- Pair oral instructions with visual ones (writing or symbols)
- Pre-teach new vocabulary and regularly review previously taught vocabulary
- Provided model of completed work
- Frequently check with the student to get him/her started
- Provide oral and visual instructions and examples
- Provide a checklist of tasks for the student

Environmental Strategies

- Proximity to teacher
- Strategic seating
- Flexible or mixed-ability grouping
- Provide an alternative setting for learning that is free from visual and auditory distractions.

Assessment Strategies

- Build in extra time to allow student to process questions asked and answers given
- Provide written instructions and rubrics for assignments
- Offer a choice of assessment activities so that the student can choose one suited to their strengths
- Space out or extend assignments to prevent student feeling overwhelmed
- Reduce the number of tasks used to assess skill or concept
- Allow students to use assistive devices or technology

LESSON 1

“What’s The Same and Different?”

Compare and Contrast Two Geographic Elements

Curriculum Correlations

Ontario Language Arts

Grade 5 Oral Communication

1.2, 1.4;

Grade 5 Reading

1.4, 2.3;

Grade 5 Writing

1.3, 1.5, 3.7, 3.8;

Grade 5 Media Literacy

3.1

Ontario Social Studies

Grade 5

B2.3, B2.4, B2.5, B3.8, B3.9

Common Core State Standards

RL.5.3, 5.7, RI.5.2, RI.5.3, RI.5.5, RI.5.9

W.5.2, W.5.4, W.5.7, W.5.9

C3 Framework for Social Studies

D2.Geo.2.3-5, D2.Geo.6.3-5, D2.Geo.8.3-5, D2.Geo.10.3-5,

D3.1.3-5, D4.2.3-5

Materials

- *GeoFacts Mountains* and other *GeoFacts* series book
 - See pg. 20 for great visual of biomes' heights
 - See pg. 21 for adaptations of animals discussed
- Required materials for any product: paper, computer, colored pencils, etc.
- Organizers for students:
 - Optional by choice: Graphic organizers and written framework of compare and contrast format.
 - 1. **Graphic Organizer: Compare and Contrast**
 - 2. **Writing Organizer: Compare and Contrast by Topic and Subtopic**
 - 3. **Writing Frame: Compare and Contrast**
- *What's The Same and Different? Compare and Contrast Two Geographic Elements Success Criteria*
- *What's The Same and Different? Compare and Contrast Two Geographic Elements Assessment Checklist*

Objectives

Students will:

- Understand how to find similarities and differences related to geography using success criteria and graphic organizers.
- Use appropriate vocabulary “compared to”, “in contrast”, “alike”, “different”, “as opposed to”, etc. to discuss similarities and differences.

Setting the Stage

Complete a Google Expedition (or online visual exploration of biomes, mountains, rivers, coasts, water features on a board approved site) after downloading the app on mobile devices.

- Google Expedition is virtual reality technology that includes online tours across many strands of curriculum and grades. On-screen information cards and maps can provide context and facts to research further.
- Another further resource that can set the stage is Google Earth. Google Earth allows students to zoom in using satellite photos around the world on major human and natural landmarks (e.g., Rocky Mountains, Nile River, Eiffel Tower, Hoover Dam, etc.).

Activity

Working alone or with a partner, students will compare and contrast two elements of geography from the *GeoFacts* series. They may choose any two biomes, mountains, resources, population and settlements, river and coasts, volcanoes, water systems, etc.

- Students may use two of the same element (e.g., two biomes) or compare two different elements (e.g., a river system and a volcano).

Review the *Success Criteria Sheet and Assessment Checklist* to ensure understanding of the concepts and product.

Students choose the method of displaying their compare and contrast. If they choose a written format, there are organizers included to help frame their research and writing. If they choose a visual format, they can discuss their preferred presentation media with their teacher (e.g., slideshow, web page, etc.)

- Students can choose which graphic or written organizer to use to prepare their product. There are three options.

Extensions

- ▶ Students can write an information card for a Google Expedition or Google Earth site using the research they've gathered, and submit their work to Google.
- ▶ Students can create an artistic representation of the element or elements they featured.
- ▶ Students can conduct further exploration of online and print resources about their chosen elements of geography.

Wrap-Up

Throughout the *GeoFacts* series, there are reading comprehension quizzes on Pg. 31. Have students complete the test alone or with a partner as a self check. (Have a partner check your answers as you go on.)

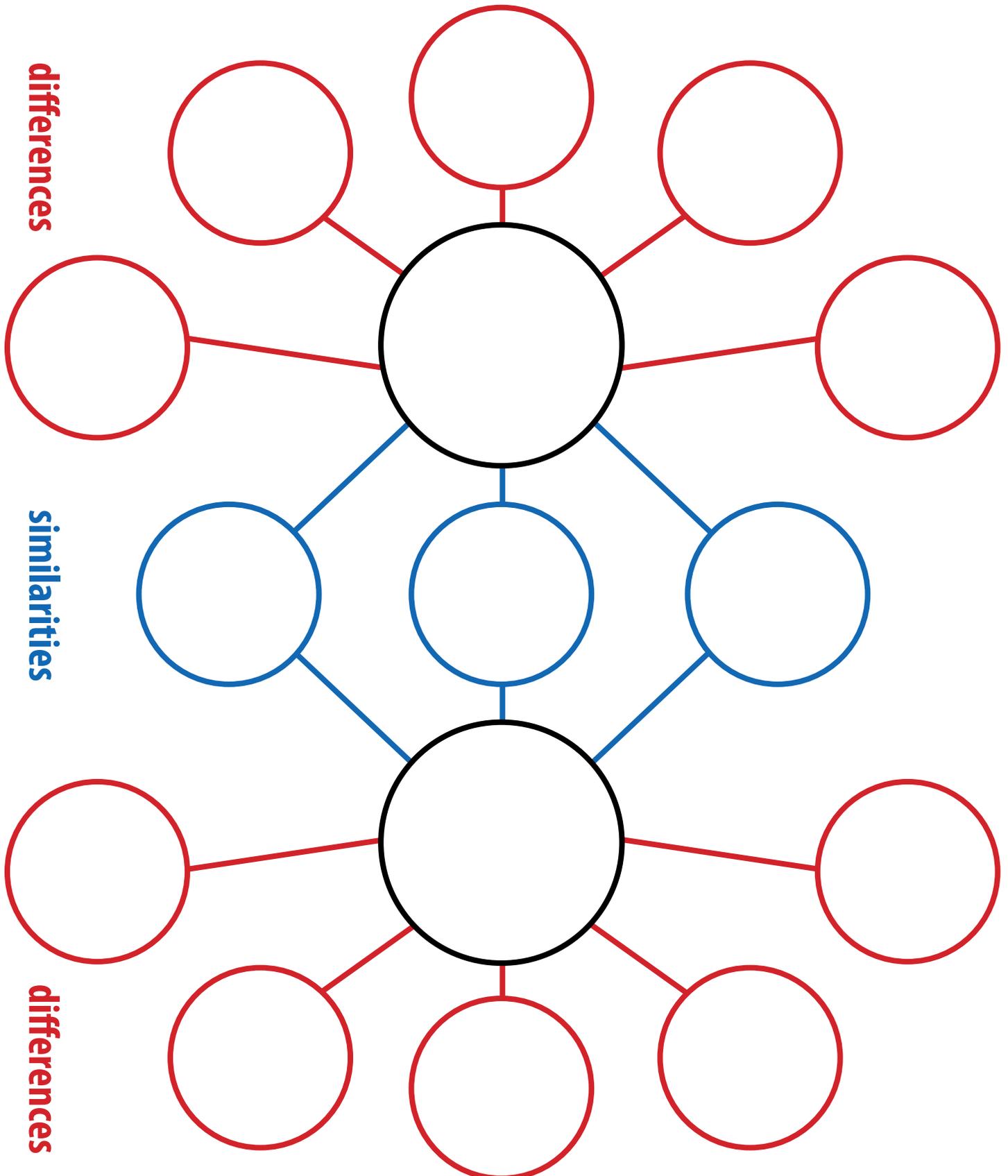
Assessment

Assess students' products using the *Assessment Checklist*.

Name: _____ Date: _____

Graphic Organizer: Compare and Contrast

Subtitle/criteria: _____



Name: _____ Date: _____

Writing Organizer: Compare and Contrast by Topic and Subtopic

Main Topic				
Sub Topic	Sub Topic	Sub Topic	Sub Topic	Sub Topic
ALIKE				
[Large Empty Oval]				
DIFFERENT				

Name: _____ Date: _____

Writing Frame: Compare and Contrast

<p>Start with how things are the same or similar.</p>	<p>The _____ and the _____ are the same because they both _____.</p>
<p>Add more details as needed.</p>	<p>In addition, they both _____.</p>
<p>Explain how they are different. You can compare the same property or characteristic in the same sentence. Use "and", "but" or "whereas" to set up the contrast.</p>	<p>They are different because the _____, but the _____ does not.</p>
<p>Add more detail as needed.</p>	<p>Also, the _____, whereas the _____.</p>

Name: _____ Date: _____

Compare and Contrast Two Geographic Elements: Success Criteria

Use the chart below to write information to find out and put into your product about BOTH chosen elements of geography.

Criteria	Prompts	I found...
Map - include a paper or online map highlighting features of the two areas compared.	Where are they located in the world? What cool human or natural features are close by to show on your map?	_____ _____ _____
Climate	What is the temperature, rainfall, etc. in the area?	_____ _____ _____
Landscape and Size	What does the area look like?	_____ _____ _____
Animals	What are the unique animals in the area? How have they adapted to the area to help them survive?	_____ _____ _____
Plants and Vegetation	How do people and animals use the resources nearby?	_____ _____ _____
Challenges/Threats	What are the natural and human challenges and threats to the area?	_____ _____ _____

Assessment Checklist for "What's The Same and Different?"

Compare and Contrast Two Geographic Elements

Student's Name: _____ Date: _____

Student included:

Map

A paper or online map highlighting features of the two areas compared	
Where are they located in the world	
Cool human or natural features close by to show on your map	

Climate

Temperature, rainfall, etc.in the area	
Landscape and Size - What the area looks like	

Animals

The unique animals in the area	
How they have adapted to the area to help them survive	

Plants and Vegetation

How people and animals use the resources nearby	
---	--

Challenges/Threats

The natural and human challenges and threats to the area	
--	--

Comments:

LESSON 2

Sustainability Fact Poster or Infographic

Curriculum Correlations

Ontario Language Arts

Grade 5 Oral Communication

1.2, 1.4;

Grade 5 Reading

1.4, 2.3

Grade 5 Writing

1.3, 1.5, 3.7, 3.8;

Grade 5 Media Literacy

3.1

Ontario Social Studies

Grade 5

B2.3, B2.4, B2.5, B3.8, B3.9

Common Core State Standards

RL.5.3, RL.5.7, RI.5.2, RI.5.3, RI.5.5, RI.5.9

W.5.2, W.5.4, W.5.7, W.5.9

C3 Framework for Social Studies—Geography

D2.Geo.1.3-5, D2.Geo.8.3-5, D3.2.3-5, D3.3.3-5, D4.3.3-5,

D4.6.3-5

Materials

- *Infographic or Fact Poster Assessment Rubric*
- Piktochart.com or other online infographic sites to help students familiarize themselves with the format
- Poster paper, colored pencils, lined paper, pencils, computers, construction paper, markers, craft materials, magazines for cut out, printer, etc. to enhance visuals

Objectives

Students will:

- Create a visual representation of learning through media.
- Expand knowledge of a topic that challenges the physical and human environment.
- Become familiar with bias that can occur in fact finding sites and use reliable sources for information.

Setting the Stage

Have a large group discussion and reflection about where foods come from. Prompt students with questions such as:

- What is your favorite food? Do you know where it is grown or how it gets to you?
- Do you believe that all their food is “local”?
- Have a quick discussion about growing, farming, processing, shipping food, supermarket vs. farmer’s market, etc.
- How do food labels help us know where our food comes from?
Reference for help on understanding Canadian and American food labeling:
Canada - <http://bit.ly/2KyWr2c>
USA - <http://bit.ly/2Z7vPxt>

With their elbow partner to right, have students share their dream destination. How do you think you’ll get there and what do you want to do when you get there? Give students five minutes to discuss.

Bring elbow partners back and list some destinations that have significant environmental and tourism challenges. These might include Egypt, any mountain/ski locations, Caribbean resorts, Hawaii etc. Ask class:

- What challenges are there when thinking about feeding people in these locations?
- What barriers might there be to keeping people happy in these locations?

Possible discussion can include these topics and issues:

- Difficulty getting food to these locations
- Weather issues
- Not the same food as at home
- Safety
- Tourist footprint on the area
- Unpredictable problems
- Environmental challenges
- Damage to animal habitats or ecosystems

Activity

Students will choose an issue from the discussion above that they want to find out more about. They will create a fact poster or infographic showing things they learned about their topic, in a visual way.

- For students with reading challenges, have them choose an easier topic, such as animals. For students that need enrichment, direct them to more abstract topics.
- For guidance, you can use one of the examples and discuss a good visual that would support the fact.

Using *GeoFacts* series and reliable online sites, find five to ten facts that can be shown in pictures and with visual support on a poster or computer infographic.

Discuss examples with students to get them thinking.

- Show online examples of images of infographics or posters with facts. Discuss how the visuals support facts.

Example:

- Where is it? Find a picture of the country or continent and put a dot or shade in where your topic is located. Why is it important to the environment? Show pictures of the wildlife, plants, and industry that rely on a river system. What can humans do to help? Include a thumbs up icon or picture and list with illustrations things people can do to make better tourism choices to leave less of a footprint.

Review assessment with students to clarify expectations, and discuss putting the information into a sentence in your own words.

Write the following examples and choices on the board, or project them:

Examples of facts to show about your topic:

- Where is it?
- What is it?
- Why is it important to the environment?
- Why is it important to humans?
- What negative actions by humans can cause damage?
- What can humans do to help?

Choices for Poster and possible ideas to narrow topic:

- Biome
- Mountain - e.g. Glacial Mountains, Over Tourism on Mount Everest, Developing Roads/Tunnels through Mountains, etc.
- Plant - e.g. a "trendy" crop that gets overfarmed, invasive species, How to Grow Plants Hydroponically, Corn in Everything, etc.
- Animal - endangered, threatened, overpopulated, human controlled breeding of a species, hunting, etc.
- Resource - mining, farming, rocks, minerals, trees, etc.
- Water System - river, coast, settlement on river or coast
- Pre-Approved choice

Give time in class for research of facts and compilation of visuals. Guide students as they work by showing examples of student progress, bringing up examples of copied versus original pieces of information, and contrasting supporting and confusing visuals.

Examples of final infographic products are found at these links:

<http://bit.ly/2Mir51Z>

<http://bit.ly/31HrJda>

Extensions

- ▶ Have students rotate around student products with sticky notes. Have them write a fact on a note from their classmates that they didn't know. Post the sticky notes on a white board or chart paper titled as "Didn't Know...Now I Know that..." Repeat as many times as they can in a time limit.

Wrap-Up

Display the infographics and have a gallery walk in which students share their work with their peers. Discuss the information they learned and how the infographic made the information interesting to read about.

Assessment

Use the rubric to assess the fact poster or infographic.

Student name: _____ Date: _____

Infographic or Fact Poster Assessment Rubric

Criteria	Level 1	Level 2	Level 3	Level 4
Content	Required elements are limited or missing, and most pictures included are not relevant or have limited relevancy.	Some of the required elements are clear and well-organized, and some pictures included are relevant.	Most of the required elements are clear and well-organized, and most pictures included are relevant.	All of the required elements are clear and well-organized, and all pictures included are relevant.
Thinking	Does not provide useful information about sustainable resource use and human impacts on the environment.	Provides somewhat useful information about sustainable resource use and human impacts on the environment.	Provides mostly useful information about sustainable resource use and human impacts on the environment.	Provides useful and insightful information about sustainable resource use and human impacts on the environment.
Communication/Design	Design and layout needs significant improvement. Communication of action plan is unclear.	Student presents information somewhat clearly in design and layout. Communication of action plan is somewhat clear.	Student presents information clearly with a nice design and layout. Communication of action plan is mostly clear.	Student presents information clearly with an exceptional design and layout. Communication of action plan is very clear.
Conventions	The project has many spelling and grammar errors, and does not use appropriate vocabulary.	The project has some spelling and grammar errors, and uses some appropriate vocabulary.	The project has minimal spelling and grammar errors, and mostly uses appropriate vocabulary.	The project has no spelling and grammar errors, and uses appropriate vocabulary.

Comments:

LESSON 3

Forces that Shape our World

Curriculum Correlations

Ontario Social Studies

Grade 5
B2.3, B2.4, B2.5, B3.8, B3.9
Grade 7
A1.1, 2.2, 2.5, 2.6, A3.5

Ontario Language Arts

Grade 5 Oral Communication
1.2, 1.4
Grade 5 Reading
1.4, 2.3
Grade 5 Writing
1.3, 1.5, 3.7, 3.8
Grade 5 Media Literacy
3.1

Common Core State Standards

RL.5.3, RL.5.7, RI.5.2, RI.5.3, RI.5.5, RI.5.9
W.5.2, W.5.4, W.5.7, W.5.9

C3 Framework for Social Studies

D2.Geo.2.3-5, D2.Geo.4.3-5, D2.Geo.8.3-5, D2.Geo.9.3-5,
D2.Geo.12.3-5, D3.1.3-5, D3.3.3-5, D4.2.3-5, D4.6.3-5

Materials

- *Geo Facts Series*:
 - *Water Cycle Geo Facts Polar Ice Caps* Pg. 26-27
 - *Population and Settlement Geo Facts Push/Pull factors* Pg. 17
 - *Volcano Geo Facts*
 - *Earthquake Geo Facts*
 - *Mountain Geo Facts*
- Chart paper, markers
- *Forces that Shape Our World Worksheet*
- *Forces that Shape Our World Self-Assessment Checklist*
- *Forces that Shape Our World Checklist*

Setting the Stage

Complete a small group activity to support understanding of how much natural forces can shape the environment and human populations near and far from the actual location.

First, get students into groups of four to six. Show each group images of different landscapes and areas, including:

- mountains and ski resorts in mountains
- rivers, lakes, oceans
- glaciers
- volcanoes
- earthquake landscape (e.g., San Andreas fault line)
- farms
- densely and sparsely populated areas in proximity to natural forces (e.g., Japanese villages near mountains, large mansion near a river, etc)
- windmills
- large hydroelectric plants/dams
- cruise ships with mountains or vista in background

Have each group choose a different image. They will discuss the best and worst parts of the image. Imagine: What good things happen there? What bad things could happen there?

Each group will use chart paper to brainstorm negative and positive thoughts the image creates.

- Sample positive responses: beautiful landscape, not a lot of people around, can have fun doing activities there.
- Sample negative responses: possible disasters that might occur living close by, overcrowded, hard to see friends can't get a lot of resources around area, how do you travel there?

After 20 minutes of brainstorming, can either discuss common positives and negatives as a large group OR have a gallery walk with students going to other chart papers to read and discuss responses.

Objectives

Students will:

- Identify and assess the positive and negative aspects of an environment.
- Determine what we get from the environment, and what is taken from the environment.
- Discuss how humans positively and negatively impact natural processes.
- Show understanding of natural disasters and their far reaching consequences for the human and physical environment.
- Create three well developed paragraphs with a topic, concluding sentence, and relevant supporting details.

Activity

Students will write three summary paragraphs about the positive and negative impact of a topic. Ask them to think about how their topic has shaped our world. Hand students the *Forces that Shape Our World Worksheet*. They will write a summary paragraph to introduce the topic, then a paragraph that introduces the positive parts of the topic, and finally, a paragraph that introduces the negative parts of the topic.

Remind students that this is not about a specific disaster but a general look at the natural forces behind the same type of disaster (e.g., they would not choose the 2011 Japanese Earthquake, but earthquakes in general).

Support students by sharing examples for them to think about, as well as potential topics.

Examples:

- Volcanoes create islands and renew vegetation, erosion changes the shape of mountains and makes new water paths, etc.
- Tsunamis can displace people and animals, overpopulation in new areas can risk the food supply, etc.

Possible topics (display this on white board or Smart Board)

- Volcanoes
- Earthquakes
- Tsunamis
- Mountains
- Avalanches
- Erosion
- Migration
- Overpopulation
- Climate Change - melting glaciers, rising waters, floods, and droughts
- Energy Resource Use - renewable and non-renewable
- Water and Food Supply - sustainable ways of getting food and water to everyone, availability and quality of water
- Pollution - air, water, soil

Discuss and review what makes a good paragraph:

- Five to ten sentences
- Topic sentence
- Evidence to support topic
- Concluding sentence.

Reference for further development of a good paragraph:
http://www.readingrockets.org/strategies/paragraph_hamburger

Students should use the worksheet to create a rough copy of the paragraph. Then, they can create a good copy either by writing in a notebook or typing. Teacher may choose to collect the worksheets for assessment purposes.

Give each student a *Forces that Shape Our World Self-Assessment Checklist* so that they can ensure that they are meeting expectations.

Extensions

- ▶ Watch board approved video about their topic, or ask parents to support learning by finding relevant appropriate videos about their topic.

Wrap-Up

Have a Global Summit sharing information about their chosen topic. Students will share their summary with a partner orally. Any students not comfortable sharing orally may read someone else's description quietly.

Partners decide who is Partner A and Partner B. Teacher sets timer for three minutes. For first minute, Partner A tells about their topic. Teacher tells students when 1 minute has passed, then partner B tells about their topic. Teacher then tells class when 1 minute is remaining. All students then go into summary mode. A tells B what they think the most important part of their work is, and then B tells A their most important part.

- Teacher can have students switch partners multiple times for this active listening and paraphrasing activity.

Assessment

Use the *Forces that Shape Our World Checklist* to assess students' paragraphs. Take anecdotal notes during Global Summit.

Name: _____ Date: _____

Forces that Shape Our World Worksheet

Topic: _____

Tell about your topic in three well-written paragraphs. Organize your point form notes here, then write your good copy.

Paragraph One: Summary of Topic

What does your audience need to know to understand your topic? Introduce it in a summary paragraph.

What are the most important things to know about the topic?

You can answer the following questions in paragraph one.

Why are humans worried about your topic?

How did it start as an issue?

Has the issue spread? Why?/Why not?

Who is involved in the problem?

Make notes on the above questions below.

Paragraphs Two and Three: Positives and Negatives

Brainstorming: List the positive and negative parts of topic.

Positive Parts of the Topic (What good things happen because of your topic)	Negative Parts of the Topic (What bad things happen or are created because of your topic)

Now that you've brainstormed positive and negative parts of the topic, begin to create one paragraph about all the good things, and then one paragraph about all the bad things about your topic. Use the following structure to help.

Topic Sentence: _____

is/are positive/negative because _____.

Supporting Details: I know this to be true because I learned the following three pieces of evidence that support why my topic has a positive/negative impact. The three pieces of evidence are:

a) _____

b) _____

c) _____

Concluding Statement: The best thing that I learned about my topic that shows its positive/negative impact on people or the environment is

Name: _____ Date: _____

Forces that Shape Our World Self-Assessment Checklist

Expectations (Did I...)	Check
Include short and long term effects of the positive and negative parts of the topic?	
Organize and include in my paragraphs evidence from more than one source (i.e. the Geo Facts books, reliable online sources, library books)?	
Show more than one perspective in the evidence I used?	
Draw conclusions about the positive and negative parts of my topic, based on the evidence I found and included in my paragraphs?	
Communicate my ideas using geographic vocabulary?	
Communicate my ideas using well-written paragraphs with the appropriate format, as shown on my worksheet?	
In my paragraphs, include main ideas and key supporting details, and leave out important details?	
Describe ways humans impact the environment, related to the chosen topic?	

Forces that Shape Our World Checklist

Student Name: _____ **Date:** _____

Expectations (Did the student...)	Level 1- Did not yet meet expectations 2- Partially met expectations 3- Met expectations 4- Exceeded expectations
Include short and long term effects of the positive and negative parts of the topic?	
Organize and include in their paragraphs evidence from more than one source (i.e. the Geo Facts books, reliable online sources, library books)?	
Show more than one perspective in the evidence they used?	
Draw conclusions about the positive and negative parts of their topic, based on the evidence they found and included in their paragraphs?	
Communicate their ideas using geographic vocabulary?	
Communicate their ideas using well-written paragraphs with the appropriate format?	
In their paragraphs, include main ideas and key supporting details, and leave out inimportant details?	
Describe ways humans impact the environment, related to the chosen topic?	

Comments:
