

A natural disaster is a major catastrophic event caused by natural processes of the Earth. Some examples of natural disasters are floods, hurricanes, tornadoes, volcanic eruptions, earthquakes, tsunamis, and other geological processes.

Another cause of extreme natural events is climate change. This is a very serious problem nowadays. The records for average annual temperatures are broken over and over. It is clear

that the situation is grave, not only for scientists and politicians, but also for industries and business. Climate change may also have consequences on the laws and rules in society. For example, governments can create laws to regulate pollution and carbon emissions. They can also create laws to make sure the citizens are safe in case of any natural disaster. We have to do something, before it's too late.

Source: <https://cutt.ly/pfjFmFu>



Do natural disasters scare you?

# Communication and Cultural Awareness

How does the weather affect human behavior and culture?

## Weather, Climate, and Culture

Climate conditions can really affect human behavior and culture. The climate has a powerful influence on our mood, activities, food, and even fashion. The climate determines energy usage, transportation, infrastructure, and water supplies. It certainly shapes cultures!

As Ecuadorians, we have the privilege of living in a place with warm and mild climate, but other countries are not as lucky. Some people face great climate challenges such as extreme heat or cold.

Source: <https://bit.ly/32lhEo9>

### Oymyakon, Russia: the Coldest Place on Earth

There is a little place in Russia called Oymyakon. It has only 500 **inhabitants**. The people that live there used to be **nomads**, but then they were forced to **settle** in this region. The coldest temperature ever registered in Oymyakon was -71 degrees Celsius. In this city, food is sold frozen and cars are left with their motors running all the time. The most common food is spaghetti with frozen blood.

Source: <https://www.youtube.com/watch?v=BgzkrfksvP4>

### Dallol, Ethiopia: the Hottest Place on Earth

Dallol may be the least explored place in the world. It is the home of the Afar people, a nomad group that survives thanks to the Awash River. The landscape of Dallol is similar to the planet Mars due to its **dryness**. The temperature can rise up to 41 degrees Celsius.

Source: <https://cutt.ly/hfjRR5L> & <https://cutt.ly/pfjREzu>



Oymyakon, Russia



Dallol, Ethiopia

#### Vocabulary

**nomad**. a person who moves from place to place instead of living in only one place

**settle**. to move to a place and make it your home

**inhabitant**. a person or animal that lives in a particular place

**dryness**. the quality of having very little water or liquid

Answer the following questions:

1. What is the coldest inhabited place on Earth?
2. What is the hottest inhabited place on Earth?
3. How can culture be shaped by climate?

# Oral Communication

## Why are there different seasons?

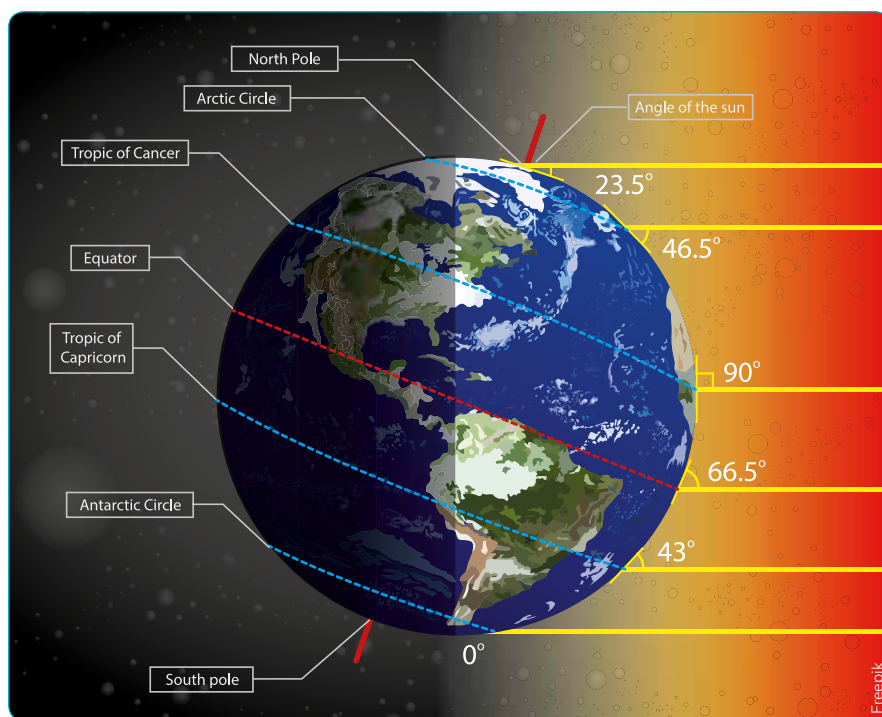
### Four Seasons Around the World

Many students have asked their teachers why there are four seasons in many countries, while we don't have them in Ecuador. Students also wonder why different seasons exist.

Some people believe that what causes seasons is the distance between the Earth and the Sun, but this is not true. What causes seasons is the planet's **axis** of rotation of 23.5 degrees.

Our country is always in the same position, no matter what the Earth's position is. This happens because we are between the Northern Hemisphere and the Southern Hemisphere. That is the reason why we only have dry and rainy seasons. Even though sometimes we would like to have snow in winter and warmer weather in summer, we do not have the four seasons.

Source: <https://scijinks.gov/earths-seasons/>



Earth's rotation

Listen to a friend who has traveled around many countries talk about how seasons are different in the Northern and Southern Hemispheres. Complete the following sentences based on what you hear.

The Earth tilts \_\_\_\_\_

relative to its orbital plane.

Throughout the year, different parts of Earth receive the Sun's \_\_\_\_\_

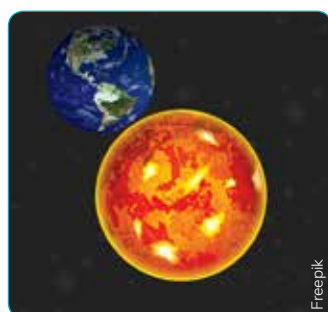
When it is summer in the Northern Hemisphere, it is \_\_\_\_\_

in the Southern Hemisphere.

As Ecuadorians, we do not have four seasons because we are between the \_\_\_\_\_

### Vocabulary

**axis.** a real or imaginary straight line going through the center of an object that is spinning



Winter



Spring



Autumn



Summer

# Reading

What happens in extreme weather conditions?

## Interesting Facts

Sometimes extreme weather conditions bring difficulties to people. Cold and snowy places may be hard for transportation of food and supplies, **commuting**, agriculture, and other activities. Despite that, many people live in places with extreme weather conditions, such as Alaska, where temperatures are usually between  $-45^{\circ}\text{C}$  and  $-51^{\circ}\text{C}$ .



Celebrated sled dog Balto with Gunnar Kaasen.

## Balto, the Sled Dog Hero

How many hero dogs do you know? Have you heard about Balto's story? Have you seen the movie about him?

In 1925, the little town of Nome, in Alaska, was hit by a deadly infection called diphtheria. There was not enough medicine to cure people, and the closest city to get **supplies**, Anchorage, was 800 km away. In order to help people get the medicine sooner, it was sent by train to Nenana, a small town closer to Nome.

Alaska's harsh winter made it impossible for planes to fly, and using the common roads would take over a month. Time was passing and people were getting sicker and sicker. Luckily, two people volunteered to carry the medicine with their **sled dogs**. The canine leader of one team was 12-year-old Togo, an experienced dog; while the leader of the other team was Balto, a 3-year-old inexperienced dog.

The dog sled teams started carrying the medicine on routes of 35 to 80 kilometers, completing the path fragment by fragment. Togo's team was responsible for carrying the medicine through the longest fragment of the route, and Balto's team needed to carry the medicine in the last fragment of the route. And in spite of the strong winds that **lifted** the sleds and dogs up into the air, Balto and his team never gave up and stayed on the road. The precious medicine arrived in Nome after five days, carried by Balto's team. It had taken five days of effort and courage of many hearts, hands, and **paws** to save the lives of the people in Nome. Balto and the other dogs became heroes.

<https://bit.ly/32lhEo9>

## Vocabulary

**commute**. to travel regularly to and from a place like work, school, etc.

**supplies**. things (such as food, equipment, medicine, etc.) that are needed for a particular purpose and will be used by a particular person or group

**sled dog**. a dog that is trained to pull a sled

**lift**. to rise up from the ground or some other surface

**paw**. the foot of an animal that has claws

Answer **True (T)** or **False (F)**. If it is false, write the correct statement.

1. Diphtheria attacked Anchorage in 1927. ☐
2. Planes took the medicine from one city to another. ☐
3. The medicine was transported only by Balto ☐
4. The distance between Anchorage and Nome was 35 to 80 kms. ☐

# Writing

## Why are the four seasons different?

### Colorful Changes

Complete the paragraph with the correct comparative or superlative form of the adjectives in the box.

hot

cold

short

dry

colorful

warm

long

Every season brings changes in the environment. The four seasons vary according to the location, but their main characteristics stay the same in the Northern and Southern Hemispheres. The four seasons are winter, spring, summer, and fall (also called autumn).

Winter is \_\_\_\_\_ season of the year. Some places may have snow or ice, while others can be very cold and rainy. Some animals change their appearance to adapt, and others travel to \_\_\_\_\_, sunnier places. Plants do not grow. Days are short.

In the spring, vegetation begins to grow, and animals return to warmer areas, often with their **offspring**. The weather is nicer than in winter. There is more rainfall. There are a lot of brightly colored flowers: it is \_\_\_\_\_ season.

Summer is the \_\_\_\_\_ season of the year. It is also the \_\_\_\_\_ season of the year, because there is almost no rain. If it is too hot, there can be **heat waves** and **droughts** that cause problems to people and animals. Summer usually has hot and sunny days. In some parts of the world, the days in summer last until 9 pm. Summer has \_\_\_\_\_ days of the year.

In the fall, the weather becomes cooler and days are \_\_\_\_\_, as they last less time than in summer. Many trees change their green for yellow, orange, or red and then their leaves fall.

Sources: <https://cutt.ly/1fjSTbz>

Write a paragraph about what is your favorite season from the ones described above. Write 50-60 words.

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### Grammar Note

We use **comparatives** to compare two things or two people.

Guayaquil is **larger** than Quito.

Quito is **more populated** than Guayaquil.

We use **superlatives** to show the difference between more than two things or more than two people.

Everest is **the highest** mountain in the world.

Everest is **the most dangerous** mountain in the world.



Four Seasons

### Vocabulary

**offspring**. the baby of an animal

**heat wave**. a period of unusually hot weather

**drought**. a long period of time during which there is very little or no rain



# Language Through the Arts

Can we make art using things we find in nature?

## Painting the Seasons



Use your creativity! You are going to make some artwork to represent the seasons. You can make a poster or a diorama.



*A fox in winter*



Instructions:

1. Make four trees using sticks and leaves. You can paste them in the box or on the cardboard.
2. Create four landscapes using paint, rocks, or other natural materials you find around you.
3. Paint the leaves of each tree according to its season. You may want to add some flowers or pictures of animals if you have them.
4. Show your artwork to your class or other classes and talk about the characteristics of each season.
5. Talk about the seasons we have in Ecuador and discuss the positive side of not having all four seasons.



Write down your thoughts about this experience.

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### Tip

Objective: You will be able to tell your family or friends about the four seasons and their characteristics. You can also explain to them why we don't have the four seasons in Ecuador.

Materials:

- A shoe box or cardboard
- Paint
- Leaves, sticks, little rocks, or any other material available in nature
- Glue



*Painting*

# Oral Communication

Can extreme weather conditions be dangerous?

## Heavy Rainfall and Its Consequences

Have you ever seen what happens if it rains too much, or if it is too hot? Are you prepared to act if that happens? What is the worst weather you have seen? Discuss these questions with your class.



Flood

Listen to the news about some extreme weather conditions and the disasters they can cause. Underline the piece of information that is not mentioned in the news.

1. Rainstorms are needed to maintain local water supplies.
2. Too much rain affects cities and streets.
3. If it rains too much, a little **stream** can become a dangerous river.
4. Flood **warning** systems can save people's lives.
5. Accidents are caused by ice and snow.
6. Heavy rains can cause great damage in agriculture.

In groups of three students, discuss measures that can be taken to avoid problems if it rains too much in your community. Write down some of your conclusions.

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Heavy rains

### Vocabulary

**water supply.** a source of water for a community, usually including reservoirs, tunnels, and pipelines

**stream.** a small river

**flash flood.** a flood of short duration generally resulting from heavy rainfall

**warning.** an alarm or signal

**casualty.** when a person/thing is injured, lost, or destroyed

**slippery.** when something is so wet or smooth that it can cause something/someone to slide or fall

**soil.** the upper layer of earth in which plants grow

## Communication and Cultural Awareness

What can we do to reduce the impact of natural disasters in our communities?

### Promoting a Culture of Disaster Preparedness

As we saw in the last pages, weather can cause natural disasters. However, there are many other factors that can also cause these events.

We live on an active planet. This means that it moves and reacts. Earth's movements can cause changes in the weather. In addition, there are many active volcanoes around the world, and our **tectonic plates** are always moving. This is why every place in the world faces the **threat** of a natural disaster. There has been major progress in technology that can help us prevent many disasters. However, there's still no way to predict some events, such as earthquakes.

Besides this, the way we have treated our planet has made natural disasters cause more destruction and **suffering**. This is why we have to be more responsible about the protection of natural resources, the environment, and nature in general.

It is important to promote better practices when building houses or other constructions, and to be careful when choosing the places in which we settle. Education is also a powerful tool to teach people how we can reduce the impact of natural disasters on our lives.

There are specific institutions in our country (like the Ecuadorian Secretariat for Risk Management) that are in charge of informing people about ways to prevent damage and lower the impact of natural disasters.



Planting



Pick up trash

#### Vocabulary

**tectonic plates.** Large pieces of the earth that move and can cause earthquakes

**threat.** the possibility of something bad or harmful happening

**suffering.** physical, mental, or emotional pain



1. Why are there natural disasters? Use complete sentences in your answer.

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2. What can we do to reduce the impact of natural disasters? Underline the correct answers:

- a. Learn about better ways to build our houses
- b. Use the special equipment available to predict earthquakes
- c. Take care of nature
- d. Choose dangerous places to live
- e. Educate people so we all know how to react if something happens.

3. Discuss these questions with your class. Then, talk to your family and friends about disaster prevention.

- d. Do you know about possible dangers in your community?
- e. Do you know what to do if a natural disaster occurs?



# Oral Communication



## Science

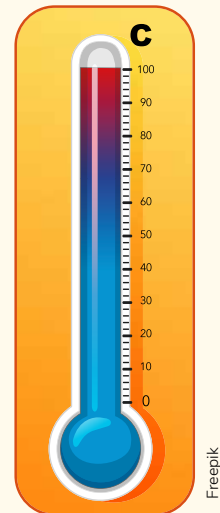
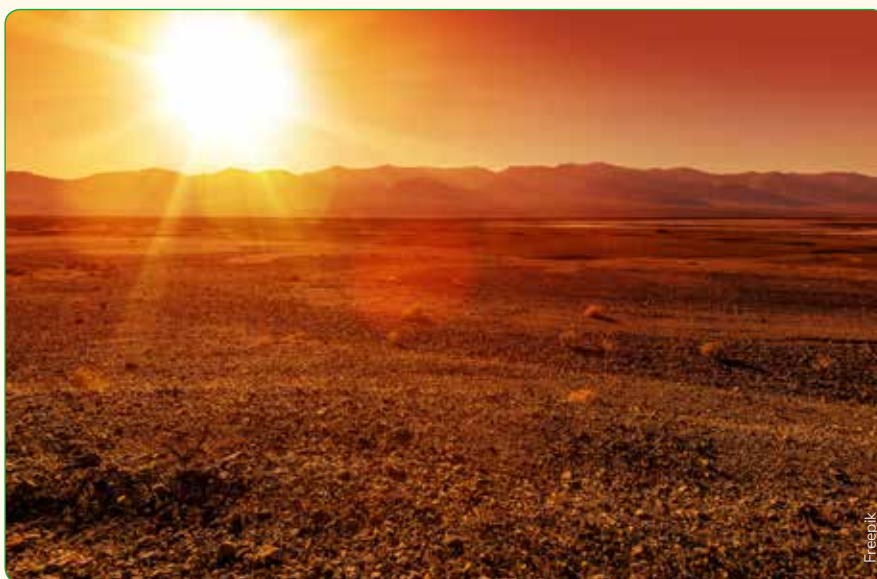
What happens in extremely hot weather?

### Extreme Temperatures

Extreme temperatures, either too high or too low, can damage our health and affect our normal abilities.



Have you ever been too hot or too cold? Do we have extreme temperatures in our country? Discuss the advantages of our climate.



### Vocabulary

**deadly.** causing or able to cause death

**dehydration.** losing too much water

**tiredness.** feeling a need to rest or sleep

**nausea.** the feeling you have in your stomach when you think you are going to vomit

**pulse.** the rhythmic movement of blood through your body that is caused by the beating of your heart and that can be felt by touching certain parts of your body

**chemical reaction.** a chemical change that occurs when two or more substances combine to form a new substance

**long-term.** occurring over or involving a relatively long period of time



Listen to the podcast and complete the following table with the mental and physical consequences of extremely hot weather.

Mental Consequences	Physical Consequences

# Reading

## What happens in extremely cold weather?

### Freezing!

We have learned about the effects of extremely hot weather. Now we are going to talk about extremely cold weather and how it affects people. Have you ever experienced intense cold? What did you do?

### Severely cold temperatures may affect your health. How?



Extremely low temperatures can affect you in many ways. For example, they can cause something called frostbite, an injury that makes your skin turn red and **numb**. Frostbite works like a cold burn; when the skin is exposed to the cold for too long, your **tissues**

can freeze and die. It can occur on your fingers, toes, ears, and nose. In our country, frostbite may happen in high snowy mountains.

Another effect of low temperature is hypothermia. This occurs when a person's body loses heat faster than it can be produced. It may cause a state of shock in which the respiratory system can fail.

Your body has some ways of protecting you against the cold. For example, shivering (which is when you tremble in the cold) helps your body generate heat. Additionally, there are some things you can do to protect yourself from the cold weather. In order to protect your **lungs**, it is suggested to cover your nose and mouth with a scarf or any available piece of clothing. When it is too cold, it is not recommended to practice sports outdoors. Remember that cold weather can also cause your skin to become dry and itchy, so you should apply **moisturizing** cream in the areas exposed to the cold. Even though we don't have extremely cold weather in our country, if we live in high, windy cities or towns, we have to take care of our health and wear warm clothing.

List all the recommendations of how to protect our health mentioned in the passage.



According to the passage, what is the meaning of the following words?

1. Frostbite: \_\_\_\_\_

\_\_\_\_\_

2. Hypothermia: \_\_\_\_\_

\_\_\_\_\_

3. Shivering: \_\_\_\_\_

\_\_\_\_\_

### Vocabulary

**numb**. unable to feel anything in a particular part of your body because of cold, injury, etc.

**tissue**. the material that forms the parts of our body

**moisturizing**. a substance that adds humidity or hydration to something, like a person's skin

**lung**. one of the two organs that people and animals use to breathe air

# Writing

Can you describe the weather in your community?

## A Postcard

Imagine you have some friends from another country that want to come and visit your community. Their country has the four seasons, and they are asking you to describe the weather in your city or town so they know what to bring.



Start writing your postcard. First, write the name of your town or community; you may also want to name one or two of its characteristics. Then, describe the normal weather conditions in your city/town so your friends know what to bring with them.

POSTCARD

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Hi, \_\_\_\_\_ !

I hope you are doing very well. I am glad you are coming to visit us. I live in \_\_\_\_\_. It has beautiful \_\_\_\_\_

The weather is \_\_\_\_\_

See you soon!

Sincerely,



# Language Through the Arts

Do we know how to react to extreme temperatures?

## Helping the Community

Although we live in a beautiful country with nice and warm weather, it is necessary to know what to do if we face extreme temperatures.

In order to inform other people and classmates about this, we are going to make a poster using infographics to tell others what to do when temperatures get too high or too low.

### What are infographics?

Infographics are visual representations of complex data or information that has to be presented quickly and clearly. They are similar to telling a story, but with graphics and short, complete sentences. You can create them in a computer or by drawing and pasting pictures. All infographics must have: 1. visual elements, and 2. facts or statistical data (numbers).

Source: <https://www.seguetech.com/infographics/>

#### Materials:

- Large piece of cardboard
- Colors, crayons, markers
- Pictures you have
- Glue and tape
- Any other material you have



**Step 1.** Summarize all the recommendations for extreme weather conditions.

**Step 2.** Get in groups of 4-5 students and choose either extremely high or extremely low temperatures.

**Step 3.** Prepare your infographics with the recommendations and show them to your teacher.

**Step 4.** Present your infographics. Put them all around the school so other students can see them and learn about the recommendations.



# Oral Communication



## Social Studies

Are we prepared for extreme weather conditions?

### Do's and Don'ts of Natural Disasters



Due to changes both in the climate around the world and in the natural cycles of the planet, we are experiencing more and more natural disasters. Are we prepared for them? Do you know what to do? Share your thoughts with the class.

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Listen to experts from the Ecuadorian Secretariat for Risk Management give some advice about actions and attitudes we need in order to be prepared for natural disasters. Complete the chart with the do's and don'ts mentioned in the audio.

Do's	Don'ts
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Natural disasters



Achievement Level - Reading

Individual activity .....

- 1 — Read the passage about recommendations on preparing for natural disasters. Then organize the information in the chart below by writing the different places mentioned and the actions we can do to be more prepared.

Governments around the world are trying to mitigate the impact of natural disasters. International committees recommend that countries create education programs and other information methods so that the population has access to disaster prevention information.

The committees give different recommendations for different places. At home, we should look for information on household survival plans, precautionary measures, and emergency supplies. In our community, we should promote planning, education, and preparedness in hospitals, churches, schools, businesses, neighborhood organizations, and other groups. In schools, we need to protect children and their families through information on natural disaster preparedness, warnings, and responses. In the workplace, we should ensure the safety and security of workers. In universities, it is necessary to incorporate disaster reduction in the education of all relevant professions. The media (radio, web, and TV news) should develop procedures to inform the public before, during, and after a disaster. Finally, professionals should provide continuous education and information about natural disasters.

Place	Actions

### Achievement Level - Grammar

#### Individual activity .....

- 2 — Write four statements about the weather in different places in the world: two using comparatives and two using superlatives. Example: New York is colder than Miami in the winter.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

### Achievement Level - Vocabulary

#### Individual activity .....

- 3 — Choose five words from the vocabulary studied in the previous lessons and write a sentence using each of them showing that you understand the meaning.

1. \_\_\_\_\_ . \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_ . \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_ . \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_ . \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_ . \_\_\_\_\_  
\_\_\_\_\_

I'm completing this self-evaluation based on what I learned in the module.

#### Self-evaluation

Topics	I check ✓ the box that most applies to me			
	I do it very well	I do it somewhat well	I can improve	I can't do it without help
Read and understand information related to weather				
Understand radio programs with some scientific facts				
Understand comparatives and superlatives				



# Project 1

## Education for Prevention



Does your school or community have prevention programs?

As students, you can start helping your community or school by organizing prevention programs with your teacher. When people are informed, the dangers and negative consequences of natural disasters can be lowered.



- Step 1.** Do some research about natural disaster plans in your school or community. Are there prevention programs, evacuation maps, safe places?
- Step 2.** Now you know what is missing and what you can do to help. Form groups of 4-5 students. Choose the way you are going to present this information to other people.
- Step 3.** Prepare your presentation. Be sure to use some type of visual aid, and pay attention to the grammar and spelling you use on it. Get the materials to make the model.
- Step 4.** Present it to the class and talk about some theories and explanations using past modals for speculation.



FreePik

## Objective

Use your creativity to inform people in your school or community about possible dangers of natural disasters.



Answer the following questions.

1. What did you learn about the prevention of natural disasters?

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2. Do you think your community can easily follow your plan? Why or why not?

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# Let's Review

## Reading

### What Is a Polar Climate?

Can you imagine a place where you can make snowmen, have snowball fights, live in an igloo, and wear thick coats, boots, and gloves every day of the year? There are places like this on Earth, and they are located in the polar climates of the North Pole and the South Pole.

A climate is the type of weather found in a particular place. A polar climate is a place where the temperature is usually below freezing. These places are dry, icy and covered in snow most of the year. This happens because polar climates don't get direct sunlight like other parts of the Earth do. Some animals, like polar bears, live in the polar climate of the Arctic.

1. Circle all the true statements.
  - a. In polar climates, you can wear any kind of clothing during the year.
  - b. Polar climates are humid.
  - c. There are polar climates in both the North and South Poles.
  - d. Polar bears live in the polar climate of the Antarctic.
2. Answer the questions with complete sentences.
  - a. What is a climate? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - b. Why are polar climates so cold? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Writing

Read the following information about the North and South Poles. Then, write three sentences comparing them.

### Arctic (North Pole) vs. Antarctic (South Pole) Similarities and Differences

Characteristics	North Pole	South Pole
Area	55 million square miles (in winter)	54 million square miles
Height	2 m above sea level	2835 m above sea level
Temperature	+ 13° C to -43°C	-12.3 °C to -62 °C
Animal Life	Several species of large land animals	Only one species of insect
Human life	Some native inhabitants	No inhabitants

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_



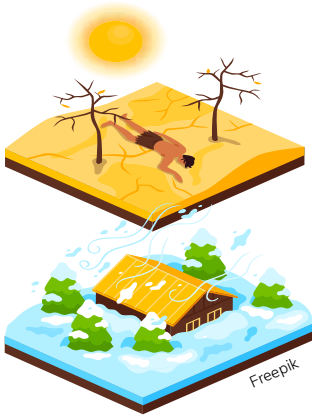
Polar bears

# Communication and Cultural Awareness

Can natural disasters affect culture?

## Culture

**Resilience:** This word has a many uses when we talk about how people recover after passing through bad times. It refers to the ability to become strong, healthy, happy, or successful again after going through **tough** circumstances.



## Cultural Changes and Natural Disasters

Culture can be understood as everything we are, eat, think, dress, etc., as well as the place in which we live. Our surroundings are part of who we are. When they are affected, our culture can be affected too. Sometimes this can happen because of natural disasters.

**Earthquakes, landslides,** floods, heat waves, fires, and other disasters can affect or destroy monuments, archeological sites, and **landscapes**. If these places are destroyed, which can be representations of culture, people may feel that they have lost part of their cultural identity forever. However, human beings have always adapted and reshaped culture by adjusting to different circumstances. Historically, large populations have moved away and started again in new **settlements**, creating new customs and building new monuments and houses. Other groups of people have stayed in the same locations and adapted their lives to the **risks** caused by natural disasters.

People experience great pain after natural disasters but the **resilience** they show after the losses they face is also related to their culture. This is because it is usually based on their beliefs and religion. We can definitely say that the relationship between humans and nature is essential in culture.

## Vocabulary

**earthquake.** a shaking of a part of the Earth's surface that often causes great damage

**landslide.** a large mass of rocks and earth that suddenly and quickly moves down the side of a mountain or hill

**landscape.** an area of land that has a particular quality or appearance

**settlement.** a place where people have come to live and where few or no people lived before

**risk.** the possibility that something bad (such as an injury or loss) will happen

**tough.** something that is difficult

Answer **True (T)** or **False (F)**. If it is false, write the correct statement.

- Monuments, archeological sites, and landscapes do not represent people's culture. ☐
- When representations of culture are destroyed, people may feel like they lost part of their cultural identity. ☐
- People always move to a new location after suffering the impact of natural disasters. ☐
- Culture always stays the same, even after our surroundings change. ☐
- The relationship between humans and nature is not important in culture. ☐

# Oral Communication

How many natural disasters can you think of?

## Earthquake in Ecuador



Think of some natural disasters that have recently happened in Ecuador. Where were you during the event? How do you remember it? Talk to your teacher and classmates about it.



Pedernales, 2016

### Interesting Facts

The Pacific Ring of Fire, also known as the Circum-Pacific Belt, is a path along the Pacific Ocean characterized by active volcanoes and frequent earthquakes. The majority of Earth's volcanic eruptions and earthquakes take place along the Ring of Fire.

Source: <https://n9.cl/jsbz>



### Vocabulary

**quake.** earthquake

**tremor.** a minor earthquake



Underline the correct statement:

1. Ecuador was hit by two major earthquakes in 1987 and 2016.
2. In 2016, 70,000 people were affected by the **quake**.
3. 35.000 houses were damaged or destroyed.
4. In 2016, a **tremor** was felt in most locations of the country as well as in Colombia and Brazil.
5. In 1987, one thousand people were killed by the earthquake.
6. In 2016, Ecuador was hit by other natural disasters besides the earthquake.
7. Healthcare facilities were not affected.



# Reading

## Can pandemics be considered disasters?

### Interesting Facts

A bird-like **beak** mask was worn by doctors to protect them from being infected by the disease, which they believed was in the air. To battle this imaginary **threat**, the long beak was filled with sweet-smelling plants such as dried flowers, herbs, and spices.

Source: <https://n9.cl/gqa2j>

## The Black Death: One of the Most Devastating Pandemics in History

There are some **illnesses** that kill many people. Even though they are not caused by nature itself, sometimes they are considered as natural disasters because they cause a great amount of suffering. Do you know if something like this has happened in our country?

During the mid-1300s, a terrible disease called the Black Death spread across Europe and Asia. The disease was caused by a bacterium that circulated among wild **rodents**. At that time, people were surrounded by black rats that lived in their houses and roads—but it was not the rats who caused this terrible disease, it was their **fleas**. After killing thousands of rats, fleas looked for other **hosts** to live on, so they started **biting** humans. The disease was spread across many countries because of **ship rats**, and also because it was highly contagious. It was called the Black Death because it caused some parts of the skin to become black. It also caused lumps as big as oranges to appear under the arms. Doctors could not find a cure for it, and most people died 12 hours after becoming sick. 60% of Europe's population was killed in this pandemic.

Sources: <https://n9.cl/0vcdF>

### Vocabulary

**illness.** a specific condition that prevents your body or mind from working normally; a sickness or disease

**rodent.** a small animal (such as a mouse, rat, squirrel, or beaver) that has sharp front teeth

**flea.** a very small insect that lives on animals and sucks their blood; it has strong legs used for jumping

**host.** an animal or plant in which another animal or plant lives and gets its food or protection

**bite.** to press down on or cut into something with the teeth

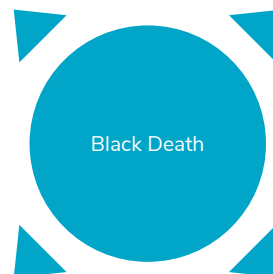
**ship rats.** rats that lived in ships and traveled all around the world

**beak.** the hard, usually pointed parts that cover a bird's mouth

**threat.** the possibility that something bad or harmful could happen



Complete the graphic organizer with some characteristics of the Black Death. Use these questions to guide you: What caused it? Why did it spread? What were its characteristics? How many people were killed?





# Writing



## Social Studies

Are there any famous historic natural disasters?

### The Eruption of Mount Vesuvius in 79 AD

#### Controlled writing



#### Grammar Note

##### Simple Past Passive

To make a past passive form we use **was/were + past participle** of the verb.

The **passive voice** is used to show interest in the person or object that experiences an action rather than the person or object that performs the action. In other words, the thing or person that receives the action becomes the subject of the sentence.

Example:

Active: A **bacterium** caused the **disease**.

Passive: The **disease** was caused by a **bacterium**.

Source: <https://n9.cl/ywz6b>

Complete the following story about a natural disaster using the verbs in the box in simple past passive.

change

discover

surprise

cover

throw

recover

Mount Vesuvius is an active volcano in southern Italy. It is famous for its eruption in the year 79 AD. The eruption of Mount Vesuvius led to some really interesting discoveries about the cities of Pompeii and Herculaneum. Initially, nobody knew about the existence of these cities.

Then, their ruins \_\_\_\_\_ by accident in the 18th century; and

people \_\_\_\_\_ by what was found among them. The cities' ruins had thousands of statue-like remains of the victims of the volcanic

eruption! Pompeii and Herculaneum's citizens \_\_\_\_\_ by the ash and mud of the volcano after the explosion. This ash, mud,

and rocks \_\_\_\_\_ out of the volcano at temperatures of about 300° Celsius in pyroclastic surges. It is known that there were about six pyroclastic surges, with some periods of calm between them. This may have caused people to stay instead of looking for safe places to go. During the explorations, many paintings about old

Pompeii \_\_\_\_\_, too. They showed how the landscape \_\_\_\_\_ by the powerful eruption.

Source: <https://n9.cl/u5ryh>

#### Interesting Facts

A pyroclastic flow is a fast-moving current of hot gas and volcanic matter that moves away from a volcano. Pyroclastic flows travel at about 100 km/h on average, but they are capable of reaching speeds of up to 700 km/h.

Source: <https://bit.ly/32LmEnn>



#### Vocabulary

**recover**. to get back something that was stolen or lost

# Language Through the Arts

## Why do volcanoes erupt?

### Making a Volcanic Eruption

Volcanic eruptions happen when gas bubbles inside magma, which is hot liquid rock, expand and cause pressure to build up. This pressure pushes on weak spots in the earth's surface, or crust, causing magma to exit the volcano.

Sources: <https://n9.cl/0vcdF>



This experiment will help you understand how volcanoes erupt!

1. Put a container in the middle of the cardboard sheet. It can be an old water or soda bottle with its top cut off.
2. Cover the sides of the container with clay or wet paper and glue to create the shape of the volcano. Don't cover the top of the container!
3. Pour the water, vinegar, water mixed with detergent, and food coloring into the container. Do not add your baking soda yet.
4. Add the baking soda when you are ready for the eruption. Simply wrap the baking soda in a tissue and drop it into the volcano. The baking soda will react with the vinegar and cause an eruption.

#### Materials:

- 1/2 cup of water
- 1/4 cup of vinegar
- 1/2 cup of water mixed with detergent
- Red or orange food coloring
- 2 tablespoons of baking soda
- Clay or wet paper with glue
- A used plastic bottle or container
- A tissue or a small piece of paper napkin
- A sheet of cardboard



Draw the steps to make a volcano erupt.

Step 1.	Step 3.
Step 2.	Step 4.

Result


# Oral Communication

Can climate cause natural disasters?

## Hurricanes, Typhoons, Cyclones, and Tornadoes

Have you ever heard about hurricanes and tornadoes? Fortunately, they are not common in our country due to its location. However, they occur pretty often in countries near us and cause great damage in those places.

### Vocabulary

**funnel.** shaped like an ice cream cone with a tube extending from its bottom



Write the name of the natural disaster under each picture.



Listen to a teacher explain the differences between hurricanes, typhoons, cyclones, and tornadoes. Then, complete the activities.

- Complete the sentences about tropical storms:
  - In North America and the Caribbean, they are called
  - In the Indian Ocean they are called
  - In Southeast Asia they are called
- Match the natural disaster with its corresponding characteristics. Try to use different colors.

1. Tornadoes

2. Hurricanes

Mostly occur over the ocean.

Are violent spiraling funnel clouds.

Last days or even weeks.

Have winds of about 480 km/hour.

Are larger.

Are rotating storms.

Last from a few seconds to some hours.



# Communication and Cultural Awareness



## Social Studies

How bad can a hurricane be?

### Interesting Facts

It is estimated that about 2,000 people died because of Katrina. This is in part because assistance for the people who evacuated took more than a week to arrive to New Orleans and many died because of the unhealthy and overcrowded conditions.

Source: <https://n9.cl/ct6tm>



2005, New Orleans, Hurricane Katrina

### Hurricane Katrina

Natural disasters cause great damage and suffering and can also bring changes to a population and culture. Hurricane Katrina is a good example of this phenomenon.

In late August 2005, New Orleans, a city on the East Coast of the United States, was struck by hurricane Katrina, one of the worst and **costliest** hurricanes in modern times. The city was built **below** sea level, and during the hurricane the strength of the water damaged the protection system the city had in place. This caused the city to flood. Some people were evacuated, but some decided to stay and others could not leave. Since the floods were not contained, 80% of the city was covered in water in a couple of days. More than 100,000 homes were destroyed, and more than 90% of the population left the city looking for shelter. Today, the population in the city is 29% less than what it used to be, however it became more diverse after its amazing rebirth. Many people that worked in the reconstruction of the city **settled** there, mixing different customs and traditions. The tourism and economy of the city also increased in recent years, which makes it one of the greatest revivals of a city. Now, it truly is a “New” Orleans!

Source: <https://n9.cl/zt2g>

Answer the following questions using complete sentences.

1. Where is New Orleans located?  
\_\_\_\_\_
2. Why did the city flood?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. How many people left the city because of the hurricane?  
\_\_\_\_\_
4. Why is the city more diverse now?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Why do you think population in the city was reduced after the hurricane?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



### Vocabulary

**costliest.** the most expensive

**below.** in a place lower than something else

**settle.** to move somewhere and make it one's home



# Oral Communication

What is the most powerful earthquake ever registered?

## The Valdivia Earthquake



Have you ever felt an earthquake? Was it powerful? Are you used to feeling earthquakes? Do you know how we measure the magnitude of an earthquake? Get in groups of three students and talk about some of your experiences during quakes.



*Chile earthquake of 1960 Encyclopedia Britannica, Inc. (May 22, 1960).*



*Houses destroyed by the Valdivia earthquake*

### Interesting Facts

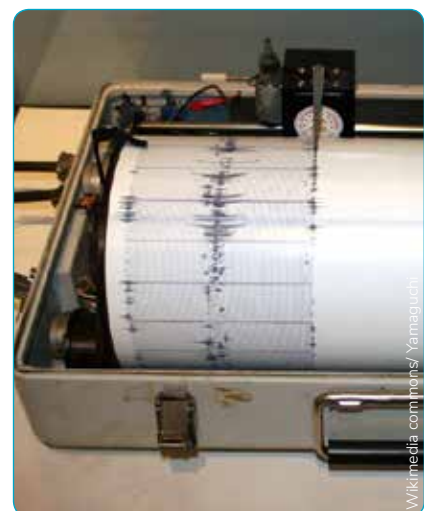
In addition to causing damage in many regions of Asia and Oceania, the tsunami arrived nearly 15 hours later in the Hawaii Islands (which are located 10,000 kilometers away from Valdivia) and killed 61 people and caused millions of dollars of damage.

<https://n9.cl/wo2v3>



Listen to an interview with a geologist about earthquakes on a radio program. Which of these statements are mentioned? Underline them.

1. The most powerful earthquake in history had a magnitude of 9.9.
2. Scientists know about natural disasters in ancient times because of texts, paintings, and stone figures.
3. Thanks to the Richter scale, we can know the magnitude of all earthquakes in history.
4. Earthquakes can cause tsunamis.
5. Two million people were killed by the Valdivia earthquake.
6. The quake injured 3,000 people.
7. Countries far from Chile were greatly affected by the tsunami.



*Kinematics seismograph*

# Reading

## What is a tsunami?

### Interesting Facts

The beaches of Indonesia are famous worldwide because of their beauty and comfortable resorts. From the 5,400 people who died, 2,000 were tourists who had been visiting the islands. Deadly waves also reached the coasts of Somalia, Tanzania, and Kenya in Africa, killing 300 people.

Source: <https://n9.cl/r6qv>



## The Indian Ocean Earthquake and Tsunami

Do you know what a tsunami is? Have you heard about any tsunamis that have happened recently?

Tsunamis are giant waves caused by earthquakes or volcanic eruptions under the sea. Tsunami waves do not dramatically increase in height while they are **deep** in the ocean, but as the waves travel **inland**, they become higher and higher.

On December 26, 2004, an **undersea** area off the west coast of Sumatra was struck by the third-most powerful earthquake in recorded history. It had a magnitude of 9.3, and it created a massive tsunami that killed people in 14 separate countries. It is estimated that between 230,000 and 280,000 people were killed. In some places like Indonesia, the tsunami waves **reached** 30 meters in height. Images and videos recorded by many tourists travelled around the world. Before this event occurred, people did not know how dangerous tsunamis were; it was only after this happened that governments from around the world got together in a global cooperation effort for risk reduction by installing earthquake sensors and creating early **warning** systems.

<https://n9.cl/d74z>

Circle the correct answer

- Inferring: Underline the facts you can infer after reading the text.
  - a. Tsunamis can be as strong as the earthquakes that cause them.
  - b. One single, powerful earthquake underwater can cause a huge tsunami.
  - c. Many tourists were in safe places when the tsunami hit the beach.
  - d. We can predict a future earthquake and tsunami.
  - e. A tsunami wave can cause great destruction.
  - f. Before the 2004 Indian Ocean Earthquake, there was no equipment to warn countries of underwater earthquakes.
  - g. There was an early warning about the 2004 Indian Ocean tsunami.
  - h. Tsunamis cannot travel long distances.

- What is the most interesting fact you learned about tsunamis?

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### Vocabulary

**deep.** located far inside something

**inland.** in, into, or toward land: away from the coast

**undersea.** below the sea or the surface of the sea

**reach.** to grow, develop, or increase to (a particular amount, size, etc.)

**warning.** something (such as an action or a statement) that tells someone about possible danger or trouble

# Writing

What are some of the effects of a natural disaster?

## Cause and Effect



- Step 1.** In the graphic organizer, brainstorm ideas about natural disasters described in the previous pages. Think of their consequences and write your ideas in the boxes on the right.
- Step 2.** Take your ideas from the graphic organizer and develop them into a paragraph of 60-70 words in your notebook. Be sure to use the simple past passive tense as well as connectors of cause and effect.
- Step 3.** Read what you have written and see if you need to change anything.
- Step 4.** Exchange your paragraph with a partner. Read your partner's paragraph. Discuss these questions about your paragraphs with each other:
- a. Can you distinguish the cause and effects?
  - b. Is the paragraph well-organized?
  - c. Are there any grammar, spelling, or punctuation mistakes?
  - d. Did the writer use the correct words?
- Step 5.** Consider the comments from your partner and make any necessary changes. Then turn in the final version to your teacher.

## Culture

In writing, cause and effect is a method of paragraph development in which a writer analyzes the reasons or the consequences of an action, event, or decision.

A cause-and-effect paragraph or essay can be organized in various ways.

<https://tinly.co/6gdP1>

## Grammar Note

Use these connectors to show cause and effect: because of, in fact, in order to, due to, as a result, as a consequence, for this reason, consequently, therefore.

### Cause

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### Effect

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# Language Through the Arts

Can we recreate tsunamis?

## Interesting Facts

"Tsunami" comes from Japanese, and it means "wave in the harbor." Tsunamis can be caused either by underwater earthquakes or by huge landslides on islands.

### Materials:

- A 2 to 3-liter soda or water plastic bottle
- Some small stones and soil
- Water

### Tip

This activity will help you understand more about earthquake science and preparedness. It can be done at any time, but make sure to do it outdoors to have more fun and avoid making a mess indoors.

## Vocabulary

**avoid.** to prevent the occurrence of (something bad, unpleasant, etc.)

**harbor.** a part of the ocean, a lake, etc., that is next to land and that is protected and deep enough to provide safety for ships

**upright.** positioned to be straight up: vertical

**still.** without moving: without motion

**hill.** a formation similar to a mountain, but much smaller and rounder

## Tsunami in a Bottle

This activity will help you understand more about earthquake science and preparedness. It can be done at any time, but make sure to do it outdoors to have more fun and avoid making a mess indoors.

### Instructions:

- Step 1.** Fill about  $\frac{1}{4}$  of the bottle with the soil and stones. Then put the bottle upright.
- Step 2.** Fill the bottle with water very slowly, and then keep it still for a moment.
- Step 3.** Now, carefully put your bottle in a horizontal position. You will see a small hill made up of the soil and rocks you put in. Wait for a moment until the water is still.
- Step 4.** Now use your fingers or hand to press the bottom of the "ocean" (your bottle), pretending it is an earthquake.
- Step 5.** Watch, draw, and describe what happened in your experiment in the following chart.

1	2
3	4

Describe what happened to the water inside when you pressed the bottle.

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# Oral Communication

How far can a tsunami travel?

## The 2010 Tsunami in Japan

Recall what a tsunami is and how it is formed. Check the previous information about tsunamis. Did you know that some years ago tsunami waves arrived in some parts of Galapagos?



### Interesting Facts

According to Collins Dictionary, the large majority of languages in the world use the Japanese word “tsunami” to refer to this natural phenomenon. The only thing that differs slightly is the pronunciation between different languages. Some don’t pronounce the first “t” sound, and some pronounce the vowels a little differently.

Source: <https://bit.ly/3hHbLas>

- Listen to the radio broadcast and complete the statements. Tsunamis can be as strong as the earthquakes that cause them.
  - The effects of the enormous quake \_\_\_\_\_ all around the world, from Norway to Antarctica.
  - Residents of Tokyo received a \_\_\_\_\_ before the strong shaking.
  - Over \_\_\_\_\_ buildings were completely destroyed.
  - Garbage from the tsunami has continued \_\_\_\_\_ the ocean years later.
  - The earthquake lasted for about \_\_\_\_\_.

- Answer the question using complete sentences.

Do you think that early warning systems are important when facing natural disasters? Why?

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Discuss the following questions with 2-3 classmates.

1. Do tsunamis scare you?

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2. What natural disasters are the scariest for you? Why?

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3. Do you think there is anywhere in the world that doesn't have natural disasters?

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## Achievement Level - Reading

### Individual activity .....

#### 1—Hero Dogs in Natural Disasters

The brave Frida is part of the Mexican Navy's Canine Unit. She is 7 years old and has been dispatched to a few natural disasters, including the aftermath of the 7.8 magnitude earthquake in Ecuador in 2016. The lovely Labrador retriever helps authorities search through rubble to find survivors. So far, Frida has managed to rescue 53 people, including 12 people in live-threatening situations. She had a lot of tough work after the 8.1 magnitude earthquake that devastated Oaxaca in 2017. She tried to save people trapped in debris after the deadly earthquake killed at least 245 people and injured more than 2,000.

In Ecuador, 120 dogs that belonged to the country's firefighter rescue team also helped save people after the quake. Sadly, one of them died because of injuries. The name of this hero dog was Dayko.

Trained rescue dogs are true heroes, and we have yet another reason to call dogs wonderful animals.

Write **True (T)** or **False (F)**. If the statement is false, correct it.

1. Frida is a Mexican rescue dog. ☐
2. Rescue dogs help find survivors after natural disasters. ☐
3. In the 2016 earthquake in Ecuador, 200 dogs helped rescue people. ☐
4. Frida has rescued 63 people in her career. ☐
5. Dayko was a Mexican dog that was injured and died as a hero. ☐

### Achievement Level - Listening

Individual activity .....

- 2— Listen to the audio about the most dangerous disaster that happened on Earth. Then, infer the correct answer to these questions.

The passage is talking about:

- a. A great storm
- b. Asteroid impacts

The largest species killed by this natural disaster were the:

- c. Dinosaurs
- d. Fish

### Achievement Level - Writing

Individual activity .....

- 3— Write about the most interesting fact you learned in this module.

I think the most interesting thing I learned is .....

.....

because .....

.....

.....

.....

.....

.....

I'm completing this self-evaluation based on what I learned in the module.

#### Self-evaluation

Topics	I check ✓ the box that most applies to me			
	I do it very well	I do it somewhat well	I can improve	I can't do it without help
Understand and use indefinite pronouns				
Talk about the past using "used to"				
Recognize and produce the /k/ sound				

