

How Climatic Changes Can Affect Our Life?

Elizabeth Ortiz
Brookline Elementary School

INTRODUCTION

I was raised and educated in the country of Colombia. Colombia is a beautiful place with exotic weather that attracts many tourists. We do not have seasons because we are near the equator. We are privileged, however, to have a great variety of temperatures associated with our mountainous topography. We can pick and choose our weather by simply traveling into the mountains that are no more than a couple of hours from home. We have the choices of cool, warm, and very hot areas. Like many children, when I was a pre-schooler I thought that temperatures around the world were the same as in Colombia. In elementary school I learned that there were different climates. Curiously, I never experienced a very hot summer until I arrived in Houston. It was then that I felt extreme heat for the first time and began to understand the concept of seasonality. Today, I ask myself, "How will climatic changes affect our lives?" This question has many answers, depending upon the age of the students. For this reason, I have decided to create a unit that will address the needs of the inquisitive minds that we encounter in early childhood education.

In today's society, students are exposed to increasing amounts of information and have many more advantages than in previous generations. I truly believe that contemporary young students will respond to topics pertaining to science and the weather with enthusiasm. After considering the best topics for a thematic unit, the following questions came to mind:

Do you know what "season" means? Do you know why the Earth has seasons? How many seasons are there? How do they change from one to the other? How do seasons impact the population in different regions?

Thus I decided to create a special unit for pre-kindergarten students where the little ones can experience the most alluring aspects of weather and the seasons. In my current classes I have numerous students who can carry on a conversation pertaining to different topics. They know and understand more than what we expect of them. Therefore, I see myself teaching and challenging my students in a manner that goes beyond the traditional early childhood curriculum.

I know that this weather unit will generate considerable interest among my students. The unit involves different activities that incorporate TEKS and Project CLEAR objectives. This unit will allow students to better understand concepts such as sun, earth, clouds, temperature, cold weather, warm weather, and hot weather. At the same time they are going to learn the early childhood basis for teaching social skills and other basic TEKS skills (i.e., colors, days, numbers, letter sounds, basic words, geometric figures, and so on). The student will be taught basic letters, sounds, vocabulary words, images, instructions, and hands-on activities that will culminate in a final project that will address the influence of climatic changes on our lives.

Students can engage in different activities during a three-week period, in which they learn to understand the differences between the seasons. They will be allowed to analyze, compare, create, and explore seasons. The unit will develop hands-on activities, dramatic stories, songs,

and reading stories, to link all the new concepts to real life. They can represent their data and research in a journal through drawings and pictures.

OBJECTIVES

This thematic unit is intended for use as part of the pre-kindergarten curriculum where the majority of subjects are integrated. The lessons will focus heavily on the TEKS and Project CLEAR. The student will:

- SCI. 4.04. Begin to observe and describe changes in the weather.
- SCI. 3.06. Begin to identify changes in position and discuss the changes using correct vocabulary.
- SCI. 3.04. Begin to observe and discuss changes in temperature.
- S.S. 3.03. Demonstrate an understanding of the basic needs of food, clothing, and shelter shared by all people.
- ART. 1.01. Identify selected combinations of colors, forms, and lines.
- SLA. 3.13. Participate in sharing ideas for class books/stories.
- SLA. 1.01. Listening for different purpose.
- SLA. 2.26. Identify and sort pictures of people, places, things and actions.
- MATH. 2.04. Recognize simple patterns and predicts what comes next when patterns are extended.
- MATH. 3.06. Recognize when a shape's position or orientation has changed.
- MATH. 2.03. Recognize and describe patterns in the environment.
- MATH. 3.04. Sort objects into groups by an attribute.
- MATH. 5.01. Participate in creating and using real and pictorial graphs.

RATIONALE

This season unit has the potential to generate a lot of interest among early childhood students. The unit will involve different activities that incorporate TEKS and Project CLEAR. The students will be taught basic letters, sounds, vocabulary words, drawings, instructions, and hands-on activities that will culminate with a final project involving the creation of a facsimile of each season.

The season unit will provide the students with various realistic activities that will allow them to obtain a better understanding of their atmospheric environment. The unit is designed to be developed in three weeks. During the first week students will learn different concepts related to planet Earth, such as positioning, the hemispheres, and solar and planetary movements. Students will make models, and they will imitate movements. Teachers are going to read interesting books and display a variety of pictures.

During the second week, students will develop an amazing book called *Las cuatro Estaciones*. In it students are going to illustrate the four seasons, proving that they understand why it is hot in some places (and at different times) and why it is cold in others.

In the third week they will create charts and graphics about weather and seasons. Here they can relate the kind of clothing that people wear with each season. The end result is that students will be knowledgeable, tolerant, and sensitive to the environment in which they live.

UNIT BACKGROUND

Weather and climate are actually very different topics. "Weather is what we experience each day. Climate is the sum of all weathers over a certain period, for a region or for the planet as a whole" (Flannery 20).

Seasons

Do you know why the earth has seasons? Seasons are the result of the inclination of the Earth's axis. The earth rotates around the sun, but because of inclination some parts of the earth receive more sun in certain times of the year.

How do seasons merge with one another? Everything depends on the inclination of the earth's axis. This inclination is always 23.5 degrees (Fig. 1). As the Earth rotates, one part of the planet is most exposed to the sun rays. The northern and southern hemispheres have opposite seasons; so, when it is summer in the northern hemisphere, it is winter in the southern hemisphere, and vice-versa.

Do you know what "season" means? A season is a period of the year characterized by distinct weather and climatic conditions. In general, if the sun is low above the horizon, the weather will be cold (or less warm). If the sun is high above the horizon, the weather will be hot (or less cold).

How many seasons are there? The Earth has four different seasons in temperate zones – winter, spring, summer, and fall (Fig. 2). Winter is the coldest season. The temperature on winter days is low, and the presence of snow may be common. Days are shorter than in other

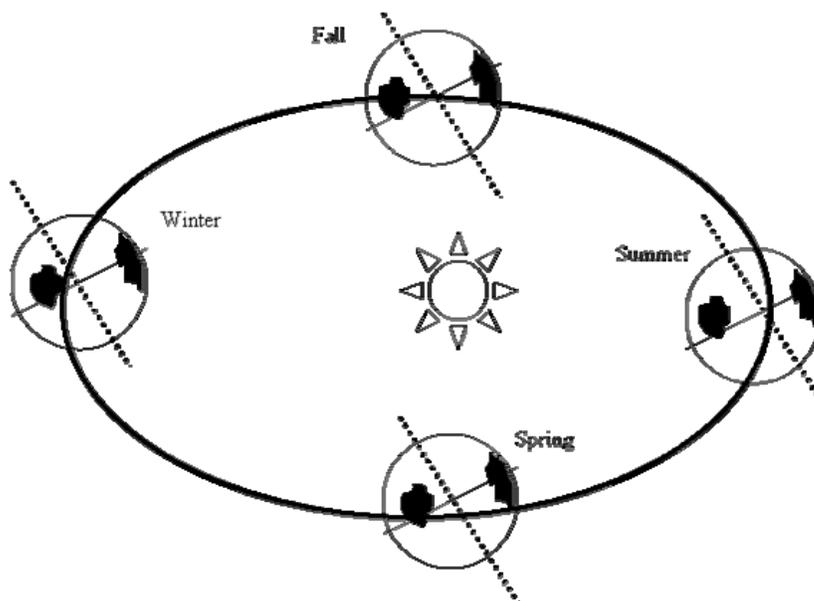


Figure 2. Earth's Orbit

seasons. Spring is the season in which day and night are very nearly the same lengths and temperatures begin to warm. Plants grow and flowers bloom. This season occurs between winter and summer. Summer is a hot season; the days during this season are the longest. As Flannery says: "Light is important to us, of course, for we are creatures of the day" (23). This is the special season to go to the beach. Like spring, autumn (fall) experiences days and nights of similar length. Fall is the season, during which leaves change color (red, yellow, and brown) and fall from their parent trees and shrubs. Temperature starts to cool. Fall is always the transition between summer and winter.

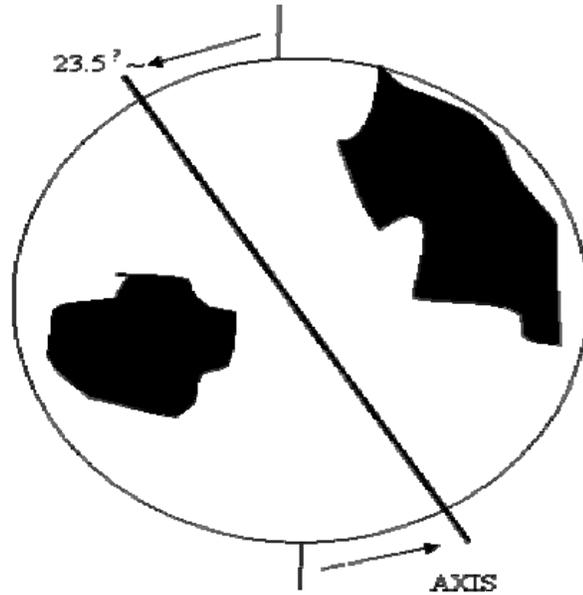


Figure 1. Axial Tilt or Inclination

In tropical and equatorial zones there are two seasons: a rainy season and a dry season. The seasons in those areas are categorized by the amount of rain that falls in each period. Depending on the time of the year, it may be very wet or very dry. Usually, though, the dry season is winter and the wet season is summer.

How do seasons impact the population in different regions? Animals and people are affected by seasons. During cold periods animals look for shelters to avoid being exposed to the cold weather. Some of them, like bears, hibernate. People have to change their clothes, and begin wearing coats, gloves, boots, hats, socks, and scarves. During warm seasons animals set out to find food to keep in their shelters during cold seasons. People wear different, lighter clothing, such as shorts, t-shirts, and sandals. They also use sun block to avoid sunburn.

LESSON PLANS

The lesson plans that I shall present have been designed for Pre-kindergarten students. Songs can be adapted to segue from one song to another, allowing teachers more flexibility in song selection.

First Week

Objectives

MATH 3.06 - Recognize when a shape's position or orientation has changed.

SCI. 4.04. - Begin to observe and describe changes in the weather.

SCI. 3.06. - Begin to identify changes in position and discuss the changes using correct vocabulary.

Materials Needed

Music, manipulatives, balls, mini-Earth, Earth pictures, and flashlights, books *El autobus magico en el interior de la Tierra*, and *Our Earth*.

Terms to explain

Rotation, around, orbit, hemisphere, and planets.

Activities: Lesson 1

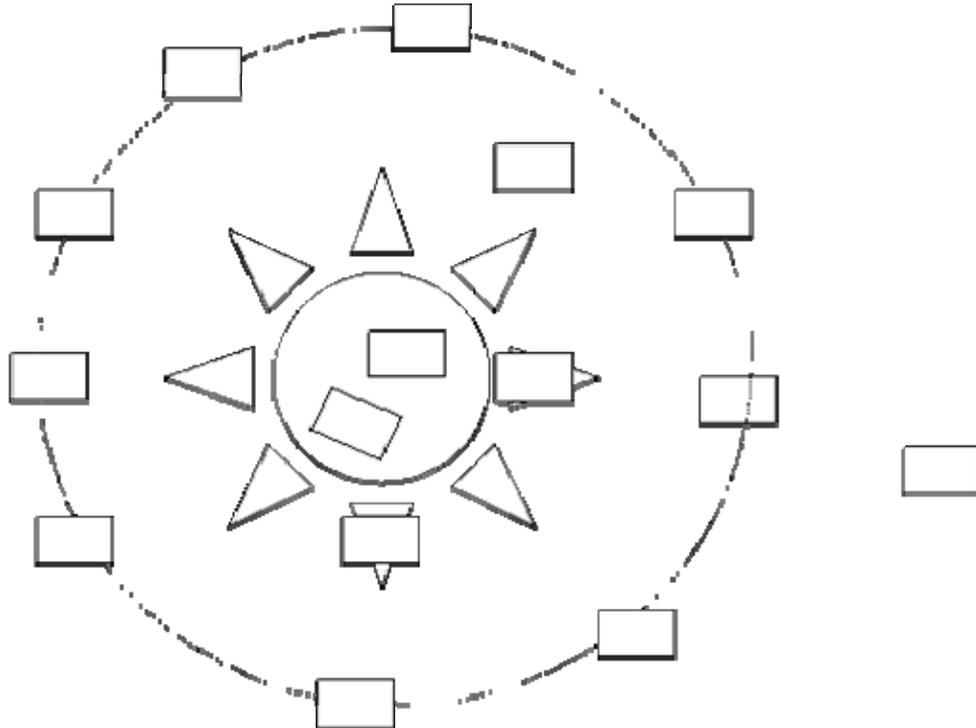
The teacher is going to explain the concept of "around," then explain the movement around the carpet. Students can imitate this movement around the carpet, using different beats. Once the student understands the concept, the teacher can introduce the concept of rotation. Again, students will imitate that movement, and then they should integrate both movements.

Students will make a representation of “around” concept, using the following pattern:

Name: _____

Date: _____

Color the shapes that are around the sun.



Activities: Lesson 2

Students can perform rotation movements using manipulatives. Students will sing and dance different songs to represent those movements. A representation of the sun and the earth should be presented to students. Pictures and mini-Earths will be used to illustrate these concepts.

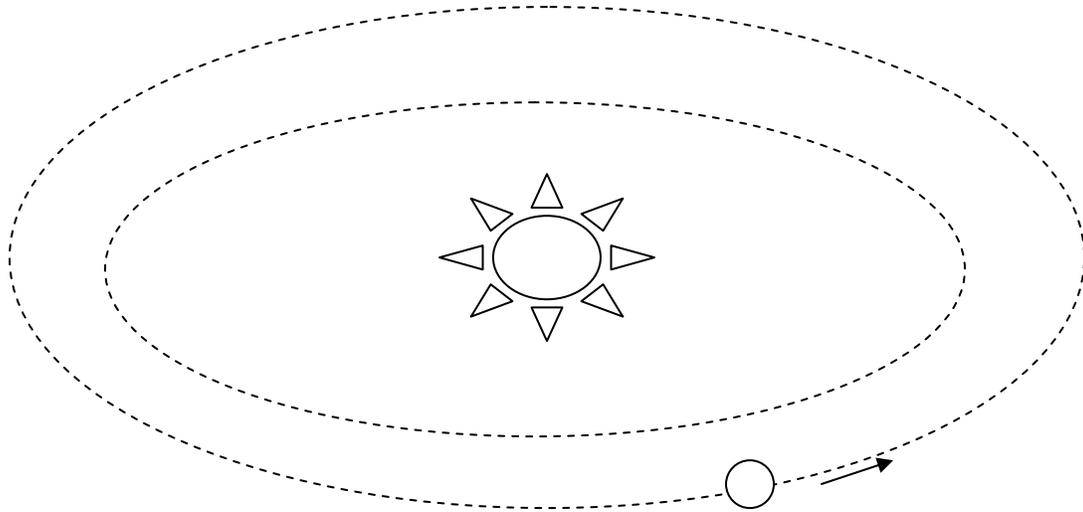
Teachers will read a story about the earth. Then students can draw the sun and the earth.

Students will make a representation of the “orbit”, and “rotation” concept, using the following pattern:

Name: _____

Date: _____

Trace the orbits and complete the journey of the earth around the sun.

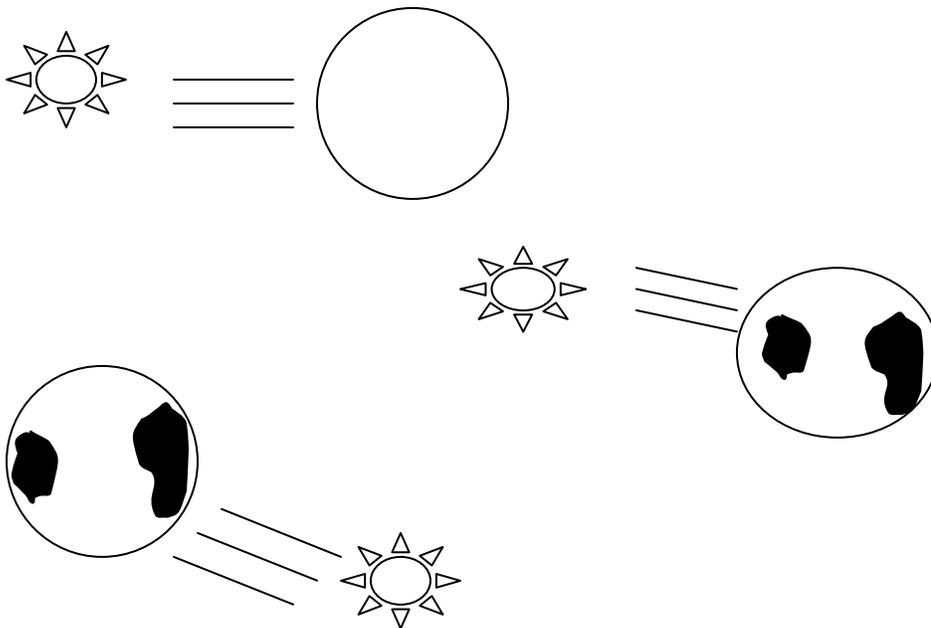


Finally, the flashlight is going to be used as the sun, and the teacher is going to explain how seasons occur.

Several pictures can be used to explain better this concept.

Name: _____

Date: _____



Second Week

Objectives

- MATH 3.06 - Recognize when a shape’s position or orientation has changed.
- SCI. 4.04. - Begin to observe and describe changes in the weather.
- ART 1.01 - Identify selected combinations of colors, forms, and lines.
- SLA. 3. 13 - Participate in sharing ideas for class book/stories.
- SLA. 1.01 - Listening for different purposes.

Materials Needed

Music, manipulatives, mini-Earth, Earth pictures, construction paper, crayons, paint in different colors, paintbrushes, *La Primavera*, *El Verano*, *El Otoño*, and *El Invierno*.

Terms to explain

Seasons, spring, summer, fall, winter, cold, hot, warm, rain, wet, and dry.

Activities: Lesson 3

Each day the teacher will read a story about seasons. Students will learn about each season. They are going to sing and dance songs in English and Spanish that allow them to associate with those seasons. Representations of different temperatures could be dramatized by the teacher, to explain to them terms like “cold,” “warm,” and “hot.”

Then, students will create their own books about seasons. They will represent each season. The teacher is going to guide the activity showing them some pictures about the main characteristics of each season.

Students easily can draw or paint for example summer with beautiful green trees; fall with trees and different colors of their leaves; winter will be represented with snow, snowmen, and trees without leaves; spring would be represented by flowers and trees with some green leaves.

Students can use crayons, paint, or stickers to represent each season. Teachers can allow students to create the seasonal cycle in paper plates, construction paper, or regular paper.

This pattern may be used by the end of the week.

Name: _____

Date: _____



Seasons/
Estaciones



Third Week

Objectives

MATH. 2.03 - Recognize and describe patterns in the environment.

MATH. 3.04. - Sort objects into groups by an attribute.

MATH. 5.01 - Participate in creating and using real and pictorial graphs.

SCI. 4.04. - Begin to observe and describe changes in the weather.

SCI. 3.06. - Begin to identify changes in position and discuss the changes using correct vocabulary.

SCI. 3.04 - Begin to observe and discuss changes in temperature.

S.S. 3.03 - Demonstrate an understanding of the basic needs for food, clothing, and shelter shared by all people.

Materials Needed

Music, manipulatives, mini-Earth, pictures of clothes, real clothes, pictures of animals, seasonal pictures, books *En la Playa* and *Ropa*.

Terms to explain

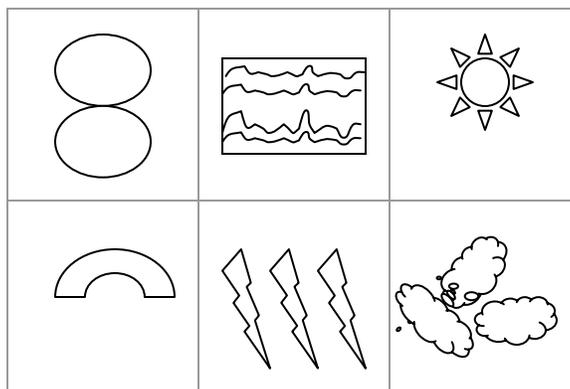
Classification, characteristics, video, clothes, people needs, food, poster board, climatic conditions.

Activities: Lesson 4

The teacher will explain the different characteristics in each season. The teacher will read the story for the students. The teacher will have the students role play in determining the attire that is proper to wear during a specific season. For example, in each center students will be ask to select a proper attire when viewing a video, picture book, and poster boards pertaining to specific seasons. This concept will be reinforced during the rotation from one center to another.

The final product from this activity will be a student-generated graph in which he or she groups items in the category related to the season.

A sample of the pictures to make the graphic activity will be something like this:



CONCLUSION

In conclusion, this unit will allow students to better understand the concept of seasonality on the Planet Earth. They will be able to understand the dynamics of why seasons are different from one another. To reinforce their understanding, students will be introduced to different activities, books, and stories related to this topic. Increasingly, the students will build on their experiences with the topic until they will be able to associate it with every single day of their lives.

Having a positive impact on them by means of interesting activities while they are youngsters is the best way to create a thorough understanding of the subject by the time that they become adults.

ANNOTATED BIBLIOGRAPHY

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Web Sites

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This site has different activities that can be helpful to show characteristics of each season.

Climate change isn't an abstract concept, felt only by scientists, politicians and people living in remote areas. As Nicola Heath explains, we can increasingly see its effects on our daily lives, influencing everything from the weather to food prices and our travel plans. Climate change could wipe out many food cereals by 2070. The changes of our planet are moving faster than many grasses can adapt. Our travel plans will change. For most of us, diving on the Great Barrier Reef is a bucket list adventure. How overfishing and shark-finning could increase the pace of climate change. Without predators eating off smaller species, there's more carbon dioxide production. We will experience more extreme weather events more often. Experts say climate change has increased the prevalence of fleas, ticks and heartworm disease for pets in the U.S. Beth J. Harpaz/AP. Sue Manning. For pet-owners, those changes may mean rethinking preventive care like giving dogs flea and tick repellent and heartworm pills. For example, now that heartworm has been found in every state, "I don't know why a person wouldn't give his dog heartworm pills once a month. That seems like a no-brainer," said Gregory D. Ebel, professor and specialist in infectious diseases at Colorado State University's veterinary school in Fort Collins. Ticks cause Lyme disease in dogs as well as in humans.