

8.7A Reasons for the Seasons WebQuest Name _____ Teacher _____ Class _____

TEK: 8.7A model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons

Learning Targets: I can model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons

You've Been Hired!!

An educational publishing company has hired YOU to produce posters for middle school science classrooms. Your first poster is to be one that shows the causes of seasons on Earth. Since many students have wrong ideas (misconceptions) about what causes seasons it is very important that your poster be very accurate. Your poster will answer the question "What causes the seasons?" Before you can start your poster, you must do some research on student ideas as well as the science behind the seasons.

Part 1: Misconceptions about the Seasons

What are misconceptions? A misconception is an incorrect idea about something. Your task is to find some common misconceptions about the reasons for the seasons.

- A. [Seasons Misconceptions](#) (read Seasons Misconceptions paragraph)
- B. [Common Misconceptions](#)
- C. [Some Common Misconceptions](#)
- D. [The Seasons](#)

Record them in the table below. You will be using this information to make part of your poster.

- 1.
- 2.
- 3.
- 4.

Using these misconceptions, make part of your poster identifying common misconceptions and then turn them into truths.

PART 2: TILT OF THE EARTH

How does the Earth's tilt affect the seasons? Research the websites below.

Include the following on all 4 drawings: Earth, its tilt, the sun, name of the season.

[Earth's Tilt Is the Reason for the Seasons!](#)

[Earth's Revolution and Sun Angle](#)

[Earth's Tilt and the Seasons](#)

[What Causes the Seasons?](#)

[Seasons and the Tilt](#)

[Seasons and the Tilt Interactive](#)

[Why is the Earth Tilted?](#) (podcast)

Draw a picture of the Earth, showing its tilt, at each season.

Winter, Spring, Summer, Fall/Autumn

Use this information to make the second part of your poster about the tilt of the Earth.

Part 3: Earth Location and Seasons

The Earth is at four different points in its orbit around the Sun when we have each season.

Where is the Earth when it is summer (or winter, fall, and spring)?

How does the angle of the sunlight that hits the Earth affect the seasons?

Draw pictures showing how the angle of sunlight determines whether the season is warm or cold.

Does the Earth tilt towards or away from the Sun?

Research your websites.

Draw a picture of the Earth revolving around the Sun through the year.

Show the Earth at its location during Winter, Spring, Summer, and Fall/Autumn.

Use the information to make the third part of your poster about the tilt of the Earth.

Part 4: Day & Night

How does the angle of the sunlight that hits the Earth affect day and night?

Research your websites.

Include a diagram with labels.

Use the information to make your fourth poster about the angle of sunlight that hits the Earth causing day and night.

Part 5: Written Response

Write a paragraph explaining the reasons for the seasons, making sure to incorporate each part of your poster into your paragraph.

Making the Reason for the Seasons Posters

Your WebQuest task is to make a poster. Your posters will explain these important concepts.

The poster will explain:

1. Misconceptions About the Reasons for the Seasons
2. Tilt of the Earth
3. Earth Location and Seasons
4. How the angle of heat energy from the Sun hitting the earth affects heat during the seasons.

Poster requirements:

- Posters will be drawn on the sheet of paper provided and is due at the end of class.
- Diagrams and drawings including labels will be used on **every poster** to help illustrate the concepts.
- Colored pencil and/or crayons (no markers) will be used for illustrations.
- The poster will be neat and all information will be easily found.
- Use your time in the computer lab to research the required information for the poster and to create the poster. Take your time, and produce a neat and accurate poster explaining the reasons for the seasons.

Poster Rubric

Purpose of assignment: Have students research the reasons for the seasons and produce posters to demonstrate what they have learned.

This Rubric addresses the following Science Standards:

STANDARD II: Students will understand how Earth's tilt on its axis changes the length of daylight and creates the seasons.

Objective 1: Describe the relationship between the tilt of Earth's axis and its yearly orbit around the sun.

a. Describe the yearly revolution (orbit) of Earth around the sun.

b. Explain that Earth's axis is tilted relative to its yearly orbit around the sun.

Objective 2: Explain how the relationship between the tilt of Earth's axis and its yearly orbit around the sun produces the seasons.

a. Compare Earth's position in relationship to the sun during each season.

d. Use a drawing and/or model to explain that changes in the angle at which light from the sun strikes Earth, and the length of daylight, determine seasonal differences in the amount of energy received.

Category	4	3	2	1
Required Elements	The poster includes all required elements as well as additional information.	All required elements are included on the poster.	About $\frac{1}{2}$ of required elements are included on the poster.	Less than $\frac{1}{2}$ of required elements were missing.
Knowledge Gained	Student can accurately answer all questions related to facts in the poster and processes used to create the poster.	Student can accurately answer most questions related to facts in the poster and processes used to create the poster.	Student can accurately answer about 75% of questions related to facts in the poster and processes used to create the poster.	Student appears to have insufficient knowledge about the facts or processes used in the poster.
Content - Accuracy	All facts displayed on the poster are accurate.	Most facts displayed on the poster are accurate.	About $\frac{1}{2}$ of the facts displayed on the poster are accurate.	Few facts displayed on the poster are accurate.

There are additional websites below to continue your research. Your paycheck will depend on how many accurate items are included in your poster.

[Earth's Appearance Different Times During the Year](#)

[Seasons Interactive](#)

[Seasons Interactive II](#)

[Observe Seasonal Changes](#)

[Earth in Motion Seasons](#)

<http://www.teachersdomain.org/resource/ess05.sci.ess.eiu.seasonsgame/>

[Global View of the Seasons](#)

<http://www.teachersdomain.org/resource/ess05.sci.ess.eiu.seawifs/>

[Natural Climate Change](#)

<http://www.teachersdomain.org/resource/ess05.sci.ess.watcyc.naturalchange/>

You must include the following on your poster to get your full paycheck including the items from the rubric above:

Title of poster (\$2)

Neatness & color (\$2)

Misconceptions and Truths(\$2)

Earth as it is tilted in relation to the sun in all seasons (\$3)

Earth location during seasons- all four locations including diagrams and labels (winter, spring, summer, and fall) (\$4)

What's your angle (\$2)

Written response: Paragraph explaining the reason for the seasons (\$3)

PUT YOUR NAME, TEACHER'S NAME, AND CLASS PERIOD ON BACK OF POSTER. (\$2)

(\$20 = 100%)

Poster Example:

TITLE

Misconceptions	Seasons
Tilt of Earth	Day & Night
Paragraph explaining reasons for seasons	