



Passports: Adventures in Learning Seasons and Weather Around the Earth Curriculum Guide

Objectives:

Science:

Understands the sun's relationship to, and impact on the Earth
Understands the rotation and revolution of the Earth
Understands the causes of temperature changes during different seasons
Analyzes information to construct reasonable explanations
Interprets information using direct and indirect evidence
Communicates valid conclusions

Language Arts:

Uses contexts clues to develop vocabulary
Uses illustrations and diagrams to aid in comprehension
Determines a text's main idea
Reads expository text

Vocabulary:

Rotation – movement of an object in a circular motion around a center point

Axis - a straight line about which a body rotates

Season – a division of the year based on changes in weather

Equinox – the sun is directly above equator

Insolation – a measure of the sun's radiation (or strength)



Solar - caused by or related to the sun

Equator – circle around the center of the Earth located equal distance from the North and South poles



Educator Series Connections:

The following activities are ideas and applications taken from sessions of the Educator Series. These are the live professional growth opportunities available through the 21st Century Learning calendar.

Applications from Educator Essentials Professional Development Series

1. Before Participating in the Passports: Adventures in Learning session, have student fold a piece of paper in half and in half again so they have four columns when the paper is opened. Students will title the columns Spring, Summer, Fall, and Winter. Have students write descriptive words and phrases in each column that describe that season. For example:

Spring	Summer	Fall	Winter
Warm Sunny Flowers	Hot Sunny	Cooler Orange leaves	Cold Snow Some trees have no leaves

Students will join into pairs or groups of 3 and combine their answers to create a more thorough chart. Ask groups to share some of their descriptions with the class.

Explain to students that today, you are going to discover why these descriptions are true for each season.

[View the Seasons and Weather Around the Earth Passport: Adventure in Learning](http://www.21-learn.com/TeamTarget/Passports/seasonsandweather/index.htm), or watch an archived session. You may also view the short video on the Seasons and Weather Around the Earth webpage

<http://www.21-learn.com/TeamTarget/Passports/seasonsandweather/index.htm>

2. After viewing the Seasons and Weather Around the Earth session, revisit the four column organizers that the students created with season descriptions. Have each students select one season to write about. Tell students to address each of the descriptions by explaining the movement of the sun and Earth as well as what they already know about nature (plants need sunlight, many offspring are born in spring, etc.)



Applications from Literacy Professional Development Series

Print the following passages (pages 2-3) on the front and back of a sheet of paper or on two different pages. Assist students by reading the directions and modeling if students have not done a similar assignment of highlighting words that are unfamiliar as a context clue exercise.

1. Read the following passage and highlight or underline any words that are not familiar to you, or that you are not sure of the definition.

The Earth and the Seasons

Why are there seasons? For many years, people pondered this same question, and it took humankind until the 1500s to finally figure it all out. The solution, it turns out, is as simple as the Earth orbiting the Sun. Almost every person born since the Civil War has known this since he (or she) was a child, but still, just because the Earth goes 'round the sun, this does not imply that seasons should necessarily occur; there's something a little more complex than just the orbit of the Earth involved.

The Earth spins on its *axis*, an invisible line through the center of the Earth. The northernmost point of this axis is the North Pole. The southernmost point, therefore, is the South Pole. The Equator is an invisible line that encircles the widest point of the Earth, and is *equidistant* from either pole at every point; that is to say, the Equator is the same distance away from each pole at every point along it.

2. Now read the same passage noting the illustration. How many of the words highlighted on the first passage can you now understand using the both the words in the sentence and the illustration below?

The Earth and the Seasons with Illustration

Why are there seasons? For many years, people pondered this same question, and it took humankind until the 1500s to finally figure it all out. The solution, it turns out, is as simple as the Earth orbiting the Sun. Almost every person born since the Civil War has known this since he (or she) was a child, but still, just because the Earth goes 'round the sun, this does not imply that seasons should necessarily occur; there's something a little more complex than just the orbit of the Earth involved.

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3. Write 3-5 sentences explaining how the illustration helped you understand the information.

Cross-Curricular Connections

Language Arts

Using the information you gained from the Passports: Adventures in Learning session, the videos and the reading passage, explain the process by which seasons occur. You may either:

Draw a detailed diagram and add labels for explanation
Write a short paragraph (you may include illustrations)

Video of the actual Earth and Sun

http://www.classzone.com/books/earth_science/terc/content/visualizations/es1704/es1704page01.cfm?chapter_no=visualization

Websites for additional information

<http://daphne.palomar.edu/jthorngren/tutorial.htm>

http://www.uwsp.edu/geo/faculty/ritter/geog101/textbook/energy/earth_sun_relations_seasons.html

