

Spring Forward, Fall Back: What Time Is It?

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Grade Level 7
Duration 2 class periods

National Standards

GEOGRAPHY

Element 1: The World in Spatial Terms

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
3. How to analyze the spatial organization of people places, and environments on Earth's surface.

AZ Standards

MATHEMATICS

The Number System

- 7.NS.1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
- a. Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
 - b. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference and apply this principle in real-world contexts.

Standards for Mathematical Practice

- 7.MP.1. Make sense of problems and persevere in solving them.

Arizona Social Science Standards

GEOGRAPHY

The use of geographic representations and tools helps individuals understand their world.

- 7.G1.1 Use and construct maps and other geographic representations to explain the spatial patterns of cultural and environmental characteristics.

Overview

Students know that different places in the world have different times, but they may not understand how time zones work. Students may know that the time in other regions can be later or earlier than their own time. By understanding how time zones work, they will have a better grasp of the world in which we live.

Purpose

In this lesson, students will learn to use a time zone map to calculate the time in various places in the world.

Materials

- Standard Time Zones of the World map <https://geoalliance.asu.edu/sites/default/files/maps/timezone.pdf>
- Background Information on Times Zones
- Projection device
- Time Zones Practice Sheet and Answer Key
- Time Zones Assessment and Answer Key

Objectives

The student will be able to:

1. Calculate the time in various world locations using a time zone map.

Procedures

SESSION ONE

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1. Begin the lesson by asking the students if they have ever called someone on the phone and found that they were in bed sleeping or the business was not open because it was too early or too late.
2. Project or distribute the Background Information on Time Zones handout to students. Read as a whole class and discuss. Then project and distribute the Standard Time Zones of the World map. Demonstrate how to read the map.
3. Distribute the Time Zones Practice Sheet and instruct students to answer the questions.
4. At the end of class, go over the answers on the Time Zones Practice Sheet to ensure concepts are understood.

SESSION TWO

1. Review how to read the Time Zones map. Give students the Time Zones Assessment.

Assessment

Geography and Mathematics

The Time Zones Assessment can be graded. Mastery for geography is 4 or more questions correct on questions 1-5. Mastery for math is 4 or more questions correct on questions 6-10.

Extensions

Have students figure out the distance between two state capitals on The U.S. States and Capitals map http://geoalliance.asu.edu/sites/default/files/maps/States_With_Capitals.pdf Then tell them an average airplane speed is 500 miles per hour. Have them calculate how long it would take to get from one capital to the other. They have them determine the time of departure and estimate the time of arrival using the Standard Time Zones of the World map.

Read the book, *Nine O'clock Lullaby* by Marilyn Singer, to students before, during, or after the lesson. It discusses time zones, and provides a good introduction, example, and reinforcement for the lesson. ISBN 0-064433196