

Fun in the Sun?

Students learn sun safety awareness in their community.

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Grade Level	6
Duration	2 class periods

National Geography Standards

ELEMENT SIX: The Uses of Geography
18. How to apply geography to interpret the present and plan for the future.

Arizona Geography Strand

CONCEPT 6 Geographic Applications
PO 3 Use geography concepts and skills (e.g., recognizing patterns, mapping, graphing) to find solutions for local, state or national problems.

Other Arizona Standards

Mathematics Common Core Standards Ratios and Proportional Relationships

6.RP.A.1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
6.RP.A.2. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.

The Number System

6.NS.B.2. Fluently divide multi-digit numbers using the standard algorithm.

Standards for Mathematical Practice

6.MP.2. Reason abstractly and quantitatively.
6.MP.4. Model with mathematics.
6.MP.8. Look for and express regularity in repeated reasoning.

Overview

One in every five Americans develops skin cancer. An estimated 80% of lifetime sun exposure occurs before the age of 18. This lesson is intended to raise student awareness of skin cancer and educate about the measures that can be taken to protect skin.

Purpose

In this lesson, students will calculate the ratio of new cases of skin cancer to the population of each state and then create a choropleth map of the United States that illustrates the melanoma rates by state. They will determine if there is any correlation between melanoma rates and location of a state.

Materials

- Colored pencils
- United States Map (with or without names)
- Skin Cancer in Your State 2009 Data Sheet and Answer Key
- Making a Choropleth Map: U.S. Melanoma Cases 2009 and Answer Key
- Calculators
- (Optional) *The Burning Facts* EPA 430-F-01-015 - Free from the U.S. government
- (Optional) *Missions: Sunwise* EPA 430-D-00001 www.epa.gov/sunwise (web documents)
- Sample of finished choropleth map

Objectives

The student will be able to:

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1. Identify their relative risk for melanoma, as determined by location.
2. Determine ratios and map data.

Procedures

SESSION ONE

1. Ask students, “What is skin cancer?” Discuss the action steps for sun protection:
 - a. Limit time in the midday sun.
 - b. Seek shade.
 - c. Always use sunscreen.
 - d. Wear a hat.
 - e. Cover up.
 - f. Wear sunglasses.
 - g. Watch for the UV index.
 - h. Avoid sunlamps and tanning parlors.
2. Point out to students that where someone lives is a factor in the rate of melanoma cases throughout the United States.
3. Using the Skin Cancer in Your State Data Sheet, figure out the estimated melanoma rate for each state. Students could do this individually, in pairs or groups. Have students calculate the ratio for each state:
 - Divide the population by the number of new melanoma cases. Put this under the ratio column as 1 to _____.
 - Follow instructions to doing the math on Making a Choropleth Map.

SESSION TWO

1. Select the colors for each group.
2. Create the choropleth map. Have the students create a key for the map in the ocean areas. Be sure to remind them to label the key appropriately, i.e., color reflects the figures for the groups.
3. Discuss whether 1:2 is higher or lower than 1:7. They need to understand that it is better in the case of skin cancer to have 1 to a high number because their chances are less to have the disease.

4. Analyze the results. For instance: Do you see any pattern? Do states in a certain region have more or less melanoma rates than others? Does latitude have any correlation to the rates? If you don't see a pattern with this data, could you use other data?

Assessment

Geography can be graded from “Step Four: Analyzing the Results” on the choropleth worksheet. Question 4 is worth 2 points and the rest are worth 1 point for a total of 8 points. Mastery is 6 points out of 8.

The teacher can use this lesson as a practice for learning the states. A quiz could be given at a later date where the students would label the states with their names. Mastery would be considered 80% or higher.

Mathematics can be assessed with the Making a Choropleth Map: U.S. Melanoma Cases 2009 and Making a Choropleth Map: U.S. Melanoma Cases 2009 worksheets. Mastery will be 80% or higher on these assessments.

Extensions

Students can use UV beads to make bracelets to wear outside to remind them about UV radiation. They can experiment with them during cloudy days and sunny days.

Students can experiment with sun lotion with different SPFs. A UV Frisbee can be used. Students smear different sun lotions on various places on a shower cap placed on a Frisbee, and then observe the results over a period of a few days.

If time is a factor and/or calculators are few, have students do several states each and share their answers with the class.

Sources

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Sun Wise School Program:

www.epa.gov/sunwise

The Burning Facts EPA 430-F-01-015

Mission: Sunwise EPA 430-K-00001

¡Misión sunwise: cómo te protegés del sol! EPA
430-K-01-007