Fun in the Sun?
Students learn sun safety awareness in their community.

Author
Sara Jenkins
Grade Level
4-5
Duration
2 class periods

National Geography Standards
ELEMENT ONE: THE WORLD IN SPATIAL TERMS
1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

Arizona Geography Strand 4
CONCEPT 1 World in Spatial Terms
GRADE 4
PO 1 Use different types of maps (e.g., road maps—distance, resource maps—products, historical maps—boundaries, thematic maps—climates) to solve problems.

CONCEPT 6 Geographic Applications
GRADE 4 and 5
PO 3 Use geography concepts and skills (e.g., recognizing patterns, mapping, graphing) to find solutions for local, state or national problems.

Arizona Math Standard
STRAND 1 Number Sense and Operation
CONCEPT 1 Number Sense
GRADE 5
PO 7 Order whole numbers, fractions, and decimals.

STRAND 2 Data Analysis, Probability, and Discrete Mathematics
CONCEPT 2 Probability
GRADE 5
PO 5 Compare the outcome of an experiment to predictions made prior to performing the experiment.

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
Students will create a choropleth map of the United States that illustrates the estimates of 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 2000 Data Sheet
• Skin Cancer in Your State 2000 Answer Key
• Making a Choropleth Map: U.S. Melanoma Cases 2000
• Making a Choropleth Map: U.S. Melanoma Cases 2000 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)
Fun in the Sun?

- Sample of finished choropleth map

Objectives

The student will be able to:

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.
   • Follow instructions to doing the math on Making a Choropleth Map.

SESSION TWO

(Color the map and analyze the results)

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. 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.

Have students group the 50 states into 4 groups according to the choropleth worksheet directions. Mastery will be 4 out of 4 groups figured correctly.

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
Fun in the Sun?

then observe the results over a period of a few days.

For a shorter lesson or if time is a factor and calculators are few, provide students with the answer key. Instead of doing the ratio of the math section, students could do the math on the choropleth sheet using the answer key ratios.

Sources

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 protégés del sol! EPA 430-K-01-007