

# Big Brother: Explore Measurement and the Largest Navajo Rug in the World

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**Grade Level** 1-3  
**Duration** 1 class period

## National Standards

### GEOGRAPHY

#### Element 4: Human Systems

10. The characteristics, distribution and complexity of Earth's cultural mosaics.

#### Element 5: Environment and Society

16. The changes that occur in the meaning, use, distribution and importance of resources

## AZ Standards

### MATHEMATICS

#### Measurement and Data

**1.MD.A.2** Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

**2.MD.A.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

**2.MD.A.3** Estimate length using units of inches, feet, centimeters, and meters

**3.MD.C.5** Understand area as an attribute of plane figures and understand concepts of area measurement.

a. A square with a side length 1 unit, called “ a unit square”, is said to have “one square unit” of areas, and can be used to measure area.

b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an areas of n square units.

**3.MD.C.6** Measure areas by countine unit squares.

## Arizona Social Science Standards

### GEOGRAPHY

#### Human-environment interactions are essential aspects of human life in all societies.

1.G2.1 Compare how human activities affect culture and the environment now and in the past.

Such as agriculture, industrialization, urbanization, and human migration.

2.G2.3 Describe the positive and negative effects of using natural resources.

3.G2.1 Explain how people modify and adapt to the Arizona environment.

#### Examining human population and movement helps individuals understand past, present, and future conditions on Earth's surface.

1.G3.1 Explain why and how people, goods, and ideas move from place to place. Key concepts include but are not limited to transportation, immigration, education, technology, and natural resources.

1.G3.2 Compare places past and present as it relates to content focus.

2.G3.1 Explain why and how people, goods, and ideas move from place to place. Key concepts include but are not limited to transportation, trade, immigration, migration, and communication

### HISTORY

#### The development of civilizations, societies, cultures, and innovations have influenced history and continue to impact the modern world.

1.H1.1 Explain how ideas and innovation can contribute to a community by utilizing primary sources

2.H1.2 Using primary and secondary sources, compare civilizations and/or cultures around the world and how they have changed over time in a place or region studied.

2.H1.3 Examine developments from the civilization and/or culture in place or region studied.

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3.H.1.1 Utilize a variety of sources to construct a historical narrative exploring Arizona's cultures, civilizations, and innovations.

## Overview

The largest recorded Navajo rug in the world, called "Big Brother," measures 26 by 36 feet. The first Navajo or "Dine" settled in the Southwest in the early 16<sup>th</sup> Century. Today, the Navajo Nation stretches across Arizona, New Mexico and Utah. Weaving has always been a part of the Navajo culture. According to legend, the Spider Woman taught the Navajo weavers their craft. "Big Brother" was woven on a gigantic loom measuring 27 feet wide. Sixty white sheep and eighteen black sheep were shorn for wool for this rug. It took the rug weavers two years to process the wool, to dye the wool using natural colors from the earth and plants, and to card and spin the wool. The rug weavers then spent every day from morning to night for three years and three months to complete the rug.

## Purpose

In this lesson students will learn about the Navajo culture of weaving rugs and the Navajo's usage of natural resources. The students will observe "Big Brother," looking at colors and patterns and then explore a replicated pattern of a Navajo rug to practice measurement skills.

## Materials

- Arizona's Indian Reservation map
- The Goat in the Rug by Martin Blood
- Article: "World's Largest Navajo Rug Returns Home" found at: <https://www.grandcanyonnews.com/news/2012/jun/05/worlds-largest-navajo-rug-returns-home/>
- Navajo rug pattern for measuring (2 versions—easy—needs 8.5" X 11" paper and more difficult—needs 11" X 17" paper)
- Big Brother: Navajo Rugs 1<sup>st</sup> Grade
- Big Brother: Navajo Rugs Measuring with a Ruler 1<sup>st</sup> Grade
- Rug Patterns 1<sup>st</sup> Grade
- 1<sup>st</sup> grade – 1 paperclip and/or 1 inch ruler per student
- Big Brother: Navajo Rugs 2nd Grade
- 2<sup>nd</sup> grade – 1 ruler per student and 1 yardstick
- Big Brother: Navajo Rugs 3rd Grade

- 3<sup>rd</sup> grade – 1 ruler per student
- More Difficult Rug Patterns 2<sup>nd</sup> and 3<sup>rd</sup> Grades

## Objectives

The student will be able to:

1. describe the Navajo culture's tradition in weaving
2. explain the natural resources used in weaving
3. calculate the measurement of parts of the rug using appropriate tools and units

## Procedures

*Prerequisite Knowledge: 2nd and 3rd grade students should know how to measure with a ruler.*

### SESSION ONE

1. As a group look at the U.S. map (preferably a large classroom map or a projected map) and ask students to locate Arizona.  
<https://geoalliance.asu.edu/sites/default/files/maps/US-NAMES.pdf>
2. Project the map of Arizona's Indian Reservations and ask students what they know of the Navajo. Record facts on the white board.  
[https://geoalliance.asu.edu/sites/default/files/maps/AZ\\_Reservations.pdf](https://geoalliance.asu.edu/sites/default/files/maps/AZ_Reservations.pdf)
3. Tell the students that today they will be learning more about the Navajo. Read aloud the book, Goat in the Rug. Discuss the process described in the book for weaving a rug. List the process on the whiteboard.
4. At the conclusion of this session, have students orally explain the steps in making the rug. Then have them write down where do the dyes and other materials to make the rugs come from?

### SESSION TWO

1. Project "Big Brother."  
<https://taylormahoneyphotography.com/2015/08/14/beginning-of-august/navajo-festival-2/> or <https://www.grandcanyonnews.com/news/2012/jun/05/worlds-largest-navajo-rug-returns-home/>
2. Have students comment on what they see – colors, patterns, shapes, etc. Ask questions that reflect what was learned in SESSION ONE such

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as, “How did they make the colors?” “What do you think the shapes stand for?”

3. Explore the paper Navajo rug pattern. Discuss the measurements that could be taken.
4. Procedures for 1st graders: Pass out the easy Navajo rug pattern and paperclips. Have students measure using the paperclips. **And/Or** Do the more advanced worksheet using the 1 inch ruler. In both cases, demonstrate how to measure using paperclip/ruler on classroom objects. Allow students to find something to measure and report on its measurements. Then explain that they will be completing the assignments on the worksheet(s).
5. Procedures for 2nd and 3rd graders: Model the instructions on the worksheet and complete the assignments. (Hint: The 1st grade worksheets can be used as a review to measuring.)
6. Review the answers as a group. Designing the rug can be completed as homework.

### Assessment

#### Geography and Mathematics

Students will complete the Big Brother Navajo Rugs Grade 1, 2, or 3 math worksheet. Mastery will be considered 80% accuracy.

#### Geography

Students will orally or in writing explain the process in making a Navajo rug. Students will include one fact about where the dyes for the rugs come from

and one fact about where the wool comes from. Mastery will be considered 80%.

### Extensions

Students can learn the art of weaving by creating a rug using yarn, a yarn needle and cardboard pieces.

Students can measure the actual size of the largest Navajo rug in the world on the playground. They then can use sidewalk chalk to make designs using geometric shapes. As an assessment students can apply their measurement skills to the large design they created.

### Sources

Website on Navajo:

[http://serc.carleton.edu/research\\_education/nativelands/navajo/culture.html](http://serc.carleton.edu/research_education/nativelands/navajo/culture.html)

Website on weaving:

<https://www.camerontradingpost.com/navajo-weaving.html>

Image of Big Brother:

<https://taylormahoneyphotography.com/2015/08/14/beginning-of-august/navajo-festival-2/>

Children’s Book about Navajo Weaving:

THE GOAT IN THE RUG by Geraldine as told to Charles L. Blood & Martin Link ISBN 0689714181