

LESSON: Learning to Count with the Grandfathers

GRADE: 1

OBJECTIVES:

Operations & Algebraic Thinking-

Represent and solve problems involving addition and subtraction.

- **1.OA.A.1** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Understand and apply properties of operations and the relationship between addition and subtraction.

- **1.OA.B.3** Apply properties of operations as strategies to add and subtract.

Add and subtract within 20.

- **1.OA.C** Relate counting to addition and subtraction

MATERIALS & RESOURCES:

- Rocks
- Sidewalk Chalk (or Paper, Markers and Tape)
- Short articles about rocks (both included below in this lesson)
- at the National Museum of the American Indian in Washington DC
- at the Blood Run National Historic Site in Iowa
- Books-
 - *Everybody Needs A Rock*, Baylor
 - *If You Find a Rock*, Christian

PRESENTATION:

Sometimes rocks are called “Grandfathers”. Rocks are extremely old and some people believe, because they are so old, they are worthy of the respect you would give your grandparents. “All rocks have a ‘memory’ of the earth’s past, so it is very important to Native people to honor that memory and the knowledge of the times that humans do not know.”

What can we learn from our Grandfathers? In this activity, students get to learn math with the Grandfathers.

DIRECTIONS:

1. This lesson is part of the Blood Run Unit. Before using the rocks to learn mathematics, children should be familiar with the history of Blood Run, First Peoples of Iowa and why rocks are respected as Grandfathers.
2. Read the books and articles about rocks. Rocks were here from the beginning of Earth, so they have “seen” much of the history of the Earth. Talk about the idea of respecting elders, including the natural elements, like rocks. Being respectful means not using the rocks to hurt anyone or be destructive.
3. Go outside and have the kids gather rocks. Allow them some time for this collection and time just to spend with the rocks and the knowledge that these rocks have been around since very early in the history of Earth.
4. Set all the rocks in one place together.
5. Help the students count 20 rocks. The teacher or leader lift a rock from the pile and the kids shout the number the rock is taken from the pile and placed a line.
6. Now choose and play some of the following games.
 - **Count to 20-** have the class count out loud as each rock is taken from the community pile of rocks and place into a separate pile. If the kids are learning to count in another language, they can count the pile of 20 twice, once in English and once in the new language.
 - **Make designs-** give the kids a number of rocks and have them make patterns and shapes with rocks. Practice with different amounts like 5, 10, 15, and 20.
 - **Make story problems-** have the students use the rocks to represent the numbers in story problems of addition and subtraction. (See below)
7. After they have practiced with counting out the rocks in groups of 0-20, allow them to have some time making there own games or playing with the rocks in small groups or alone.
8. Allow the kids to keep a rock if possible. Talk about why they chose a particular rock. Discuss what they learned from the Grandfathers. Ask the children what they think these rocks and the rocks at Blood Run would say about Iowa history if we could hear them speak.

TIME:**45-60 minutes**

PROCESSING THROUGH THE SIX PILLARS:**What?**

- Did you know rocks were so very old and part of the history of Earth?
- Did you know rocks were called ‘grandfathers’?

So What?

- How can you show respect for elders?
- How do you feel when you are respectful?

Now What?

- What else can you learn from elders and nature?
- Someday you will be an elder to someone younger. Would you like to teach things to younger kids?
- Do you want respect?

Story Problems

Ellesha Elephant moves boulders. Pretend your rocks are boulders and you are Ellesha Elephant.

Ellesha has seventeen boulders . Montel Monkey needs seven boulders to create a playground for his children. He asks Ellesha to move seven boulders for him.

Ellesha moves seven boulders from her home to Montel’s home. How many does she have left at her home?

Juan Tiger sells gemstones. Pretend you are Juan and your rocks are shiny gemstones.

Juan has 5 red gems, 6 green gemstones, and 3 purple gemstones. How many does he have all together?

Julie Jaguar visits Juan’s Gem Store and wants to buy gemstones to give to her whole Jaguar family. Julie buys 4 red gemstones. How many are remaining? She also buys 2 green and 3 purple gemstones. How many green and how many purple are left?

What is the total of gemstones left over once Julie buys gifts for her family?

Make up more story problems. Have the children help.

Grandfather Rocks

Many American Indian cultures believe rocks to be the oldest living things in the world, worthy of the same respect you would give to your elders. More than 40 large, un-carved boulders, called Grandfather Rocks, serve as the elders of the NMAI landscape. These Grandfather Rocks welcome visitors to the museum grounds and serve as reminders of the longevity of Native peoples' relationships to the environment and the past. All rocks have a "memory" of the earth's past, so it is very important to Native people to honor that memory and the knowledge of the times that humans do not know.

The orientation of the Grandfather Rocks at the museum is exactly the same as that in their original setting of Alma in the province of Quebec, Canada. This was done as a gesture of respect for the rocks, so that they would not become disoriented in their new location. Prior to being transported to Washington, DC, the Grandfather Rocks were blessed by the Montagnais First Nations to ensure a safe journey and to carry the message and cultural memory of past generations to future generations. The rocks were also blessed when they arrived at the museum.



Grandfather Rocks surround the National Museum of the American Indian.

Rocks at Blood Run National Historic Site

The geology of Blood Run stretches back millions of years. Glaciers moved across the region some 10,000 to 30,000 years ago and deposited a layer, sometimes quite thick, of soil and gravel atop the bedrock of quartz (name Sioux Quartzite). Then a layer of loess, a fine-grained windblown material, covered the land as the glaciers retreated. Slowly over time, Blood Run Creek and the Big Sioux River have eroded the loess deposits and rearranged the gravel and sand deposits, carving a widening path through the rolling landscape. Prairie grasses and trees help keep erosion in check.

Blood Run Site was home to many people. They built mounds of carefully selected stones compacted with soil. Oneota is the name given to the peoples and their culture. They are the ancestors to many Midwestern Native American groups. The site is now a park and has an archeological complex which consists of the remains of a village that once included more than 158 visible conical burial mounds and an effigy earthwork. Limited archeological data indicate Native American occupation of this site in the early 1700s extending back perhaps as far as 1300 AD. ⁱ

Information summarized from:ⁱ (National Park Service, Historic Landmarks Program)
(University of Iowa Office of the State Archaeologist)