

Tree Cookies

Essential Question: How can I use the “Tree Cookie” to calculate the circumference and diameter of its measure?

Objective: Students will measuring a tree cookie for its diameter and circumference from the Upland/Wetland Hike of Nature’s Classroom. The circumference of the tree, when divided by the diameter, will produce a number close to Pi.

Standard(s):

MAFS.6.RP.1.3d

Use the ratio reasoning to convert measurement units: manipulate and transform units appropriately when multiplying quantities. Understand the concept of Pi as the ratio of the circumference of a circle to its diameter.

Materials:

- Pen or Pencil
- 1 pieces of notebook paper (loose leaf)
- Bell work Sheet
- “Tree Cookie Samples” or actual tree cookies
- Optional – Project Learning Tree, Activity #76 Tree Cookies

Setup: Enough copies of Bell Work Sheets and Tree Cookie Samples for each student or group of students.

Lesson Duration: 5-10 minutes

Directions: Students complete the Bell Work

Background:

1. During the Upland/Wetland Hike the students will observe and discuss tree ecology.
2. Tree rings are used to age trees as well as to “read” the conditions of the environment during its growth.
3. A tree’s age may not necessarily be determined by the circumference of its trunk. Environmental factors will often influence a tree’s size.

Discuss the following:

1. Bark of a tree is the circumference.
2. Diameter of a tree goes through its center.

Allow for discovery during Bell Work:

Every tree’s circumference will be the diameter, fit around the bark, approximately three times (3.14), therefore, the equation $C/d = 3.14$.

Example: The circumference of the tree is about 60 inches. When the formula of $C/d = \text{Pi}$ is used, $59.7 / 3.14 = 19.01$. The circumference of the tree when divided by 3.14 will produce an approximate diameter.



Bell Work:

Measure each of the tree cookies given to determine the circumference and diameter. Then divide the circumference by the diameter.

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TREE	1	2	3	4	5	6
Circumference						
Diameter						
C/d						

What is the relationship of circumference and diameter?

Write an equation showing this relationship?



TREE COOKIES