North Carolina Tree Math

Submitted By:
Linda McDonald, Avery's Creek Elementary School

Overview
This activity allows students to practice/review multiple math skills while learning about North Carolina trees.   These word problems are primarily multi-step, multi-skill problems which provide valuable practice for end of grade testing.   In addition, each question has a fun fact about N.C. trees as an engaging way for students to learn about tree structures and how people in North Carolina use them as a valuable natural resource.

Grade Levels
3-4

Curriculum Correlation
MATH: 4.MD.1 Know relative sizes of measurement units within one system of units, 4.MD.2 Use the four operations to solve word problems, 3.NBT.2 ,4.NBT.4 Fluently add and subtract multi-digit whole numbers, SCIENCE: 3.L.2.1, Plants: Structure & Function, SOCIAL STUDIES: 4.6.04 Use of the state's natural resources

Duration
45 minutes

Location
Indoors

Materials

- Copies of Worksheet provided below
- Worksheet answer key

Project EXPLORE | The North Carolina Arboretum
100 Frederick Law Olmsted Way, Asheville, NC 28806-9315
www.projectexplore.education

PROJECT EXPLORE

North Carolina Tree Math

Educators Information

In addition to the created activity, a sheet of statistics about common trees in Western North Carolina is provided so that teachers in multiple grade levels may create their own worksheets customized for their own needs. It could also be used for students to generate word problems.

Procedure

Use the worksheet provided below to allow students to practice/review multiple math skills while learning about North Carolina trees

Resources

- *Common Forest Trees of N.C. published by the NC Forest Service, 2015*

North Carolina Tree Math

Western North Carolina Common Trees Physical Statistics

Tree Name	Length of leaf (needle)	Avg. Height	Trunk Diameter
1. American Elm	4-6 in.	75-100 ft.	2-5 ft.
2. American Sycamore	4-7 in.	80-110 ft.	10 ft.+
3. Beech	2-6 in.	60-80 ft.	2-3 ft.
4. Black Walnut	3-3 ½ ft.	50-90 ft.	2-3 ft.
5. Black Cherry	2-6 in.	60-100 ft.+	1-5 ft.
6. Northern Red Oak	5-8 in.	70-90 ft.	2-3 ft.
7. Black Locust	8-14 in.	30-70 ft.	2-3 ft.
8. Cucumber Tree	6-10 in.	70-80 ft.	2-4 ft.
9. Eastern Hemlock/Spruce Pine	1/3-2/3 in. (N)	60-100 ft.	2-4 ft.
10. Eastern White Pine	3-5 in. (N)	100 ft.	4 ft.
11. Flowering Dogwood	3-5 in.	10-20 ft.	4-6 in.
12. Fraser Fir	½ - 1 in. (N)	40-70 ft.	1-2 ft.
13. Fraser Magnolia	10-12 in.	30-40 ft.	1- 1 ½ ft.
14. Mountain Holly	2-4 in.	15-40 ft.	1-2 ft.
15. Redbud	3-5 in.	15-30 ft.	6-10 in.
16. Red Mulberry	3-5 in.	20-30 ft.	1-2 ft.
17. Sassafras	4-5 in.	20-40 ft.	1-2 ft.
18. Serviceberry	2-4 in.	2-50 ft	½-1 ½ ft.
19. Sourwood	3-6 in.	30-40 ft.	8-12 in.
20. Sugar Maple	3-5 in.	40-70 ft.	1 1/2 – 2 ½ ft.
21. Yellow Poplar /Tuliptree	5-6 in.	90-110 ft	2-5 ft.

PROJECT EXPLORE

North Carolina Tree Math

Name:

1. The Eastern Pine has a trunk diameter of 4 feet. How many inches of diameter are there in 6 trees?

> Did you know the White pine is used to make furniture and matches?
>
> Its' seeds are a favorite food of the red squirrel.

2. A Christmas tree farm in Spruce Pine harvested several Fraser Fir trees to sell at a local farmer's market. There were three 12-foot trees, four 8-foot trees and six 5-foot trees. If the price per foot is $6, how much will the farm make on these trees?

> Did you know that the Fraser fir is only found in North Carolina's highest mountains? It is grown extensively for Christmas trees and is ranked as the number one Christmas tree by the Christmas tree industry.

3. The black walnut tree is about 75 feet tall. If a furniture maker bought 1,125 feet of walnut tree trunks, how many trees did they buy?

> Did you know the black walnut is highly prized for a great variety of uses, including furniture, cabinet work and gun stocks? It is the most valuable of our hardwoods.

4. A logger cut down a 72-foot beech tree, 88-foot white pine, and two 81-foot red oaks. How much wood did he cut all together? What is this amount, rounded to the nearest hundred?

> Did you know that all of these trees are used to make furniture? Beech trees are also used to make carpentry tools and the Northern Red Oak is used in home interiors and flooring.

PROJECT EXPLORE

North Carolina Tree Math

Name:

5. A hiker came upon a 100-foot yellow poplar tree next to a smaller black locust tree. If the poplar was 3 times taller than the locust, about how tall was the locust?

> Did you know the black locust is native only to our mountains?   Its' wood is very resistant to decay so it is used extensively for fence posts and decking.

6. If the average songbird eats 6 holly berries, how many holly berries would it take to feed 347 birds?

> Did you know holly berry is food for songbirds, deer, wild turkey and a wide variety of other animals? But eating holly berries would make a human sick!

7. A farmer harvested 168 feet of sassafras roots to make tea. If 6 inches of root is needed to make a batch of tea, how many batches can the farmer make?

> Did you know sassafras roots, twigs and bark have a pleasant, spicy scent and contain oil of sassafras, which is used as a flavoring? Deer, turkey, bear, and many species of birds eat the fruit in early fall.

8. A sourwood tree has an average diameter of 8 inches. A poplar tree has a diameter that is 5 times bigger. About how many feet is this?

> Sourwood trees are known for their small, white flowers which appear in early summer. Bees use the flower's nectar to make rich-colored honey which is widely enjoyed throughout the state.

PROJECT EXPLORE

North Carolina Tree Math

Name:

1. The Eastern Pine has a trunk diameter of 4 feet. How many inches of diameter are there in 6 trees?

Did you know the White pine is used to make furniture and matches?

Its' seeds are a favorite food of the red squirrel.

288 inches

2. A Christmas tree farm in Spruce Pine harvested several Fraser Fir trees to sell at a local farmer's market. There were three 12-foot trees, four 8-foot trees and six 5-foot trees. If the price per foot is $6, how much will the farm make on these trees?

Did you know that the Fraser fir is only found in North Carolina's highest mountains? It is grown extensively for Christmas trees and is ranked as the number one Christmas tree by the Christmas tree industry.

$588

3. The black walnut tree is about 75 feet tall. If a furniture maker bought 1,125 feet of walnut tree trunks, how many trees did they buy?

Did you know the black walnut is highly prized for a great variety of uses, including furniture, cabinet work and gun stocks? It is the most valuable of our hardwoods.

15

4. A logger cut down a 72-foot beech tree, 88-foot white pine, and two 81-foot red oaks. How much wood did he cut all together? What is this amount, rounded to the nearest hundred?

Did you know that all of these trees are used to make furniture? Beech trees are also used to make carpentry tools and the Northern Red Oak is used in home interiors and flooring.

322 feet, 300 rounded

PROJECT EXPLORE

North Carolina Tree Math

Name:

5. A hiker came upon a 100-foot yellow poplar tree next to a smaller black locust tree. If the poplar was 3 times taller than the locust, about how tall was the locust?

About 33 feet tall

> Did you know the black locust is native only to our mountains? Its' wood is very resistant to decay so it is used extensively for fence posts and decking.

6. If the average songbird eats 6 holly berries, how many holly berries would it take to feed 347 birds?

> Did you know holly berry is food for songbirds, deer, wild turkey and a wide variety of other animals? But eating holly berries would make a human sick!

58 birds

7. A farmer harvested 168 feet of sassafras roots to make tea. If 6 inches of root is needed to make a batch of tea, how many batches can the farmer make?

366 batches

> Did you know sassafras roots, twigs and bark have a pleasant, spicy scent and contain oil of sassafras, which is used as a flavoring? Deer, turkey, bear, and many species of birds eat the fruit in early fall.

8. A sourwood tree has an average diameter of 8 inches. A poplar tree has a diameter that is 5 times bigger. About how many feet is this?

> Sourwood trees are known for their small, white flowers which appear in early summer. Bees use the flower's nectar to make rich-colored honey which is widely enjoyed throughout the state.

About 3 feet

PROJECT EXPLORE