



Grade Level: PreK-2

Essential Skills: 3, 4, 9

Math: K.G.5, 1.OA.5, 1.MD.2, 2.OA.2, 2.NBT.5, 2.MD.2, 2.MD.1

Time: 60 minutes

Materials:

- Assortment of pasta varieties
- Food Coloring
- Gallon sized zipper bags
- Rubbing alcohol (1/2 cup for every 2 cups of pasta)

AITC Library Resources:

Books:

- From Wheat Bread Grains to Bread*
- Wheat- A True Book*
- How did that get in my lunchbox?*

Supplemental Resources:

- US Wheat Trifold*
- Cereal Grain Types & Varieties*
- Grain Grinder*

Lessons:

- Bread in a Bag*
- A Hundred Bales of Hay*
- Wheat Milling and Counting*

Lesson to Grow

From Wheat to Macaroni

Description:

Students will discover that pasta comes from wheat and use pasta to complete several fun math activities.

Background:

Pasta is made from unleavened dough, usually from durum wheat. It comes in a variety of different types of sauce and foods. Pasta also includes varieties, such as ravioli and tortellini, which are filled with other ingredients, such as ground meat or cheese.

There are hundreds of different shapes of pasta. Examples include spaghetti (thin strings), macaroni (tubes or cylinders), fusilli (swirls) and lasagna (sheets).

Pasta is enriched with iron, folate and several other B-vitamins, including thiamine, riboflavin, and niacin. It is even nutritionally enhanced with whole wheat or whole grain or fortified with omega-3 fatty acids and additional fiber. Very low in sodium and cholesterol-free when no eggs are used in some varieties, pasta is low in sugar, which means it is digested more slowly, and provides a slow release of energy without spiking blood sugar levels.

“Macaroni” with various sauces was a fashionable food in the late 18th Century Paris. The future American president Thomas Jefferson tasted the pasta in both Paris and northern Italy. He drew a sketch of the pasta and wrote detailed notes on the extrusion process. In 1793, he commissioned American ambassador to Paris, William Short, to purchase a machine for making it. Evidently the machine was not suitable, as Jefferson later imported both macaroni and parmesan cheese for use in Monticello. In 1802 Jefferson served a “macaroni pie” at a state dinner.

Directions:

Consider grinding wheat in class to show students how wheat is processed into a product that is used in pasta. Grain grinders and materials can be borrowed through our lending library.

Part I: Making Colored Pasta

- 1) Add 1/2 cup of rubbing alcohol and 20 drops of food coloring to zip sealed plastic bag. Swish well to mix.
- 2) Add 2 cups of a variety of pastas to have an assortment of every color and size of pasta to the bag and zip closed. Mix it up well.
- 3) Lay each bag flat and flip every 30 minutes for 2 hours (or until you reach the color you desire.
- 4) Open the bag, drain the alcohol and spread the pasta on a newspaper to dry overnight.
- 5) Store in zipping plastic bag or other container.

Part II: Pasta as Math

- 1) Construct addition and subtract on problems for students to solve you can use the attached worksheet for your students or glue pasta noodles on to a piece of paper and have students solve the addition and subtraction problems from there.
- 2) Students can also use pasta to create shapes using the Pasta as Shapes Worksheet.

Other Variations: Give students a handful of a variety of different pasta noodles and have them separate the pasta by types and then graph how much of each they received.

Lesson adapted from Oklahoma Agriculture in the Classroom

Part III: Pasta as a Measurement

- 1) Using the Pasta Measurement worksheet, have students choose a nonstandard measurement unit (such as a pasta noodle) to measure the three pictures of pasta on the worksheet.
- 2) Students will then use a ruler to measure the pasta noodle in inches and centimeters.



Pasta as Math

Student Name: _____

Directions: Use the pasta provided by your teacher to solve the following math problems.

1) $5 + 8 =$ _____

2) $15 - 9 =$ _____

3) $12 + 7 =$ _____

4) $8 + 12 =$ _____

5) $15 + 9 =$ _____

6) $11 + 12 =$ _____

7) $13 + 7 =$ _____

8) $7 + 19 =$ _____

9) $15 + 8 =$ _____

10) $17 + 9 =$ _____



Pasta as Math

Student Name: _____

Directions: Use the pasta provided by your teacher to create the following shapes.

1) Triangle

How many noodles did it take you to build a triangle? _____

2) Square

How many noodles did it take you to build a square? _____

3) Hexagon

How many noodles did it take you to build a hexagon? _____

4) Octagon

How many noodles did it take you to build an octagon? _____

5) Parallelogram

How many noodles did it take you to build a parallelogram? _____

6) Rectangle

How many noodles did it take you to build a rectangle? _____

7) Pentagon

How many noodles did it take you to build a pentagon? _____

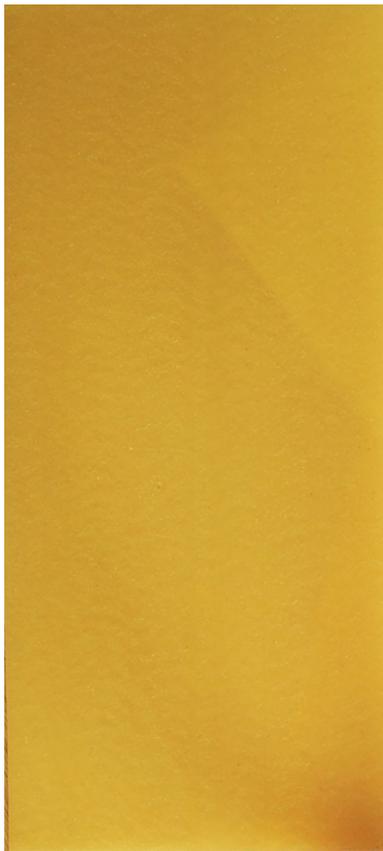


Pasta Measuring

Student Name: _____

Directions: Measure the length of the various kinds of pasta using nonstandard measurements (you could use small noodles, crayons, eraser tips, etc.).

1) What did you use as a unit of nonstandard measurement? _____



Pasta 1: _____ Pasta 2: _____ Pasta 3: _____

Standard Measurement- Use a ruler to measure the pasta in inches and centimeters.

Pasta 1 _____ inches, _____ centimeters

Pasta 2 _____ inches, _____ centimeters

Pasta 3 _____ inches, _____ centimeters