

Ronald McDonald House Pop Tab Math Fun



Visit us online at www.rmhc.springfield.org

Mathematics

Title: Measuring and Weighing

Skills Necessary: Counting and Reading

Description of Activity:

Separate the students into learning groups, teams or partners. Give each group a quantity of pop tabs.

1. How many pop tabs measure one inch? One foot? One meter?
2. How many pop tabs does it take to cover a piece of paper, a desk top or other identified item in the classroom or school?
3. Using a scale, how many pop tabs equal one ounce? One pound?
4. Schools could count tabs as they are collected. Tabs could be bundled in amounts of 100. Schools could celebrate 100 days or the 100th day of how many 100th days it took to collect a (your goal) sets of 100 pop tabs.

Students can begin to visualize ONE MILLION at the end of the project.

Some common measurement equivalents (if pop tabs are laid end-to-end):

- 1 pop tab = 1 inch = 2.5 centimeters
- 12 pop tabs = 1 foot
- 40 pop tabs = 1 meter
- 80 pop tabs = 1 ounce
- Approximately 1,267 pop tabs = 1 pound
- Approximately 40,000 pop tabs = 1 kilometer
- Approximately 64,000 pop tabs = 1 mile

Title: Most popular soda? And the winner is...

Skills Necessary:

Description of Activity:

Pick a period of time...a week, a month, a marking period. Ask students to keep the tabs from the sodas they drink. Make a large graph and glue the tabs on to make "bars." Have students read the final graph and answer questions about it.

Title: Tabs by the Yard!

Skills Necessary: Counting, Measuring and Critical Thinking

Description of Activity:

Divide the class into 4, 5 or 6 equal groups. Give each group a different colored length of yarn or ribbon (at least 39" long) with a large button knotted on one end.

Challenge each group to collect enough tabs to equal one yard when slid onto the yarn. Reward the winning group (or everyone) with a treat.

Have each group count the number of tabs necessary to equal one yard. Are all the numbers the same? Why or why not? What factors might affect the number of tabs necessary?

Title: How many do we need?

Skills Necessary: Finding the least common multiple

Description of Activity:

Divide class into groups. Have each group choose a number between 2 and 20. Post the numbers in the front of the room and challenge the students to do two things:

1. Find the LCM of the posted numbers, and
2. Collect enough tabs to equal the LCM

Once the tabs have been collected, have each group take turns dividing the tabs into groups equal in size to their original number to check that no extras are left over.

Title: First Down

Skills Necessary: Multiplication and Division of Whole Numbers and Unit Conversions (Dimensional Analysis)

Description of Activity:

In a football game, a first down occurs when the offense has moved forward 10 yards from where they first got possession of the ball.

Divide into groups, classes or teams to see who can get the first "First Down."

Option 1:

It takes approximately 16 tabs stacked one on top of the other to equal an inch. Using "football math," find out how many tabs a team must collect for a first down.

A first down = 10 yards

1 yard = 3 feet

1 foot = 12 inches

1 inch = 16 tabs

$10 \text{ yards} * 3 \text{ feet} * 12 \text{ inches} * 16 \text{ tabs} = 5760 \text{ tabs}$

yard foot inch

Option 2:

String the tabs on twine, yarn, wire, ribbon or streamers. Take a walk out on the football field and measure the string tabs against the yard marks on the field.

Note: You may extend this over a period of time by "moving" down the field to score six points! A field is 100 yards long, so it will take about 57,600 tabs to score.*

*If you choose, you may use the length of a tab as about 1 inch, so it would only take 360 tabs for a first down and 36,000 to score a touchdown.

Title: How long is it?

Skills Necessary: Multiplication, Division, Conversion of Units

Description of Activity:

1. The track for the Indy 500 is 2.5 miles long. How many tabs would you have to lay end-to-end to go around once?

2. Look up the world records, Olympic records or your own school records for:

A. The 100m run: men's and women's - how many tabs equal 100m?

B. High Jump: men's and women's - how many stacked tabs equal those heights?

C. Pole Vault - how many stacked tabs equal that height?

D. Discuss - how many end-to-end tabs equal that distance?

E. Shot - how many end-to-end tabs equal that distance? How many tabs equal the weight of the shot?

1 tab length = 2.54 cm 1 pound = 1267 tabs

100 cm = 1 m 16 ounces = 1 pound

Title: How many will it hold?

Skills Necessary: Calculate the volume of a tab (1 inch long x 1/2 inch wide x 1/16 inch thick), Calculation of volume and Critical Thinking

Description of Activity:

1. Calculate the volume of a tab (1 inch long x 1/2 inch wide x 1/16 inch thick)

2. Calculate the volume of any container (volume = area of base x height)

3. Calculate how many tabs it would take to "fill" the container

4. Actually collect the tabs to fill the container. Was your answer in #3 close to the actual amount? What might cause the numbers to be different?

Possible containers: Bass drum, baseball cap, 10-gallon hat, soda can, milk carton, gallon jug, coffee can, waste basket

Title: "Tabbing" the Area

Skills Necessary: Measure the length and width in standard units and Unit Conversion

Description of Activity:

1. Take any area: top of a desk, top of a cafeteria table, the 3-second area of a basketball court*, a screen or wipe-board
2. Calculate the area by measuring the dimensions and using the appropriate formula (Rectangle: $A = l \times w$; Square = s^2 ; Circle = πr^2)
3. Each tab is approximately 1" (l) x 0.5" (w) x 1/16" (thick). If tabs are put together in the pattern shown below, calculate how many tabs must be collected to cover the area.

*The 3-second lane should be 12' x 19' including the 2" foul line. (This should take about 65,665 tabs.)

Title: Meet Me in the Middle

Skills Necessary:

Description of Activity:

Challenge a neighboring school to meet you halfway between your school and theirs by collecting enough tabs to cover the distance.

1. Measure the distance between the two schools.
2. Use one of the following conversions to determine how many tabs are needed to cover the distance between the schools.

A. 1 tab = 1 inch (length)

OR

B. 16 tabs = 1 foot / 3 feet = 1 yard

5280 feet = 1 mile / 1760 yards = 1 mile

Collect the tabs necessary to go half the distance. If you "string the tabs," you might actually stretch the strings or wires to cover the distance!

Title: How Much are They Worth?

Skills Necessary: Finding Averages and Comparing Costs

Description of Activity:

1. Have students check with the local stores to find the average cost of: (choose one brand)

A. Individual can of soda

B. Six-pack of soda

C. Twelve-pack of soda

D. Cube of soda

2. Have students calculate the value of the tabs if:

A. They were from individual cans

B. They were part of six-pack

C. They were part of twelve-pack

D. They were part of a cube

3. Have students compare the cost per can of B, C and D with A

Title: Collect the Average Weight or Height of Your Group

Skills Necessary: Multiplication, Division and How to Calculate Averages

Description of Activity:

Have groups find their average weights or heights for all members. See which group can be the first to collect enough tabs to equal the average weight or height (or both) for the group.