CANDY MATH

How to Make Your Own Inexpensive
Math Manipulatives Using Candy or Cereal

You can use inexpensive candy (or breakfast cereal) as math manipulatives to teach primary age children almost any basic math concept. This short ebook will get you started, offering over a dozen creative games, lesson plans and examples to teach:

SKIP COUNTING * ODD AND EVEN * GROUPING
GREATER THAN, LESS THAN, EQUAL TO
MEASUREMENT * ADDITION * SUBTRACTION
MULTIPLICATION * DIVISION * FRACTIONS
GRAPHS * ESTIMATING * MAKING SETS
...and more!

By Jim Erskine

CANDY MATH
Do-It-Yourself Math Manipulatives You Eat

In the last several years, there has been a great deal of interest in teaching math concepts using "math manipulatives". The "hands on" approach that manipulatives offer is extremely effective in introducing and teaching mathematical concepts to students.

Many parents who purchase packaged "math manipulative" programs quickly realize that a little creativity and imagination on their part would have accomplished the same results without the costly price tag.

One of the most fun (and least expensive) types of manipulatives you can use to teach math concepts to your kids is candy or cereal. There is a natural attraction and fascination for children in playing with (and learning from) candy. Just the novelty of candy being part of a lesson (not to mention eating it at the end of the lesson) is enough to hold the attention of most children.

It is a simple matter to use candy manipulatives to teach math concepts if you use a little imagination and learn to frame your examples in "candy terms". This little e-booklet will get you started by offering a number of object lessons, illustrations and games that illustrate several math concepts. You may wish to refer to this booklet when introducing and reviewing basic math concepts. Start with the examples given here, then add variations of your own, or adapt the problems you find in your math curriculum materials into "candy terms". The examples given in this booklet may be simplified or made more complex depending on the level of the student. Many ordinary addition, subtraction, multiplication, division and fraction problems can also be illustrated in candy form. Just be creative and have fun!

You can use any multi-colored candy as a manipulative, including:

jelly beans	valentine hearts
Smarties	Sweet Tarts
M&M's	Hershey-ettes
Skittles	Gummy Bears

Or, if you're a cereal lover, try using:

Fruit Loops	Trix
Lucky Charms	Fruity Pebbles

...or their generic equivalents.

Of course, the fun part is to always eat your manipulatives once the lesson is over! So, if you don't want your child expecting candy every day as part of their homeschool lessons, consider substituting the cereal for the candies. It would probably also be wise not to allow ALL of your "manipulatives" to be eaten at each session. Put a specific limit on the number of candies that can be eaten at the end of each lesson. And try not to schedule these lessons right before lunchtime!

Finally, let me encourage you to have fun and let your own creativity flow when teaching math and using manipulatives. Relax and enjoy your time teaching your children -- they quickly sense your attitude toward their studies and almost always respond in kind.

-- Jim Erskine, homeschoolradioshows.com

SKIP COUNTING

Demonstrate and practice the concept of skip-counting.
Needs: candies

Skip counting is counting by numbers other than 1 -- 2s, 3s, 5s, 10s, etc. You skip over numbers when you count this way.

To learn to count by twos:
Make a line of 20 candies, using only two colors (for example, red and blue). Make every other color a red, so you have blue, red, blue, red, etc. Count the candies from 1 to 20.

Now count the candies from 1 to 20, but only name the red candies out loud. (2, 4, 6, 8, 10, 12, etc.) When you skip every other number, you are skip-counting by twos. Now count to 20 by twos again, and eat the between number candies. (2, 4, 6, 8, etc.)

(To skip count by threes, use 21 (or any multiple of 3) candies and make every third candy a red one. Also use 100 candies to show student how to count by fives and tens.)

ODD AND EVEN

Two or more can play this simple game that reinforces even and odd number recognition.

Needs: Give each person 12 candies (or cereal, as the candies can melt in hands).

First player picks up some of her candies without anyone else seeing, and asks second player, "Odd or even?" The second player has to guess whether there is an odd or even number of candies in their hand.

If they guess right, they get two of the first player's candies. If they guess wrong, they give up two of their own candies. The second player then picks up some of her candies and asks the third player (or the first player if only two are playing), "Odd or even?"

Continue playing until one player runs out of candy, or until time limit is reached with more than two players.

GREATER THAN, LESS THAN and EQUAL TO

Shows the size relationship of different numbers.

Needs: 1/2 bag candies (or half-cup Fruit Loops), worksheet with problems prepared by parent.

Instructions: Put your candies into sets by color:
G = green; R = red; B = brown; BL = blue; O = orange; Y = yellow; DB = dark brown

Using the symbols > (greater than), < (less than) and = (equal to), show the relationship between these sets:

G _____ R   Y _____ B   DB _____ O   Y _____ R
BL _____ G   DB ___ B   O _____ R   BL ___ G

(You may add additional problems to the worksheet to fit child's grade level.)

CANDY MEASUREMENT

Gives practice using and reading ruler (inches or metric).

Needs: ruler, candies

Show student how a ruler is laid out, then use candies to illustrate measurements.

Sample problems:

How long is one candy? Measure.

How long is five candies laid end to end? 10 candies? 20 candies? Measure.

How many candies does it take to make 5"? How many to make a foot? Find out.

Tell child she may eat 3" worth of candies. Ask how many candies that will be.

ESTIMATING

Provides practice in estimating and deduction.

Needs: bag of candies, paper, pencil

Before you open the bag, ask these questions:
"How many candies do you think are in the bag?" (Write down guess.) "Which color candies do you think there is most of in the bag?" (Write down guess.) "Which color do you think there are the least of in the bag?" (Write down guess.)

Open bag and count out candies. Separate by colors and count number of candies in each color group. Compare the original guesses to the actual amounts.

Questions: "Did any of the predictions you made turn out to be true? Which guesses were closest to the actual amounts? Which was the furthest off?"

THE COUNTING CIRCLE

A fun game that builds counting and prediction skills.
Needs: candies

Arrange several brown candies in a circle. Also put one red candy in the circle.

Starting from any candy in the circle, count around the circle up to 8. If the count ends on a brown candy, take it out of the circle, then let the next player count, again starting from any place on the circle.

If someone's count stops on the red candy, that player is out. The last player left is the winner.

(You can also play this using different numbers.)

LEARNING BASIC ADDITION

Teaches the basic concept of addition
Needs: candies

Example: "Addition means putting numbers together. Put two candies in one pile. Put three candies in another pile. Now push the piles together. How many candies do you have now? 2 + 3 = 5 -- You have five candies."

Vary with other numbers and sums up to 10.

LEARNING BASIC SUBTRACTION

Teaches the basic concept of subtraction
Needs: candies

Example: "Subtraction means taking a number away. Put five candies in a pile. Now eat two of the candies. How many candies do you have now? 5 - 2 + 3 -- You have three candies."

Vary with other numbers up to 10.

ADDITION PRACTICE

Needs: 1/2 bag candies (or half-cup Fruit Loops), worksheet with problems prepared by parent

Instructions: Put your candies into sets by color:
G = green; R = red; B = brown; BL = blue; O = orange; Y = yellow; DB = dark brown

Add different color sets together. Examples:

DB + B = _____   R + O = _____

BL + Y = _____   G + R + O = _____

DB + BL = _____   O + Y + BL + G = _____

(You may add additional problems to the worksheet to fit child's grade level.)

THE GROUPING GAME

Teaches student how numbers may be grouped differently. Needs: dixie cups, candy, bowl

Have the child pretend that they work in an candy factory. Her instructions are to package ten cups of candies, with 10 candies in each cup. Have the student count and fill 10 cups with 10 candies in each.

When this is done, use the cups to count by 10s to 100. Point out that 10 tens = 100.

Next tell her the factory has changed its mind and now needs 5 extra large cups of candies with 20 candies in each cup. Ask her how she can do this, using the ten cups she has now. (She should pour one cup of ten into another cup of ten, making 20.) Have her make all 5 cups of 20 candies.

When this is done, use the cups to count by 20s to 100. Point out that 5 twenties = 100, the same as 10 tens.
Finally, tell her the factory has changed its mind one last time and just wants 100 candies in one large bowl. Ask her how she can do this, using the 5 cups she has now. (She should pour all the cups into the bowl.)

When this is done, point out that 100 candies is also 10 x 10 candies, or 5 x 20 candies.

(You can change the quantities and groupings of numbers to vary this activity.)

INTRODUCING FRACTIONS

You can introduce the concept of fractions with this activity.
Needs: candies

"Make a square of 4 candies. Count them. The square is made up of 4 candies. Now eat one candy. You are eating 1 of the 4 candies, or 1/4th of the candies. You write a fraction this way -- 1/4. You read a fraction by saying the top number (the numerator) first, then the bottom number (the denominator)."

or: 1 (candy was eaten) (numerator) / 4 (total number of candies) (denominator)

(Repeat and vary with different numbers of candies.)

COOKIE MATH

In this activity, you and your child make cookies together (yay!). Later, the child answers counting or computation problems based on their age level.

Needs:
COOKIE RECIPE:

1/2 c. butter	3/4 t. vanilla
1 c. peanut butter	1 1/2 t. soda
1 c. sugar	4 1/2 c. uncooked rolled oats
1 c. brown sugar	2 c. candy candies
3 eggs	3/4 t. light corn syrup

Cream butter, peanut butter and sugars until light and fluffy.   Add eggs; beat well. Stir in corn syrup, vanilla, and soda. Add rolled oats and candy candies; mix thoroughly. Drop by table-spoonfuls onto ungreased cookie sheet. Bake at 350 degrees for about 12 minutes. YIELD: about 5 dozen
NOTE: The recipe requires no flour.

1. Involve your child in cookie making. Have her help measure, mix ingredients, etc.

2. Once cookies are done, give your child a plate with 3 or 4 cookies on it, along with worksheet, and have her do the problems on it.

Design the worksheet based on the skill level of your child. For younger children, it may be as simple as tallying the number of candies on each cookie, then adding the total number of candies. Older children can be given more complicated problems.

Examples:

candies x 3 = _____

___ # red x ___ # green = _____

candies - ___ # blue = _____

__ # yellow + ___ # brown + ___ # red = _____

500 x # orange = _____

1/3 of ___ # candies = _____

This is a fun way to review math skills, whatever your child's age. Use a little imagination and the type of questions you can come up with are almost limitless and could include story problems, fractions, percentages, etc.

SOLVING FRACTION PROBLEMS

Example: Set out 5 candies -- 2 red and 3 brown

Question: What fraction of the candies are red?

Solution: Two of the candies are red.
            There are five candies in all.
            Two of the five candies are red.
            So... 2/5 of the candies are red.

Example: Set out 7 candies -- 2 green, 3 blue and 2 yellow

Question: What fraction of the candies are blue?

Solution: Three of the candies are blue.
            There are 7 candies in all.
            Three of the seven candies are blue.
            So... 3/7 of the candies are blue.

REGROUPING

Needs: candies

Sample problems:

Put 9 candies in one group, and 5 candies in another group.
Ask child to count candies in each group. "Jill has 9 candies in one group and 5 candies in another group. But she wants to have the same number of candies in each group. How can you move the candies so both groups contain the same number?"

Put 7 candies in one pile, and 4 candies in a separate pile.
"Joe had 7 candies, Tom had 4 candies. Joe gave two of his candies to Tom. Who had more candies then?"

CANDY SETS

Show how different numbers can be divided into sets.
Needs: candies

Put 15 candies in a pile in front of you and use them to do these problems: How many piles of four can you make? How many are left over? How many piles of five can you make? How many are left over? How many piles of two can you make? How many are left over? How many piles of three can you make? How many are left over? Put two candies in your mouth. How many are left over? Put three more in your mouth. Now how many are there?

Now, using the candies you have left:
How many piles of four can you make? How many are left over? How many piles of five can you make? How many are left over? How many piles of two can you make? How many are left over? How many piles of three can you make? How many are left over?

(Vary with different numbers and sets.)

DIVISION GAME

A fun way to practice division problems.
Needs: handful of candy, 1 die

Give each student a handful of candies or cereal. (16-18 pieces) Roll a die once and divide the candies into that many groups. If the child rolls a six, they would divide the candy into six groups. If any candy is left over, that becomes their remainder. (The candy in each group does NOT have to be the same color.)

You can then demonstrate how the division problem is written on paper. Repeat with different quantities of candy and rolls of the die.

CANDY GRAPHS

In this activity, the child learns to gather and record data and to display it in a graph format. Needs: Bag of candies (or 1 cup of cereal), pencil, cup, crayons, graph paper (large squares)

Pour candies into cup.
Separate candies into each color on table.
Pick out a crayon for each color candy you have.
Count the number of candies in each color group and write down the number, using that color crayon.
Show your child how to make a verticle bar graph that shows how many candies there are of each color: Draw a pencil line at the bottom of the graph paper. This is your base line. Use each crayon to show how many of each color candy was counted. For instance, if you have 15 red candies, use your red crayon to fill in 15 blocks over your base line. Make different colored lines for each candy color, skipping a row of blocks between each color. You may need to do the first color to show how it is done.

Once you have all the colors on your chart, ask
(using the bar graph):

"Which color did you find most of?"

"Which color had the fewest?"

"Did any of the colors have the exact same amount?"

"If we had another bag of candy, would we find the same number of each color of candy? Why or why not?"

Save chart to show and explain to dad.

Eat candies by color.