

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

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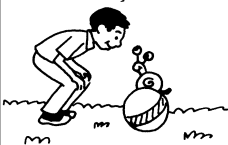
TOOLS & TIDBITS

Number search

Here's a colorful way to practice number recognition. Help your youngster draw 5 rows of 5 circles. Then, randomly write a number, 0–9, in each circle. Let her assign a color to each number and make a key (red = 0, blue = 1, and so on). Now she can use crayons to color in the circles according to her key.

Living or not?

How can your child tell if something is living or not living? Together, brainstorm questions to ask himself. *Examples:* "Does it eat?" "Does it grow?" "Does it breathe?" Take a walk, and have him answer the questions to decide "living" or "not living" for things he sees (ball, car, snail, tree, cupcake, moss).



Book picks

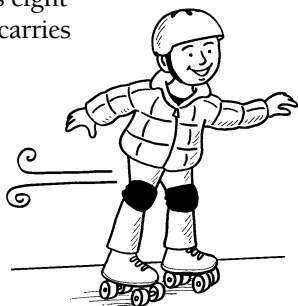
▣ In *Monster Musical Chairs* (Stuart J. Murphy), your youngster can practice subtraction while the monsters play a game.

▣ Little geologists will love looking at pictures of rocks and reading about the minerals that make them in *A Rock Is Lively* (Dianna Hutts Aston).

Just for fun

Q: What has eight wheels but carries only one passenger?

A: A pair of roller skates.



What's in a number?

Understanding that numbers can be broken apart or put together to make other numbers is an important concept in early math. Help your child learn to break apart (*decompose*) and put together (*compose*) numbers with these fun activities.

Hide the bears

Show your child 5 "bears" (dry beans or macaroni), and tell him to close his eyes while you hide a few in the "cave" (an upside-down mug). Now he has to figure out how many bears are in the cave!

Hint: He should count the bears outside the cave (say, 3) to figure out how many more would add up to 5 (2). To check his math, lift the mug so he can count the bears in the cave. Now, it's his turn to hide bears for you. *Idea:* Play with other numbers of bears, such as 7, 13, or 18.

Fill the bus

Suggest that your youngster seat "passengers" on a double-decker bus to make



numbers up to 10. Have him draw a bus with 5 seats on top and 5 seats on bottom. Then, he can number slips of paper 1–9 and mix them up in a bag.

Let him pick a slip and put that number of toy people on the bus (pick a 4, and seat 4 people). Ask, "How many seats are left?" He should fill the remaining seats (6) and then write the number sentence he made ($4 + 6 = 10$). Empty the bus so he can play again. *Idea:* To practice facts to 20, he could draw two double-decker buses and number slips 1–19. ♪

The weather outside

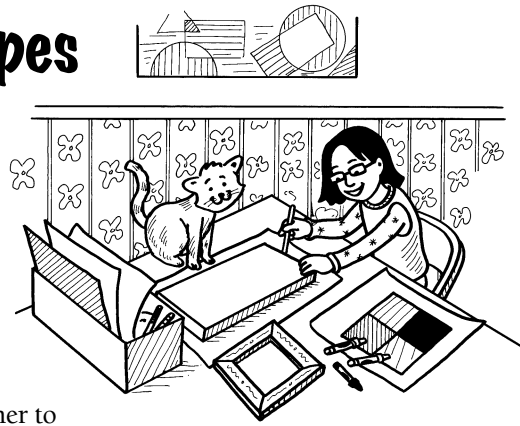
What's the weather been like lately? Let your youngster observe the weather conditions with these ideas.

Keep a journal. In a notebook, help your child list as many different kinds of weather as she can. *Examples:* sunny, cloudy, foggy, windy, rainy, snowy. Then, go outside each day, and have her describe the weather. In her journal, she could draw a picture and write a few words or sentences about it.

Make a graph. Help her make a bar graph of the week's weather. She should write weather words across the bottom and the numbers 0–7 evenly up the left side. Using her journal, she can draw a matching symbol (a sun for sunny, a snowflake for snow) for each day's weather. Let her use her graph to report her findings: "There were 3 sunny days, 1 snowy day, and 3 rainy days this week." ♪



Fractions of shapes



A simple square and rectangle will help your child begin to learn about fractions. Here's how.

Halves. Have your youngster trace around a square object (game board, notepad) to make a square. What happens if she draws a line down the center? (She'll have 2 equal parts.) Next, she could color each half a different color. Encourage her to tell you about her square using words like *halves* and *half of*. She might say, "My square has two halves" or "Half of my square is purple, and half of my square is green."

Fourths and thirds. To make a rectangle, let her trace around a shoe box or a magazine. Ask her to divide it into four equal parts and color them different colors. Can she make up a silly story using the words *fourths*, *quarters*, *fourth of*, and *quarter of*? ("A quarter of my box wanted to go to the movies, but the other three quarters didn't want to!") Now have her make another rectangle, divide it into three equal shares, and tell you a story about the *thirds*.

Idea: How many different ways can she divide a square or rectangle into halves, thirds, and quarters? Let her draw more shapes and experiment!

MATH CORNER

Matched set

Play this game to see who can match the most numerals, words, dots, and pictures—as your youngster sees all the different ways to express a number.

1. Pick a set of numbers, such as 1–10 or 11–20.

2. For each number, use four index cards: Write a numeral (3) on one card, the number word (three) on a second, the matching number of dots (···) on a third, and a matching picture (3 footballs) on the fourth.



3. Shuffle the cards, and spread them facedown. The first player turns over two cards. If the cards belong to a set, he keeps them and turns over two more. If not, he returns them, and it's the next person's turn.

4. Continue playing until all cards have been matched. Score 1 point for a matched pair and 5 points for a complete set of 4. High score wins.

SCIENCE LAB

Build an arch

Arch bridges—or bridges with arches underneath the road—are some of the strongest bridges around. Let your little engineer discover why with this experiment.

You'll need: poster board, scissors, 2 soup or vegetable cans (same size), pennies

Here's how: Help your youngster place the cans 6" apart. Have him lay a strip of poster board across the top of the cans to make a beam (flat) bridge. To test its strength, he could add pennies, one at a time, counting how many the bridge held before it collapsed. Next, let him make an arch bridge by curving a poster board strip into an arch between the two cans and placing another poster board strip across the top. Now he can repeat the test.

What happens? The arch bridge will hold more pennies before collapsing.

Why? In an arch bridge, the weight is carried outward along the curve and transferred to the supports (the *abutments*) at each end. In a beam bridge, the weight pushes straight down.



Q & A

Show me the money!

Q: I'm trying to teach my daughter which coin is which. Can you recommend an activity to try at home?

A: Most children find it fun to sort loose change. Why not let her make a sorting tray? She could line up empty toilet paper rolls on a tray, tape a different coin to each one, and use a marker to write its value (penny = 1 cent, nickel = 5 cents, dime = 10 cents, and quarter = 25 cents).

Then, gather some coins from around the house. Let your

daughter drop each coin into the proper tube, matching it to the coin on the front. Once they're sorted, help her count the coins in each pile and say the total ("We have 17 cents in pennies"). Suggest that she count the nickels by 5s ("5 cents, 10 cents, 15 cents") and the dimes by 10s ("10 cents, 20 cents, 30 cents"). For the quarters, she could put them in piles of 4 and count the dollars, since 4 quarters = 1 dollar (1 dollar, 2 dollars, 3 dollars).

Try this a few more times, and soon she'll get the hang of which coin is which.



OUR PURPOSE

To provide busy parents with practical ways to promote their children's math and science skills.

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