

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

April 2019



Title I
Prince William County Public Schools

TOOLS & TIDBITS

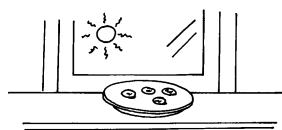
Number symmetry

Ask your child to write the number 808 and

lay a piece of yarn across the middle horizontally, then vertically. What does she notice? It's symmetrical—the top and bottom are mirror images of each other, and so are the left and right. Let her try other numbers and even objects (fireplace, window) to find more examples of symmetry.

Raisins in the sun

Your youngster can make a tasty treat with help from the sun! Have him rinse a few grapes, remove the stems,



and put them on a plate in a sunny window.

In a few days, the grapes will start to shrivel into raisins as the sun's heat causes the water inside to evaporate.

Web picks

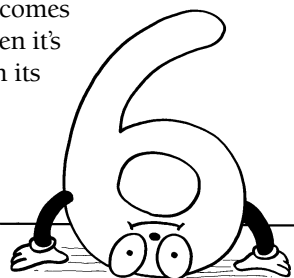
☞ Let your child “splat” fruit to solve addition and subtraction problems, pop balloons to learn about money, and try other fun games at sheppardsoftware.com/math.htm.

☞ At nps.gov/webrangers, your youngster will “visit” the national parks to learn about forest fires, salmon, pumas, and more.

Just for fun

Q: What becomes smaller when it's standing on its head?

A: The number 9!



Patterns are everywhere!

Morning, noon, and night, patterns fill your youngster's world. Playing with them builds his math skills, since numbers follow patterns, too. Encourage him to find, follow, and make patterns with these ideas.



Keep a journal

Suggest that your child start a journal of all the patterns he sees in a week. Perhaps his teacher wears a tie with blue and green polka dots. He can draw the pattern in his journal (blue, green, blue, green) and label it with the day (Monday) and place (school). Invite him to show you his patterns and count how many he found.

Be a copycat

Try this game to help your youngster think logically about what's next in a pattern. Start with a silly movement pattern (hop, hop, waddle, hop, hop, waddle). Do it twice, then your child can copy you to find out what comes next (hop). Repeat the pattern until you both reach the other

side of the room or yard. Now follow a pattern he makes up.

Play with numbers

Your youngster can practice skip counting and make patterns with numbers. Take turns writing a number pattern with one blank. *Example:* 2, 4, __, 8. Or say the numbers aloud, clapping once for the missing number. The other person fills in the blank and explains the pattern. (“The number is 6, because the pattern is skip counting by 2s.”) 🦋

I'm a rock collector

Big or small, shiny or dull... rocks make excellent specimens for your child to study and classify, just like a scientist does! Here's how.

Collecting. Together, take a walk to gather rocks. Ask questions to help your youngster describe their *attributes*—color (gray, brown), texture (smooth, rough), size (big, medium, small), and shape (round, flat). Let her observe her rocks more closely through a magnifying glass. Perhaps she'll see lines, sparkles, dents, or holes.

Arranging. Suggest that your child sort her rocks according to color, texture, size, or shape. Then, she can stack several rocks from biggest to smallest and display her collection as a garden landmark (called a *cairn*). 🦋



What does the graph say?

The most. The least. Graphs tell us a lot about data through bars or pictures. With these activities, your child can create her own graphs to organize and compare data.

My graphing basket. Toys left out? Have your youngster gather them in a laundry basket and use them to make a 3-D graph. She should line up each type of toy (cars, blocks, dolls) evenly in a separate column. Ask questions to help her analyze the data in her graph. *Examples:* Which toy is there the most of? Are there more blocks or cars?



Question of the week. Let your child write a question (“What do you like to do on a rainy day?”) on a sheet of paper. Then, she could add options in separate columns: “Read books,” “Watch movies,” “Play board games.” She can post her survey on the refrigerator along with a few magnets. To answer, each family member or visitor puts

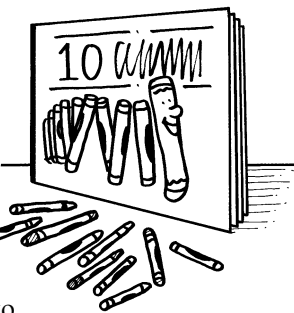
a magnet in the column of her choice. Your youngster could analyze the graph by counting and comparing the magnets. How many people picked movies? How many more chose books than games?

PARENT TO PARENT

Act out counting books

My son Lionel came home from school the other day excited about a counting book his class acted out during math time. The teacher read *The Crayons’ Book of Numbers* by Drew Daywalt, and the kids had to search the classroom for 10 missing crayons and count to be sure they found them all.

We decided to get counting books from the library and act them out at home. For a book about counting birds,



Lionel wanted to go outside and count real birds as I read. Then as I read one on counting backward, he got five strawberries and ate one as we turned each page—until there were zero strawberries left.

He’s having fun counting in different ways, and we’re both enjoying reading together.

OUR PURPOSE

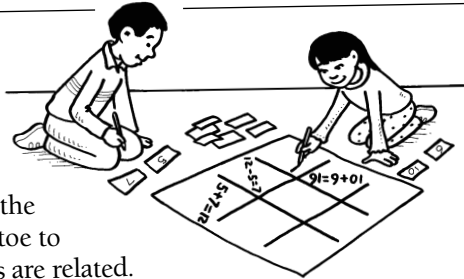
To provide busy parents with practical ways to promote their children’s math and science skills.

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MATH CORNER

Fact-tac-toe

How are $5 + 7 = 12$ and $12 - 5 = 7$ related? Along with $7 + 5 = 12$ and $12 - 7 = 5$, they make up a *fact family*, a group of math facts with the same numbers. Try this twist on tic-tac-toe to help your youngster learn how numbers are related.



1. Have your child draw a large tic-tac-toe board. Then she can number 10 slips of paper (1–10), mix them up, and spread them out facedown.
2. Each player takes two slips and writes the fact family that the numbers belong to. *Example:* If your youngster gets 6 and 10, her fact family is $6 + 10 = 16$, $10 + 6 = 16$, $16 - 10 = 6$, and $16 - 6 = 10$.
3. Play tic-tac-toe as usual, but instead of writing Xs and Os, each person fills in squares with any fact from her family. (Repeat a fact if you run out.) Get three of your “family members” in a row to win.
4. Play again with a new board and new slips.

SCIENCE LAB

Let’s make noise!

Your child will shake things up and learn how sound travels with this experiment.

You’ll need: measuring spoon, small food items with different textures (gummy snacks, dry beans, popcorn, bread cubes), small container with a lid

Here’s how: Which foods does your child think will make the most noise if he shakes them in the container?

Ask him to line up the foods in the order he predicts, softest to loudest. He can test his predictions by measuring an equal amount

of each food into the container, one at a time, and shaking it.

What happens? Denser objects like gummies and beans make louder sounds when they collide, since their molecules are packed together tightly. Less dense, “airy” items, such as popcorn and bread cubes, create quieter sounds.



Why? Sound travels faster through the denser objects as they hit each other and the container. The faster sound travels, the higher the volume.