

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

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TOOLS & TIDBITS

Symmetry with snowflakes

Snowflakes

are *symmetrical*—each half is a mirror image of the other. Show your child how to create symmetry. Help her fold a square sheet of white paper in half, then in half again, and finally diagonally. She can cut designs along the folds. When she opens it up, she'll have her own symmetrical snowflake.



Magnetic money

Here's a fun way for your youngster to see why dollar bills work in vending machines. Hold a dollar by the top edge, and let him slowly move a magnet down it. He'll find a spot where the bill moves toward the magnet. That's because magnetic ink is used in printing money—so vending machines use magnets to attract bills!

Web picks

☒ At coolmath4kids.com, your child can match addition problems with their sums in Alien Addition and play many other math games.

☒ Outrageous Ooze, Salt Volcano, and Flipsticks are just a few of the hands-on science experiments your youngster could enjoy at exploratorium.edu/science_explorer.

Just for fun

Q: What kind of hair would an ocean have if it had hair?

A: Wavy!



Subtraction actions

Subtract, take away, or find the difference—whatever you call it, subtraction is a basic building block of math. Use these clever ideas to practice subtraction at home.


Take away

Pose a subtraction problem, say $8 - 5$. Let your child collect the larger number (8) in buttons, beans, or whatever is handy. Have him place them on a sheet of paper. To solve the problem, he would remove the number of buttons being subtracted (5). By counting the objects still on the paper (3), he'll find the answer ($8 - 5 = 3$).



The number of socks left in the larger group (6) is the difference!

Jump back

Help your child make a number line on a piece of paper. Draw a long straight line, and write the numbers 0–10 at evenly spaced intervals. Give him a subtraction problem, say $7 - 4$. He could place a rock or bottle cap on the 7 and “jump back” to solve the problem. How many jumps back does he need to make to get to 4? That's his answer ($7 - 4 = 3$). 


Match 2

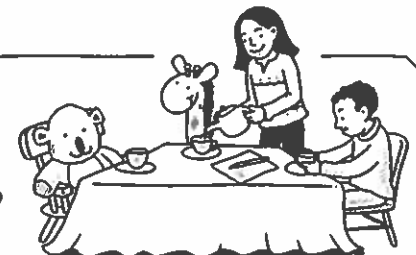
Your youngster might grab a bunch of socks to practice solving this problem: $15 - 9$. He can create 2 groups of socks, one with 15 socks and the other with 9. Now have him form pairs of socks, one sock coming from each group, and put them in a laundry basket. He keeps making pairs until the smaller group is gone.

Watery measures

Introduce your little one to estimating and measuring with this whimsical water play.

Measure spoonfuls. Let your child use a tablespoon to measure water from a bowl into the lid of a jar. Ask her to predict how many spoons of water she will need to fill the lid before the water spills over. She can count as she measures to find out.

Throw a tea party. Have your youngster fill a toy teapot or another small container with water and gather a few toy teacups or small plastic cups. How many guests could she serve if each person got one full teacup of “tea”? Let her estimate, fill each cup, and then count to check. 



Tell me a story (problem)

How much will lunch cost? What time does school start? With these strategies, turn everyday scenarios into word problems like the ones your child will do in class.

Describe the scene. Have your youngster give 2 game tokens to one stuffed animal and 4 to another, then create a story problem. She might say, "Teddy bear has 2 tokens, and Sam the seal has 4. How many do they have together?" To solve the problem, she would add the numbers together ($2 + 4 = 6$). Then, she can give each animal one more token and create another problem.



Go shopping. Take turns making up story problems at the drugstore or hardware store. Ask questions like "This package of diapers has 20 in it. How many will be left after your baby brother uses 11?" ($20 - 11 = 9$) Or she might say, "There's a box of 40 screws and a box of 60 nails. What's the total number of screws and nails?" ($40 + 60 = 100$)

MATH CORNER

Orderly numbers

Putting numbers in order—forward and backward—helps your youngster understand sequencing and how numbers relate to each other.

To begin, hang up fishing line, string, or a shoelace. Your child should number 10 or 20 slips of paper (1–10 or 1–20) and get tape or paper clips for attaching the numbers. Then, enjoy these activities:



- Arrange the numbers in random order. Have him rearrange them in the correct order starting with 1.
- Hang up one number only. Challenge him to hang up the next 5 numbers and count them aloud. If you clipped on 7, he would need 8, 9, 10, 11, and 12. Next, have him find the 5 numbers that come before and count backward.
- Fasten any 10 numbers in order on the line (say 2–11). Then, turn 2 numbers around so they can't be seen. Can your child name those 2 numbers?

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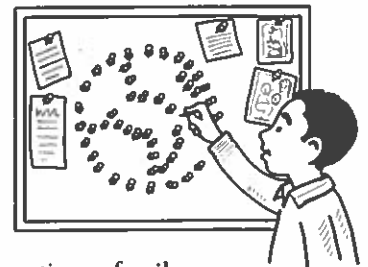


PARENT TO PARENT

Conserving resources at home

My son Ethan came home from school one day and told me he was learning about ways to take care of the planet. He wondered how our family could help.

We talked about ways we already reduce waste by recycling bottles, cans, magazines, and newspapers. Then, we brainstormed ways to conserve resources like electricity and water. Ethan decided we could launch our own "turn it off" program. Every time a family member turns off the water while brushing his teeth or switches off a light as he leaves a room, he gets to add a pushpin to the kitchen corkboard.



When we have 50 pushpins, we're going to celebrate the earth and our milestone with a nighttime family hike to stargaze. My son is proud to be putting what he's learned at school into action. And we all feel like we're doing the right thing.

SCIENCE LAB

See the beans sprout!

It might seem like magic to see a sprout appear from a small seed—but science can explain it! This experiment will delight your youngster as she watches the result when dry beans meet water and warmth.

You'll need: paper towel, water, resealable plastic bag, dry beans (pinto, lima)

Here's how: Have your child fold the paper towel (to fit in the bag) and wet it so it's damp but not dripping. She can then

slide the paper towel into the bag and place several beans on top of the paper towel. Let her seal the bag and place it flat by a sunny window.

What happens? After a few days, the beans start to break open, and tiny roots appear.

Why? Seeds like dry beans are *dormant* (not actively growing) until they have what they need to grow. The wet paper towel provides the water, and the sunny window provides the warmth that makes them *germinate* (start growing).

