

# Taking Math & Science Outside

Playful ways for your child to explore math and science are just outside your door. Go into your yard or to a nearby park, and try ideas like these to put a math and science twist on hide-and-seek, mud pies, and more.



## Jumping contests

Young children love to show adults what they can do. Turn a simple jumping contest into an excuse for your youngster to practice measuring and comparing distances.

Have your child draw a start line with sidewalk chalk. Ask him to stand at the line and jump forward as far as he can. When he lands, mark the spot with chalk.

Then, he can measure the distance by walking it heel-to-toe and counting the steps he takes. *Note:* He could estimate partial steps (quarter-step, half-step).

Let him try again, once jumping backward and another time jumping sideways (feet *parallel* to the start line), and measure each jump. Which way does he jump the farthest? Encourage him to compare the distances: "My forward jump was two steps longer than my backward jump."

*Idea:* Take turns jumping. For every jump, each of you should measure the distance by walking heel-to-toe. Your youngster will see that your results are different (because your feet are different sizes). And he will begin to understand why we use standard units of measurement like inches and centimeters.



## Nature collections

This nature "notebook" is a handy way for your budding scientist to collect specimens and make observations.

Together, brainstorm categories of objects your child could find and study outdoors (birds, rocks,

seeds, insects). Have her use a permanent marker to label a zipper bag for each type. Then, when you go outside, she can choose a bag and take along paper, pencil, and crayons.

As she explores, let her fill her bag with samples, drawings, and notes. For example, if she's investigating birds, she might collect a blue jay's feather from the ground or sketch a bird's nest on paper. Or she could list bird names (robin, cardinal, sparrow) and make a tally mark for each one she sees.

*Tip:* Suggest that she keep her bags in a cardboard box to "read" and explore any time she likes.

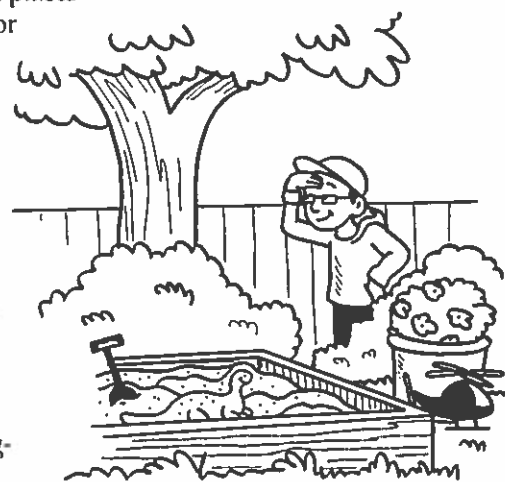
## Hide-and-seek camouflage

Help your child understand how animals use *camouflage* with this fun game.

Hide a few different-colored plastic toys around your yard, putting some in places

where their color makes them stand out (a blue helicopter in front of an orange flowerpot) and some where their color disguises them (a tan dinosaur in a sandbox).

Tell your youngster how many toys are hidden, and let the hunt begin! *Tip:* If he needs help, give him a hint like, "The truck is hiding next to something green." When he finds all the toys, he can hide new ones for you.



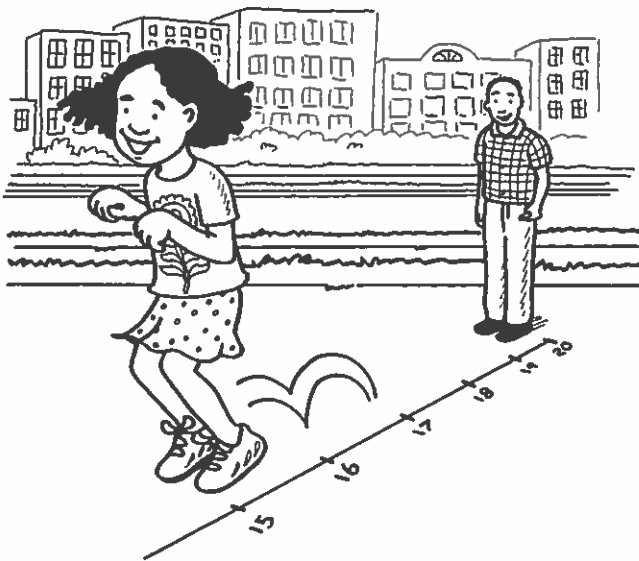
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Once he gets the hang of camouflage, encourage him to look for animals blending in with their surroundings. You can explain that camouflage allows animals to hide from predators. He might notice a squirrel on a tree trunk, a beetle on a plant stem, a deer in the woods, or a frog in grass by a pond.

## Number-line math

This game will let your child burn off extra energy while practicing addition and subtraction.

Draw a long line with sidewalk chalk on a driveway, sidewalk, or playground blacktop. Starting at the left side, help your youngster number the line evenly from 0 to 20.



To play, have her pick a funny way to move (crawl, bunny hop, giant steps). Use that movement to give her an addition or subtraction problem. For example, if your child wants to crawl, you might say, "Start at 4, and crawl 3 more spaces." She would stand on 4 and crawl to 7. Ask her to tell you the math problem she just did: " $4 + 3 = 7$ ." Or if she picks bunny hopping, you could say, "Start at 17, and bunny hop back to 14." She would announce, " $17 - 14 = 3$ ." Then, choose your own silly way to move, and she gets to give you a math problem.

## My mud pies

There's almost nothing more fun for a kid than digging in the dirt! Let your youngster put on old clothes and explore the soil in your backyard.

What's in dirt anyway? Have your child put handfuls of dirt into a sifter, hold it over a bowl, and shake. He might see that pieces of rock, tiny twigs, or clumps of soil stay on top of the sifter, while finer particles of dirt wind up in the bowl. Suggest that he use a magnifying glass to examine the different "ingredients."



Another way your youngster can learn about dirt is to mix it with water and make mud pies. First, he could put dry dirt in a foil pie pan and try to mold it into a pie (it won't stay together). Then, let him add water, a little at a time. Does the water stay on top of the soil, or is it *absorbed* into the dirt? How much water and dirt does he need to make a mud pie (half dirt and half water, more dirt, or more water)? Ask him why he thinks it's easier to shape dirt when it's wet.

## Map making

Your child can practice map-making skills and observe her environment as you hike on a nature trail or walk to the park.

Have her get crayons and a notebook (or paper on a clipboard). Begin walking, and ask her to draw lines on paper to follow your route as you go. When you make a turn, she can use an arrow to indicate a right or left turn. *Idea:* Help her count the number of blocks before turning and add that information to her map. Also, encourage her to use objects along the way for landmarks. For instance, she might count three trees at a curve in the path and draw the trees on her map. Or she could sketch a sliding board to indicate a playground.

After your walk, suggest that she use her map to describe the route to a friend or family member. And then take the map along another day to follow it—she'll see that her map comes in handy when she wants to take the same walk.

