Intermediate Edition
Math+Science Connection
Building Understanding and Excitement for Children

Holy Family School
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INFO BITS

Open-door angles

Doors in your house are the perfect place for hands-on practice with angles. Take turns opening or closing a door and asking, "Acute, right, or obtuse?" Partially open a door, and it's an acute angle. Open it straight out, and it's a right angle. Open it wider, and it's obtuse.

Habitat for rent

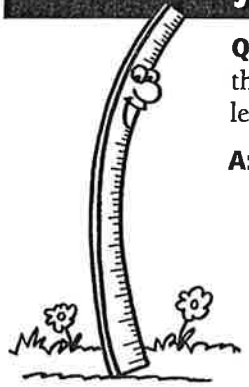
Help your child think about what animals need to survive (shelter, food, water). Then, have her choose an animal (monkey) and write a classified ad for a home that will meet its needs. *Example:* "Tall tree in a tropical rain forest. Large river nearby for drinking. Plenty of leaves, fruit, and insects to eat."

Book picks

The Man Who Counted: A Collection of Mathematical Adventures (Malba Tahan) combines an adventure story with interesting math puzzles.

Learning about the solar system is fun when planets tell the story themselves. Dan Green's *Astronomy: Out of This World!* contains fascinating facts and details along with cartoon illustrations your youngster is sure to love.

Just for fun



Q: What has three feet but no legs or arms?

A: A yard.

Fractions of fun

Understanding fractions is much easier when your child can visualize them. Here are ideas to help her see—and use—fractions.

Keep a diary

Show your youngster that fractions are a part of everyday life. For a week, have her record and illustrate each one she notices. For instance, she might write, "We had a half day of school today," or "Mom asked for $1\frac{1}{3}$ pounds of turkey at the store." How many examples can she find and draw?

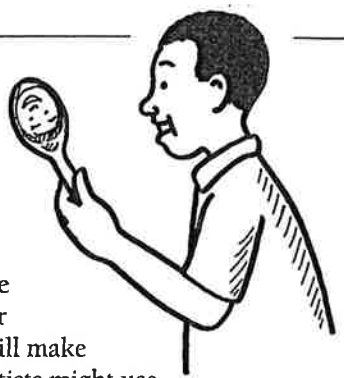
Play a game

Have each player cut a sheet of construction paper into six horizontal strips. She should leave the first one whole and then cut the second one in half (fold it, and cut along the fold), and the others into thirds, fourths, sixths, and eighths. With bits of masking tape, label a die: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, and "wild." To play, roll the die, and lay the matching piece of paper on your whole strip (for "wild," choose any piece). The goal is to be the first one to fill your strip without overlapping any pieces (*example:* $\frac{1}{2}+\frac{1}{4}+\frac{1}{4}=1$ whole strip).

Put in order

Together, make a set of fraction cards, with one fraction per index card ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2). Shuffle the cards, and see how quickly your child can put them in order. Then, while she closes her eyes, lay the cards in order but leave out a few. Give her the missing cards, and have her put them where they go.

Look at me!



Help your youngster learn about the science of *optics* with this mealtime activity.

Have him look at himself in a clean spoon. What happens if he looks in the bowl of the spoon? (He's upside down.) What happens on the other side? (He's right side up.)

Next, have him bring his finger toward the spoon and watch what happens on each side. The bowl (the *concave* side) will magnify his finger, or make it look larger. The back (the *convex* side) will make his finger look smaller. Ask your child how scientists might use this information to make eyeglasses, cameras, or telescopes.

Tip: He can remember which side is which by thinking of concave as "caves in."

Multiply and divide

Learning to multiply and divide can be more about *thinking* than memorizing. Strategies like these will help your youngster practice.

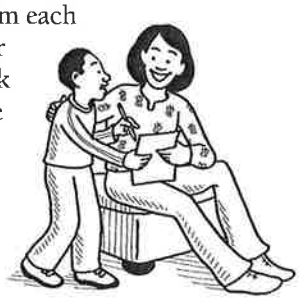
Make it fun. If your child collects toy animals, you might ask, "How many legs do 4 horses have?" He can *skip count* the legs by 4s (4, 8, 12, 16) to see that 4 x 4 = 16. Or if he has friends over and wants to divide 17 pretzels equally among 3 people, he can "deal them out." He'll see that each person gets 5, and there are 2 left over. (17 ÷ 3 = 5, remainder 2)

Use what you know. Encourage your youngster to look for clues to help him solve problems. For 8 x 7, he could consider other math facts he knows. "I know 4 groups of 7 = 28. I need 8 groups, so I can double that answer. If 28 + 28 = 56, then 8 x 7 = 56." For 30 ÷ 5, he might say, "I know 10 ÷ 5 = 2. There are three 10s in 30, and 3 x 2 = 6. So 30 ÷ 5 must be 6."

Q & A Talk up math

Q: *I've never felt comfortable with math. How should I talk to my child about what he's learning in math class?*

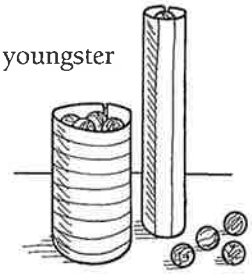
A: Try to show enthusiasm for what your youngster is doing in math. You might ask him each day at dinner or homework time what he studied in math that day. Let him explain the concepts he's working on, and follow up with questions. For instance, if he's learning about decimals, you could ask how decimal points are used in money (they separate the parts of a dollar from the whole dollar).



Then, when your child finishes his homework, have him show you how he solved a few problems. As he explains his methods to you, he'll be reinforcing his own skills. And he'll be proud to be teaching you something!

MATH CORNER Measuring volume

Which popcorn container does your youngster want at the movies? Have her do this activity to find out!



Ask her to roll two index cards into cylinders—one vertically and one horizontally—so the edges just touch, and tape them closed. One cylinder will be tall and skinny, and the other one short and wide.

Then, have her predict how many (same-size) marbles each tube could hold. Will the totals be the same? To test her prediction, let her fill each tube with marbles and count. How can she explain the result?

Your child may be surprised to find the shorter, wider cylinder holds more. That's because the radius of a cylinder has a greater effect on its *volume*—the amount of space inside a 3-D object—than its height does. So when she's ordering popcorn, she might prefer the shorter, wider cylinder to the taller, skinnier one!

SCIENCE LAB Where did the green go?

This experiment uncovers a surprising fact: When leaves change color in the fall, it's really the green going away and the colors that were there all along coming out.

You'll need: green leaves, small jar, rubbing alcohol, wooden spoon, foil, small bowl, water, coffee filter, scissors

Here's how: Have your child tear the leaves into the jar, cover with alcohol, and mash with the spoon. Seal with foil, and place the jar in a bowl filled with hot water. After 30 minutes, she should cut a strip from the coffee filter, remove the foil, and dangle the filter into the alcohol. Let it sit for an hour.

What happens? Lines of different colors will travel up the filter.

Why? Green leaf color comes from the chemical *chlorophyll*, which helps make food for trees in spring and summer. In fall, chlorophyll is no longer produced, so the hidden colors (yellow, orange, red) can be seen.

OUR PURPOSE

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

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Reading Connection

Tips for Reading Success

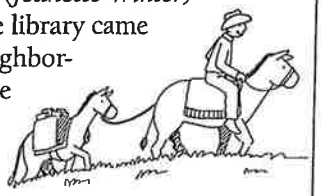
Beginning Edition

Holy Family School
Mrs. Maryalice L. Doherty, Principal

Book Picks

Read-aloud favorites

■ ***Biblioburro: A True Story from Colombia*** *(Jeanette Winter)*
What if the library came to your neighborhood on the back of a donkey? This is the true story of a Colombian schoolteacher's traveling library that brought books to children in remote villages. (Also available in Spanish.)



■ ***Dragons Love Tacos*** *(Adam Rubin)*
When a little boy discovers that dragons like to eat tacos, he decides to host a taco party for them. But if a fire-breathing dragon accidentally gets a bite of spicy salsa, look out! A silly story about a dragon party that turns into a disaster.

■ ***Just a Second*** *(Steve Jenkins)*
In just a single second, a bumblebee flaps its wings 100 times and the earth travels 18½ miles. This nonfiction book will help your child think about time in fascinating ways. She'll also discover different methods of measuring time.

■ ***Bedtime Is Canceled*** *(Cece Meng)*
Maggie and her brother write their parents an official-looking note: "Bedtime is canceled." Somehow, the note blows out the window, lands in a newspaper office, and ends up in a headline. Soon, bedtime really is canceled, and exhausted children quickly discover the importance of sleep.

Time for a story

Want to spend time with your youngster, build her reading skills, and help her learn to love books? You can do all three when you read aloud. Here are suggestions.

Read regularly

Try to read to your child every day. You might aim for 10–15 minutes of bedtime reading for a peaceful end to the day. Bring along a book, and read to her during a sibling's sports practice. Or curl up together with a book when you get home from work.

Take turns choosing books

Your youngster may want to hear old favorites again and again. That's fine! When it's your turn to pick, add new titles and variety, such as nonfiction or poetry.

Let her participate

Ask your child to turn the pages while you read. Also, she can finish sentences that rhyme or fill in words she knows. Go slowly so she has time to understand the story and look at the illustrations. She'll enjoy read-aloud time more if she plays an active role.

Be playful

You can use different voices for different characters (a high, squeaky voice for a mouse or a deep, booming voice for a horse). Or substitute your youngster's name for the main character's name, and use family members' names for others.

Note: You don't have to be an expert reader—your child will love it when you read aloud because it's *you*.♥

Writing that makes sense

As your child first learns to write, his stories may not always make sense to others. Help his writing flow logically with these two ideas.

1. Even if your youngster isn't writing sentences yet, he can tell you stories. As he describes the new class pet or something funny that happened at lunch, you can jot down his tale. He'll practice relating events in a logical order, and that can help when he writes.

2. Let your child read his stories to you. Ask questions to encourage him to add information ("What did you do with your friends at recess?") or to clear up a confusing part ("Who said, 'Let's go home'—you or your brother?").♥

Spot the details

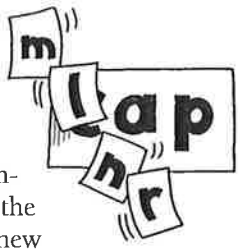
What is an archaeologist? What do bears eat? Nonfiction books have the answers—and if your child reads carefully, he will find them. The following suggestions can help him read for details and boost his comprehension.

Read around the text. The pages of many nonfiction books are covered with "extras" that stories don't have (headings, photo captions, an index, a glossary). Point out these features. Then, ask your youngster what questions he has about the topic that the book might answer. Say he's reading *Archaeologists Dig for Clues* by Kate Duke. He might think, "What tools do archaeologists use?" or "What are fossils?" Help him read the book, and see how many answers he can find.

Pair fiction with nonfiction. Together, read a story like *Goldilocks and the Three Bears* (James Marshall) followed by a nonfiction book such as *Bears* (Deborah Hodge). As you read the second book, encourage your child to look for ways that real bears are different from the fictional ones. For example, he might say that real bears eat things like grass, berries, fish, and insects, while the three bears eat porridge.♥

Fun with Words: Wonderful wordplay

Use these activities to build your child's *phonemic* awareness—her ability to hear sounds in words:



- Choose a three-letter word, such as *cap*. Have your youngster substitute different beginning sounds from the alphabet to make new words (*lap, map, nap, rap, sap, tap, zap*). How many can she think of?
- Pick a long word, and tell her to clap once as she says each syllable. For *mozzarella*, she would clap four times: *moz-za-rel-la.*
- Ask your child to say a word without the first sound. *Example:* "Can you say *sit* without the *s*?" (*Answer: It*)
- Think of a word, and give your youngster a "sound" clue to figure it out. For instance, "I'm thinking of a word for something that you chew but don't swallow. The word has an *uh* sound in the middle." (*Answer: Gum*)♥

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Vocabulary boosters

A large vocabulary can turn your child into a better reader and writer. Try these everyday ways to help her learn new words.

Keep your ears open

When you and your youngster go places, point out words that people use. Maybe a waiter describes an *entree* or the dentist talks about *molars*. Encourage your child to figure out what the words mean by the way they're used.

Go beyond nouns

Help your youngster add adjectives and verbs to her vocabulary. Sports and games offer opportunities to use action words. Let your child hear you comment on the softball that *soars* or the runner who *sprints*. When she sends thank you notes or greeting cards, suggest descriptive words (a *polka-dotted* shirt, a *fantastic* birthday).♥

Parent to Parent: A journal-writing tradition

My grandson Keith saw me writing in my journal and asked what I was doing. I explained that *my* grandfather got me started writing in a journal when I was a little boy. Keith said he wanted to start a journal, too, so I gave him a notebook.

He asked me what he should write about. I told him that I use my journal mostly to store memories, but he can do whatever he wants—even draw pictures. He decided to sketch the two of us writing together in our journals, and he had me help him write a sentence about his picture.

Keith has stuck with his journal for a couple of weeks already. Now when he comes to my house, he can't wait to share what he has written and drawn.♥