

# FAMILY ADVENTURES WITH MATH & SCIENCE

## *Family Adventures with . . . Shapes*

### Learning Kit Contents

#### **1. BOOKS**

- ✓ *Let's Look at Shapes*
- ✓ *The Greedy Triangle*
- ✓ *Grandfather Tang's Story*

#### **2. MATERIALS CHECKLIST**

- ✓ 25 wooden blocks
- ✓ 2 tangram sets (a set contains 7 pieces – 2 large triangles, 1 medium triangle, 2 small triangles, 1 square, and 1 parallelogram)
- ✓ 6 stencils (1 heart, 1 square, 1 triangle, 1 circle, 1 star, 1 octagon)

#### **3. LEARNING FOLDER**

- ✓ Table of Contents
- ✓ Parent Letter
- ✓ Simple Activity Page
- ✓ Moderate Activity Page
- ✓ Challenging Activity Page
- ✓ Other Activities Page
- ✓ List of Books and Websites Page

**Please check to make sure all the items are in the learning kit  
before it is returned to the library.**

**Thanks!**

If you have any comments about the learning kit, please direct them to Stacey Weinand at [sweinand@osrhe.edu](mailto:sweinand@osrhe.edu) or mail them to Stacey Weinand, Oklahoma State Regents for Higher Education, 500 Education Building, Oklahoma City, OK 73105-4500.

# FAMILY ADVENTURES WITH MATH & SCIENCE

Dear Parents and Care Givers:

We hope that you and your family will enjoy the activities developed by the *Family Adventures in Mathematics, Engineering, and Science* (FAMES) project. These activities are meant to be fun! If at any time you and your child become frustrated with the activities, please stop and do something else. The most important educational experience for your children is to interact in enjoyable settings with you.

The activities are grouped into three categories (simple, moderate, and challenging) and are intended for children ages 3 through 10. The *simple* activities will have a circle (●) symbol, the *moderate* activities will have a diamond (◆) symbol, and the *challenging* activities will have a square (€) symbol.

Since children are wonderfully diverse in their interests and abilities, please review all the activities to decide which would be appropriate for your child. Many times older children enjoy doing the simpler activities and sometimes the younger children are interested in parts of the challenging activities. Once again we encourage you to use these activities to have fun.

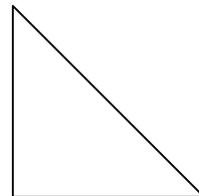
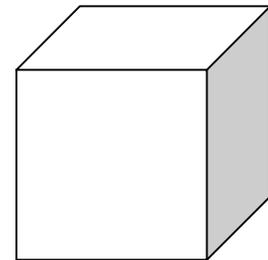
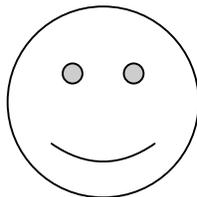
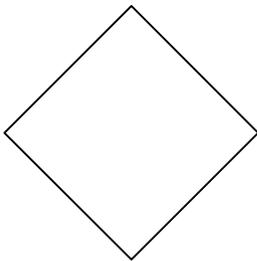
Sincerely,

*Coalition for the Advancement of Science  
and Mathematics Education in Oklahoma  
(CASMEO)*

# FAMILY ADVENTURES WITH MATH & SCIENCE

## *Family Adventures with . . . SHAPES (spatial sense) Simple Activities*

- Read the book *Let's Look at Shapes* located in the kit.
- Use the stencil located in the kit to trace some shapes on paper (or draw them yourself). Color them and/or cut them out. Make a picture with the shapes.
- Pick one of the shapes and hunt for something in the house that looks like that shape.
- Check out *Shapes, Sizes & More Surprises* by Mary Tomczyk at your local library for other ideas.
- Build with the blocks located in the kit.



# FAMILY ADVENTURES WITH MATH & SCIENCE

## *Family Adventures with . . . SHAPES (spatial sense) Moderate Activities*

- ◆ Read the book *The Greedy Triangle* by Marilyn Burns located in the kit. Helpful information and parent suggestions are located at the back of the book.
- ◆ Explore the tangram shapes (triangles, squares, parallelograms) located in the kit. How are the shapes different? How are they alike?
- ◆ Use the blocks located in the kit to create different size shapes (squares, rectangles, cubes). Discuss how many blocks long it is, how many blocks high it is, and how many blocks wide it is.
- ◆ Check out *Helping Your Child Learn Math* (U.S. Department of Education publication) for other ideas. *Helping Your Child Learn Math* is a free publication that can be obtained by calling the toll free number 1-877-433-7827 (while supplies last) or it can be viewed at [www.ed.gov/pubs/parent/Math](http://www.ed.gov/pubs/parent/Math)

# FAMILY ADVENTURES WITH MATH & SCIENCE

## *Family Adventures with . . . SHAPES (spatial sense) Challenging Activities*

- Read the book *Grandfather Tang's Story* by Ann Tompert and try to make the animals in the story with one set of tangram pieces located within the kit.
- Try to make a square with one set of tangram pieces located within the kit.
- For more tangram ideas, check out the website [www.geocities.com/Eureka/Suite/3789/PAGE4.html](http://www.geocities.com/Eureka/Suite/3789/PAGE4.html)
- Create a cube with the blocks located within the kit (2 blocks high, 2 blocks wide, 2 blocks long). How many cubes would you need to create a larger cube (3 high, 3 wide, 3 long)?

# FAMILY ADVENTURES WITH MATH & SCIENCE

## *Family Adventures with . . . SHAPES (spatial sense) Other Activities*

### Simple

- Have children trace shapes with a finger (e.g., shapes found on toys, fabric, etc.).
- Discuss the shapes and number of items in the cart while at the grocery or other store.
- Play with puzzles, modeling clay, and other related toys to provide positive experiences with shapes and changes with shape.
- Help your child notice the shapes of food (e.g., crackers, sandwiches, spaghetti). Sandwiches can be cut into 2 rectangles, 4 squares, or 2 triangles.

### Moderate

- ◆ Identify the shapes of the traffic signs with your child. Yield signs are triangles, highway signs are rectangles, and stop signs are octagons.
- ◆ Use different shapes to make designs on large pieces of paper or brown paper sacks. Color the designs and use for wrapping gifts.
- ◆ Play “Guess My Shape.” One person writes the name of or draws a shape on a piece of paper but doesn’t show it to the other person. The second person can ask up to 10 questions to try to guess the shape.

### Challenging

- Before cooking rice (or beans), explore the amount of space the rice takes up in a tall thin container. Then pour it into short fat container (or different container). Guess if it will take up the same amount of space, less space, or more space. Were you surprised?
- Locate three-dimensional objects in the house. A sphere is shaped like a round ball. A cylinder is shaped like a soup can. A cone is shaped like a birthday party hat. A rectangular prism is shaped like a cereal box.

# FAMILY ADVENTURES WITH MATH & SCIENCE

## *Family Adventures With . . . BOOKS*

### **Books for children:**

Reading is a great way to communicate mathematical concepts to your child. Some books lend themselves more to in-depth and specific math discussion. Below are some suggestions of books to enjoy with your child. Not all the books listed will be available in your area. ***Check with your public library or elementary school library for these and other books.*** If available, most of the books below will be found in the picture book section of the children's library but several excellent books can be found in the nonfiction section under 513.

### **COUNTING**

Anno, Mitsumasa. *Anno's Counting Book.*  
Bang, Molly. *Ten, Nine, Eight.*  
Carle, Eric. *Rooster's Off To See the World.*  
Feelings, Muriel, *Moja Means One: Swahili Counting Book.*  
Grossman, Virginia and Sylvia Long. *Ten Little Rabbits.*  
Howard, Katherine. *I Can Count to 100... Can You?*  
Kitchen, Bert. *Animal Numbers.*  
*Lifesize Animal Counting Book.*  
McMillan, Bruce. *Counting Wildflowers.*  
Nikola-Lisa. W. *One, Two, Three Thanksgiving.*

### **NUMBER**

Aker, Suzanne. *What Comes in 2's, 3's, & 4's?*  
Calmenson, Stephanie. *Dinner at the Panda Palace.*  
Cave, Kathryn. *Out for the Count: A Counting Adventure*  
Clement, Rod. *Counting on Frank.*  
Edens, Cooper. *How Many Bears?*  
Hong, Lily. *Two of Everything.*  
Hutchins, Pat. *The Doorbell Rang.*  
Leedy, Loreen. *2x2 = Boo!*  
Long, Lynette. *Domino Addition.*  
Merriam, Eve. *12 Ways to Get to 11.*  
McMillan, Bruce. *One, Two, One Pair.*  
Nolan, Dennis. *Monster Bubbles.*  
Schwartz, David M. *How Much Is a Million?*  
Schwartz, David M. *If You Made a Million.*

(continued on the back)

## SHAPES

Ehlert, Lois. *Color Zoo*.  
Burns, Marilyn. *The Greedy Triangle*.  
Hoban, Tana, *Circles, Triangles, and Squares*.  
Hutchins, Pat. *Changes, Changes*.  
Sharman, Lydia. *The Amazing Book of Shapes*.  
Tomczyk, Mary. *Shapes, Sizes, & More Surprises*.  
Tompert, Ann. *Grandfather Tang's Story*.

## MISCELLANEOUS

Anno, Mitsumasa. *Anno's Math Games*.  
Axelrod, Amy. *Pigs On a Blanket*.  
Lasky, Kathryn. *The Librarian Who Measured The Earth*.  
Marzolli, *I Spy* books  
Myllar, Rolf. *How Big Is A Foot?*  
Reid, Margarette. *The Button Box*.  
Sciczka, Jon and Smith, Lane. *Math Curse*.  
Viorst, Judith. *Alexander Who Used to Be Rich Last Sunday*.

### Internet Sites \*:

- ◆ U.S. Department of Education, Office of Educational Research and Improvement:  
[www.ed.gov/pubs/parents](http://www.ed.gov/pubs/parents)
- ◆ Helping Your Child Learn Math: [www.ed.gov/pubs/parents/Math](http://www.ed.gov/pubs/parents/Math)
- ◆ Figure This! (contains math activities and information that is more appropriate for middle school or older children): [www.figurethis.org/family\\_corner.htm](http://www.figurethis.org/family_corner.htm)
- ◆ Math Parent Handbook: [www.eduplace.com/math/res/parentbk/index.html](http://www.eduplace.com/math/res/parentbk/index.html)
- ◆ 700+ Great Sites: [www.ala.org/parentspage/greatsites/science.html](http://www.ala.org/parentspage/greatsites/science.html)

\* CASMEO has provided some suggested Internet sites that might be useful to parents. However, CASMEO has not participated in the development of the sites listed, does not exert any editorial or other control over the sites' content, and does not endorse any products or services.

Adapted from *Helping Your Child Learn Math*, U.S. Department of Education, June 1999. To obtain a free copy of the entire document, call toll free 1-877-433-7827 or order online at [www.ed.gov/pubs/edpubs.html](http://www.ed.gov/pubs/edpubs.html)  
and

Adapted from *The Wonderful World of Mathematics* by Diane Thiessen, Margaret Matthias, and Jacquelin Smith, National Council of Mathematics, 1998.

## SCIENCE ACTIVITIES

Allison, Linda, and Martha Weston. *Pint-Size Science: Finding-out Fun for You and Your Young Child*.

Carlson, Laurie. *Green Thumbs*.

Cohen, Richard. *Snail Trails and Tadpole Tails*.

Goin, Kenn, Eleanor Ripp, and Kathleen Nastasi Solomon. *Bugs to Bunnies: Hands-on Animal Science Activities for Young Children*.

Harlan, Jean Durgin, and Carolyn Good Quattrocchi. *Science As It Happens*.

Milford, Susan. *The Kid's Nature Book*.

Moomaw, Sally, and Brenda Heironymous. *More than Magnets: Exploring the Wonders of Science in Preschool and Kindergarten*.

Rockwell, Robert E., Elizabeth A. Sherwood, and Robert A. Williams. *Everybody Has a Body: Science from Head to Toe*.

Ross, Michael. *Sandbox Scientist*.

Sherwood, Elizabeth A., Robert E. Rockwell, and Robert A. Williams. *More Mudpies to Magnets: Science for Young Children*.

Warner, Penny. *Splish, Splash*.

### **Internet Sites \*:**

- ◆ U.S. Department of Education, Office of Educational Research and Improvement: [www.ed.gov/pubs/parents](http://www.ed.gov/pubs/parents)
- ◆ Helping Your Child Learn Science: [www.ed.gov/pubs/parents/Science](http://www.ed.gov/pubs/parents/Science)
- ◆ Yahoooligans: [www.yahooligans.com](http://www.yahooligans.com)
- ◆ Pitsco's Ask An Expert: [www.askanexpert.com](http://www.askanexpert.com)
- ◆ Bill Nye – The Science Guy: [www.nyelabs.com](http://www.nyelabs.com)
- ◆ 700+ Great Sites: [www.ala.org/parentspage/greatsites/science.html](http://www.ala.org/parentspage/greatsites/science.html)

\* CASMEO has provided some suggested Internet sites that might be useful to parents. However, CASMEO has not participated in the development of the sites listed, does not exert any editorial or other control over the sites' content, and does not endorse any products or services.

Adapted from *Science through Children's Literature An Integrated Approach* by Carole M. and John W. Butzow, Teacher Ideas Press, 1989.

and

Adapted from *Dialogue on Early Childhood Science, Mathematics and Technology Education* by the American Association for the Advancement of Science, 1999.

**Please complete one of the evaluation pages so we can have your input.**

*Family Adventures with Math and Science (FAMES)*

Evaluation

For questions 1 & 2, please circle the statement that is closest to your opinion.

1. I learned some new ideas using the kit.

strongly disagree

disagree

agree

strongly agree

2. I would like to use other kits like these.

strongly disagree

disagree

agree

strongly agree

For questions 3 & 4, please write your comments in the space provided. Use the back of the page if more space is needed.

3. What did you like best in the kit?

4. What did you like least in the kit?

**Thank you for your input!  
Leave the evaluation in the learning folder or give it to  
the children's librarian.**