

FAMILY ADVENTURES WITH MATH & SCIENCE

Family Adventures with . . . BUGS

Learning Kit Contents

1. BOOKS

- ✓ *Miss Spider's ABC*
- ✓ *The Hungry Caterpillar*
- ✓ *Bugs*

2. MATERIALS CHECKLIST

- ✓ Just Bugs! Domino Game
- ✓ 24 Plastic Bugs
- ✓ The Hungry Caterpillar Game
- ✓ 6 Insect Stencils
- ✓ 1 Magnifier

3. LEARNING FOLDER

**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 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 . . . BUGS *Simple Activities*

- Read the book *Miss Spider's ABC* by David Kirk, located in the kit.
- Talk about the different kinds of bugs in the story. Can you count how many bugs are in the story? Name the animals in the story that are not bugs. Name the parts of the bugs (i.e., eyes, legs, wings, body, antennae)
- Play the **Just Bugs! Dominoes Game** located in the kit. Match the bugs that are alike. Name the bugs that are matched up. How many matches can you make?
- Sort the **plastic bugs**, located in the kit, by color and then by insect. Name each color and name each bug.
- Make up a story about the **plastic bugs** located in the kit. Share the story with someone else.
- Have you seen any of the bugs before that you observed in the kit? What bugs have you never seen before? What bugs would you like to see?



FAMILY ADVENTURES WITH MATH & SCIENCE

Family Adventures with . . . BUGS *Moderate Activities*

- ◆ Read the book *The Hungry Caterpillar* by Eric Carle, located in the kit. Talk about each of the four stages of the butterfly's life cycle (egg, caterpillar, cocoon, butterfly).

How many of each fruit did he eat: apples? pears? plums? strawberries? oranges?

How many items did he eat on Saturday? See how many of the foods you can name.

What happened to the caterpillar on Sunday? How long did he stay in his cocoon house? How many days did he stay in his cocoon house?

Draw a picture of him when he came out of his house.

- ◆ Play the **Hungry Caterpillar Game**, located in the kit, with another person. Sort the game pieces by shape and then by color.
- ◆ Create a picture using the **insect stencils**. Tell another person about your picture.
- ◆ Draw a picture showing the egg, caterpillar, cocoon, and adult stages of a butterfly. Color your picture. Tell another person about your picture.
- ◆ Go on a nature walk with an adult. See how many different insects you can see.
- ◆ Find some old magazines you can cut up. Cut out pictures of different insects. Can you name them? Make a collage or picture with the bugs.

FAMILY ADVENTURES WITH MATH & SCIENCE

Family Adventures with . . . BUGS *Challenging Activities*

- ❑ Read the book *Bugs* by Nancy Winslow Parker and Joan Richards Wright, located in the kit. What bug have you seen before? What bugs have you not seen?
- ❑ Use the **magnifier** located in the kit to examine a **plastic bug**. Observe the body parts, legs, eyes, and antennae.
- ❑ Create an original bug using the **insect stencils** located in the kit. Look through the insect stencils and find parts of insects you find interesting to put together to create your new, original bug. Color and name it.
- ❑ Check out *Pet Bugs: A Guide to Catching and Keeping Touchable Insects* by Sally Kneidel from the local library for information on how to safely observe real bugs.
- ❑ Directions to make an insect net to help capture flying insects for observation:
 1. Take 1/2 yard of net and cut it in half so that you have a piece of net 18 inches by 30-36 inches.
 2. Sew the two 18-inch sides together to form a tube. (You may want to use a product such as Jiffy Sew rather than a needle and thread.)
 3. Take a wire coat hanger and straighten the hook part. Form a circle with the triangular part of the coat hanger.
 4. Sew one end of the tube over the circle hanger. Gather the other end of the tube and tie it tight so the insects can't escape.
 5. Attach the hanger to a dowel rod by duct taping the straightened hook to the end of a dowel rod.
 6. **Enjoy your net, but be careful of bees and other flying insects that might sting!**

FAMILY ADVENTURES WITH MATH & SCIENCE

Family Adventures with . . . Exploring Science

Science is a way of understanding the world that begins in the very earliest years. Consequently, parental involvement is so important in a child's science education. Parents can encourage early scientific thinking by questioning, discussing, and exploring together.

Observing: Encourage young children to notice small details.

What shapes do you see in the spider web?
Does this wool blanket feel different than this cotton one?

Classifying: Put things in groups based on their characteristics.

Let's sort the socks by color.
How are these bugs alike? How are they different?

Predicting: Make a guess what will happen and then try it.

How long will it take an ice cube to melt in the kitchen?
How long will it take an ice cube to melt outside?

Quantifying: Encourage children to describe the world around them.

Who is the tallest person in the family? By how much?
How many steps does it take to walk across your room? The kitchen?

Explore your home, your neighborhood, the grocery store, the park, etc. **Science is everywhere!**

FAMILY ADVENTURES WITH MATH & SCIENCE

Family Adventures With . . . BOOKS

Books for children:

Reading is a great way to communicate science concepts to your child. Some books lend themselves more to in-depth and specific science 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.

LIFE SCIENCE

Buscaglia, Leo. *The Fall of Freddie the Leaf.*
Carle, Eric. *The Tiny Seed.*
McCloskey, Robert. *Make Way for Ducklings.*
VanAllsburg, Chris. *Two Bad Ants.*
Carle, Eric. *The Very Busy Spider.*
Carle, Eric. *The Grouchy Ladybug.*
dePaola, Tommie. *Michael Bird-Boy.*

EARTH AND SPACE SCIENCE

Lewis, Thomas P. *Hills of Fire.*
Baylor, Byrd. *Everybody Needs a Rock.*
Ryder, Joanna. *Simon Underground.*
Livingston, Myra Cohn. *Space Song.*

PHYSICAL SCIENCE

Cendrars, Blaise. *Shadows.*
Carle, Eric. *The Secret Birthday Message.*
Johnston, Tony. *Farmer Mack Measures His Pig.*
Allen, Pamela. *Who Sank the Boat?*
dePaola, Tommie. *Strega Nana's Magic Lesson.*

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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
- ◆ Helping Your Child Learn Science: www.ed.gov/pubs/parents/Science
- ◆ Yahoooligans: www.yahooligans.com
- ◆ Pitsco's Ask An Expert: www.askanexpert.com
- ◆ Bill Nye – The Science Guy: www.nyelabs.com
- ◆ 700+ Great Sites: 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.**