

FAMILY ADVENTURES WITH MATH & SCIENCE

Family Adventures with . . . SPACE

Learning Kit Contents

1. BOOKS

- ✓ *Magic School Bus Lost in the Solar System* by Joanna Cole
- ✓ *Postcards from Pluto* by Loreen Leedy
- ✓ *Roaring Rockets* by Tony Mitton and Ant Parker
- ✓ *Stars (All Aboard Reading)* by Jennifer Dussling
- ✓ *There's No Place Like Space!* by Tish Rabe
- ✓ *Touchdown Mars!* by Peggy Wethered and Ken Edgett

2. MATERIALS CHECKLIST

- ✓ Astronaut Toy Kit
- ✓ Spacecraft Stencils
- ✓ Star Finder

3. LEARNING FOLDER

- ✓ Table of Contents
- ✓ Parent Letter
- ✓ Space Travel Pages
- ✓ Stars Pages
- ✓ Solar System Pages
- ✓ NASA Scavenger Hunt Page
- ✓ Other Resources

**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 . . . SPACE *Space Travel*

Books in the kit related to “space travel”:

Roaring Rockets

Touchdown Mars

Magic School Bus Lost in the Solar System

Postcards from Pluto

- Read the book *Roaring Rockets*, located in the kit. (This book portrays early space travel to the moon.) You and your child can role-play space travel or act out the story with the astronaut toys located in the kit.
- Sing and act out the *Astronaut Hokey Pokey* located on the back of this page.
- ◆ With balloons of a variety of shapes and sizes, you and your child can enjoy “launching rockets.” Blow up a couple of balloons – do not tie off the end. Hold the end of the balloon closed until you are ready to let go and “launch” the balloon. What happened? Which one went farthest? What will happen next time? Does the shape of the balloon make a difference in the way that it flies? Does the amount of air you put in the balloon make a difference in the way it flies? Variation: Take a paper lunch bag and decorate it to be your “rocket.” Blow up a balloon (the long one works best) and place the decorated bag over the balloon. Let go of the balloon and see your rocket fly across the room.
- ◆ Collect lots of clothing (shirts, pants, coats, socks, etc.). To pretend to be an astronaut, you and your child can put on several layers of clothes, maybe even a backpack, and try to walk around the house. How do you feel? What movements were difficult to do? Variation: For a different look, check out the directions on the back of this page.
- Pretend to be an astronaut working in space. Find a pair of gloves (winter mittens or rubber gloves) and some small objects (dice, pencils or pens, paper clips, screws and bolts, etc.). Put the gloves on and try to pick up the objects. This is fun to do with a friend!

Family Adventures with . . . SPACE
Space Travel continued

Astronaut Hokey Pokey

Put your space gloves in,
Put your space gloves out,
Put your space gloves in
And shake them all about.
Do the Astronaut Hokey Pokey,
And turn yourself around.
That's what it's all about.

Put your helmets in,
Put your helmets out,
Put your helmets in
And shake them all about.
Do the Astronaut Hokey Pokey,
And turn your self around.
That's what it's all about.

Put your moon boots in,
Put your moon boots out,
Put your moon boots in
And shake them all about.
Do the Astronaut Hokey Pokey,
And turn your self around.
That's what it's all about.

Add any other items/terms that you want.

1999 – Virginia – “Read Around The World”

Astronaut Space Suit

Parental supervision required.

Use a large white trash bag (cut out neck and armholes) and gloves or mittens for a suit. Decorate with colored tape or stickers. Use sunglasses, goggles, or a bicycle helmet for headgear. For oxygen packs, tape two empty 2-liter plastic bottles together and use yarn, ribbon, or fabric binding to make shoulder straps. Variation: Cover a cereal box instead of using the plastic bottles for the oxygen pack.

FAMILY ADVENTURES WITH MATH & SCIENCE

Family Adventures with . . . SPACE Stars

Books in the kit related to “stars”:

Stars

There’s No Place Like Space

Magic School Bus Lost in the Solar System

- Read the book ***Stars***, located in the kit. Discuss the book with your child to determine what he/she already knows about the sun, moon, and stars in the sky.
- Go out on a clear night (preferably someplace dark with few lights from houses or streets) and observe the night sky. If you have binoculars, take them with you. Discuss what you see.
- Sing and act out *Twinkle, Twinkle Little Star* (located on the back of this page).
- ◆ Use the star finder, located in the kit, to view, locate, or name the stars at night.
- ◆ To create your own night sky, draw a picture with wax crayons (not washable) and then paint over it with black watercolors. (The wax crayon should repel the watercolor allowing the crayon pictures to “shine” through.) Alternate suggestion: Draw a picture with markers and then color over the entire picture with a black crayon. Scratch off some of the crayon to see the “stars” in your night sky picture.
- How many of the star facts, located on the back of this page, did you already know?
- Many cultures have different ways to explain the sun, moon, and what they see in the night sky. If you are interested in reading how other cultures interpreted events in the sky, check out ***Tales of the Shimmering Sky*** by Susan Milord from your local library. This book also contains other parent and child activities to do at home.

Family Adventures with . . . SPACE

Stars continued

Star Facts

- ❖ Our sun is actually a star – it is the only star close enough to Earth for us to feel its heat.
- ❖ The sun is 93 million miles away from the Earth.
- ❖ The sun is so big that if it were hollow it could hold one million Earths.
- ❖ Without the sun's light and heat, plants and animals could not survive.
- ❖ The temperature in the middle of the sun is about 27,000,000 degrees Fahrenheit.
- ❖ Stars are made of gases.
- ❖ Stars make heat and light from gases.
- ❖ Huge groups of stars in space are called galaxies.
- ❖ We live in the Milky Way Galaxy – it is made up of about one trillion stars.
- ❖ Stars are actually round – they look star-shaped from Earth because the light from the stars twinkle and blink.
- ❖ Patterns of stars in the sky are called constellations.
- ❖ On a clear, dark night you may be able to see several thousand stars.

Twinkle, Twinkle, Little Star

Twinkle, twinkle little star,
How I wonder what you are,
Up above the world so high,
Like a diamond in the sky,
Twinkle, twinkle little star
How I wonder what you are!

(open and close hands)
(point to hand in wonder)
(point to sky)
(make diamond shape with fingers)
(open and close hands)
(point to head in wonder)

Anonymous

FAMILY ADVENTURES WITH MATH & SCIENCE

Family Adventures with . . . SPACE *Solar System*

Books in the kit related to the “solar system”:

Magic School Bus Lost in the Solar System

There’s No Place Like Space

Touchdown Mars

Postcards from Pluto

- Read the book *Magic School Bus Lost in the Solar System*, located in the kit. What did you learn about space from this book?
- Refer to the activities located on the back of this page.
- ◆ Pretend to land a spaceship on a planet with this bean bag activity. Before you begin, determine where the “landing site” will be. You can mark it off with a paper plate, shoe box, blocks, etc. Stand away from the site and try to toss your beanbag “rocket” so it lands on the landing site. Stand further away to make it more difficult. Notice the path of the beanbag as you throw it. It is more of a line or a curve?
- ◆ Can you name all the planets in our solar system? Draw a picture using the stencils in the kit about traveling to another planet.
- Read *Postcards from Pluto*, located in the kit. Write your own postcard to a friend or relative about traveling to another planet.
- Choose a planet to explore. Write a story, draw a picture using the stencils, or set up a space colony on the planet using the astronaut toys located in the kit.
- Use the scavenger hunt, located in the learning folder, to find items in the house that were developed or enhanced as a result of the NASA space project.

Family Adventures with . . . SPACE
Solar System continued

Five Little Astronauts Poem

Five little astronauts sitting on the stars
The 1st one said, "Let's go to Mars."
The 2nd one said, "There are asteroids over there."
The 3rd one said, "But we don't care."
The 4th one said, "Let's go up in the sky."
The 5th one said, "Let's fly, fly, fly."
Then swish went the ship into the night.
And the five little astronauts flew out of sight!

Adapted from *Oceans (CTP 2440)*, 1998, page 9, Creative Teaching Press, Inc. Huntington Beach, CA.

Ten Little Spaceships (to the tune of "Ten Little Indians")

One little, two little (hold up 1 finger for each ship)
Three little spaceships;
Four little, five little
Six little spaceships;
Seven little, eight little,
Nine little spaceships;
Ten little spaceships go.

Reprinted with permission, FULL SPEED AHEAD, by Jan Irving and Robin Currie, 1998, page 152-153.

Countdown

Countdown. Ready?
10 – 9 – 8 – 7 – 6 – 5 – 4 – 3 – 2 – 1 – 0
(everyone crouches down lower and lower during the count)

Blast Off!
(jump up, thrust arms above the head)

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Family Adventures With . . . SPACE

NASA Scavenger Hunt

Look for the following items in your house that have been developed or enhanced from the research and technological advancements resulting from the NASA Space Program:

- Desitin (baby ointment)
- Velcro fasteners
- Athletic shoes or sneakers
- Disposable diapers
- Cellular phone
- Water filters
- Freeze-dried food or air tight packaging
- Cordless power tools and appliances
- Smoke detectors
- Bar codes
- Sunglasses (UVA protection)
- Fireproof clothing
- Thermometer (the one placed in the ear)
- Quartz wristwatches
- Nerf toys

List developed with input from the NASA Educator Resource Center for NASA Johnson Space Center, Houston, TX, <http://www.sti.nasa.gov/tto/apollo.htm>, and <http://www.sti.nasa.gov/tto/shuttle.htm>

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Family Adventures With . . . SPACE

Books for children:

Reading is a great way to enjoy math and science concepts to your child. Your local library and/or bookstore should have several books or other resources on space-related topics. Consider books from the picture book, fiction, and nonfiction section based on the age and interest of the child.

Internet Sites *:

- ◆ NASA Kids: <http://kids.msfc.nasa.gov>
- ◆ NASA Education Home Page: <http://education.nasa.gov>
- ◆ The Space Place: <http://spaceplace.jpl.nasa.gov/spacepl.htm>
- ◆ Space Links: <http://vraptor.jpl.nasa.gov/voyager/kids.html>
- ◆ StarChild, A Learning Center for Young Astronauts: <http://starchild.gsfc.nasa.gov>
- ◆ See the International Space Station: www.spaceflight.nasa.gov/realdata/sightings
- ◆ U.S. Publications for Parents (not necessarily space related):
www.ed.gov/pubs/parents

NASA Regional Educator Resource Center

Oklahoma State University
NASA Aerospace Professional Development Center
206 N. USDA Building
Stillwater, OK 74078-8089
Phone: (405) 744-6784
Fax: (405) 744-6785

* 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.

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.**