

## MATH + SCIENCE = FUN!

While the majority of our children will not grow up to become physicists, engineers, or mathematicians, they will grow up in a world that requires mathematical literacy and critical thinking skills. We would like to encourage every parent to raise a scientist – a critical thinker empowered by mathematical competence. Scientists observe, question, experiment, record data, and then analyze that data. All children can be scientists by following their own natural curiosity. And all parents can help their children in this process. Here are some fun activities you can do at home with your child to help develop their mathematical literacy and critical thinking skills.

### COOKIE CALCULATIONS

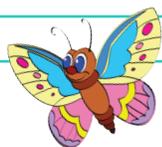
Both baking and cooking make use of measurement, time, temperature and fractions, all of which are important math concepts. Have some fun baking these chocolate chip cookies with your child and incorporate some math along the way. Instead of adding the ingredients as listed, have your child figure out how much they would need to add if they used a 1/4 cup measuring cup. Or count how many chocolate chips you need to make up one cup. Have your child divide the number of cookies they make by the number of family members so that everyone gets an equal number. Then enjoy your tasty treat.

#### You will need:

2 1/4 cups all-purpose flour, 1 teaspoon baking soda, 1 teaspoon salt, 1 cup butter, softened, 3/4 cup granulated sugar, 3/4 cup packed brown sugar, 1 teaspoon vanilla extract, 2 large eggs, and 2 cups chocolate chips

#### What to do:

1. Preheat oven to 375° F.
2. Combine flour, baking soda and salt in small bowl.
3. Beat butter, granulated sugar, brown sugar and vanilla extract in large mixer bowl until creamy.
4. Add eggs, one at a time, beating well after each addition.
5. Gradually beat in flour mixture, then stir in chocolate chips.
6. Drop rounded tablespoons onto ungreased baking sheets.
7. Bake for 9-11 minutes or until golden brown.
8. Cool on baking sheets for 2 minutes and then transfer to a wire rack to cool completely.



### BUTTERFLY SYMMETRY

#### You will need:

A variety of seeds in all shapes, sizes and colours such as rice, beans, corn kernels, peas, and sunflower seeds, white glue that dries clear, popsicle stick to spread glue, cardstock, pencil, and a small spoon.

#### What to do:

1. Cut the card stock into a symmetrical shape. Younger children may enjoy creating an alphabet masterpiece as many letters are symmetrical; older children may wish to sketch their own design. A butterfly template is available at: [http://www.scientistsinschool.ca/pdfs/Seed\\_Sensations\\_activities.pdf](http://www.scientistsinschool.ca/pdfs/Seed_Sensations_activities.pdf).
2. Cover the picture with glue and place seeds so that a symmetrical pattern is created. For more complicated patterns, work on one section at a time. A spoon may be used to transfer smaller seeds.
3. Continue placing seeds until the entire image is covered.
4. Allow the glue to dry completely before displaying your creation.

### MARSHMALLOW LAUNCHER

#### You will need:

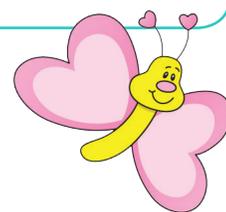
Disposable cups, balloons, marshmallows, scissors, scotch tape, and duct tape.

#### What to do:

1. Cut off the bottom 2.5 cm of a sturdy plastic disposable cup.
2. Tie a knot in the open end of a deflated balloon. Then cut off the rounded end and stretch the balloon over the cut end of the cup.
3. Tape the balloon to the cup with scotch tape to keep it in position while you tape it more securely with duct tape. Parental assistance with this step is very helpful!
4. Tear off short strips of duct tape and secure the balloon to the cup with these duct tape strips, making sure the strips overlap each other.
5. Now you are ready to have some fun with your launcher!

#### Exploration and Fun:

1. See how far you can launch your marshmallow. Measure how far it travels with a small pull and then a hard pull.
2. Try launching different items: cotton balls, pompoms, aluminum foil ball. You can change different variables (size of item or material) but only one at a time in order to explore the effect of each. For example, try creating a series of aluminum foil balls of different sizes and measure how far each one goes to understand the relationship between size and distance travelled. Graphing how far they travel would be a nice math extension.
3. Try exploring what happens when you use a different cup. You can try different materials (paper, Styrofoam) or different sizes. Does this change how far it travels?



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