



5 S.T.E.M ACTIVITIES UNDER \$10



STEM (Science Technology Engineering and Math) Play Guide

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Overview and Purpose of STEM PLAY

STEM play stands for Science, technology, engineering and mathematics. This plays a key role in the growth of children's education. "Children need to be presented opportunities to learn the same material in different settings and through different lenses" (Harrington 2016). STEM education helps this learning through different lenses by creating critical thinkers and increasing science literacy. STEM learning helps with communications skills, problem solving, spatial reasoning, leadership skills and much more. Please use this guide to help your child develop these skills outside the classroom.

Education Standards That All STEM Activities Follow

1. Early Exposure to STEM
2. Different Approaches to Learning
3. Introduction to Learning in Preschool

Objectives of STEM Guide:

1. Encourage more child-parent interactions
2. Create inexpensive activities for at home learning
3. Give learning opportunities/options for children no matter the income level
4. Expand and Encourage more STEM learning outside the classroom
5. Preparing children for preschool and kindergarten

Making Ice Cream

Materials Needed (Check Home First Before Buying)

- Ice (can be frozen at home for free !!)
- Salt (\$0.79-\$1.00)
- Half and Half (\$1.79-\$2.59)
- Sugar (\$1.00)
- Vanilla Extract (\$1.00-\$3.00)
- 1 big bag (\$1.00)
- 1 small ziploc bag (\$1.00)



Activity

- Step 1: Combine the half and half, sugar and vanilla extract in the small bag
- Step 2: Prep Ice Bag. Fill the big ziplock bag halfway with ice cubes and salt
- Step 3: Insert the small bag filled with ingredients into the bag of ice and salt zipping the bags.
- Step 4: Shake It Up!
- Step 5: Enjoy it

Connection to STEM Learning:

This activity is good for kids to learn about science experiments especially physical science. They can learn about changing solids to liquids and how things freeze and how things melt. Throughout this activity children will learn how to observe the process of mixing solutions and non solutions in order to make ice cream.

Jellyfish Wind Chimes

Materials needed

- Colorful paper clips (\$1.79)
- Plastic solo cups (\$2.86)
- Googly eyes (\$2.50)
- Glue (\$1.00)
- Silver jingle bells (\$3.19)



Activity

Step 1: Start by making a number of different paper clip chains. You can make patterns or do each tentacle one color.

Step 2: Have an adult use a small screwdriver (or other sharp tool) to poke holes around the top drinking edge of your plastic cup.

Step 3: Connect each paperclip tentacle to the cup through the little holes.

Step 4: Hang a jingle bell onto the bottom of each paperclip chain.

Step 5: Add some googly eyes

Step 6: Have an adult poke a hole in the center, bottom of your cup. Place a string through hole and knot it to hang.

Step 7: Hang jellyfish up and enjoy!

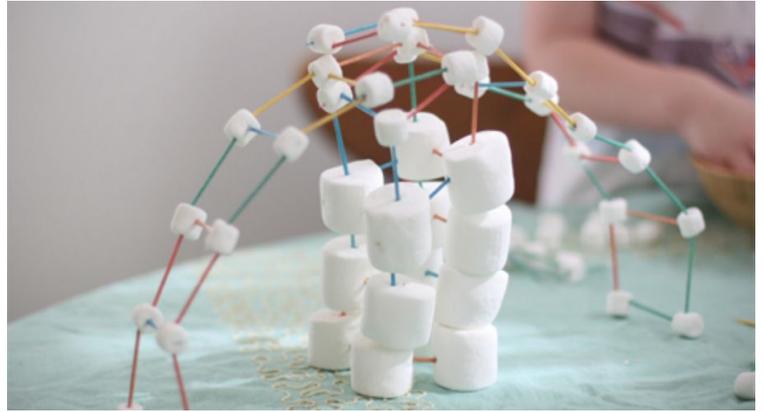
STEM Connection:

This is a great rainy day activity perfect for children who want to do something fun but be learning at the same time. Great opportunity to do a simple craft that will allow the children to practice their fine motor skills using the paperclips. The paperclips are a great way for kids to experiment with patterns. Using the different colors they can make any pattern they want, which is a key mathematical skill.

Marshmallow/ Candy Buildings

Materials Needed

- Pack of Toothpicks- (\$1.00)
- Bag of Marshmallows or any Squishy candy (Dots, Gumdrops)- (\$1.00-\$2.00)



Activity:

This is a free for all activity so the steps are on you !!! You can tell your child to build any shape. Some examples are diamonds, boxes, squares... start out by letting the child build whatever they want then throw in some guidelines and suggestions in how to build a tower.

STEM Connections:

This engineering project involves problem solving, geometric concepts and reasoning. This activity can also be used to show teamwork (if working in a group) and failure in science and engineering. One main aspect of this type of math and science activity is for children to learn that some shapes are stronger than others, weak materials can be made stronger with good design techniques, and that distribution of mass is an important consideration when building a tower. Lastly children can understand that compression and tension affect the stability of a structure and is the reason why some models are stronger than others.

Making Moon Sand

Materials Needed

- Baby oil (\$2-3)
- Flour (\$1-3)

Activity

To make the moon sand you add 8 cups of flour and 1 cup of oil then mix together. Then it's all up to the child and their imagination on what they want to build and do. They can use other toys they have too in this activity. The sky's the limit when it comes to moon sand.

STEM Connection:

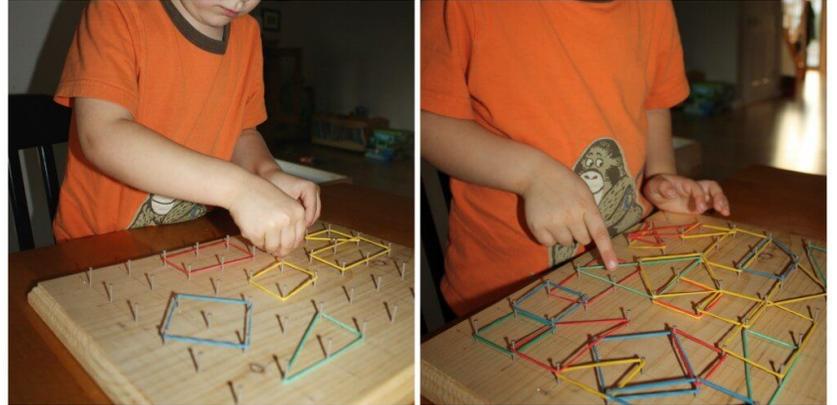
This activity promotes science by allowing children to add water and use many different tools such as water bottles and other things for learning and observing. In addition to learning mathematical skills by using measuring spoons, cups and containers in a variety of sizes and shapes, or balance scales. Children can also dig, pour, sift, and scoop sand. While playing in sand, children learn to problem solve as they try to figure out how to prevent their towers from falling over or collapsing in on themselves. They also discover cause and effect from learning what happens when water is added to the sand as well.



Homemade Geoboard

Materials Needed

- Wooden board (\$2)
- 1" Nails (\$5)
- Rubber bands (\$1)
- Ruler (\$1)
- Pencil (\$1)



Activity

Step 1: Doesn't matter how big the board is any size

Step 2: Use ruler to measure out and pencil in lines down and across

Step 3: Hammer 1" nails onto pencil lines

Step 3: Begin to explore and play!

STEM Connection:

This activity is great for fine motor skills practice and STEM learning. Using the synchronization of the eyes, fingers and hands while moving the rubber bands to form different shapes. These boards are awesome for creating art, exploring shapes and developing visual skills. There are many more complex activities you can do like make more difficult shapes, letters or pictures. They also support early geometric, measurement and numeracy concepts. Can also learn that there

are tons of different shapes and that concepts like area and perimeter come into play.

**WE WOULD LIKE TO THANK
THE STUDENTS AND STAFF AT
THE HEAD START IN NORTON,
MA FOR LETTING US OBSERVE
THEIR STUDENTS IN ORDER TO
MAKE THIS GUIDE.**