

Build a Castle...and Explore First Grade Geometry!

In first grade, young mathematicians expand on their early shape identification skills by going "3-D." Now, they'll begin to work on identifying spheres, cones, cylinders, and cubes. You can engage your first grader with these fundamentals outside of the classroom with this homemade castle activity. In addition to being fun and educational for your child, this project utilizes reusable, recyclable materials that are easily available right at home!

What You Need:

- Large shoebox lid, or lid from a paper carton
- Clean milk cartons: pint, quart, or half-gallon
- Cardboard paper towel or toilet paper tubes
- Paper cups
- Empty thread spools
- Aluminum foil
- Straight (non-bendable) drinking straws
- Ice cream cones
- Oatmeal boxes (the round tubular kind)
- Ping pong balls
- Nontoxic tempera paint
- Glue, string, markers, tape



What You Do:

1. Start with an important scientific (and organizational) principle: help your child sort all of the household stuff you both have collected for this activity. Make one category for cylinders, one for cones, one for cubes, and so on. Identify these titles and their three dimensional shapes clearly, and go over with your child the relationship between those flat squares and circles he studied all through kindergarten and these new geometrical forms. Those shapes he studied in kindergarten are the basis for these important 3-D forms (and it's pretty cool!)
2. Use the box lid as your building platform, and have your child start gluing and taping down his main shapes he will use to build the foundation of his castle. This is a great time to pull out a storybook or two with a castle illustration, or even better, to bring out a nonfiction resource (such as any of the architectural books for kids by David Macauley) in order to help him get a sense of what his castle might look like. As you go, invite your child to make connections: what geometrical shapes are prominent in these castles? How do they stay up without toppling?
3. Some creative notes: milk cartons come with "peaked roofs" already in place (perfect for castle building), and you can easily use straws to mount aluminum foil "flags" on top. Paper towel rolls can be topped by ice cream cones or by paper cups as well (flat cylindrical roof areas are also a great place for flags). String can be used, along with spare pieces of cardboard, for drawbridges and catwalks.
4. Help your child glue all the pieces to the box lid surface and each to of the other pieces and then, paint the whole structure. You can go for a "stone" look with gray paint...or try recalling some of Europe's great castles and use white! He can paint his castle any color he would like. When the paint dries, invite your child to draw any other details he might like to add with markers.

Did You Know?

As your child advances in math and science, he'll explore the formulas and ratios behind these

fundamental shapes. This can be tricky stuff, but hands-on activities like this one will allow your child to develop comfort and familiarity with these concrete fundamentals that underlie all of that abstraction that's to come in the years ahead.

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