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MAKE YOUR OWN CORDBOARD GEARS

Create gears out of corrugated cardboard - it's easy!



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About the Activity

Gears are great fun – and highly important to our everyday lives! And with a little help and some heavy-duty cardboard, you can easily make your own right at home to play and experiment with. Here's how.

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Supplies

These simple supplies are all you'll need for this activity.

- Cardboard box made of corrugated cardboard – that's the kind of cardboard that has ridges inside. It's a heavier-duty kind of cardboard. If you don't have any at home you can easily buy it online or at a local office-supply store.
- Ruler
- Pencil
- Compass (for drawing, not wayfinding)
- Sharp scissors or box cutter
- Glue
- Permanent Marker
- Tape or pushpin
- An adult to help with cutting

Grades: 3 - 8

Topic: STEM, Engineering, Crafting

Time: 30 minutes



Activity Steps

- 1 Cut off one side of the cardboard box.
- 2 Using that large piece of cardboard, use the compass to trace out three circles, one small, one medium, and one large.
- 3 Now, with the help of an adult, use your cutting device to cut these circles out. Cut as precisely as you can to make the gears as circular as possible.
- 4 Now it's time to make the gear teeth! Draw a straight line $\frac{1}{4}$ wide across your main piece of cardboard. Choose the longest available surface, because this long strip should provide the teeth for each of your three gears.
- 5 Use the cutting tool (with the help of an adult) to cut this strip out.
- 6 Now, use your fingers to carefully pull the brown paper off on one side of the corrugated cardboard. When you're done, you should have lots of bumps from the corrugation, without any paper left on one side. This may be difficult, so be patient and ask for help from an adult if you need it.
- 7 Now, roll this strip of corrugated cardboard around your large gear; mark with a pencil on the strip where it connects with itself again to make a complete ring.
- 8 Cut the corrugated strip where you marked it.
- 9 Repeat steps 7 & 8 again for the two remaining gears. If your cardboard strip isn't long enough, make another one.
- 10 Now, carefully put glue around the edge of your large cardboard circle.
- 11 Roll the strip of corrugated cardboard you cut for this large circle around the outside of this circle.
- 12 Use tape or pushpins to secure the strip to the circle while it dries.
- 13 Repeat steps 10-12 for each of your other circles.
- 14 Let the glue on these gears dry overnight.
- 15 In the morning, take the tape or pushpins out.
- 16 Now, use the marker to make a mark at one tooth in each of your gears - that will let you know when the gears have made one complete turn.
- 17 Voila - you're done! You made gears out of cardboard! Now you're ready to use these in however you want, including the 4-H At Home "Gears and More Gears" activity!

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