

# **CUB SCOUT BOOMERANG TEST 14 – HANDCRAFT**

Make a balloon-powered hovercraft.

#### Resources

- Circular base
- Dowel
- Wood glue
- G-Cramp
- Balloon

#### Instructions

- 1. Glue the dowel into the hole in the circular base. Cramping will improve the bond, but is not necessary if the dowel is a snug fit in the hole. Ensure that glue is used sparingly and does not clog the hole in the centre of the dowel. Wait an appropriate length of time for the glue to set—30-60 minutes is usually sufficient;
- 2. Blow up the balloon, twist the neck to hold in the air, then spread the neck of the balloon over the dowel. If the neck of the balloon is pushed well down over the dowel, the balloon will sit over the top of hovercraft, and not flop or drag along behind it;
- 3. The hovercraft travels best over smooth surfaces. Because it sits just off the surface, even small pieces of grit will impair its movement. Have the Cubs note how easily the hovercraft moves when it is floating on a cushion of air versus just sliding along in direct contact with the surface on which it is moving.

### **Resource Preparation**

Circular Base

MDF (5 mm)  $^{2}$  mm x  $^{2}$  mm  $^{2}$   $^{3}$  Hardware Store

I used the circle cut with a 90 mm hole saw. I didn't try any other sizes, but this works fine. File or sand the edges neatly. Using a 3/8" spade bit or speed bore, drill a hole about 3 mm deep in the centre of the circle. I used a type of spade bit that did not have the points on the edge of the spade, as these cut more deeply into the timber—they are designed to give a neater cut, but in this case, they reduce the effective drilling depth (before a hole is cut completely through the material). Sand the surfaces smooth.

**Note:** These days, a CD platter is probably the best/most easily acquired base for a hovercraft. It should also be noted that only a very small hole in the base is required to lift the hovercraft on a smooth surface—the smaller the hole, the longer the craft will continue to hover.

Dowel

Wooden Dowel 3/8" x? ~\$0.50 Hardware Store

Cut a piece of dowel about 25 mm long. Sand the edges of the ends so that they will fit neatly into the hole in the circular base, and also so that the balloon neck will slip easily on. Drill a 1/8" hole, lengthways, through the centre of the piece of dowel.

## Balloon-Powered Hovercraft

Wood Glue
Aquadhere
Any wood glue would do.

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Hardware Store