



Sep 7, 2015

Topic: Hovercraft

Build: A CD hovercraft

Materials needed: cd / tape [electrical preferred] / screw or pop bottle top / balloon / scissors

Build a hovercraft: Using water bottle with a pop top or screw lid, cut the body of the bottle right above the label. Next align the center of the bottle over the center hole of the CD. The shiny side of the CD should be down. Next tape all the around the bottom of the cut bottle edge to secure it to the CD, and to make it air tight. Once there appears to be no way for air to leak between the point of contact between the bottle body and the CD, close the bottle top. Finally blow up a balloon and place over the bottle top. Then open the bottle top and give the CD a slight nudge. Watch as the hovercraft travels across the table surface!

The Science [credit: http://www.nasa.gov/pdf/634888main_Hovering_On_A_Cushion_Air.pdf]:

“Air from the balloon escapes beneath the hovercraft. It forms a thin cushion that lifts the craft a few millimeters above the table. Without direct contact with the tabletop, friction is greatly reduced. When the balloon runs out of air, the lifting cushion stops. The full surface of the CD bottom contacts the tabletop, friction is greatly increased, and the hovercraft stops. Smooth surfaces permit a uniform cushion of air to lift the craft. Rough surfaces allow air to escape more in some directions than others and the craft is no longer level. Parts of the CD touch the surface and cause drag.”

This activity ties into the Challenger Learning Center of Maine: We having engineering themed vacation and summer camps. We build hovercrafts then test different payloads, surfaces and even ride on a single passenger hovercraft! Learn more about vacation camps, summer camps and family engineering nights at www.astronaut.org.