

# DIY Air Force Activities:

## Hovercraft



### Materials:

- CD
- Top of dish soap bottle or pop top water bottle
- Hot glue gun and glue
- Balloon
- Push pin
- Tape
- Yarn or string



Newton's first law states that an object in motion will stay in motion unless an external force acts upon it. One common opposing force is friction. A hovercraft uses blowers to produce a large volume of air beneath it, producing lift, reducing friction, and allowing it to glide over land, water, mud, or ice. Following the directions below you can build your very own model hovercraft!

1. Cover the center hole of the CD with tape and poke holes in the tape with a push pin. This will allow your hovercraft to hover longer by slowing the rate of air released.
2. Use a hot glue gun to secure the bottle top over the center hole of the disc. Make sure to create a good seal! For safety reasons you should ask an adult for assistance. Be careful you don't burn yourself!
3. Blow up the balloon and pinch the neck to prevent air from escaping. You can also use yarn or string to tie a bow to hold it shut. Make sure you can easily release the knot!
4. Make sure the pop top is closed and fit the neck of the balloon over the pop-up portion of the cap. You may need a helper.
5. Place your hovercraft on a smooth surface and pull the pop top open to watch it hover!

The air flow created by the balloon causes a cushion of moving air between the disc and the surface. This lifts the CD and reduces the friction which allows the disc to hover freely. You can experiment with your hovercraft by altering the design! Does the size of the balloon affect the CD's ability to hover? Do larger discs make better hovercrafts (plastic picnic plates, old record albums)? How do the size of the holes you poke affect hover time? What happens when you use no tape? Form a hypothesis and record your results!

### Air Force Associations:

The military uses state-of-the-art hovercrafts known as the LCAC, or "Landing Craft Air Cushion" to transport weapons systems, equipment, cargo and personnel from ship to land. Smaller Neoteric Military Hovercraft are also becoming the essential light amphibious vehicle for military operations. They are utilized not only by the U.S. Department of Defense, but by other nation's armed forces. The HoverTrek Hovercraft is deployed for such tasks as munitions detection, personnel transport, search & rescue and reconnaissance. Cory Lingelbachus, an Air Force Firefighter at Hill Air Force Base, is a USA Military Hovercraft Pilot. On March 31, 2006, he used the HTV to complete the first rescue of a downed F-16 aircraft pilot.