

## SCIENCE CHALLENGE

- We challenge you to make an astronaut hovercraft. Follow the instructions below.
- Please let us know how far the hovercraft went and we will record the distance.
- Take a photo or video of your attempt and email it to the Transition Team
- Don't forget to add your full name to earn your House Point.



### Diverse jobs

## Astronaut hovercraft experiments



### About this activity

In March 2020 there is a cargo resupply mission to the International Space Station (ISS). The ISS was built by space agencies from countries around the world.

In this activity you'll look at some of the experiments that UK European Space Agency (ESA) astronaut Tim Peake completed onboard the ISS, before you have a go yourself!

### Kit list

- ✓ 1 x CD
- ✓ 1 x pull-up bottle lid (such as on a sports drink)
- ✓ 1 x balloon
- ✓ 1 x blob of Blu Tack
- ✓ Stopwatch or camera (optional)
- ✓ 2 x one metre rulers (optional)

Time: 1 hour

### Instructions

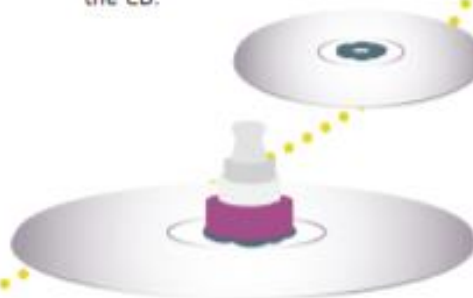
First, head to [astroacademy.org.uk/resources/collisions](https://astroacademy.org.uk/resources/collisions) to watch Tim Peake's demonstrations of elastic and inelastic collisions between objects of different masses.

### Now it's your turn

- 1 Roll the Blu Tack into a sausage shape and press it around the edge of the bottom of the bottle lid.



- 2 Push the bottle top down onto the middle of the CD so that it sticks to the CD with no gaps for the air to escape, except through the hole in the CD.



- 3 Blow up the balloon reasonably full, but not completely, and then twist the bottom round several times (so the air doesn't come out while you're attaching it to your hovercraft base!)

- 4 Stretch the balloon over the top of the bottle top with the bottle top closed. Untwist the balloon.

- 5 When you want your hovercraft to go, pull the bottle lid into the open position. Push your hovercraft gently and watch how far it glides!

- 6 Just like Tim did in the video, try (gently!) colliding two hovercrafts. What happens and why?

### Next steps

- ✓ What happens if you increase the mass or velocity of your hovercraft? Can you think of a way to record data from your experiment to show what is happening?
- ✓ Download the CAPCOM GO! app by NSC Creative in the app store to see an augmented reality rocket launch.

### At home

Visit [spotthestation.nasa.gov](https://spotthestation.nasa.gov) to see when the ISS will be visible in your area.

We would love to see your hovercraft experiments. Ask your teacher to share them with us.

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