TORPEDO BAY
NAVY MUSEUM

Challenge: Operation Jackstay

Each group will need:

- **Cardboard** – used to make a basket/container to hold the object being transferred. You could also use paper cups, cereal boxes etc.

- **Object to transfer** – you could choose a soft toy or something small to transfer.

- **Line** - the line should be used to make the jackstay line

- **String** – this should be used to pull the 'basket' back to the other side.

- **2 paperclips** – these are used to attach to the 'basket' to slide along the jackstay. Two paperclips usually work better than one, but you may like to let your students figure this out.

- **Tape/glue** – to make the basket.

- **Teacher slides**

Teacher demo:

An easy way to show students the idea of weight force due to gravity is to drop an empty plastic water bottle and the same sized full plastic bottle.
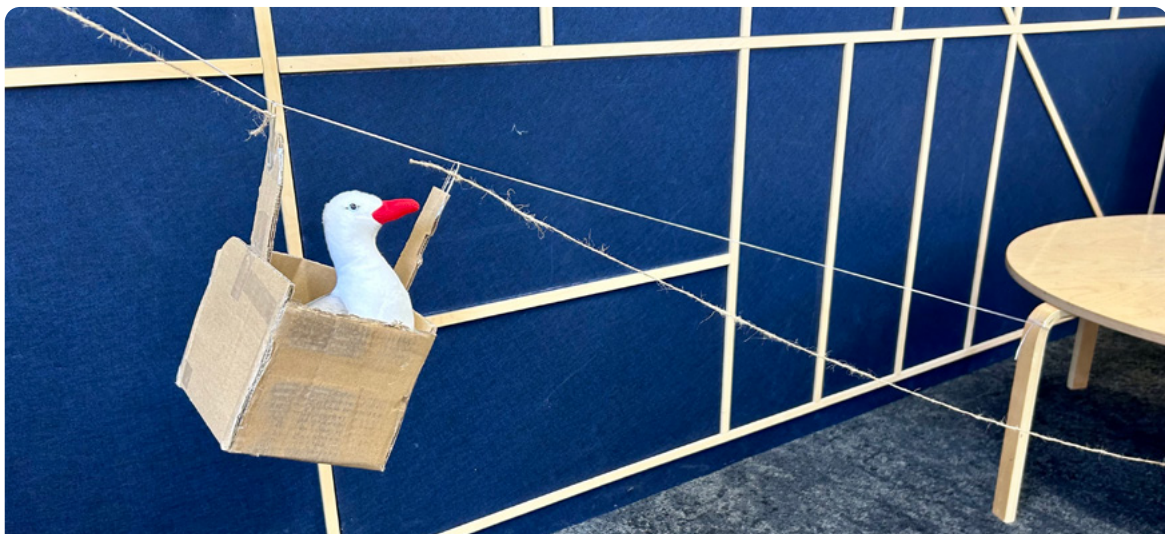
Ask the students: *Which one will hit the ground first?* This is a trick question! As the weight force due to gravity is the same, and the air resistance is the same, they will both hit the ground at the same time.

Challenge: Operation Jackstay

The challenge:

1. Decide on where you will have point A and point B. Point A should be higher than point B so that they can use gravity to get the basket to slide down the jackstay.

2. The jackstay line is brightly coloured to make it visible but students must be made aware of the danger of walking into it.

3. You could attach the jackstay line to something around the height of your students.

4. You could fix the jackstay line to that point yourself or if it is student accessible, and safe to do so, they could do this themselves. They will learn that the line needs to be at a certain angle so that the basket will slide down the line.
   You will need to supervise your students if they are doing this themselves, to ensure the line is attached to something safely.

5. Explain to the students that they need to transfer the object using the materials provided from point A to point B.

6. Give them enough time to make the basket and test the zipline with their basket and object.

Example of jackstay set up