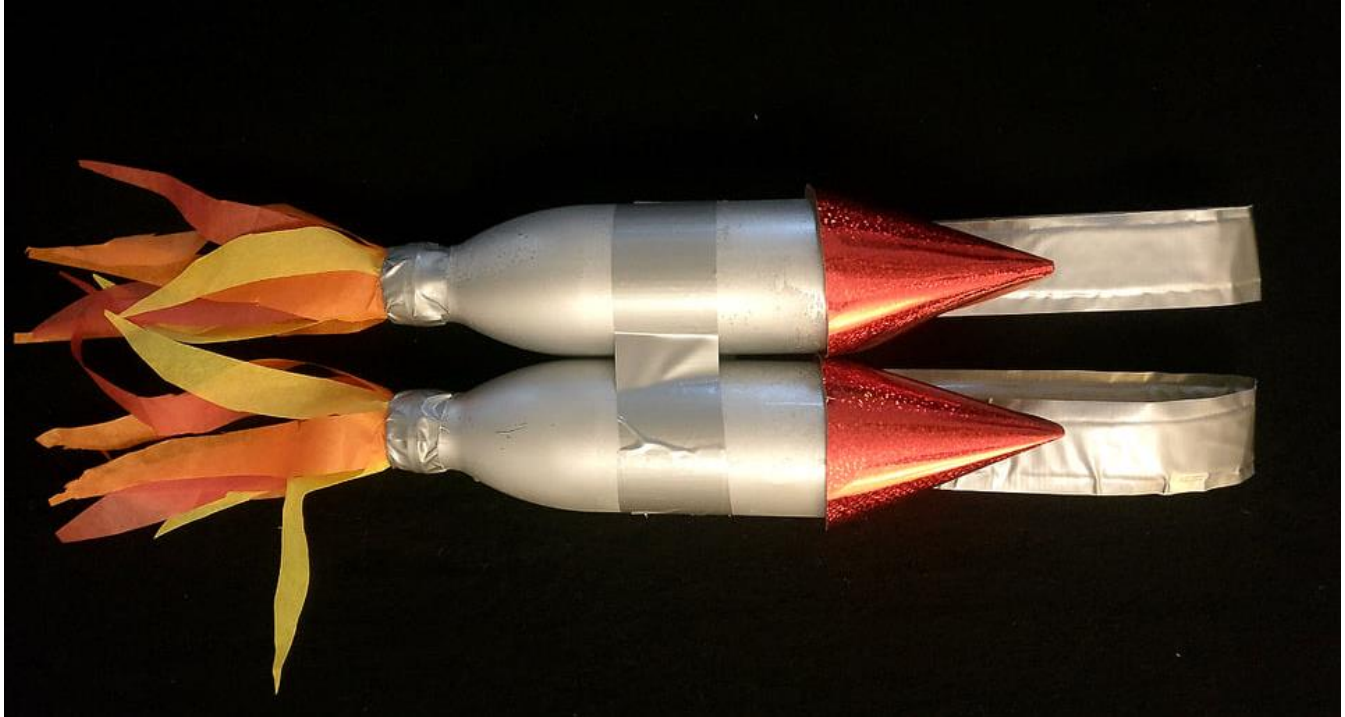


DIY ROCKET PACK: MASTER CLASS



The following materials and tools will be required:

MATERIALS AND TOOLS

- Two empty bottles/milk cartons
- Silver metallic paint
- Coloured tissue paper
- A4 sheets of black felt
- Duct tape
- Scissors
- Glue stick
- Party hats



This activity should be carried out under adult supervision

THE IMPORTANCE OF ROCKET PACKS

In 1984, NASA sent astronaut Bruce McCandless floating farther from the safety of a spacecraft than anyone had ever been or has since been. It was a test of the 'Manned Maneuvering Unit', a system designed to allow astronauts to float freely in space. The MMU did not last long; NASA realised that it was safer and easier to take advantage of the space shuttle orbiters' own maneuvering capability. But for a brief moment in history, astronauts got to fly in space with an actual rocket pack.

The idea of maneuvering in space with a personal propulsion system predates the space age. As early as the 1920s and 1930s, science fiction stories featuring rocket pack-wearing heroes brought this futuristic idea to the public.

Rocket packs did not start the transition from science fiction to science fact until the space age had properly begun. After the Soviet Union launched Sputnik and the United States launched Explorer I, it was clear that both nations would begin launching men into orbit before long. In anticipation of Americans living and working in space, the US Air Force began researching ways these men might maneuver around in the vacuum of space.

The engineering behind the rocket pack is like that of a rocket engine, in that they both use Hydrogen Peroxide as a form of propellant, and both experience the same factors of flight. In the most general terms, a rocket pack is a wearable device which allows the user to fly by providing thrust. With the exception of use in a microgravity environment, this thrust must be upwards so as to overcome the force of gravity, and must be enough to overcome the weight of the user, the rocket pack itself and its fuel.

Learn how to make your own rocket pack at home following the steps below:



STAGES OF WORK

STEP 1

Paint the empty bottles with the silver metallic paint and let them dry completely.



STEP 2

Join the two bottles using the duct tape by applying one strip of tape around the centre of the two bottles.

STEP 3

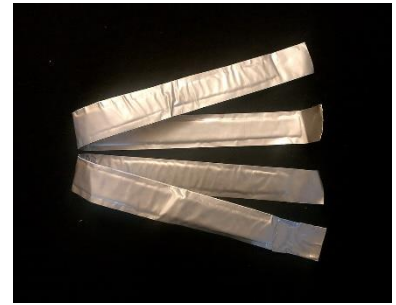
Cut 5cm strips of black felt at A4 length. You will need four strips of black felt per rocket pack.

STEP 4

Apply two pieces of black felt to a strip of duct tape and layer another strip of duct tape over the top so that the black felt is entirely covered.

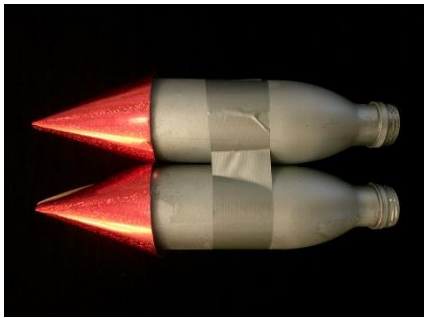
STEP 5

The black felt adds comfort to the shoulder straps while the duct tape provides the much-needed strength. Repeat Step 4 to make two complete straps and attach both straps to the bottles with a large strip of duct tape.



STEP 6

Apply glue to the inside rim of the party hats and adhere the party hats to the bottom of the empty bottles or milk cartons.



STEP 7

Cover the spout of the empty bottles or cartons with a small piece of duct tape.



STEP 8

Cut twenty to thirty strips of tissue paper using a variety of coloured tissue paper of your choice.

STEP 9

Glue the top 3cm of the strips of tissue paper to the inside of the bottle spouts, trim your tassel 'flames' to your desired length. Put your arms through the straps of your rocket pack and hold on tight for your flight in space!

