

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHS

SPACE SAFARI

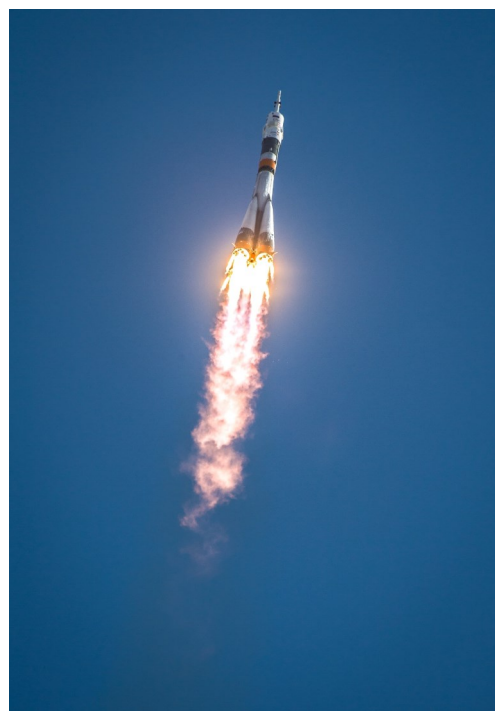
THESE ACTIVITIES FOLLOW ON FROM THE SPACE SAFARI WORKSHOP THAT YOU HAVE TAKEN PART IN AT DUMFRIES HOUSE STEM CENTRE.

ACTIVITY 1:

IS THERE ANYBODY THERE?

One of the puzzles you solved involved the Arceibo Message—a radio message sent into space in 1974. The message contained all sorts of information about the human race, including the double helix structure of DNA and the position of our planet in the Solar System. Communication is difficult enough on Earth without worrying about communicating across galaxies! One way which was common for communicating between ships at sea was flag semaphore.

1. Research semaphore and understand how it works
2. Build some semaphore flags—these could be made out of coloured paper, Sellotape and a stick
3. Write out a simple message. Nothing too long, maybe just a codeword.
4. Practise sending your message, then send some of your friends a little distance away—perhaps to the other side of your school playground. Send your messages. Do your friends understand?
5. Flag Semaphore is usually used by ships to communicate while at sea—what are some of the advantages and disadvantages of this?



ACTIVITY 2:

GRAVITY WELLS

This activity explores gravity on a big scale. You will need: a hula hoop; some bull clips; stretchy material; balls or beads of various sizes and weights.

1. Stretch your material over the hula hoop, holding it in place with the bull clips.
2. Take your heaviest weight or ball and put it in the centre of the hoop—this is your sun. It will form a dip in the material. This represents the mass of your sun bending spacetime.
3. Take one of your small balls. This is a planet. See if you can get it to orbit your sun—remember that spacetime needs to stay still, so you can only experiment with speed and angle of your planet, you can't tilt your hula hoop!
4. Try getting multiple planets to orbit the sun in different directions—what happens?

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USEFUL RESOURCES

ASTEROID DAMAGE VISUALISATION MAP:

asteroidcollision.herokuapp.com/

TYPE IN YOUR POSTCODE, AND SEE HOW MUCH DAMAGE YOU COULD BE CAUSED BY AN ASTEROID

BUILD A SOLAR SYSTEM MODEL:

exploratorium.edu/ronh/solar_system/

USE THIS TO GET AN IDEA OF THE SCALE OF THE SOLAR SYSTEM, AND BUILD YOUR OWN!

GO GEOCACHING IN YOUR AREA:

WWW.GEOCACHING.COM/PLAY

SIGN UP TO THE GEOCACHING APP TO FIND HIDDEN BOXES IN YOUR COUNTRY, TOWN OR STREET.

