# PostcardsFromSpace Activities lists:

These activities are on the webpages linked with each postcard.

Series: PostcardsFromSpace
(the solar system)

| Card Number | Location | Activity | Skills & Learning |
|---|---|---|---|
| 1 | The Moon | Design Moon mission patch. | Research; history of science; space missions; drawing |
| 2 | Venus | Draw design for base on Venus. | Research; properties of space object; planning; space missions; drawing |
| 3 | Mercury | Poster about five craters on Mercury. | Research; internet searching; space objects; cultural history; poster making |
| 4 | The Sun | Write TV news script for solar eclipse story. | Research; storyboarding; writing to a certain audience; creating video content; |
| 5 | Mars | Percivall Lowell's diary entry about canals on Mars. | Research; history of science; writing to a certain audience; |
| | | Write fantasy journey to Mars, with illustrations. | Creative writing; cultural history; drawing |
| 6 | Asteroids | Poster about asteroid Vesta. | Research; source credibility; fact checking; poster making |
| 7 | Jupiter | Research plan to search for life on Europa. | Research; properties of space object; planning; space missions; experiment reporting |
| 8 | Saturn | Making model of Cassini probe.** | Following instructions; model making |
| 9 | Uranus | Mythology research and invention. | Research; internet searching; space objects; cultural history; drawing |
| 10 | Neptune | Modelling the solar system. | Scale calculations; modelling; model making; the planets; |
| 11 | Pluto | Plan a new mission to the Kuiper Belt, including map. | Research; the range of space objects; planning; space missions; experiments; map and chart drawing. |
| 12 | Earth | Draw tree diagram for biological classifications of living things. | Research; biological kingdoms of life; classification systems; |

** adult supervision/help required

The PostcardsFromSpace postcards themselves offer material that will stretch students' vocabulary and scientific literacy. Especially:

**Year 5 Programme of Study:**

- describe the movement of the Earth and other planets relative to the sun in the solar system
- describe the movement of the moon relative to the Earth
- describe the sun, Earth and moon as approximately spherical bodies

**KS3 Programme of Study:**

- gravity force, weight = mass x gravitational field strength (g), on Earth g=10 N/kg, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and sun (qualitative only)
- our sun as a star, other stars in our galaxy, other galaxies

Series: PostcardsFromDeepSpace
(beyond the solar system)

| Card Number | Location | Activity | Skills & Learning |
|---|---|---|---|
| 1 | Deep Space | Universe Timeline | Research; history of science; drawing; scale calculations; modelling; |
| 2 | Black Hole | Black hole Q&A | Research; internet searching; space objects; gravity; writing to a certain audience; |
| 3 | Dark Matter | Pillow marble run experiment | Video datalogging; planning; experiments; data analysis; experiment reporting |
| 4 | Galaxy | Galaxy names and types | Research; history of science; space objects; circular motion; gravity; |
| | | Galaxy mobile | Space objects; model making/sculpture |
| 5 | Supernova | Space detective story & space forensics animated game | Research; extracting information from text; writing to a certain audience; |
| 6 | Crab Nebula | Video precis exercise | Research; extracting information from video; writing to a certain audience; |
| 7 | Blue Ring Nebula | Make a juggling diablo** | Circular motion; angular momentum; creative artwork; craftwork; juggling |
| 8 | Betelgeuse | Stellar life cycles poster | Research; extracting information from video; space objects; poster making |
| 9 | Exoplanets | Transit method experiment** | Research; datalogging; planning; experiments; data analysis |
| | | Exoplanet poster colouring | Creative artwork |
| 10 | Alpha Centauri | Ruler balancing experiment | Research; circular motion; planning; turning forces; experiments |
| 11 | Arrokoth | Make models from junk** | Research; internet searching; space objects; model making/sculpture |
| 12 | Comet K2 | Make a poster about the space missions to comets. | Research; internet searching; space objects; space missions; poster making |

** adult supervision/help required

The PostcardsFromDeepSpace postcards themselves offer material that will stretch students' vocabulary and scientific literacy. Especially:

**KS3 Programme of Study:**

- gravity force, weight = mass x gravitational field strength (g), on Earth g=10 N/kg, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and sun (qualitative only)
- our sun as a star, other stars in our galaxy, other galaxies
- the light year as a unit of astronomical distance
- the turning effect of a force
- forces being needed to cause objects to stop or start moving, or to change their speed or direction of motion (qualitative only)
- change depending on direction of force and its size
- non-contact forces: gravity forces acting at a distance on Earth and in space
- light waves travelling through a vacuum; speed of light
- the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface
- colours and the different frequencies of light
- conservation of material and of mass
- changes with temperature in motion and spacing of particles

**KS4 Programme of Study:**

- Many of the Working Scientifically concepts, such as historical development of ideas and interconverting units
- electromagnetic waves, velocity in vacuum; waves transferring energy; wavelengths and frequencies from radio to gamma-rays
- the main features of the solar system.