

FunPostcardsFrom Activities lists:

These activities are on the webpages linked with each postcard.

Card number	Space	Deep Space	Volcanoes	The Body	Art
1	The Moon	Deep Space	Stromboli	Mouth	Art Materials
2	Venus	Black Hole M87	Vesuvius	Stomach	What is Art?
3	Mercury	Dark Matter	Erta Ale	Small Intestine	Good and Bad Art
4	The Sun	Whirlpool Galaxy	Iceland	Large Intestine	Colour
5	Mars	Supernova SNR0519	Mt Erebus	Blood	Tone
6	Asteroids	Crab Nebula	Villarica	Heart	Mark Making
7	Jupiter	Blue Ring Nebula	Mt St Helens	Lungs	Picasso
8	Saturn	Betelgeuse	Sarychev	Brain	Abstract Art
9	Uranus	Trappist-1f	Mt Fuji	Eyes	Sculpture
10	Neptune	Alpha Centauri	Pinatubo	Pancreas	Leonardo Da Vinci
11	Pluto	Arrokoth	Hawaii	Immune System	Looking and Seeing
12	Earth	Comet K2	Olympus Mons	Skin	Women Artists

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

Equipment needed to support all 12 activities:

- 1 – drawing pens and paper,**
- 2 – poster making materials, pens and paper,**
- 3 – poster making materials, pens and paper,**
- 4 – pens and paper (extension possibility: video recording)**
- 5 – 1) pens and paper, 2) drawing pens and paper,**
- 6 – poster making materials, pens and paper,**
- 7 – report writing materials, drawing pens and paper,**
- 8 – paper/card, scissors, tape, printer**
- 9 – report writing materials, drawing pens and paper,**
- 10 – tape measure, pens and paper, paper scissors**
- 11 – report writing materials, pens and paper,**
- 12 – poster making materials, pens and paper,**

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.

Equipment needed to support all 12 activities:

- 1 – 1.5 metres of string, paper/bulldog clips, 8 pieces of card, tape measure, pens and paper,**
- 2 – pens and paper**
- 3 – pillow case, old socks and T-shirts, small ball, pens and paper**
- 4 – pens and paper**
- 5 – pens and paper**
- 6 – pens and paper**
- 7 – 2 round plastic tubs (must be the same size & weight), string, 4 small screws, gardening secateurs, carving knife/penknife, screwdriver**
- 8 – poster making materials, pens and paper,**
- 9 – lamp, sphere (eg tennis ball) smartphone; Bonus activity: drawing pens and paper,**
- 10 – ruler, pointy object like a door wedge, various objects of different weights**
- 11 – junk materials (examples could include old card, paper, polystyrene, tennis balls, plastic bags, etc) pens and paper,**
- 12 – poster making materials, pens and paper,**

Series: **PostcardsFromVolcanoes**
(Volcanoes mostly on Earth)

Card Number	Location	Activity	Skills & Learning
1	Stromboli	Plate tectonics activity book.**	Comprehension from reading and maps; home experiments; plate tectonics;
2	Vesuvius-Pompeii	Create your own moulds.**	Craft modelling; archaeological methods;
3	Erta Ale	Golden syrup viscosity experiment.**	Scientific method; controlled experimentation; graphing; scientific communication; drawing;
4	Iceland	Build your own volcano.**	Craft modelling; research; artwork;
5	Villarica	Mix your own magma.**	Research; home experiments; calculations
6	Mt Erebus	Make yourself a volcano cake.**	Cooking; home experiments; calculations
7	Mt St Helens	Make your own caldera.**	Home experiments; modelling; pressure and forces;
8	Sarychev	Explosive volcano experiment. **	Home experiments; modelling; pressure and forces; measurement;
9	Mt Fuji	Volcano Art.	Artwork; artistic styles and art history;
10	Pinatubo	Volcano hazards poster.	Research; design; poster making; scientific communication;
11	Hawaii	Make your own lava lamp.**	Home experiments; modelling; convection;
12	Olympus Mons	Volcanoes scale models. **	Home experiments; modelling; measurement;

** adult supervision/help required

The PostcardsFromVolcanoes offer material that will stretch students' vocabulary and scientific literacy. Especially:
National Curriculum Science:

Year 3:

Rocks

Pupils should be taught to:

- compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- describe in simple terms how fossils are formed when things that have lived are trapped within rock
- recognise that soils are made from rocks and organic matter

Notes and guidance (non-statutory)

Linked with work in geography, pupils should explore different kinds of rocks and soils, including those in the local environment.

Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and

exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water. They can raise and answer questions about the way soils are formed.

Key Stage 3

- the composition of the Earth
- the structure of the Earth
- the **rock cycle** and the formation of **igneous, sedimentary and metamorphic rocks**

Equipment needed to support all 12 activities:

- 1 – jar of honey, syrup or a bottle of oil with the lid on, ketchup or jam, toothpaste**
- 2 – Sand (wet) or kinetic sand, plaster of Paris, Hands/feet/objects**
- 3 – Golden Syrup, cardboard, tape and scissors, pens/pencils, ruler/tape measure, stopwatch**
- 4 – various possibilities: plasticine or you can build up a detailed model with papier-mâché, cardboard, wire mesh, paints and other craft resources**
- 5 – cake making ingredients (various depending on choice of cake to make)**
- 6 – Honey, Couscous, plastic bowls / cups, spoons, plastic trays, blocks to stand the trays on (and tape to secure) marker pens, timer / stop watch, calculator, cleaning materials, straws, balloon, balloon pump, ruler**
- 7 – A box, balloon and pump, some flour**
- 8 – Some fizzy (effervescent) tablets such as vitamin ones, a container with a stiff pop off cap (like the ones that vitamin tablets come in), some protective glasses**
- 9 – paints and paper**
- 10 – poster making materials, pens and paper,**
- 11 – a lamp, vegetable oil, vinegar (clear), Food colouring, baking soda, a glass or similar container**
- 12 – large sheet, smaller sheets like napkins or tea towels, pole/stick, some shorter sticks, tape measure**

Series: **PostcardsFromTheBody**
(Organs inside the human body)

Card Number	Location	Activity	Skills & Learning
1	Mouth	Investigating saliva.** Investigating tooth decay.**	Acid-base chemistry; digestion; digestive system; home experiments; dentition;
2	Stomach	Neutralisation reactions.**	Acid-base chemistry; digestion; digestive system; home experiments;
3	Small Intestine	Investigating enzymes.** (ALLERGY WARNING – BIOLOGICAL WASHING POWDER)	Scientific method; controlled experimentation; enzyme activity and digestion; digestive system;
4	Large Intestine	Peristalsis modelling.	Digestive system; modelling; forces;
5	Blood	Modelling blood flow. Make an artificial blood sample.**	Blood and the vascular system; home experiments; modelling;
6	Heart	Heart model.**	Vascular system; modelling; pressure and forces; the heart;
7	Lungs	Breathing experiment.	Controlled experiments; timing; lungs and gaseous exchange; exercise and its effects;
8	Brain	Reaction times test.	Controlled experiments; recording observations; measurement;
9	Eyes	Eye observations. Blind spot test	Eye & pupil; retina; optic nerve; experimentation; measuring; recording observations;
10	Pancreas	Pancreas poster.	Research; design; poster making; scientific communication;
11	Immune System	Bones in vinegar experiment.** Modelling phagocytes.	Home experiments; modelling; immune system; bone material/skeleton;
12	Skin	Skin temperature experiment.** Sense of touch experiment.	Home experiments; timing; skin touch sense;

** adult supervision/help required

The PostcardsFromTheBody offer material that will stretch students' vocabulary and scientific literacy. Especially:

Biology National Curriculum

Year 1:

- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense

Year 2:

- notice that animals, including humans, have offspring which grow into adults
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
- the importance of exercise and nutrition for humans
- what humans need to stay healthy; and suggesting ways to find answers to their questions.

Year3

- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- identify that humans and some other animals have skeletons and muscles for support, protection and movement
- Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.

Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons.

Year 4

- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey
- Pupils should be introduced to the main body parts associated with the digestive system, for example: mouth, tongue, teeth, oesophagus, stomach, and small and large intestine, and explore questions that help them to understand their special functions.

Year 5

- describe the changes as humans develop to old age
- Pupils should draw a timeline to indicate stages in the growth and development of humans.

Year 6

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- describe the ways in which nutrients and water are transported within animals, including humans

KEY STAGE 3

Cells and organisation

- cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope
- the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts
- the similarities and differences between plant and animal cells
- the role of diffusion in the movement of materials in and between cells
- the hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms

Nutrition and digestion

- the tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts)
- the importance of bacteria in the human digestive system

Gas exchange systems

- the structure and functions of the gas exchange system in humans, including adaptations to function
- the mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume

Equipment needed to support all 12 activities:

- 1 – 1) bread (can be gluten free); 2) various liquids: examples could be vinegar, milk, water, cola, diet cola, fruit juice, coffee, tea, eggshell,**
- 2 – 1) 2 lemons, baking soda, washing up liquid; 2) 100 ml vinegar, balloon, baking soda**
- 3 – 3 glasses, 2 brands of biological washing powder (allergy warning – DO NOT USE IF ALLERGIC!), hard-boiled egg,**
- 4 – tennis ball, old pair of tights,**
- 5 – 1) 3 straws (different thicknesses), red food colouring, takeaway drinks cup, sticky tape; 2) red food colouring, narrow glass, vegetable oil, syrup**
- 6 – red food colouring, jar, balloon, scissors, straw**
- 7 – timer**
- 8 – 30cm ruler**
- 9 – 1) a torch; 2) paper, pen, ruler**
- 10 – poster making materials, pens and paper,**
- 11 – 1) chicken bones, vinegar; 2) plasticine of 2 different colours**
- 12 – a pen**

Series: **PostcardsFromArt**
(Artists, art styles and techniques)

Card Number	Location	Activity	Skills & Learning
1	Art Materials	Junk Monsters. **	Collage; sculpture; choosing materials; crafting;
2	What is Art?	Feeling Art.	Use drawing, painting and sculpture to develop and share their ideas, experiences and imagination
3	Good and Bad Art	Good and bad art survey.	Scientific method; controlled data collection; scientific; analyse creative works;
4	Colour	Walls of colour.	analyse creative works using the language of art; techniques in using colour;
5	Tone	Drawing in 3D	Drawing proficiency; improve art techniques; strengthen visual impact
6	Mark Making	Drawing opposites.	Drawing proficiency; improve art techniques; analyse creative works; techniques in using pattern, texture;
7	Picasso	Create your own cubist portrait.	Drawing proficiency; improve art techniques; know about great artists, and understand the historical and cultural development of their art form; techniques in using line, shape;
8	Abstract Art	Six feelings, three squares.	develop art techniques using form and space; strengthen visual impact; know about great artists, and understand the historical and cultural development of their art form;
9	Sculpture	Aliens in the kitchen. **	develop a wide range of art and design techniques in using colour, pattern, shape, form and space; sculpture; strengthen visual impact;
10	Leonardo Da Vinci	Last Supper collage.	Research; artistic styles and art history; collage; choosing materials; know about great artists, and understand the historical and cultural development of their art;
11	Looking and Seeing	Seeing things.	use a range of techniques and media, including painting; create sketch books to record their observations;
12	Women Artists	Kahlo self-portrait	improve art techniques; know about great artists, and understand the historical and cultural development of their art form;

** adult supervision/help required

The PostcardsFromArt offer material that will stretch students' vocabulary and scientific literacy. Especially:

The national curriculum for art and design aims to ensure that all pupils:

- produce creative work, exploring their ideas and recording their experiences
- become proficient in drawing, painting, sculpture and other art, craft and design techniques
- evaluate and analyse creative works using the language of art, craft and design
- know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Schools are not required by law to teach the example content in [square brackets].

Subject content

Key stage 1

Pupils should be taught:

- to use a range of materials creatively to design and make products
- to use drawing, painting and sculpture to develop and share their ideas, experiences and imagination
- to develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space
- about the work of a range of artists, craft makers and designers, describing the differences and similarities between different practices and disciplines, and making links to their own work

Key stage 2

Pupils should be taught to develop their techniques, including their control and their use of materials, with creativity, experimentation and an increasing awareness of different kinds of art, craft and design.

Pupils should be taught:

- to create sketch books to record their observations and use them to review and revisit ideas
- to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]
- about great artists, architects and designers in history

Key stage 3

Pupils should be taught to develop their creativity and ideas, and increase proficiency in their execution. They should develop a critical understanding of artists, architects and designers, expressing reasoned judgements that can inform their own work.

Pupils should be taught:

- to use a range of techniques to record their observations in sketchbooks, journals and other media as a basis for exploring their ideas
- to use a range of techniques and media, including painting
- to increase their proficiency in the handling of different materials
- to analyse and evaluate their own work, and that of others, in order to strengthen the visual impact or applications of their work
- about the history of art, craft, design and architecture, including periods, styles and major movements from ancient times up to the present day

Equipment needed to support all 12 activities:

- 1 – various bits of rubbish, tape, glue, paints,**
- 2 – paper, pens/pencils/paints, possibly some rubbish to make a model**
- 3 – paper, pen**
- 4 – paper, many colours of pens/pencils/paints**
- 5 – paper, pens/pencils/paints, a white object**
- 6 – paper, pens/pencils/paints**
- 7 – paper, pens/pencils/paints**
- 8 – black and white paper, scissors,**
- 9 – items selected from the kitchen,**
- 10 – paper, pens/pencils/paints, internet and printer/magazines/old photos, scissors**
- 11 – paper, pens/pencils, a shoe**
- 12 – paper, pens/pencils/paints**