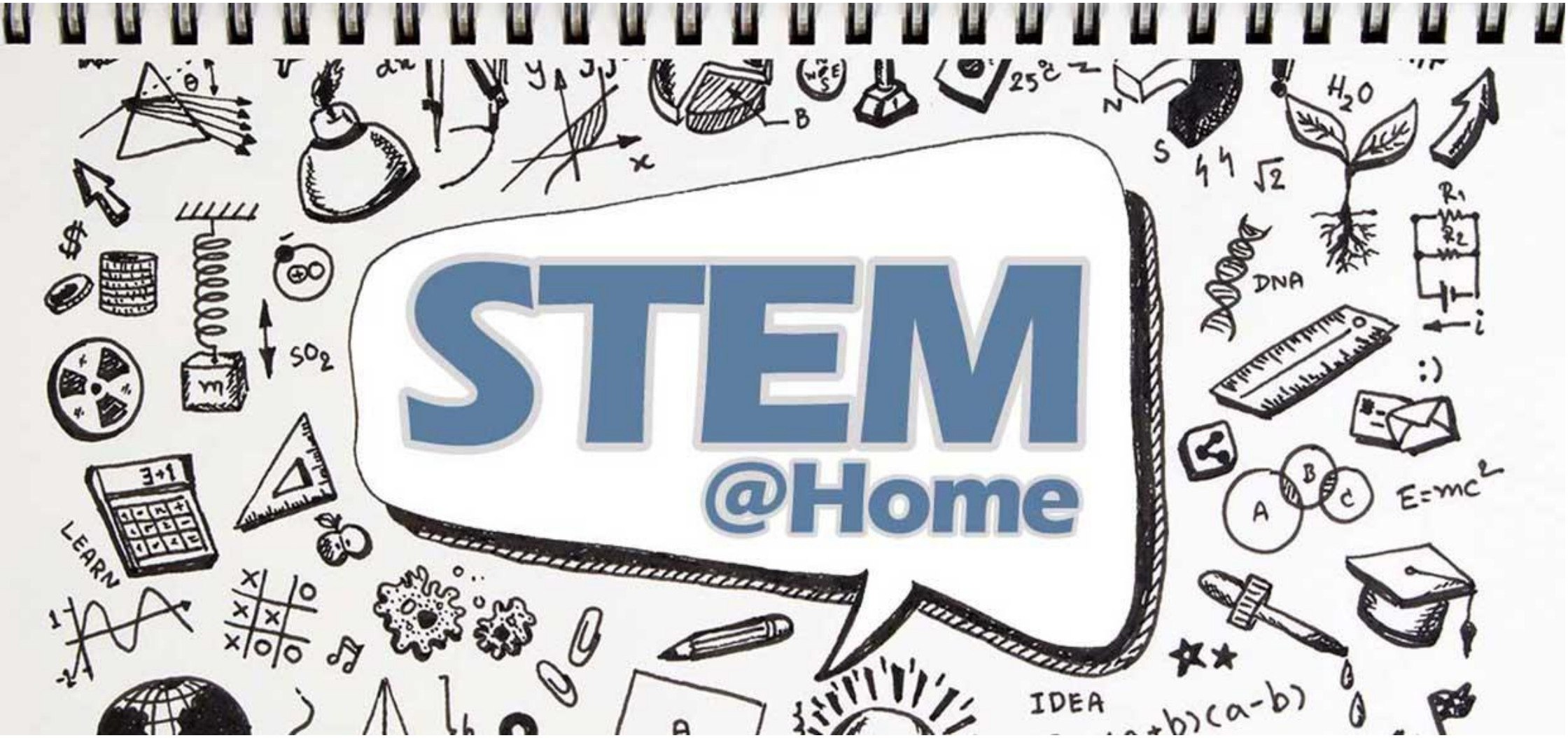

and the Primary Science National Curriculum

The STEM HUB

In celebration of STEM@Home's First Birthday!

SPACE DINOSAURS ENERGY ENVIRONMENT STRUCTURES MATERIALS HEALTH

The last year has been one of change, with one of the biggest changes for The STEM Hub being the development of our online community. STEM@Home was the first initiative in this change from face-to-face engagement to a blended online support mode of working. It has been clear that in the last year, location is not a barrier to learning and the website has been used daily from its launch a year ago this week.

The first theme launched in March 2020 was Space, to support parents who were home schooling. Now there are seven themes with the eighth theme, Technology, planned to commence later in the summer.

As a celebration of STEM@Home's first birthday, the content has now been linked to the Primary Science National Curriculum, making it even easier for teachers to relate the content to lesson planning.

The secondary content will be linked to the Gatsby Benchmarks by June. Thank you to all the contributors who have made this site so accessible and useful.

The STEM HUB

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Year 1

Year Group	Topic	Learning Objective	STEM@Home Theme	STEM@Home Activity	Activity Summary	Working Scientifically
Year 1	Plants	To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	Environment	Flower Bookmarks	Look in the environment at plants and name some. Make a 3D model bookmark.	Observation
Year 1	Plants	To identify and describe the basic structure of a variety of common flowering plants, including trees.	Environment Structures	Discovery Bag Create a Tree	Think about the similarities and differences between trees and their parts. Identify natural and man-made objects.	Observation Pattern Seeking
Year 1	Animals including Humans	To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.	Environment	What type of animal?	Identifying the main animal groups – reptiles, birds etc.	Sorting and Grouping Observation
Year 1	Animals including Humans	To identify and name a variety of common animals that are carnivores, herbivores, and omnivores.	Dinosaurs	If Teeth Could Talk	Using dinosaur teeth to examine teeth of carnivores and herbivores.	Observation Pattern Seeking

Year 1

Year 1	Animals including Humans	To describe and compare the structure of a variety of common animals.	Environment	What type of animal?	Identifying the structure of the animal groups – laying eggs, backbone, types of covering – skin, scales, feathers etc.	Sorting and Grouping Observation
Year 1	Everyday Materials	To describe the simple physical properties of a variety of everyday materials.	Materials	Waterproof roof Superhero cape	Simple tests in an everyday setting.	Comparison Fait testing
Year 1	Seasons	To observe changes across the four seasons.	Environment	Windy Ways	Examining the wind direction whilst blowing bubbles.	Observation

Year 2

Year 2	Living Things and their Habitats	To identify and name a variety of plants and animals in their habitats, including microhabitats.	Environment	Journey Stick	Visiting the environment, identifying, and naming plants and animals.	Observation
Year 2	Living Things and their Habitats	To describe how animals obtain their food from plants and other animals, using the idea of a simple food chain and identify and name different sources of food.	Environment	Ecosystem Investigating	Identifying different plants and animals in the environment and mapping them.	Classification
Year 2	Plants	To observe and describe how seeds and bulbs grow into mature plants.	Environment	Germination of Seeds	Growing plants from seeds.	Fair test Observing change over time
Year 2	Plants	To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	Environment	Repurposed Plastic pant pots	Growing plants and observation over time	Observing change over time
Year 2	Animals including Humans	To notice that animals, including humans, have offspring which grow into adults.	Environment	Lambs	Slightly speeded up video of sheep giving birth to lambs.	Observing change over time

Year 2

Year 2	Materials	To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	Environment	Recycle, Re-use	Making new paper from old CREST activity	Observing change over time

Year 3

Year 3 Plants	Plants	To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.	Environment	Good bye old tree Plants: Parts and Functions	CREST Awards activity to look at what different parts of a tree can be used for. Part of the plant, functions and seed dispersal.	Cross-curricular Observation Sorting and Grouping Identification Classification
Year 3	Plants	To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.	Environment	Germination of seed	Growing plants from seeds.	Observing change over time Pattern seeking Fair Testing
Year 3	Plants	To investigate the way in which water is transported within plants.	Environment	Felt Tip Flower Dye	Using felt tips and different flowers to show transportation.	Observing change over time Pattern Seeking
Year 3	Plants	To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Environment	Drifting Dandelions	How do dandelions spread their seeds?	Problem Solving Observing change over time Pattern Seeking

Year 3

Year 3	Animals including Humans	To 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.	Health	Healthy Hues of Food	Healthy eating using colours of the rainbow.	Observation Secondary Sources
Year 3	Animals including Humans	To identify that humans and some other animals have skeletons and muscles for support, protection, and movement.	Dinosaurs Health	Fossil Folly Dinosaurs Versus Humans Joining Joints Muscles for Movement	CREST activity that looks at the skeleton of dinosaurs Naming bones in both types of animals	Classification Observation Secondary Sources Model-making
Year 3	Rocks	To compare and group together different kinds of rocks based on their appearance and simple physical properties.	Structures	Mister Sandy And Mr Squawk, Geog. Rocks Episode 2	Video that identifies the types of rocks and their structures. Follow up activities.	Classification Observation
Year 3	Rocks	To describe how fossils are formed when things that have lived are trapped within rock.	Dinosaurs	Mister Sandy and Mister Squawk explore the Earth Story	Video showing the formation of the earth and fossils. Follow up activities.	Secondary Sources Scientific ideas change over time

Year 3

Year 3	Rocks	To recognise that soils are made from rocks and organic matter.	Environment	Soil Painting	Looking at the different types of soils that change according to rock types.	Sorting and Grouping Observing change over time
Year 3	Forces and Magnets	To observe how magnets attract or repel each other and attract some materials and not others.	Materials	Masterpieces from Magnets!	Explore magnetic and non-magnetic materials while painting.	Identification Classification Sorting and Grouping
Year 3	Forces and Magnets	To compare and group together a variety of everyday materials based on whether they are attracted to a magnet and identify some magnetic materials.	Materials	Magnetic Maze	Make a maze and test fridge magnets with materials to see which are magnetic.	Sorting and Grouping Classification

Year 4

Year 4	Living Things and their Habitats	To recognise that living things can be grouped in a variety of ways.	Environment	Pitfall trap Animal Adventure Plant Detectives	Making a pitfall trap to collect and identify animals. CREST Awards activity to identify where minibeasts live. CREST Awards activity to identify where plants live and how they got there.	Classification Observation
Year 4	Living Things and their Habitats	To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.	Environment Dinosaurs	Clothes Hanger Quadrat Dinosaur Classification	Recording living things in your area. How classification works.	Classification Pattern Seeking Observation
Year 4	Living Things and their Habitats	To recognise that environments can change and that this can sometimes pose dangers to living things.	Environment	Dandelions in different places	How humans can change an environment, which can change what grows and how it grows.	Observation

Year 4

Year 4	Animals including Humans	To identify the different types of teeth in humans and their simple functions.	Dinosaurs	If teeth could talk	Using pictures of dinosaur teeth to identify type of animal.	Classification Observation Pattern Seeking
Year 4	Animals including Humans	To construct and interpret a variety of food chains, identifying producers, predators and prey.	Dinosaurs	The smell of prey	Video that shows defence structures and use of scientific vocabulary.	
Year 4	States of Matter	To compare and group materials together, according to whether they are solids, liquids or gases.	Materials	Liquid tower	Learn about density layering different liquids on top of one another	Observation Sorting and Grouping Fair Testing
Year 4	States of Matter	To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in °C.	Materials	Homemade Ice cream	Making ice cream using ice and salt.	Observing change over time

Year 4

Year 4	States of Matter	To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Environment Materials	Mister Sandy and mister Squark on Hydrology Cloud in a jar	Video identifying all the aspects of the water cycle and how it works. Model of cloud formation.	Observing change over time
Year 4	Sound	To identify how sounds are made, associating some of them with something vibrating	Materials Energy	Musical Materials Musical Glasses	Using everyday materials to make a band.	Classification Sorting and Grouping Fair Testing
Year 4	Sound	To recognise that vibrations from sounds travel through a medium to the ear.	Health Energy	The Ear is Here to Hear Underwater Sound	Looking at resonance and materials travelling through solids.	Observation Fair Testing
Year 4	Sound	To find patterns between the pitch of a sound and features of the object that produced it.	Energy	Musical Glasses	Exploration of volume of water and size of vessel and their effect on pitch.	Observation Sorting and Grouping
Year 4	Electricity	To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers.	Energy	What do you know about Electricity?	Identify parts of a circuit, symbols and whether circuits are complete.	Identifying Observation Sorting and Grouping

Year 4

Year 4	Electricity	To identify whether a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.	Energy	What do you know about Electricity?	Identify parts of a circuit, symbols and whether circuits are complete.	Identifying Observation Sorting and Grouping

Year 5

Year 5	Living Things and their Habitats	To describe the life process of reproduction in some plants and animals.	Environment	Grow carrots from carrots Old Tomato, New Tomato Lambing: Interview with a Kent Farmer	Simple activity to look at vegetative reproduction. Growing tomatoes from a tomato (will not grow fruit). Talk with a farmer about lambing and early life.	Observing change over time Observing change over time Secondary Sources
Year 5	Properties and Changes of Materials	To know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.	Structures	Create your own water filter	How to create a water filter and test it.	Sorting and Grouping Classification
Year 5	Properties and Changes of Materials	To use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving, and evaporating.	Environment	Water Collector	Simple video to link to collecting water, with ideas to extend to filtering.	Problem Solving

Year 5	Properties and Changes of Materials	To demonstrate that dissolving, mixing and changes of state are reversible changes.	Materials	Grow your own crystals	Dissolving and crystallisation show that these are reversible changes.	Observing change over time
Year 5	Properties and Changes of Materials	To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	Materials	Making a Baking Soda Volcano Make your own Lava Lamp	Simple irreversible change with new materials being made.	Observing change over time
Year 5	Earth and Space	To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.	Space	One Year on Earth Story Bots Explore Outer Space Our Solar System: How Scientific Ideas Change	A video that looks at how the earth moves. Video about the planets, their position and composition. Solar System and how ideas have changed.	Observing change over time Secondary Sources Secondary Sources Secondary Sources

Year 5

Year 5	Forces	To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	Energy	Bouncing Beans	Make a magic bean move using gravity.	Observation
Year 5	Forces	To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Energy	Grinding Gears Balancing ACT	Simple activities to experiment with gears and gravitational energy.	Observation

Year 6

Year 6	Living things and their Habitats	To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants, and animals.	Health	Superbugs Join the fight	Some classification, mainly looking at microorganisms.	Secondary Sources Identifying Classification Sorting and Grouping
Year 6	Animals including Humans	To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.	Health	How does my heart work? Breathing Lungs	Create models to demonstrate the circulatory system, parts and functions.	Observation Identification Model-making
Year 6	Animals including Humans	To recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions.	Health	Raise the rate Medicines and Me Pfizer's medicine cabinet	Measure pulse and increase it using exercise. Learn about how medicine is developed and should be used safely.	Fair Testing Secondary Sources Sorting and Grouping

Year 6

Year 6	Evolution and Inheritance	To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	Dinosaurs	Excavate a fossil	Recreate the fossilisation process and work on excavation.	Model-making Observation
Year 6	Evolution and Inheritance	To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	Environment Dinosaurs	Camouflaged creatures Survival Game	Pattern seeking activity to identify how animals are suited to their environment. Game that encourages thinking on adaptation.	Observation Pattern Seeking
Year 6	Light	To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.	Health	Eyes to see you	Teamwork activity to explore how the eyes work and allow us to see.	Observation Fair Testing

The STEM HUB

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