

SCIENCE



**The spark that
ignites our curiosity**



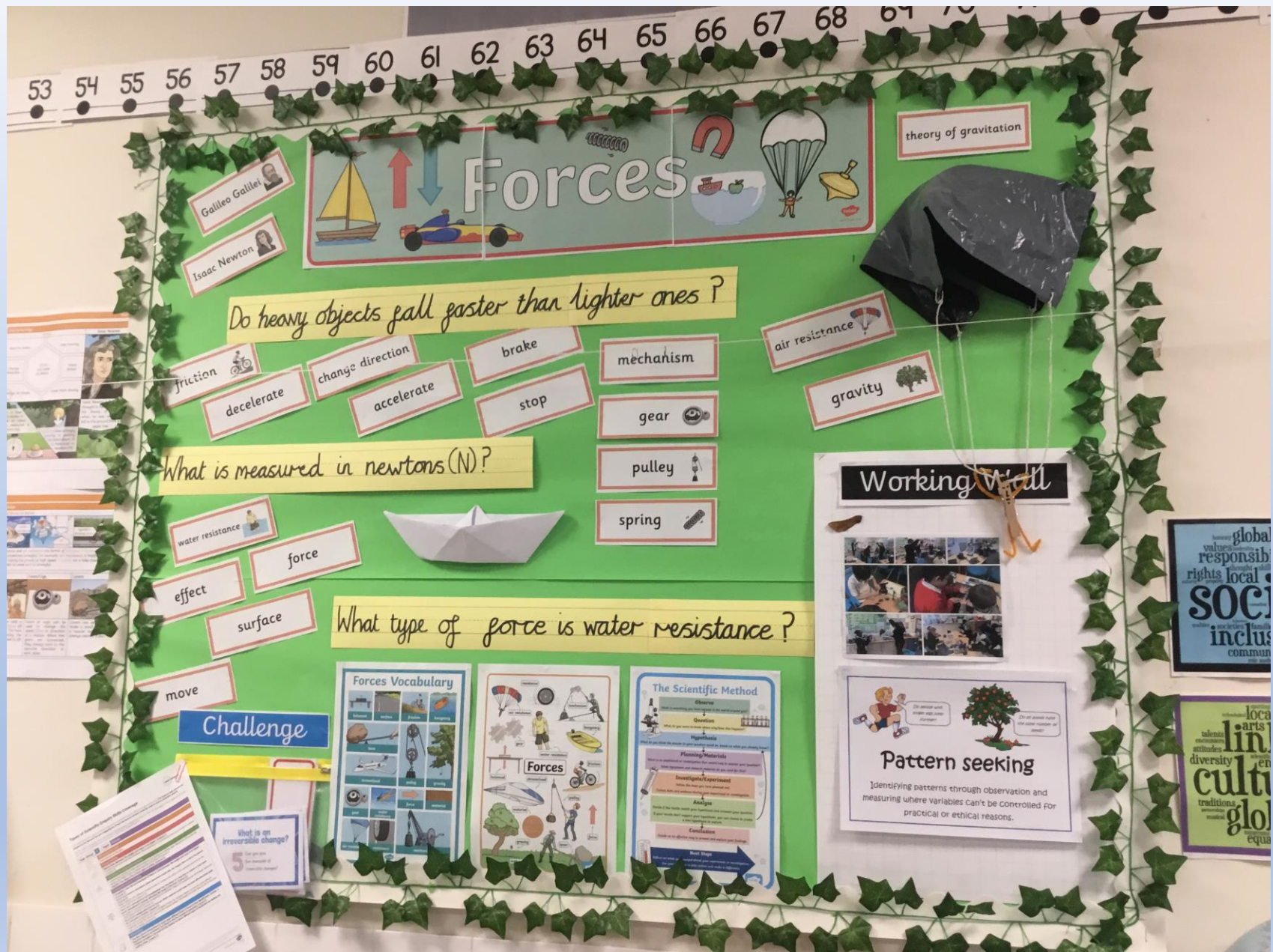
Science, Technology, Engineering and Maths

Science is all around us!

At Town Farm Primary School we believe that **scientific investigation** is one of the most powerful ways to learn; developing curiosity and perseverance as well as challenging what we know about the world.

We aim to make science as **practical as possible**, linking it to real life contexts and giving a meaning to our learning.

All our pupils are entitled to be taught the **key knowledge, vocabulary and skills in the scientific disciplines** to develop an understanding of the world around them at an age-appropriate level and in line with the National Curriculum. Throughout the primary years, children should learn to **explain and analyse phenomena, make predictions and solve problems.**





More young people are taking STEM subjects than ever before

More young people are taking science, technology, engineering, and maths (STEM) subjects at university than ever before, according to statistics published by UCAS in 2021.

Since 2011, there has been an unprecedented growth in students opting to take on STEM subjects such as Computer Science, Engineering, Chemistry, Physics and Biology. This includes a 400% increase in acceptances for students wishing to go on to study Artificial Intelligence courses at university.

UK graduates from STEM degrees are typically able to access a higher starting wage, with research showing **that achieving 2 or more A Levels in STEM subjects adds [more than 7.8% to earnings](#)**, when compared to just gaining GCSE level qualifications. In addition, recent forecasts have suggested that increasing the number of women working in STEM sectors can **[increase the UK's labour value by at least £2bn.](#)**



Summary of Science in EYFS

Topic	Nursery	Reception
Animals, excluding humans	- Learn about the life cycles of animals - Compare adult animals to their babies - Observe how baby animals change over time	- Name and describe animals that live in different habitats. - Describe different habitats
Humans	- Learn about the life cycles of humans - Learn about how to take care of themselves - Learn about their senses	- Describe people who are familiar to them - Learn about how to take care of themselves
Living things and their habitats	- Explore the surrounding natural environment - Explore natural objects from the surrounding environment	- Explore the plants in the surrounding natural environment - Explore the animals in the surrounding natural environment - Explore plants and animals in a contrasting natural environment
Plants	Grow plants	
Seasonal changes		- Play and explore outside in all seasons and in different weather - Observe living things throughout the year
Materials, including changing materials	- Explore a range of materials - Shape and join materials - Combine and mix ingredients - Change materials by heating and cooling, including cooking	- Explore a range of materials, including natural materials - Make objects from different materials, including natural materials - Observe, measure and record how materials change when heated and cooled - Compare how materials change over time and in different conditions
Electricity	- Identify electrical devices - Use battery-powered devices	
Light	- Explore light sources - Shine light on or through different materials	- Explore shadows - Explore rainbows
Forces	- Feel forces - Explore how things work - Explore how objects/materials are affected by forces	- Explore how to change how things work - Explore how the wind can move objects - Explore how objects move in water
Sound	- Listen to sounds - Make sounds	- Listen to sounds outside and identify the source - Make sounds
Earth and space		- Learn about the Earth, Sun, Moon, planets and stars - Learn about space travel

2023-24	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Seasonal Changes – Autumn and Winter	Scientists and inventors Mae Jamison	Everyday Materials	Plants	Seasonal Change	Animals including humans
	Seasonal Change – Autumn and Winter			Seasonal Change – Spring and Summer		
Year 2	Living Things and their Habitats	Scientists and Inventors Elizabeth Anionwu.	Uses of Everyday Materials		Plants	Animals including Humans
Year 3	Forces and Magnets	Scientists and Inventors Goerge Washington Carver	Rocks	Light	Plants	Animals, including humans
Year 4	Animals including Humans	Scientists and Inventors Garett Morgan	States of Matter	Electricity	Sound	Living Things and their Habitats
Year 5	Properties of Materials	Scientist and Inventors Hidden Figures	Forces	Earth and Space	Living Things and their Habitats	Animals including Humans
Year 6	Electricity	Scientists and Inventors Marie Maynard Daly	Evolution and Inheritance	Light	Living Things and Their Habitats	Animals including Humans

Scientists and Inventors

Black History Month

Think like a scientist

determination

curiosity

ambition

resilience

courage

Year 1: Mae Jamison

Year 2: Elizabeth Anionwu

Year 3: George Washington

Year 4: Garrett Morgan

**Year 5: Katherine Johnson, Mary Jackson,
Dorothy Vaughan & Christine Darden**

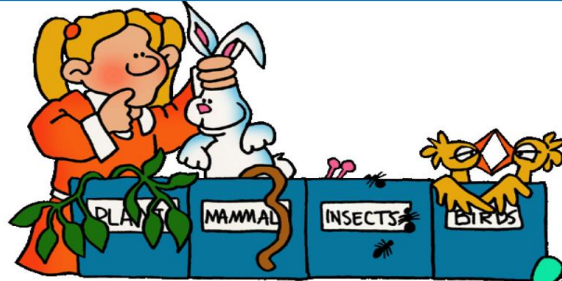
Year 6: Marie Maynard Daly





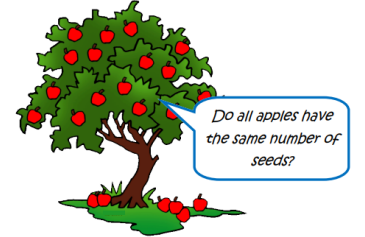
Observing over time

Looking for changes over time spans of minutes or hours to several week or months.
Making predictions about what might happen next.



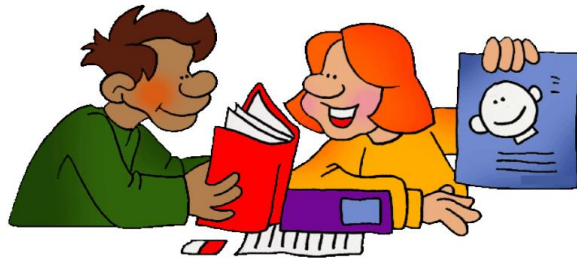
Identifying, classifying and grouping

Sorting objects and materials, learning the names of different things, identifying similarities and differences and learning how things are grouped.



Pattern seeking

Identifying patterns through observation and measuring where variables can't be controlled for practical or ethical reasons.



Research

Finding answers to enquiries using secondary sources, such as books or the internet.
Evaluating information from different sources.



Comparative and Fair Testing

Comparative tests compare different materials, events or artefacts. Fair tests involve changing one variable and observing the effect this has on another variable. Both involve controlling conditions and variables to ensure validity.

**‘ The more that you
read, the more
things you will
know. The more that
you learn, the more
places you’ll go. ’**

Dr. Seuss

LITERACY IN SCIENCE

Plants (Y1)



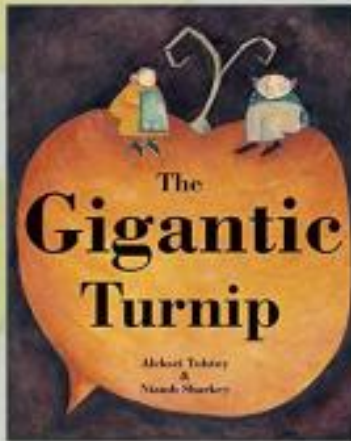
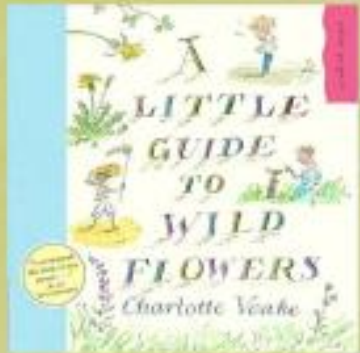
The Tree Lady: The True Story of How One Tree-Loving Woman Changed a City
H Joseph Hopkins

It Starts With a Seed
Laura Knowles & Jennie Webber

The Keeper of Wild Words
Brooke Smith & Madeline Kloepper

Mrs Noah's Garden
Jackie Morris & James Mayhew

A Little Guide to Wild Flowers
Charlotte Voake



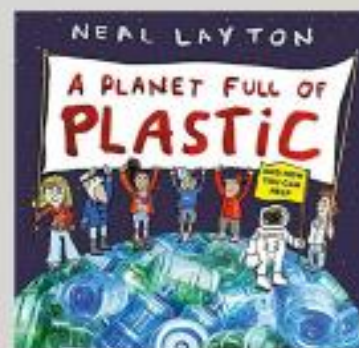
The Gigantic Turnip
Aleksei Tolstoy & Niamh Sharkey

The Tiny Seed
Eric Carle

Jack and the Beanstalk
Richard Walker & Niamh Sharkey

LITERACY IN SCIENCE

uses of everyday materials (Y2)



The Great Paper Caper
Oliver Jeffers

Rosie Revere, Engineer
Andrea Beaty & David Robert

Flat Stanley
Jeff Brown & Rob Biddulph

A Planet Full of Plastic
Neal Layton

What to Do with a Box
Jane Yolen & Chris Sheban

Paper Planes
Jim Helmore & Richard Jones

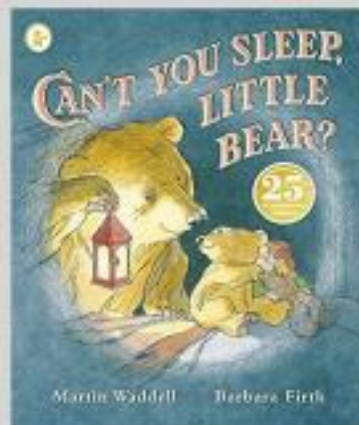
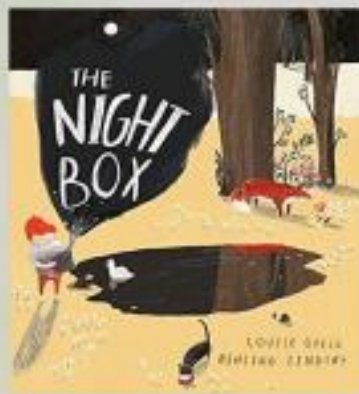
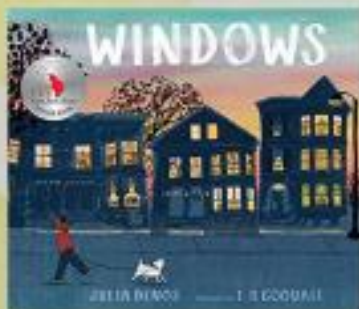
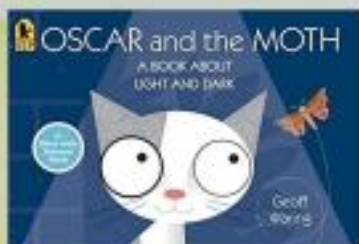
The Most Magnificent Thing
Ashley Spires

Brick
Joshua David Stein & Julia Rothman



LITERACY IN SCIENCE

Light (Y3)



The Dark
Lemony Snicket & Jon Klassen

Oscar and the Moth: A Book About Light and Dark
Geoff Waring

My Shadow
Robert Louis Stevenson & Sara Sanchez

You are Light
Aaron Becker

Orion and the Dark
Emma Yarlett

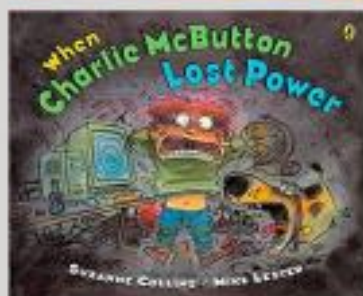
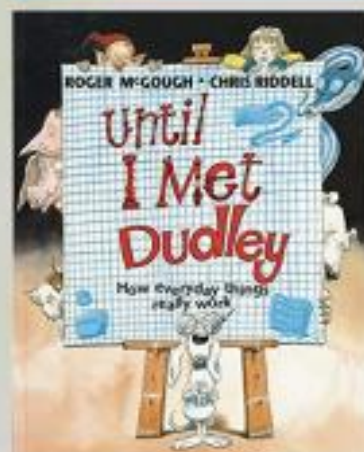
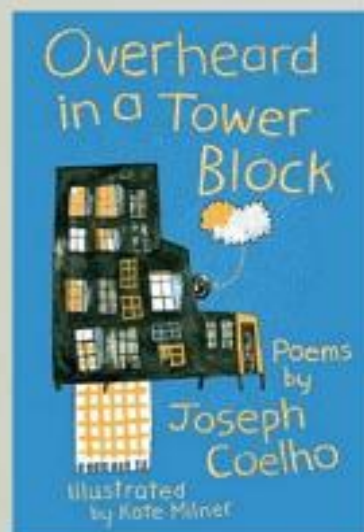
Windows
Julia Denos & E.B. Goodale

The Night Box
Louise Greig & Ashling Lindsay

Can't You Sleep Little Bear?
Martin Waddell

LITERACY IN SCIENCE

Electricity (Y4)



**Electrical Wizard:
How Nikola Tesla Lit up the World**
Peter Brown

The Wild Robot
Simon James

Overheard in a Tower Block
Joseph Coelho & Kate Milner

BOOT Small Robot, BIG Adventure
Shane Hegarty & Ben Mantle

Izzy Gizmo and the Invention Convention
Pip Jones & Sara Ogilvie

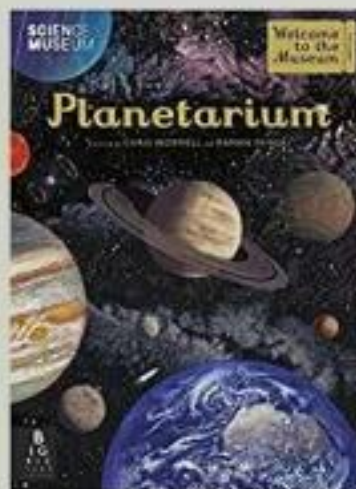
**Oscar and the Bird:
A Book About Electricity**
Geoff Waring

Until I Met Dudley
Roger McGough & Chris Riddell

When Charlie McButton Lost Power
Suzanne Collins & Mike Lester

LITERACY IN SCIENCE

Earth and space (Y5)



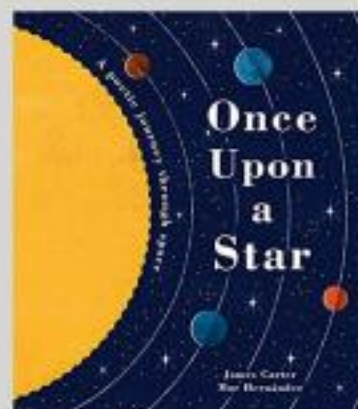
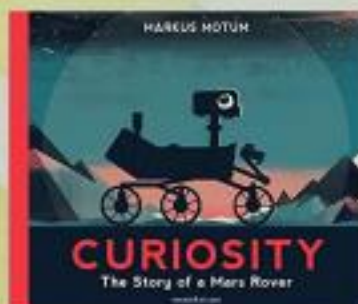
George's Secret Key to the Universe
Lucy Hawking, Stephen Hawking & Gary Parsons

The Skies Above My Eyes
Charlotte Guillain & Yuval Zommer

Planetarium: Welcome to the Museum
Roman Prinja

Armstrong: The Adventurous Journey of a Mouse to the Moon
Torben Kuhlmann

Cosmic
Frank Cottrell Boyce



Curiosity: The Story of a Mars Rover
Markus Motum

When the Stars Come Out: Exploring the Magic and Mysteries of the Night-Time
Nicola Edwards

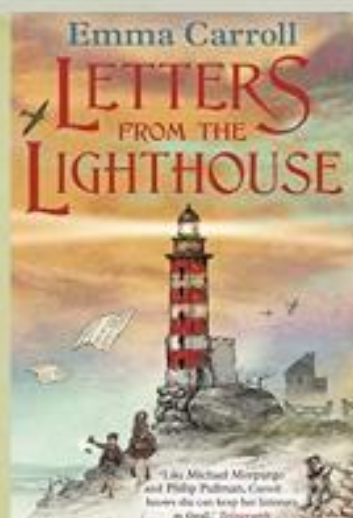
Once Upon a Star: The Story of Our Sun
James Carter & Mar Hernandez

LITERACY IN SCIENCE

Light (Y6)



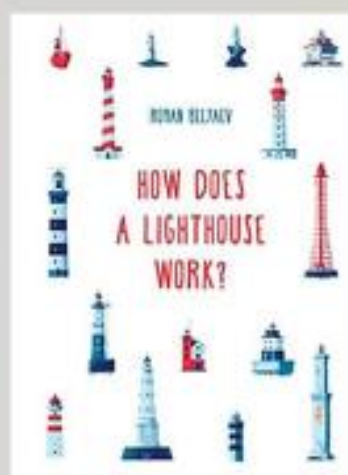
The King who Banned the Dark
Emily Haworth-Booth



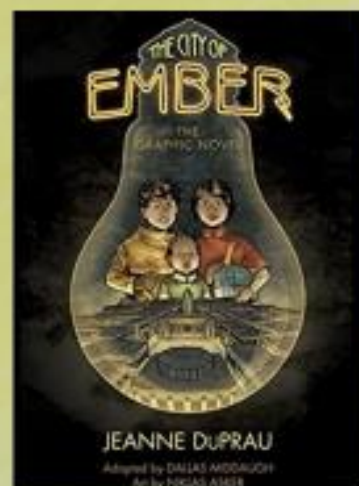
Letters from the Lighthouse
Emma Carroll



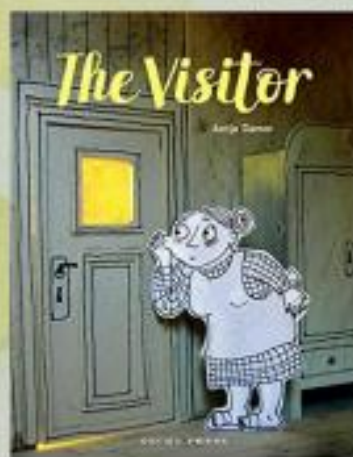
Edison: The Mystery of the Missing Mouse Treasure
Torben Kuhlmann



How Does a Lighthouse Work?
Roman Belyaev



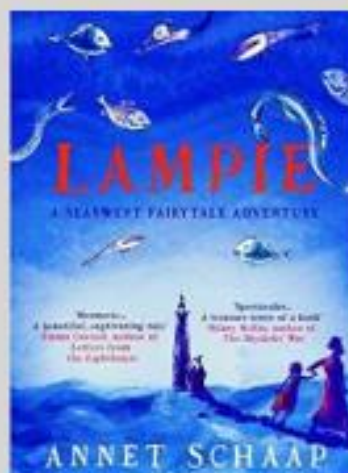
The City of Ember: the graphic novel
Jeanne DuPrau



The Visitor
Antje Damm



Shadow
Lucy Christopher



Lampie: A seaswept fairytale and adventure
Annet Schaap

Frozen bubbles

Blow bubbles outside when temperatures dip to the single digits and watch them freeze.

Invisible Ink

Use lemon juice to make invisible ink that can only be seen when held up to a heat source.

Marshmallow catapult

Build a marshmallow catapult out of a plastic spoon, rubber bands, and lolly sticks.

Make a parachute for toys

Use a plastic bag and cup to build a parachute for a light toy.

Dye flowers with food colouring

Place white flowers in coloured water and watch how they soak up the hues.

Do oil and water mix?

Plop oil into water to see that they really don't mix; try it with a variety of liquids to make a rainbow of stripes.

Useful links to websites with science activities and videos you can try at home.

Science Bob - A brilliant website full of simple experiments you can try at home - <https://sciencebob.com/>

Wow Science Games - A website full of interactive games, experiments and videos - https://wowscience.co.uk/?sfid=27&_sfm_resource_type=Games

Twig Science Reporter - New news update video every Thursday to show developments in science across the world that week - <https://www.twigsciencereporter.com/>

Nursery: Grow Plants

Reception: Explore plants in the surrounding environment (as well as a contrasting environment)

Year 1, 2 and 3:

- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- identify and describe the basic structure of a variety of common flowering plants, including trees.
- observe and describe how seeds and bulbs grow into mature plants
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- 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 investigate the way in which water is transported within plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

Biology



Biology



Bicarbonate of soda and Vinegar

What do you think will happen when we mix the two?

Describe the chemical reaction you have just observed.

Where do the bubbles come from?

What substance is produced when you mix the vinegar and bicarbonate of soda?

Chemistry





8-17 March
British
Science
Week
2024



Celebrating the diverse people
and careers in science & engineering

#SMASHING
STEREOTYPES

@ScienceWeekUK

British Science Week is a ten-day celebration of science, technology, engineering and maths that will place between 8 - 17 March 2024!

