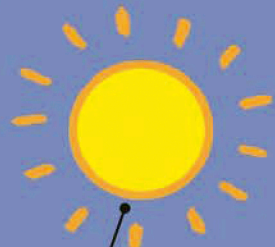
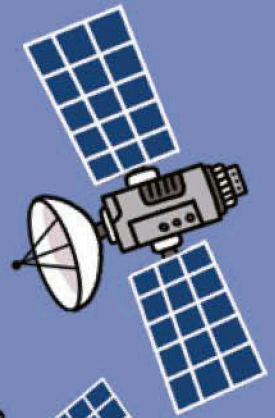


LITTLE EXPLORERS

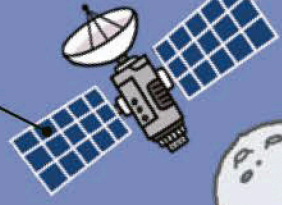
# SCIENCE



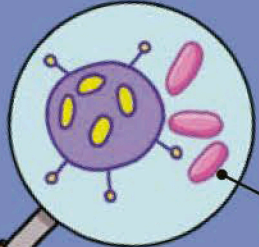
ENERGY



SPACE

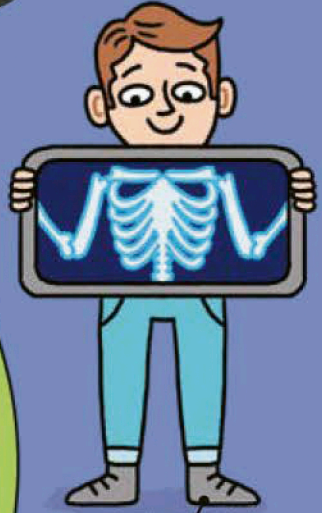
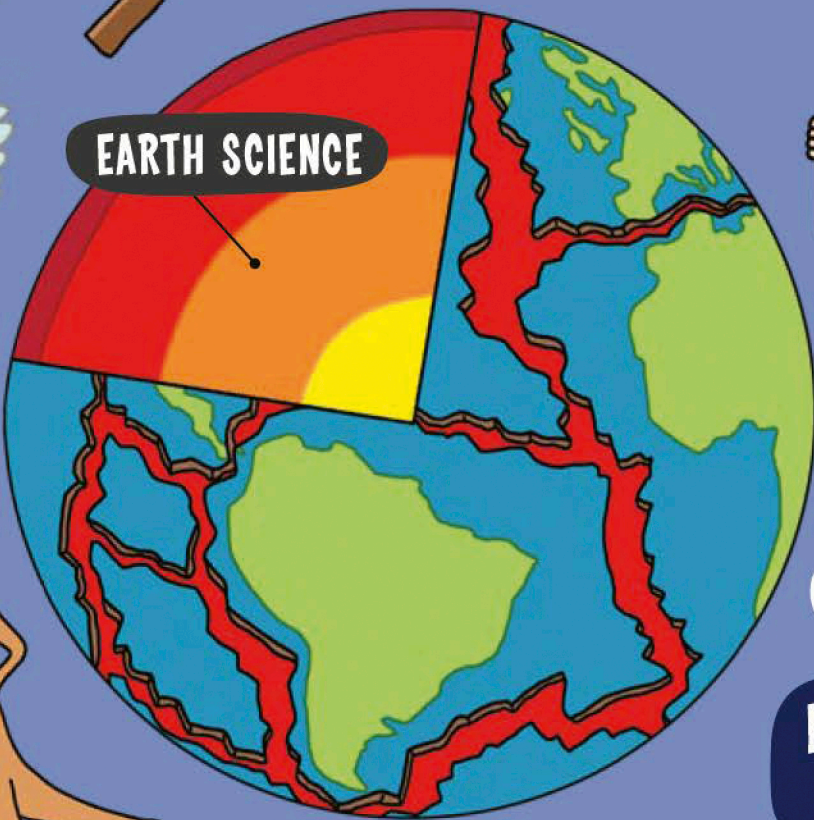


MICROORGANISMS



LIFT THE FLAPS  
TO DISCOVER  
ALL THE THINGS  
SCIENCE CAN DO!

EARTH SCIENCE



DISCOVERIES



WEATHER



LIFE ON  
EARTH

MORE THAN  
30 FLAPS!

## WHAT IS SCIENCE?

Science helps us to learn about the world and find answers to our questions about it. There are lots of types of science. Each one looks at a different part of the world around us.

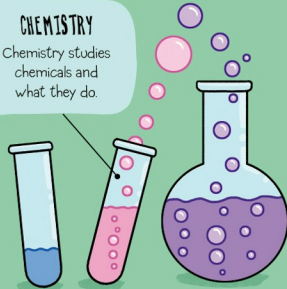
### BIOLOGY

Biology studies things that are alive.



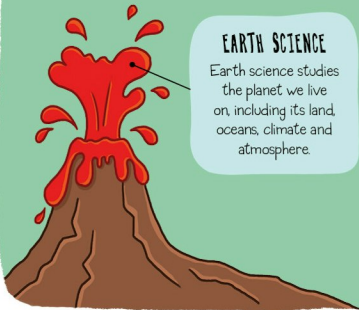
### CHEMISTRY

Chemistry studies chemicals and what they do.



### EARTH SCIENCE

Earth science studies the planet we live on, including its land, oceans, climate and atmosphere.



## All kinds of science!

Each scientific area has its own special name. Here are just a few of them.

## What is a scientist?

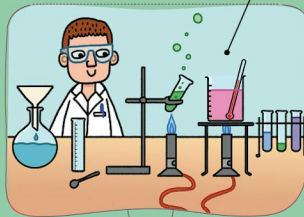
Scientists are people who study science. They come up with new ideas, then test them with experiments to discover new information. Some scientists work in laboratories, but others work outdoors. A few scientists even work in space!

### What is this scientist doing?



## Step by step

Scientists work very carefully to avoid making mistakes. They often carry out an experiment several times, following the same steps.



## What's the big idea?

An idea that a scientist wants to test is called a hypothesis. Scientists don't make guesses. They use things they already know or can see, called observations, to help them come up with their hypotheses.

I know that some things float, but others sink.

Observation



## What is data?

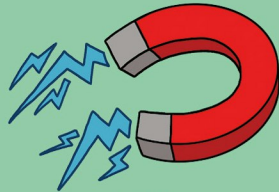
'Data' is the word scientists use for the information they gather when they do an experiment. The data might be measurements, or things that they have noticed.

### What is this scientist doing?



### PHYSICS

Physics studies energy, forces and what things are made of.



## A HIDDEN WORLD!

Some scientists study tiny things that can't be seen without the help of special machines. Some things are so small that they can't be seen at all, though scientists can see what they do.

### What is the world made of?

Everything in the Universe, from the air we breathe to the stars in the sky, are kinds of matter. Even people are matter. Matter is made up of tiny things called molecules. Molecules are made of even tinier bits called atoms. Scientists who study matter are called physicists.



## Chemical reactions

What happens to a bicycle made of steel (which is mostly iron) when you leave it in the rain? A chemical reaction happens!



Look in here

Lens

(to magnify an object so you can see it)



Object to look at

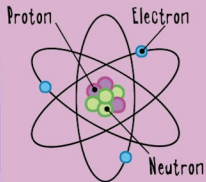
Microscope



## The building blocks of life

All living things are made of minuscule building blocks called cells (which, in turn, are made of molecules). Some living things, such as bacteria, only have one cell, but most plants and animals are made up of millions of cells. Scientists use a microscope to look at cells up-close. It can make them look hundreds of times bigger!

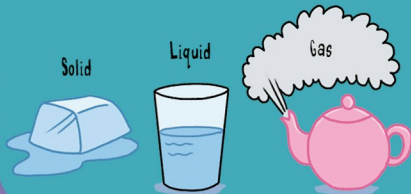
## What is an atom made of?



Atoms are made of even tinier parts called protons, neutrons and electrons. The protons and neutrons are packed in the nucleus, at the centre of the atom, which is surrounded by electrons.

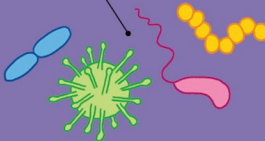
## States of matter

What do these three pictures have in common? They all show water. The ice cube is solid water, the water in a glass is a liquid, and the steam from the kettle is a gas. These are called the three states of matter. Most things can exist in more than one state of matter.

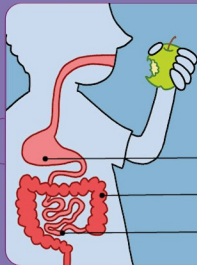


## Microbes everywhere!

Microbes are tiny living things found all around us, though we can't see them without a microscope. They live in soil, water, air, and even inside our bodies. Some microbes can make us ill, but others help and protect us.



Some microbes help us to digest the food we eat properly. They live inside our large and small intestine.



Stomach

Large intestine

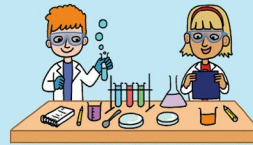
Small intestine

# WHAT IS CHEMISTRY?

All the matter in the Universe is made up of substances called elements. Chemistry studies elements, and how they are joined together to make new substances.

## The periodic table

So far, scientists have discovered 118 elements. These are arranged in 'the periodic table', which groups similar elements together to help organise them.



Group of elements

1 H Hydrogen																	2 He Helium	
3 Li Lithium	4 Be Beryllium																	10 Ne Neon
11 Na Sodium	12 Mg Magnesium																	18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton	
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon	
55 Cs Caesium	56 Ba Barium	57 La Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon	
87 Fr Francium	88 Ra Radium	89 Ac Actinium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Nh Nihonium	114 Fl Flerovium	115 Mv Moscovium	116 Lv Livermorium	117 Ts Tennessine	118 Og Oganesson	
		57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium		
		89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium		



26  
Fe  
Iron

Element

## BURSTING WITH LIFE!

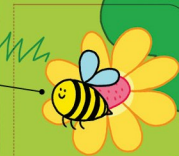
Our planet is bursting with life, from tiny insects to towering trees, and sea creatures that are bigger than a bus. Biology is the science that studies all this amazing life!

There are millions of different plants and animals on Earth. To understand them better, scientists divide them into groups with similar features. This is called classifying. Lift the flaps on this page to discover one way to classify plants and animals.

This tree is busy making the food it needs to grow.



Bees and other insects carry pollen from flower to flower to pollinate them, so they can make seeds and have babies.



## CLASSIFYING ANIMALS

### Invertebrates

Animals that don't have a backbone, such as snails, are called invertebrates.



### Vertebrates

Animals that have a backbone, such as birds, are called vertebrates.



All the animals on Earth belong in one of these two groups.

What do you think is inside these eggs?



Plants and animals change as they grow. This caterpillar will turn into a butterfly one day.



Scientists are still discovering new plants and animals!



### Animal babies

All animals have babies. Most fish, birds, amphibians and reptiles lay eggs. The babies hatch out of the eggs. Nearly all mammals grow babies inside their body, then give birth to them.

