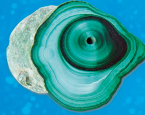


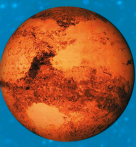
DK



SHAPES



SOUND



1000

WORDS

SCIENCE

SPACE



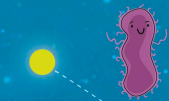
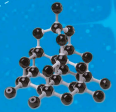
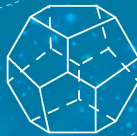
ENERGY



FORCES



WEATHER



SENSES



Build knowledge, vocabulary, and literacy skills

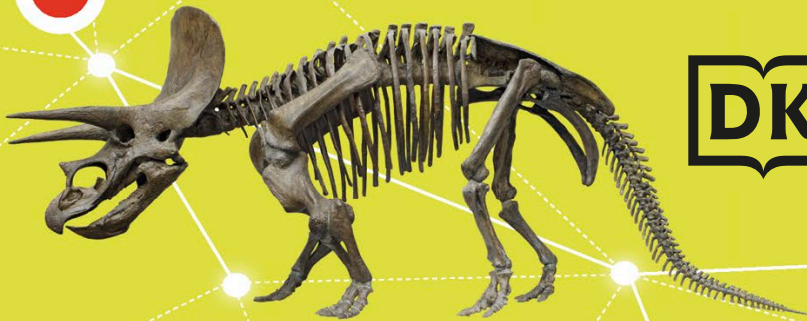


1000 WORDS

science



Jules Pottle





Penguin
Random
House

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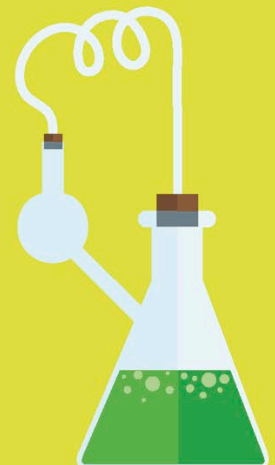
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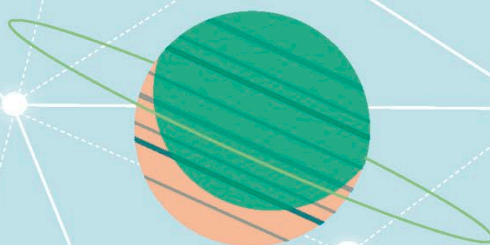
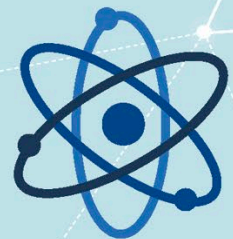


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1000 WORDS science



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

Contents

6	Hot and cold	36	Measuring
8	Seasons	38	Up high
10	Sound	40	Long ago
12	Machines	42	Plants
14	Space	44	Playground forces
16	Moon landing	46	Laboratory
18	Transportation	48	Ecosystems
20	Vehicles	50	Classification of animals
22	Weather	52	Water
24	At the doctor's office	54	Experiments
26	Human body	56	Mixing and cooking
28	Materials	58	Light
30	Underground	60	Sharing and grouping
32	Comparisons	62	Adding and subtracting
34	Junk	64	Acknowledgments

Hot and cold

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



sun

summer

fireworks

sunglasses

hot

orangutan

explode

fire

bonfire

Equator

desert

lizard

sand

camel

coat

flask

cactus

icicles

hot water bottle

ice cubes



rainforest

snake

tree
frog

vine

monkey

butterfly

North Pole

Arctic

cold

Antarctic

South Pole

iceberg

polar
bear

glacier

explorers

orca

sea

snowman

seal

Inuk

penguins

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.



fireworks

changing colors

fog

rain

umbrella

waterproof

wet

bonfire

boots

puddle

falling

leaves

reindeer

cold

snowflake

Christmas lights

evergreen tree

snow

ice skates

candles

Hanukkah lights

Diwali lamp

fall

winter



bird

eggs

nest

warm

blossom



sky

beach



fruit



harvest



calf



lamb

shade



sheep

hot



cow



butterfly



watering can



tadpoles

water

bee



flower

pollen



rabbit



baby rabbit



sunscreen



cooler

sun hat



caterpillar



shoot

spring



frog

summer

Sound

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





voice

hum

microphone

sing

piano



tune



vibration



speakers



splish

splash



headphones



woof



roar



meow



tweet



flute

siren



fire engine



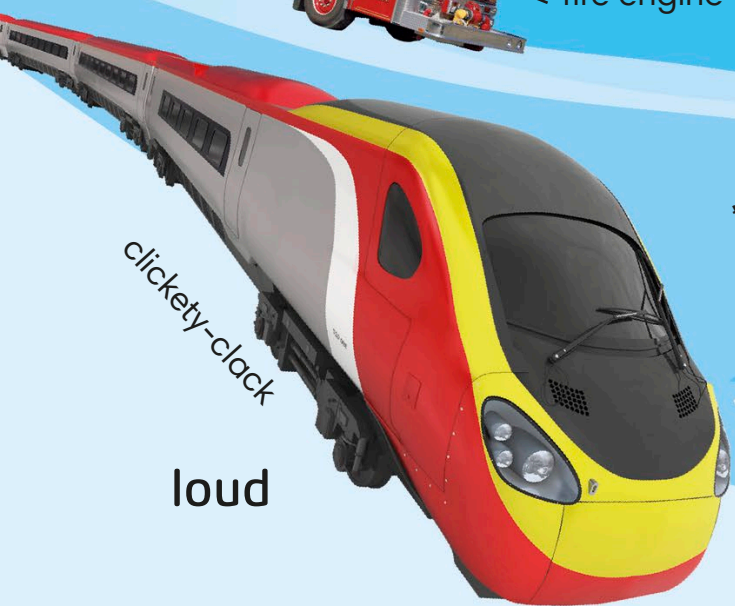
buzz

cell phone

volume



birdsong



clickety-clack

loud



tick

tock



airplane

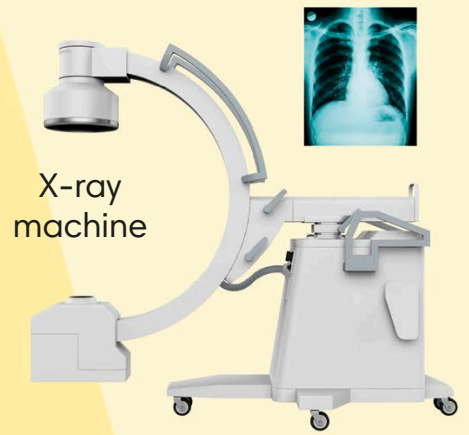


purr

quiet

Machines

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



X-ray machine



pulley

weight



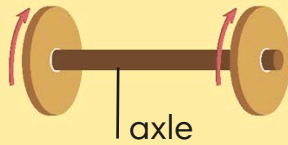
chain



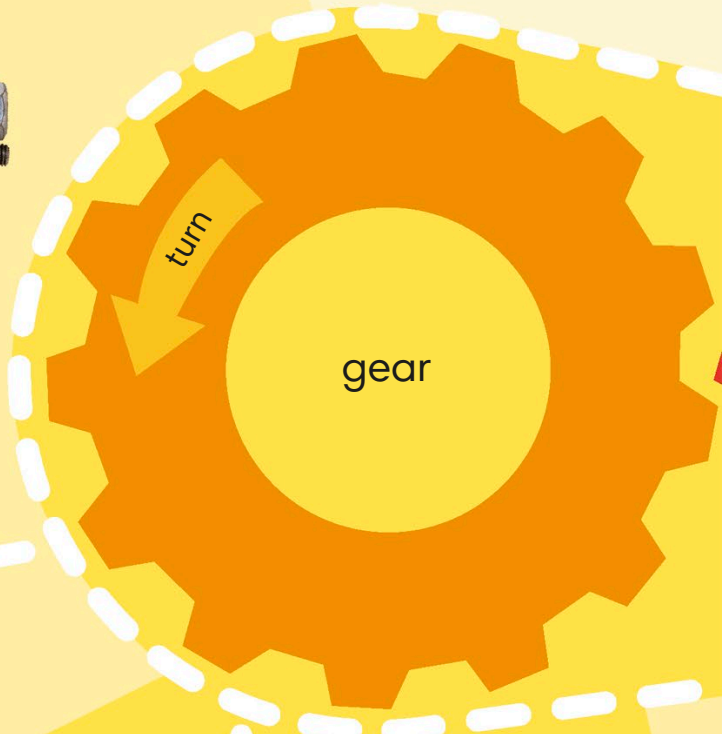
nuts and bolts



lever

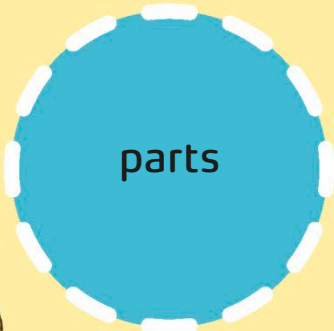


axle



turn

gear



parts

circuit board



crane



drill

wire

electrician

plug



building



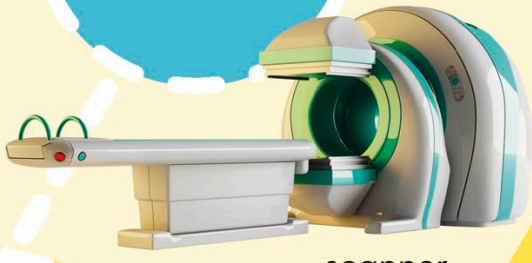
mechanic



electricity



hospital



scanner

wheelchair



computer



television

toaster



clock



fridge

calculator



home



mobile phone

pull



lawnmower

push



vacuum cleaner



cog

race car



power

transportation



tractor

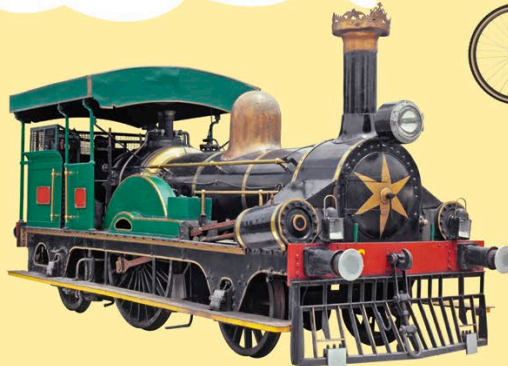
tire



bus

wheel

steam engine



bike



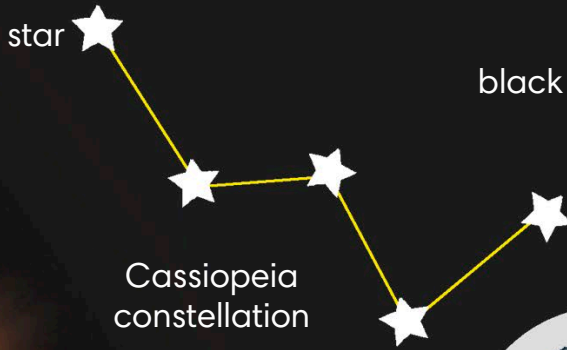
motorcycle

excavator



Space

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



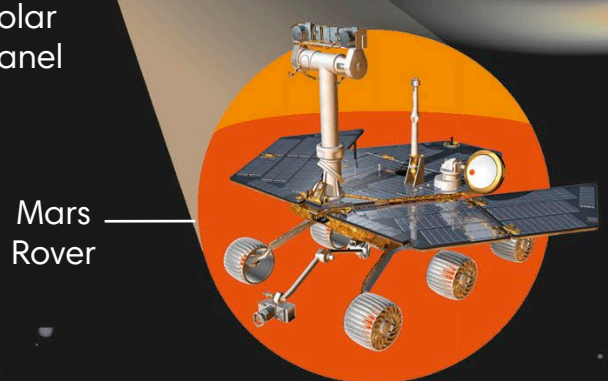
black

outer space



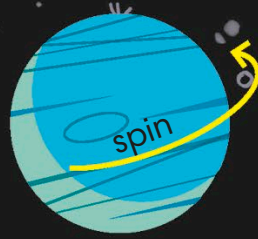
Solar System

sun





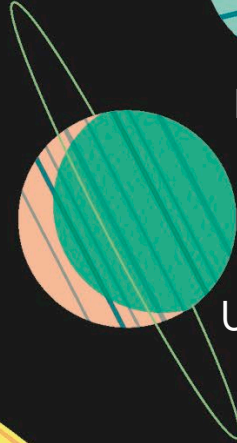
Hubble Space Telescope



Neptune



eclipse

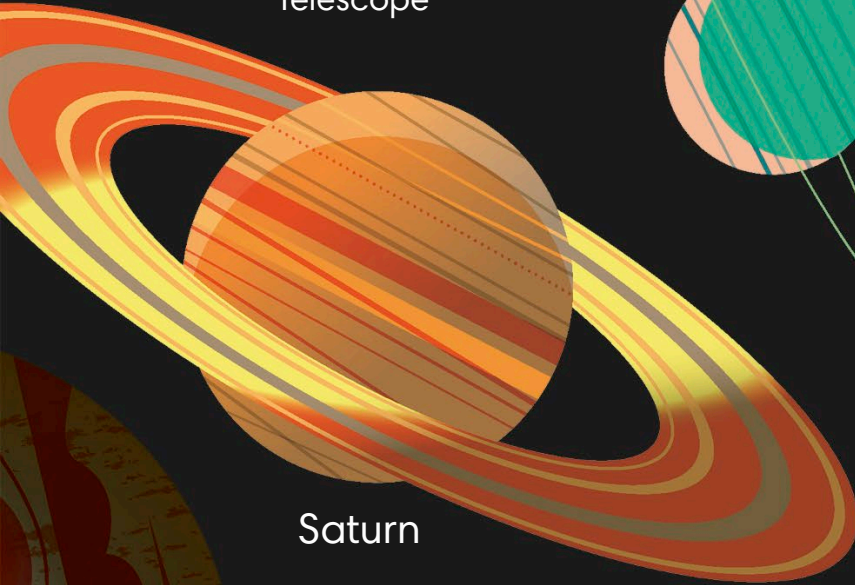


Uranus

planets



Northern lights



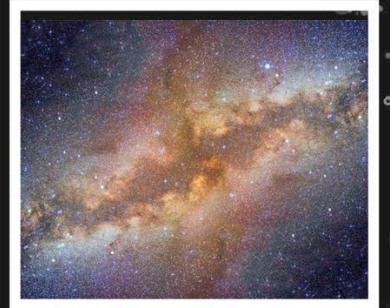
Saturn



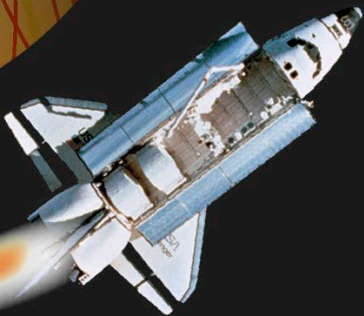
dark



comet



Milky Way



Space Shuttle

astronomer



telescope



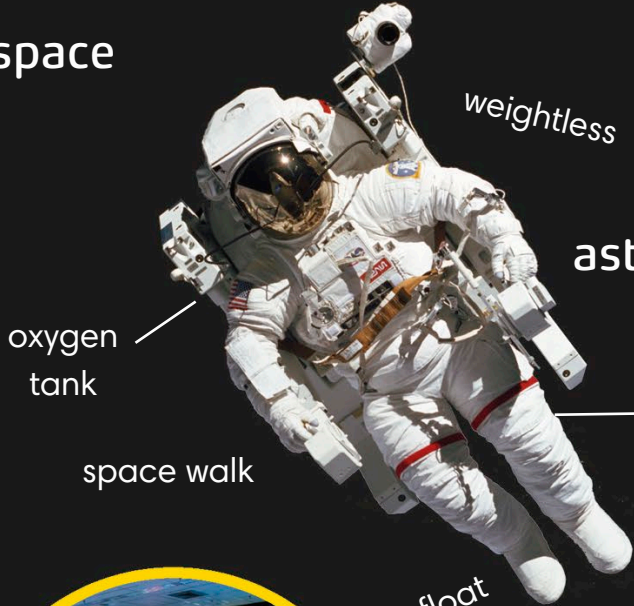
galaxy

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?

★ space

★



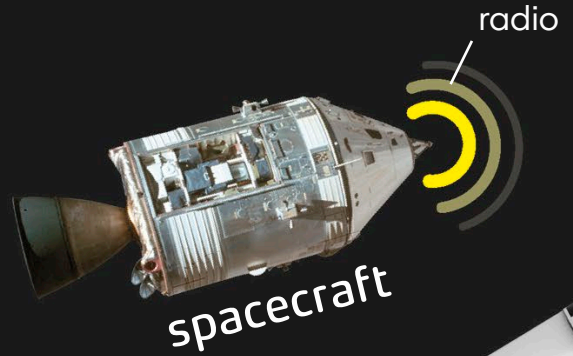
oxygen tank

space walk

astronaut

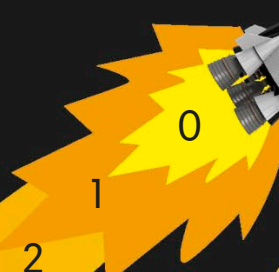
space suit

float



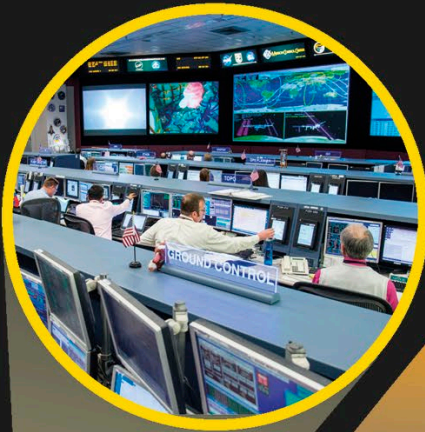
spacecraft

radio

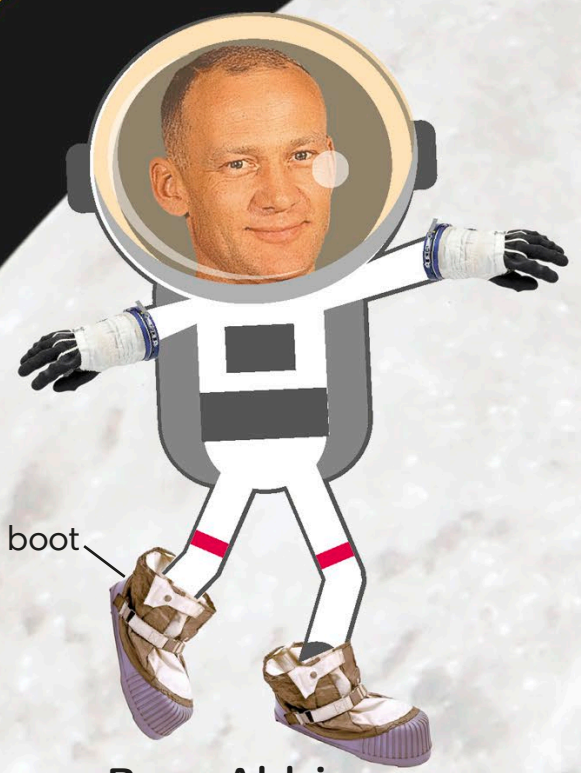


liftoff

quiet



mission control

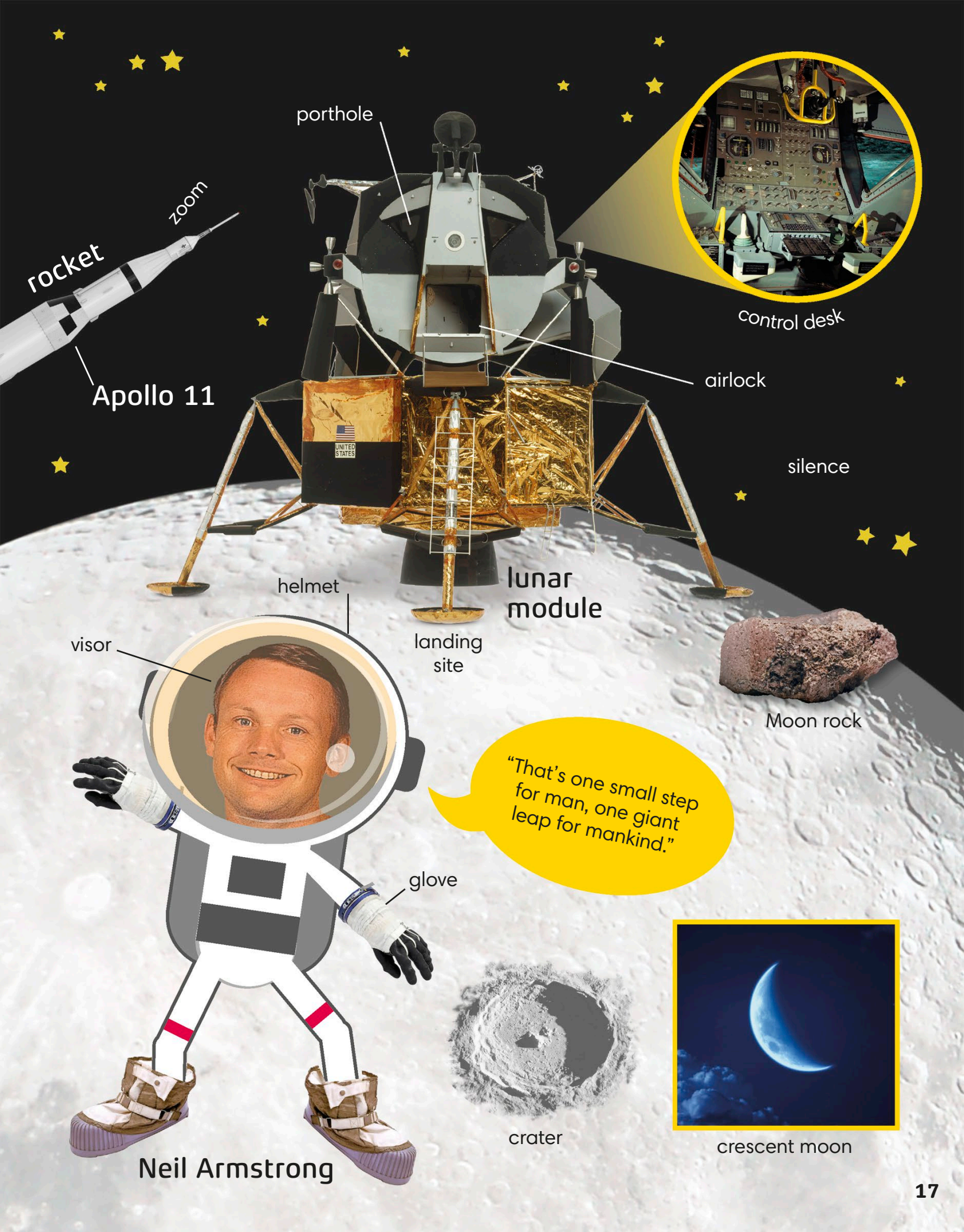


moon

Buzz Aldrin

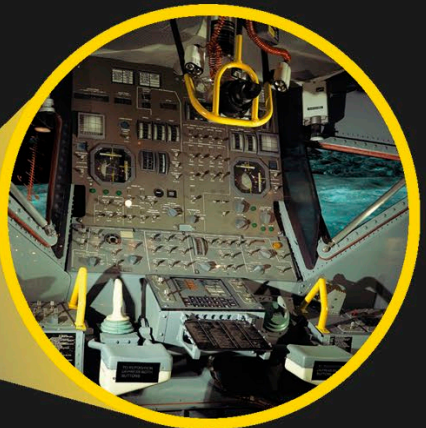
boot





rocket
Apollo 11
zoom

porthole



control desk

airlock

silence

Apollo 11

lunar module

helmet

landing site

visor

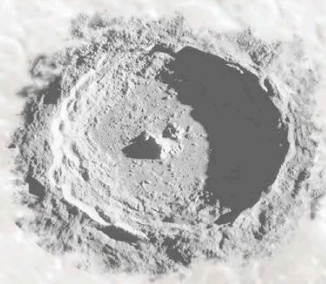


Moon rock

"That's one small step for man, one giant leap for mankind."

glove

Neil Armstrong



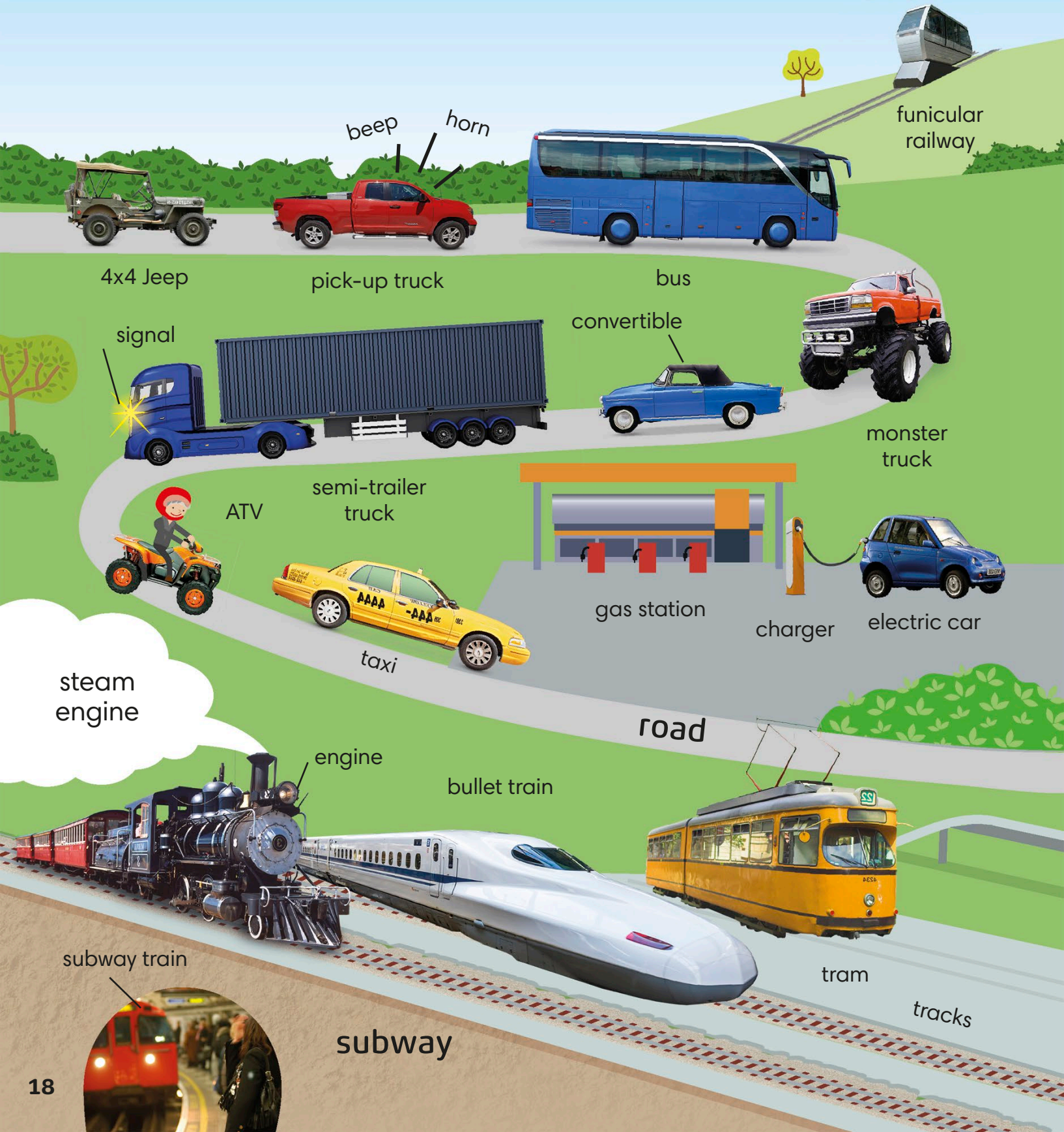
crater



crescent moon

Transportation

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



funicular railway

4x4 Jeep

pick-up truck

bus

signal

convertible

monster truck

ATV

semi-trailer truck

gas station

charger

electric car

taxi

road

steam engine

engine

bullet train

subway train

tram

tracks

subway

air



parachute



airplane



glider



helicopter



airport



jet plane

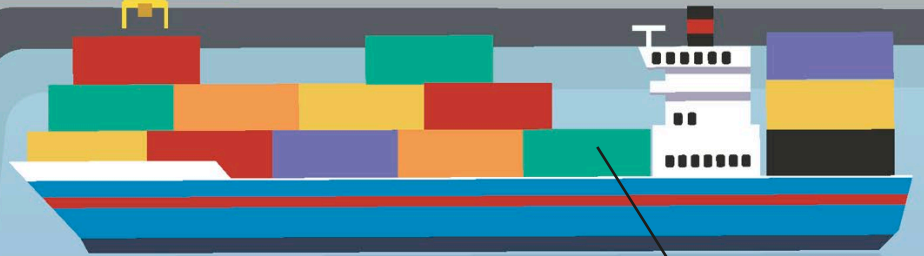


horse and carriage

stoplight



port



container ship

containers

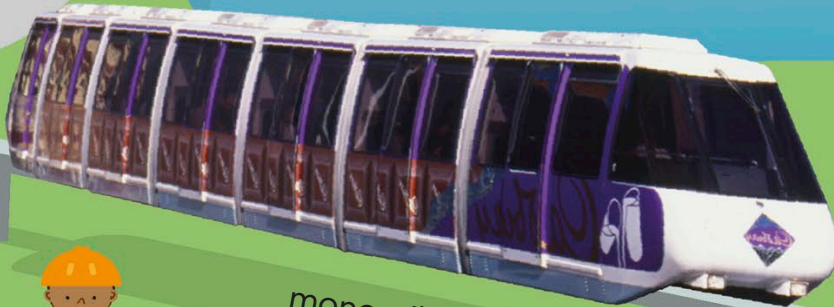


sailboat



ferry

sea



monorail



bicycle



tandem



tricycle



engineer

rail

Vehicles

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

aerodynamic



fighter jet



lifeboat



ship

speedboat



submarine



army truck



tank



dump truck

cab



backhoe loader



caterpillar tracks

excavator



bulldozer



drone



horse trailer



tractor

baler



combine harvester



flag

streamlined



race car

spoiler

tire



pit stop

grip

motorcycle



wheel



ambulance

ramp



police car



siren

fire engine



garage

crane



jack



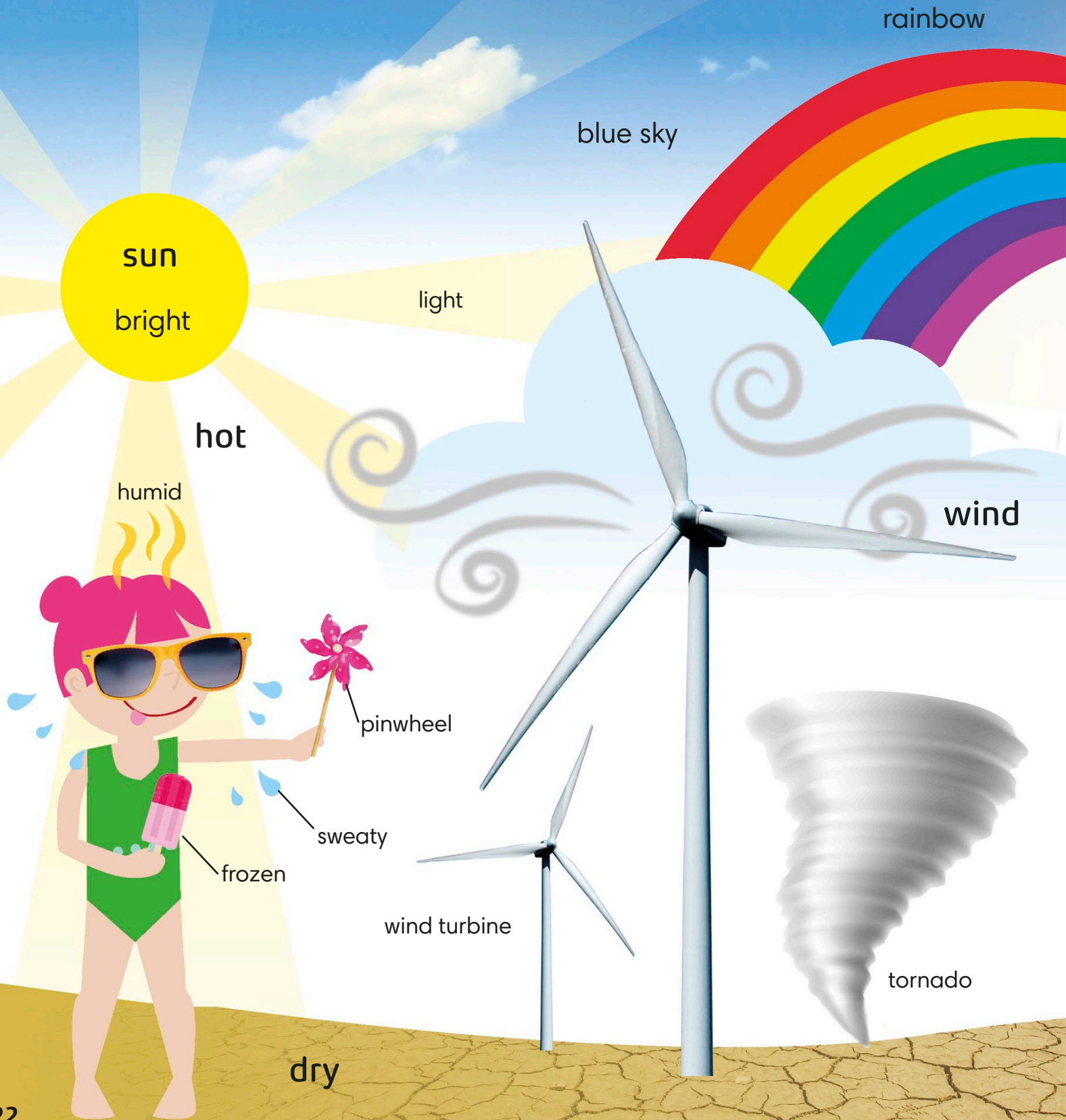
car lift



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!



thunder

cloud

storm cloud



hail

storm

rain

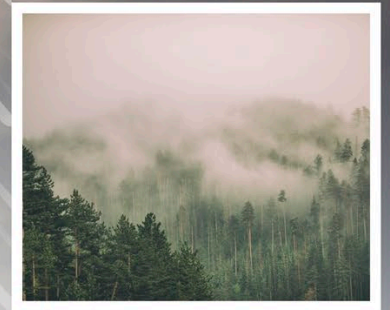


raindrops

lightning



showers



mist



colors



drizzle



snowstorm

snow



cold



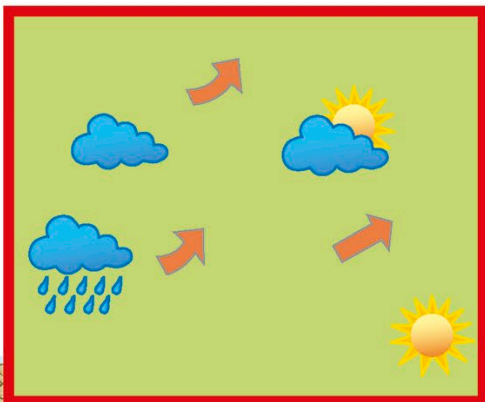
ice crystal

damp

wet



chilly

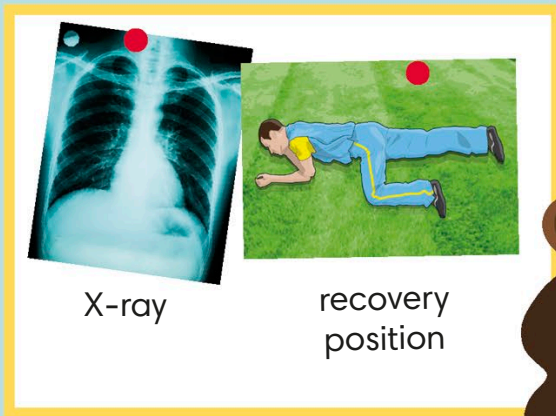


forecast

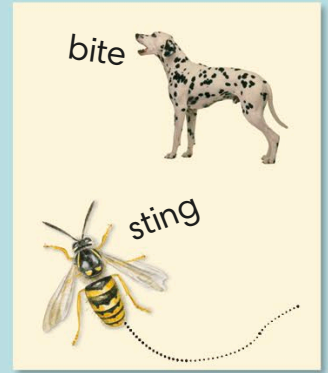
At the doctor's office

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

doctor's office



doctor



hand washing



medicine

tablets

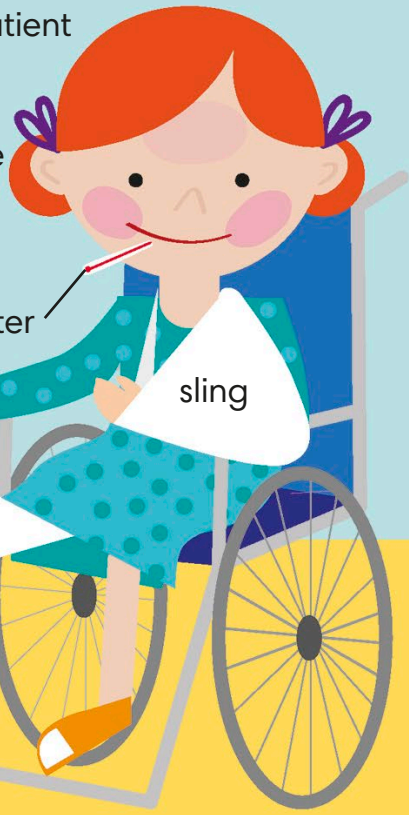


antibiotics



patient

taking your temperature



thermometer

sling

cast

broken leg

syringe



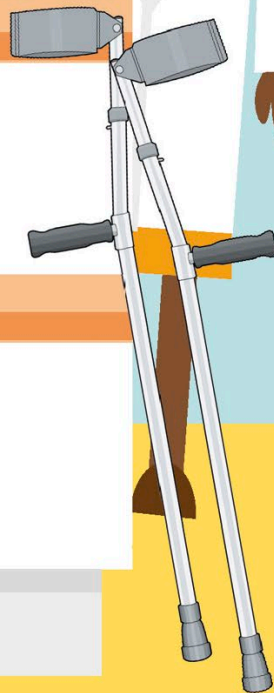
hand gel



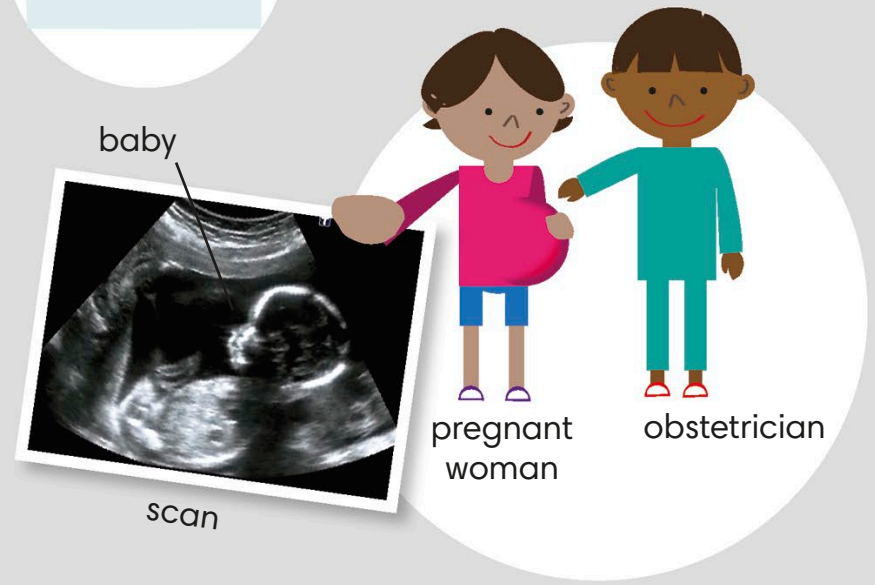
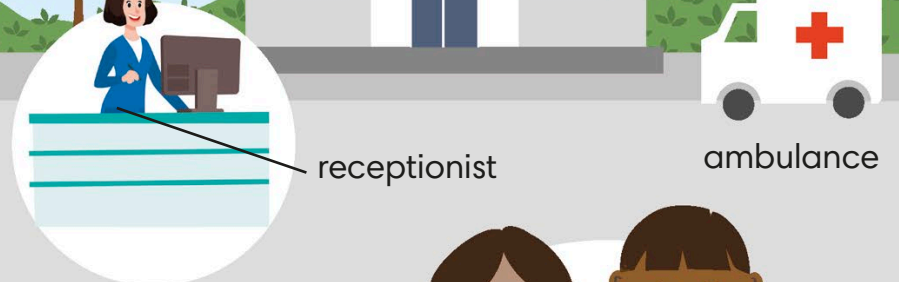
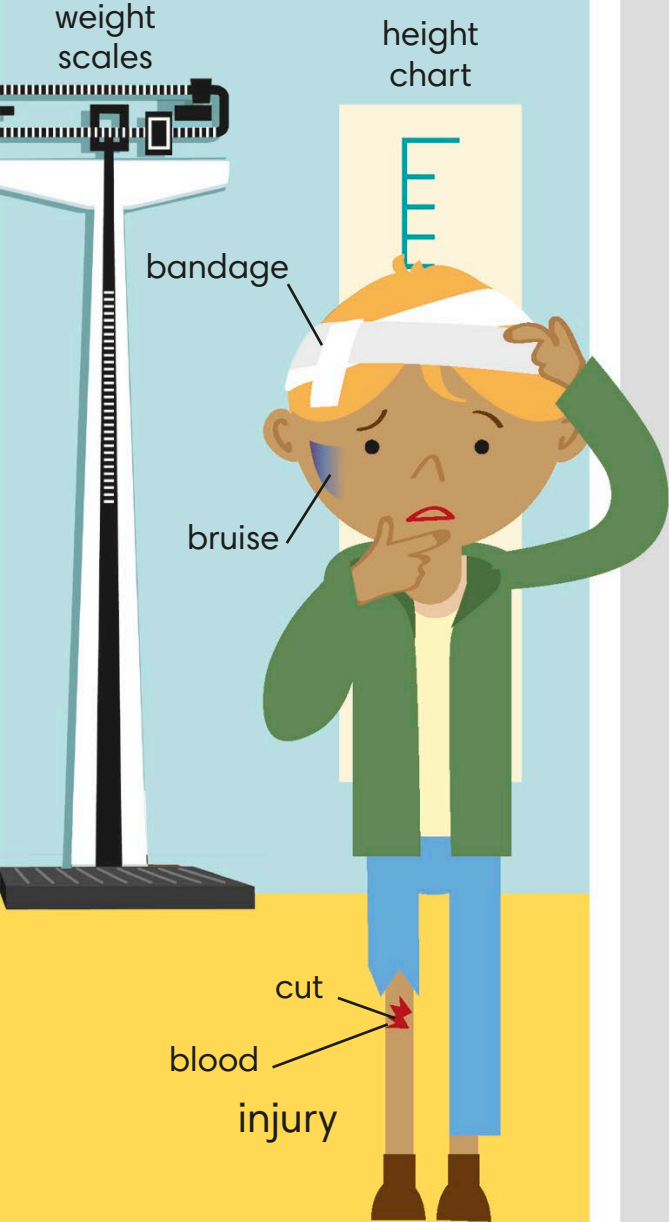
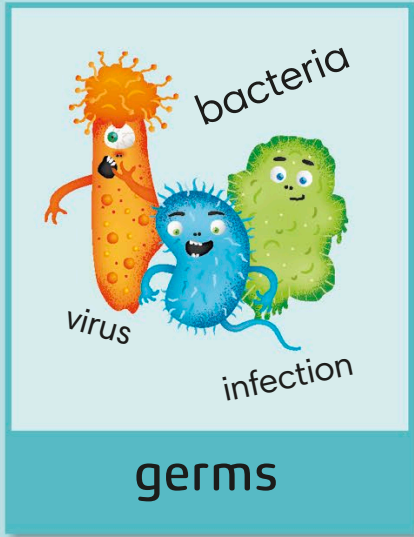
cream



crutches

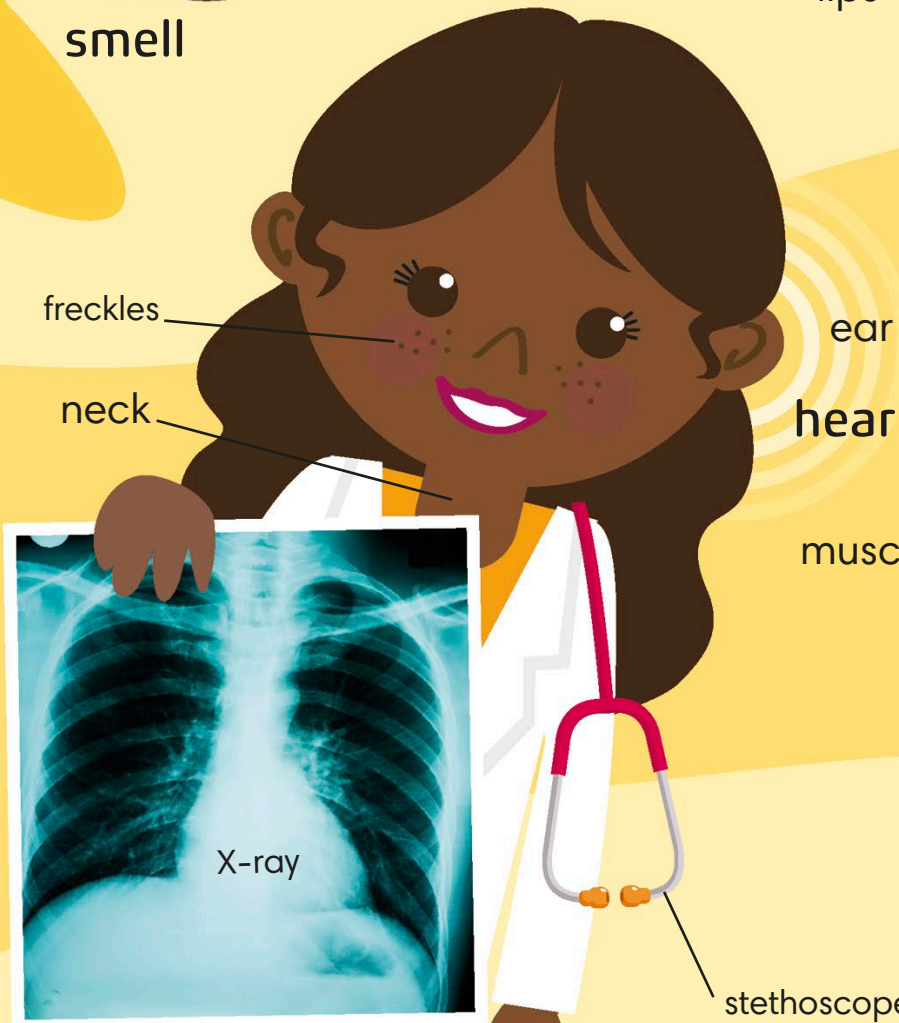
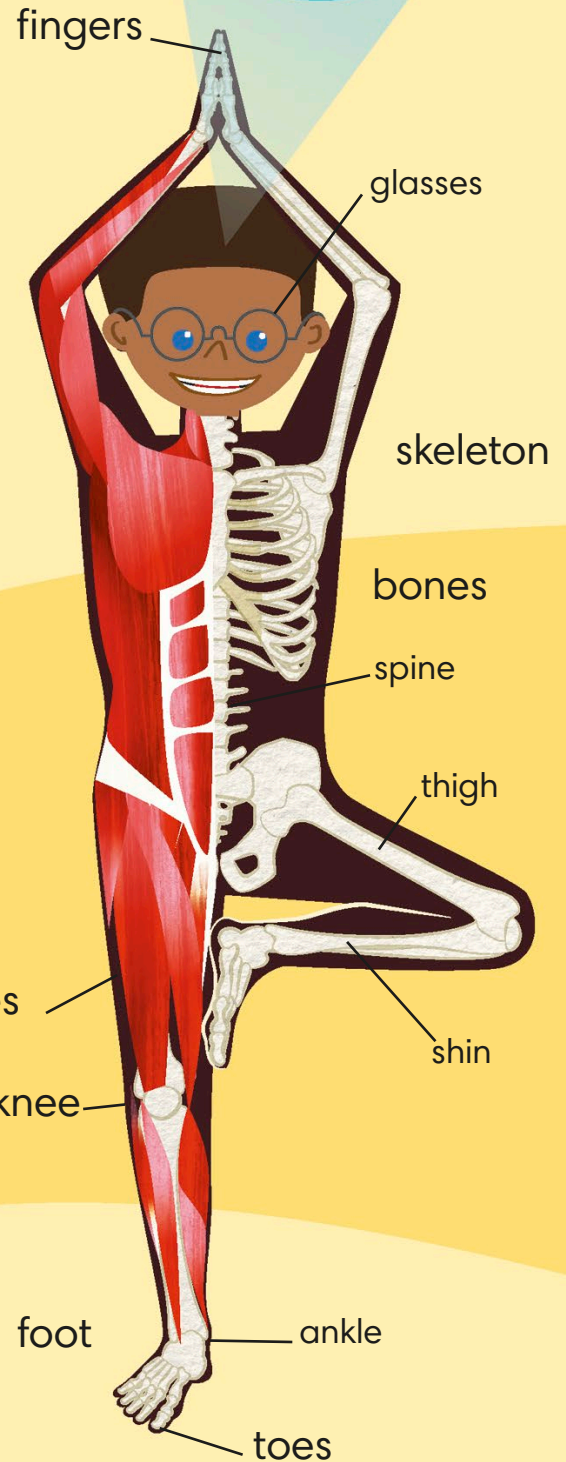
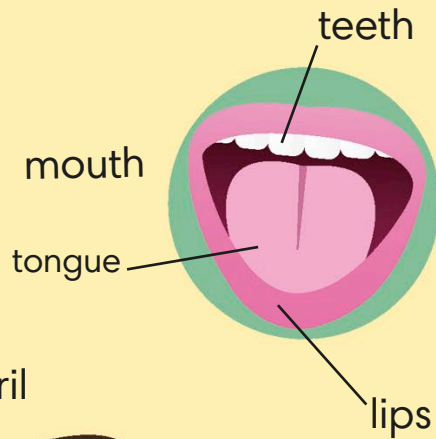
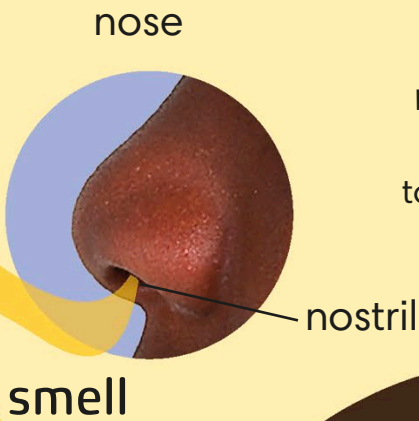
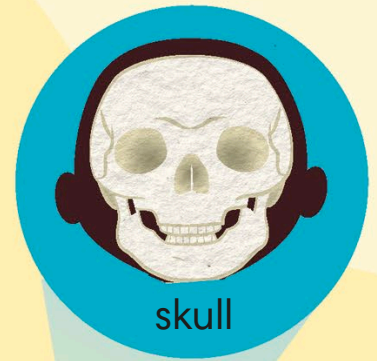


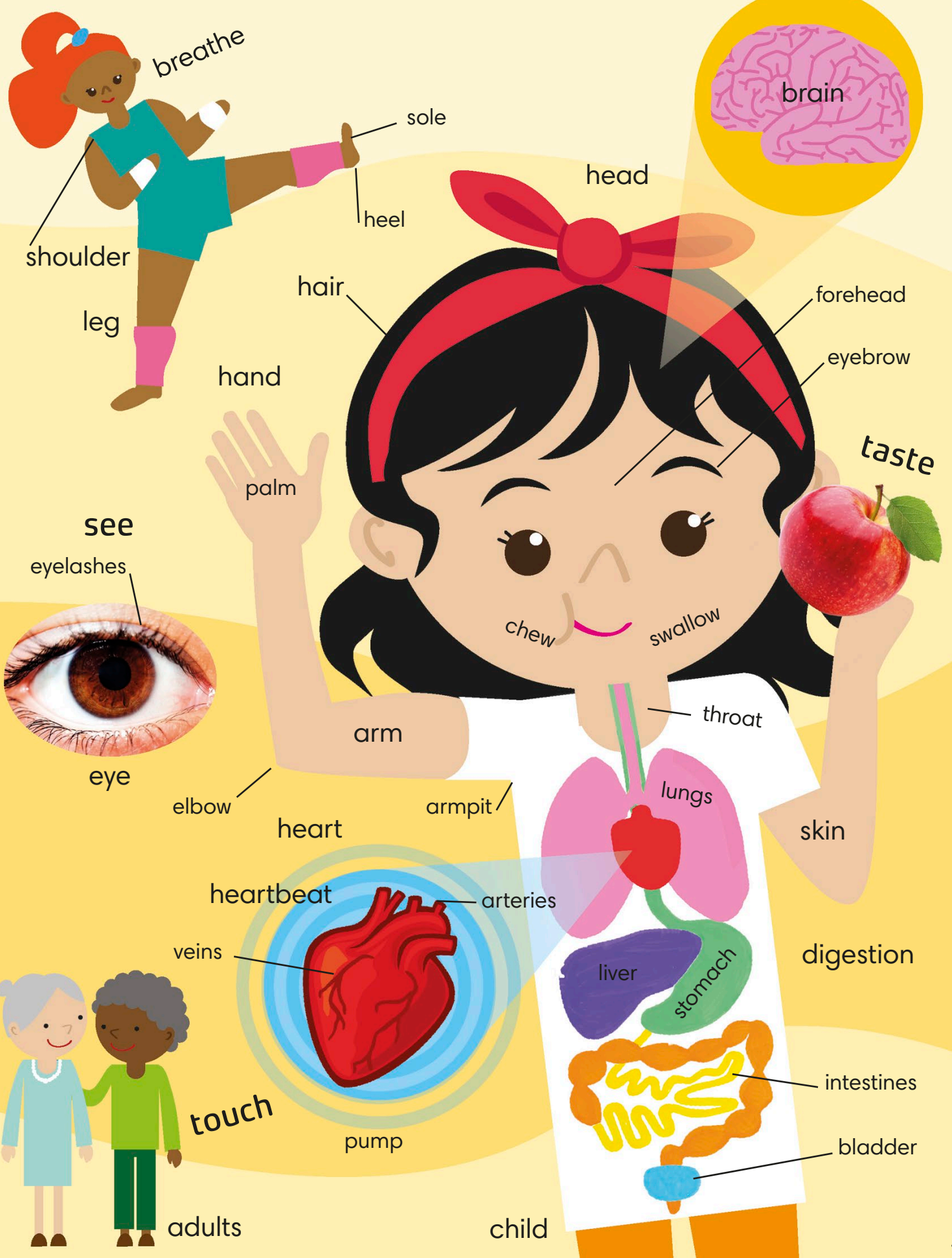
wheelchair



Human body

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





breathe

brain

head

shoulder

sole

heel

leg

hair

forehead

hand

eyebrow

taste

palm

see

eyelashes

chew

swallow

throat

arm

skin

elbow

heart

armpit

lungs

heartbeat

arteries

digestion

veins

liver

stomach

intestines

touch

pump

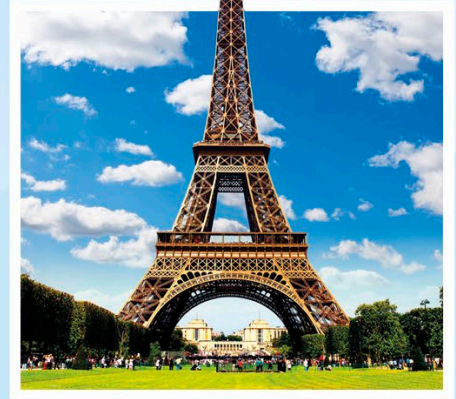
bladder

adults

child

Materials

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

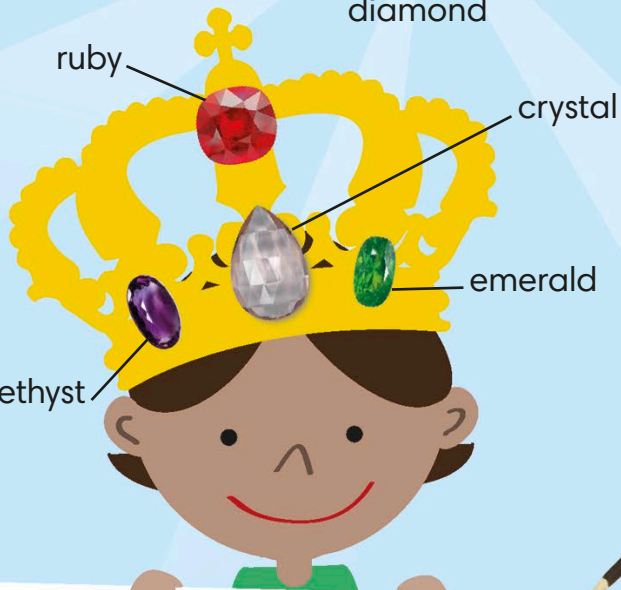


iron



hard

diamond

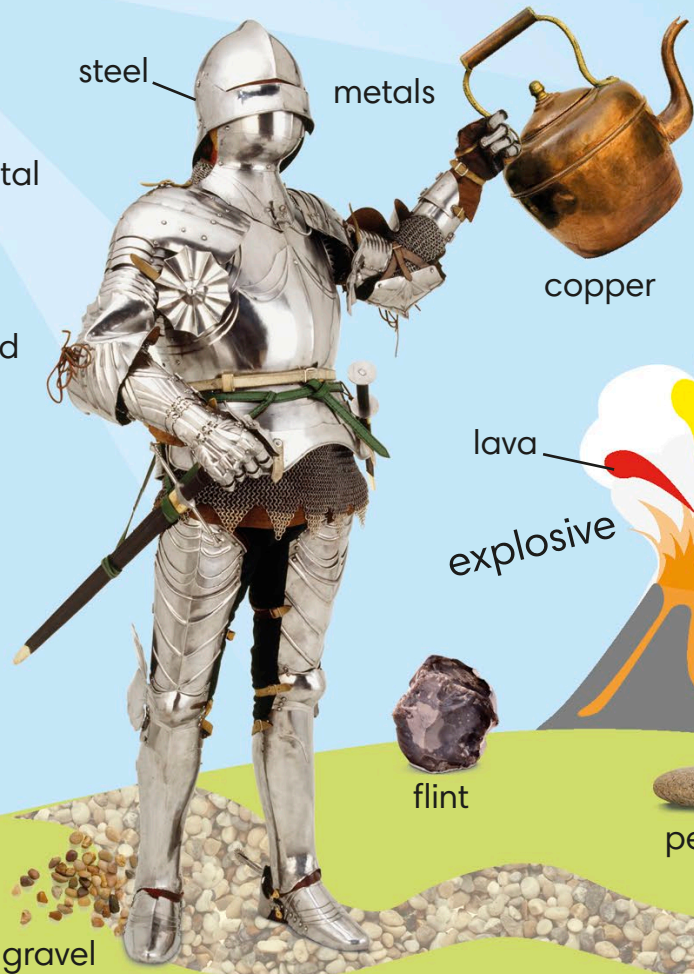


ruby

crystal

emerald

amethyst



steel

metals

copper

lava

explosive

flint

pebble

gravel



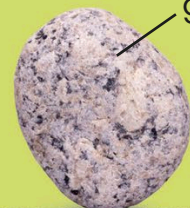
sandstone



sand

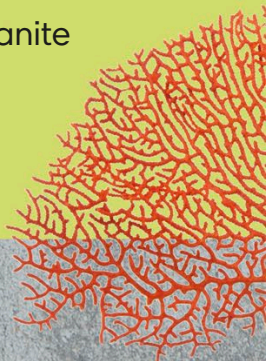


clay



granite

rock



solids



icicle

freeze

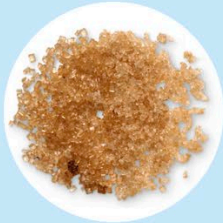
melt

ice crystal

paper



salt crystal



sugar crystal

elastic



rubber band

plastic



man-made



cotton



recyclable

biodegradable



wool



wood

natural



shell

pearl

glass



water

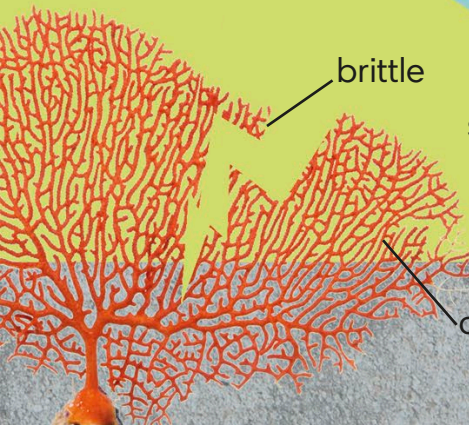
rain



acid



dishwashing liquid



brittle

sponge

absorbent

coral



oxygen



hydrogen



poisonous



nitrogen

carbon dioxide



air

gases

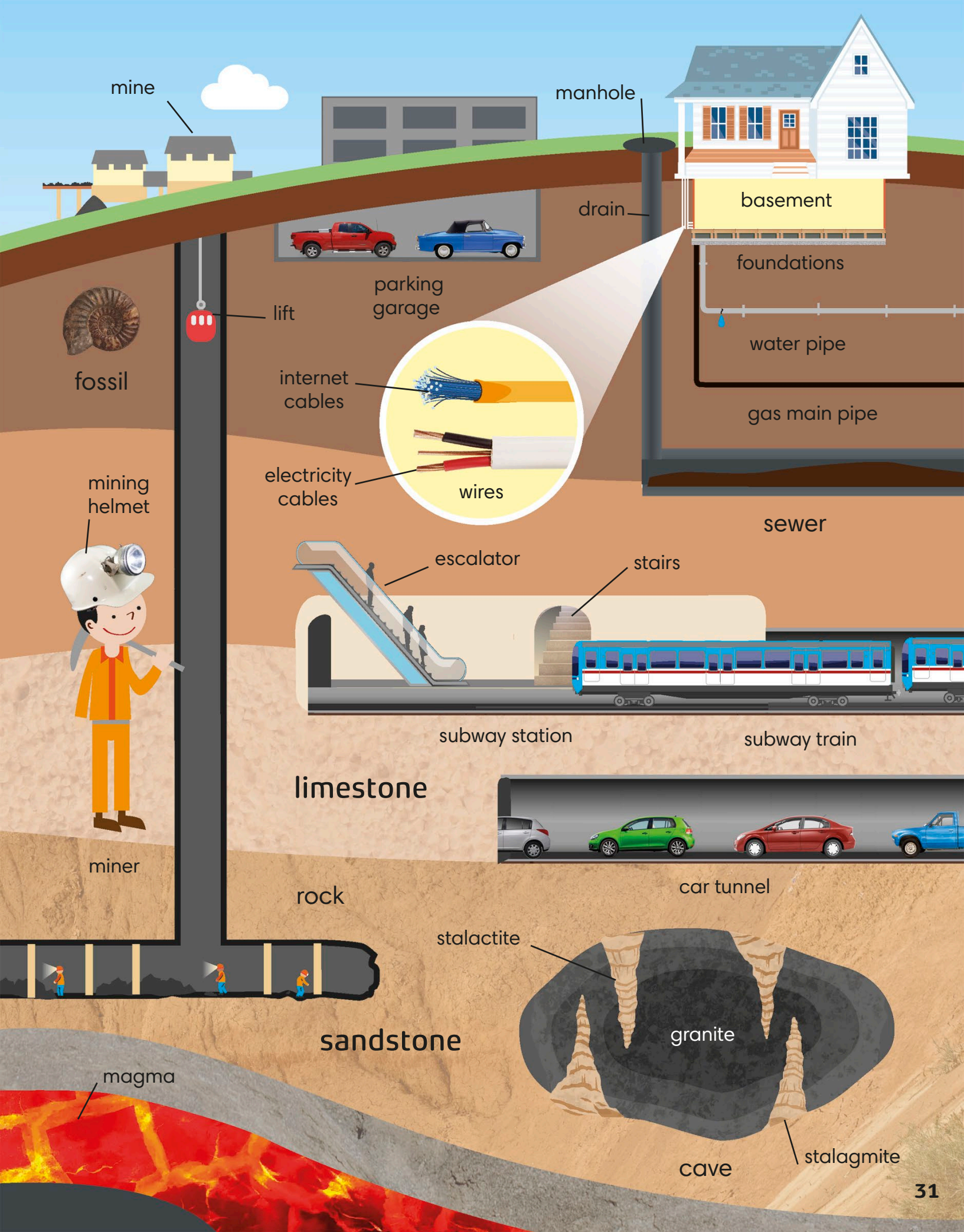


liquids

Underground

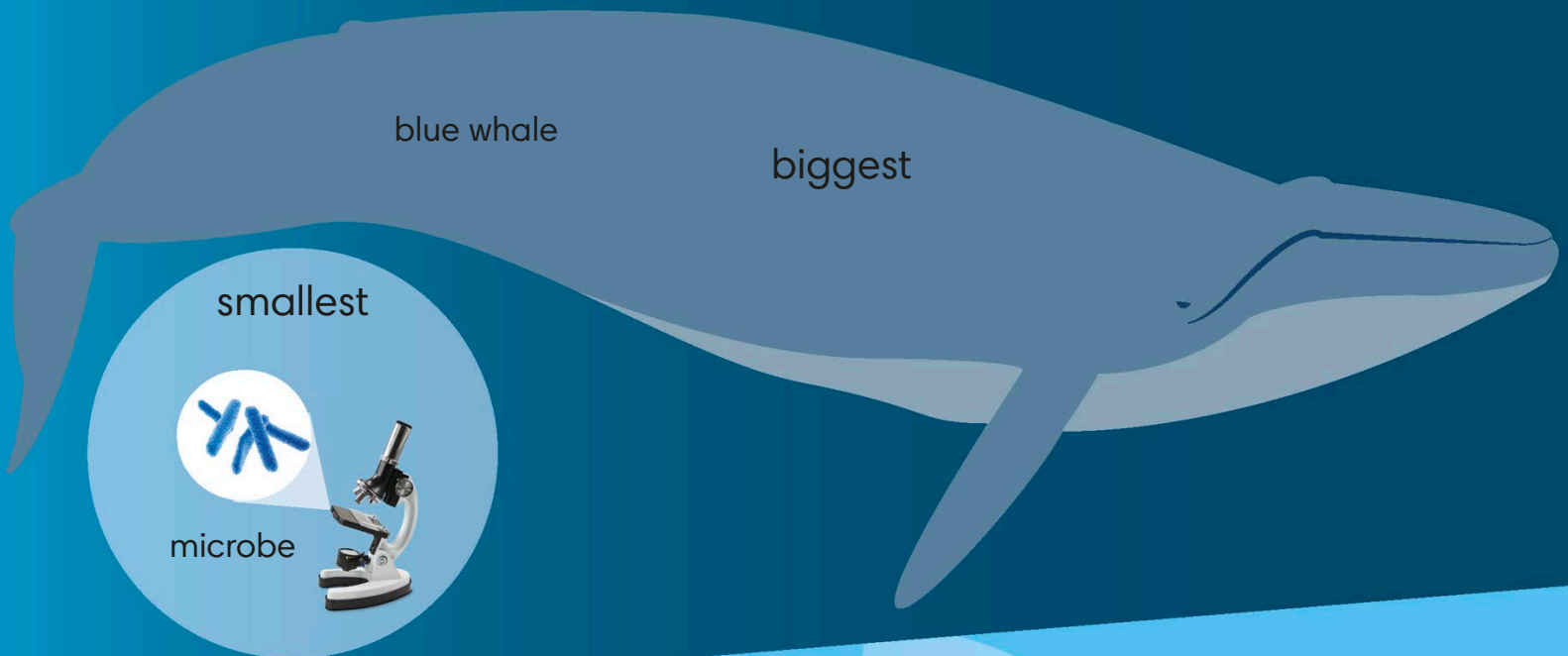
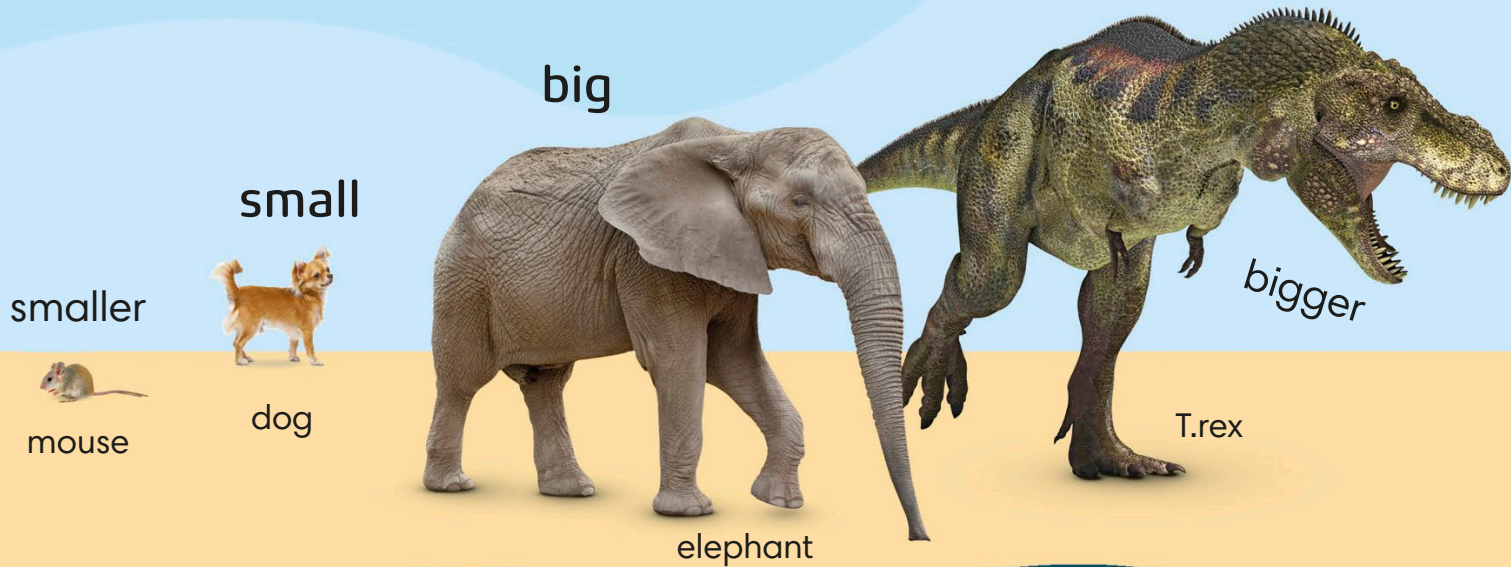
You can't always see it, but there is a whole world in the ground underneath your feet!





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.



slowest

slow

fast

fastest



snail



tortoise



cheetah



race car

darker

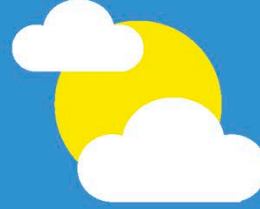
dark

bright

brighter



Moon



sun

equal

balance



light



heavy

rock

feather

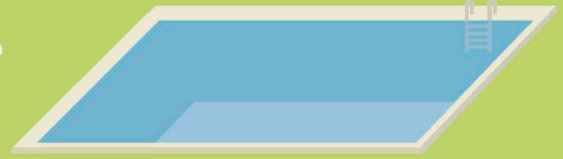
unequal

shallow

deep



bath



swimming pool

deeper



ocean

quieter

quiet

loud

louder

loudest

buzz



mosquito

purr



cat



crying baby



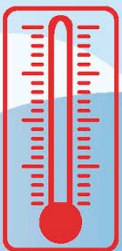
trumpet

toot

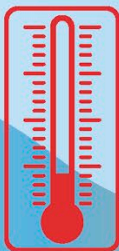


siren

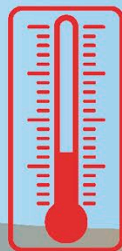
temperature



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?



backhoe loader

electromagnet

steel

aluminum

excavator

landfill

repair

engine

reuse

windows

exhaust pipes

garbage truck

trash can

scrap

metal

junk

rubber

trash collector

tires

crate

junkyard



incinerator

crusher

trash

toxic waste

compactor

reduce

plastic bottles

yard waste

decompose

recycle

compost

plastic

wood

boxes

food waste bin

yard waste bin

electronics

glass

cardboard

recycling bin

paper

sorting

lights

foil

packaging

wrappers

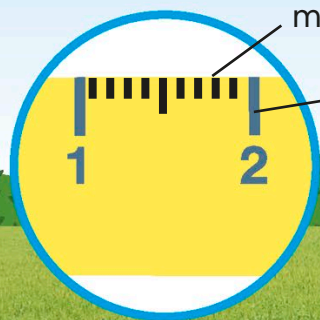
batteries

conveyor belt

litter

Measuring

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



millimeter
centimeter

distance

height

short

tall

measuring tape

length

100 cm = 1 meter



slow

miles

kilometers

day



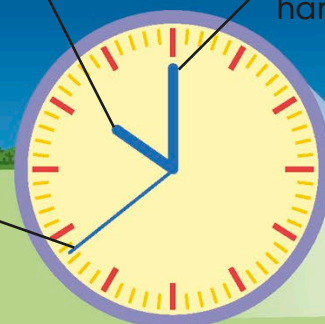
speedometer

night

hour hand

minute hand

second hand

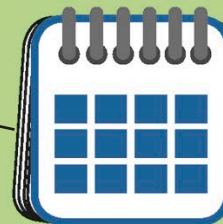


clock

stopwatch

timer

calendar



year

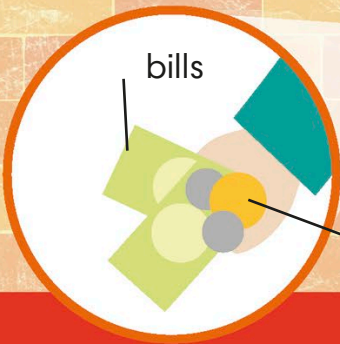
month

Big Ben



speed

time



money

shopping

light

heavy



weight

balance

gram

weighing scales

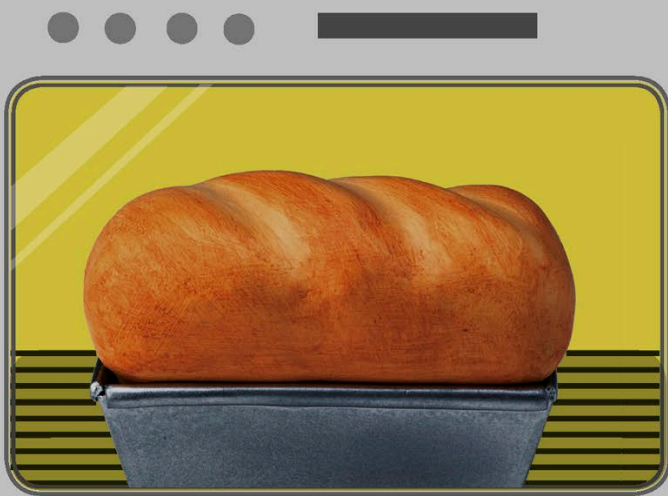
kilogram



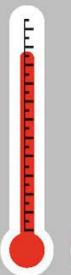
apples



weight



hot



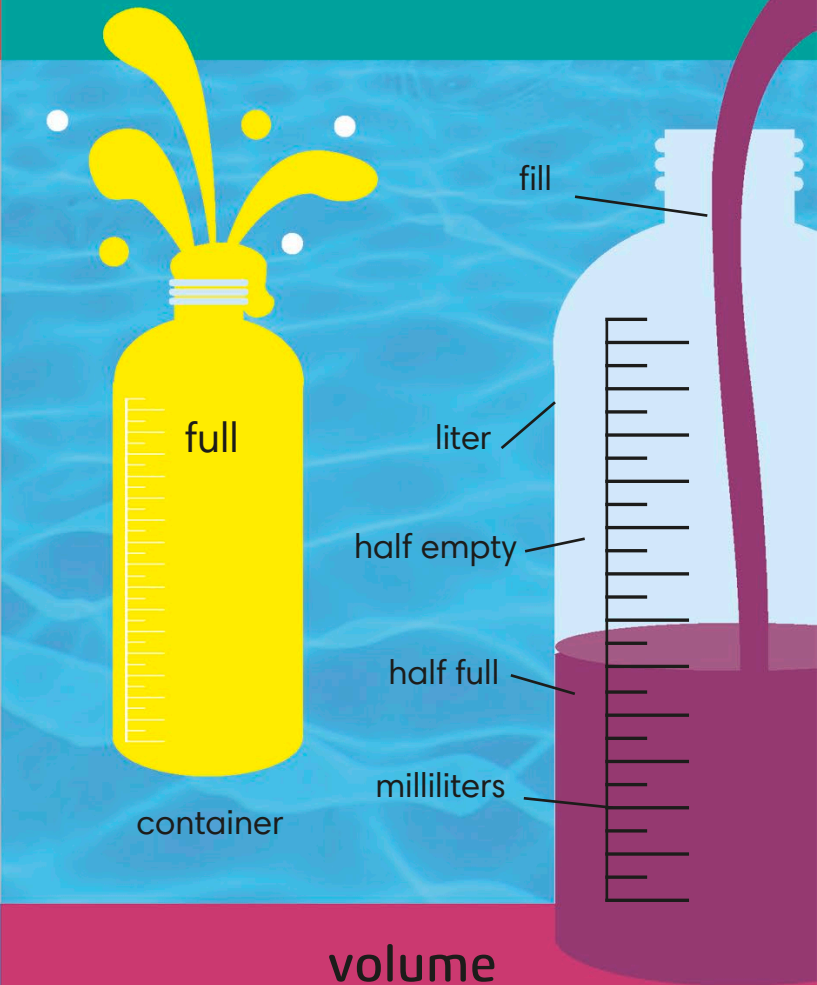
cold

thermometer

350°

degrees

temperature



full

fill

liter

half empty

half full

milliliters

container

volume

Up high

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

atmosphere

clouds

ozone layer

cirrus clouds

stratus clouds

jet

Empire State Building

skyscrapers

gnat

helicopter

hot-air balloon

Eiffel Tower

thunder

The Shard

helium balloons

satellite dish

lightning

lightning rod

aerial

flag

helium balloons



kite

apartment tower



satellite

star

meteor

planet

moon

sun

jet stream

biplane

airplane

travel

hang glider

cumulus clouds

skydiver

glide

snowflakes

parachute

Chinook

pollen

rain

vapor trail

flying

seagull

red kite

birds

butterfly

pigeon

swallow

Everest

mountain

mist

control tower

wind turbine

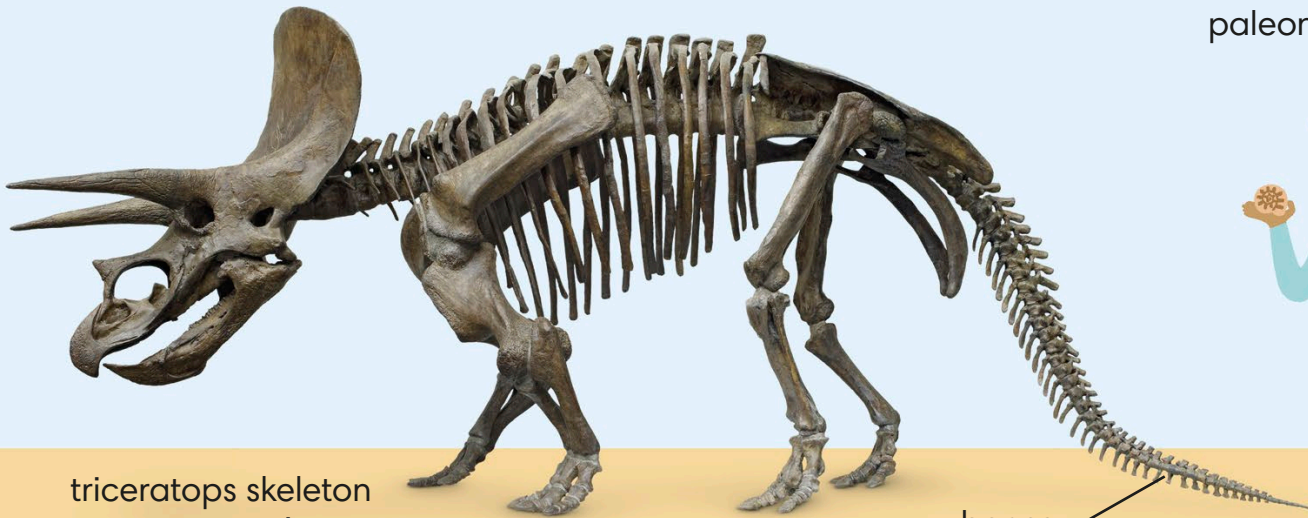
windsock

cell tower

jet pack

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

bones

paleontologist



fossils

albertosaurus skull



ammonite



dinosaur poop



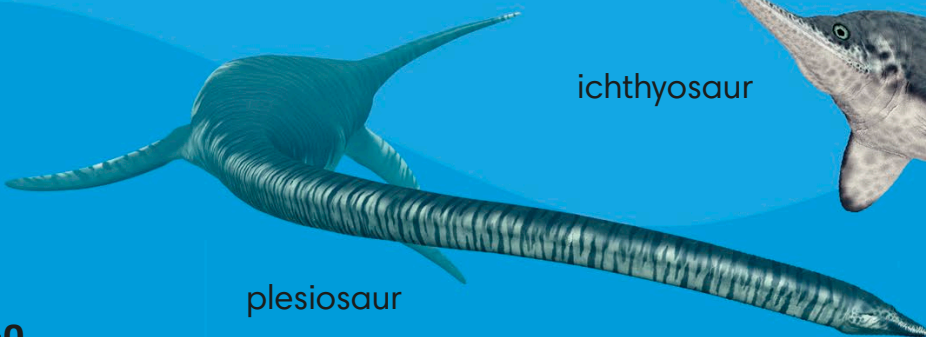
amber



teeth



plesiosaur foot



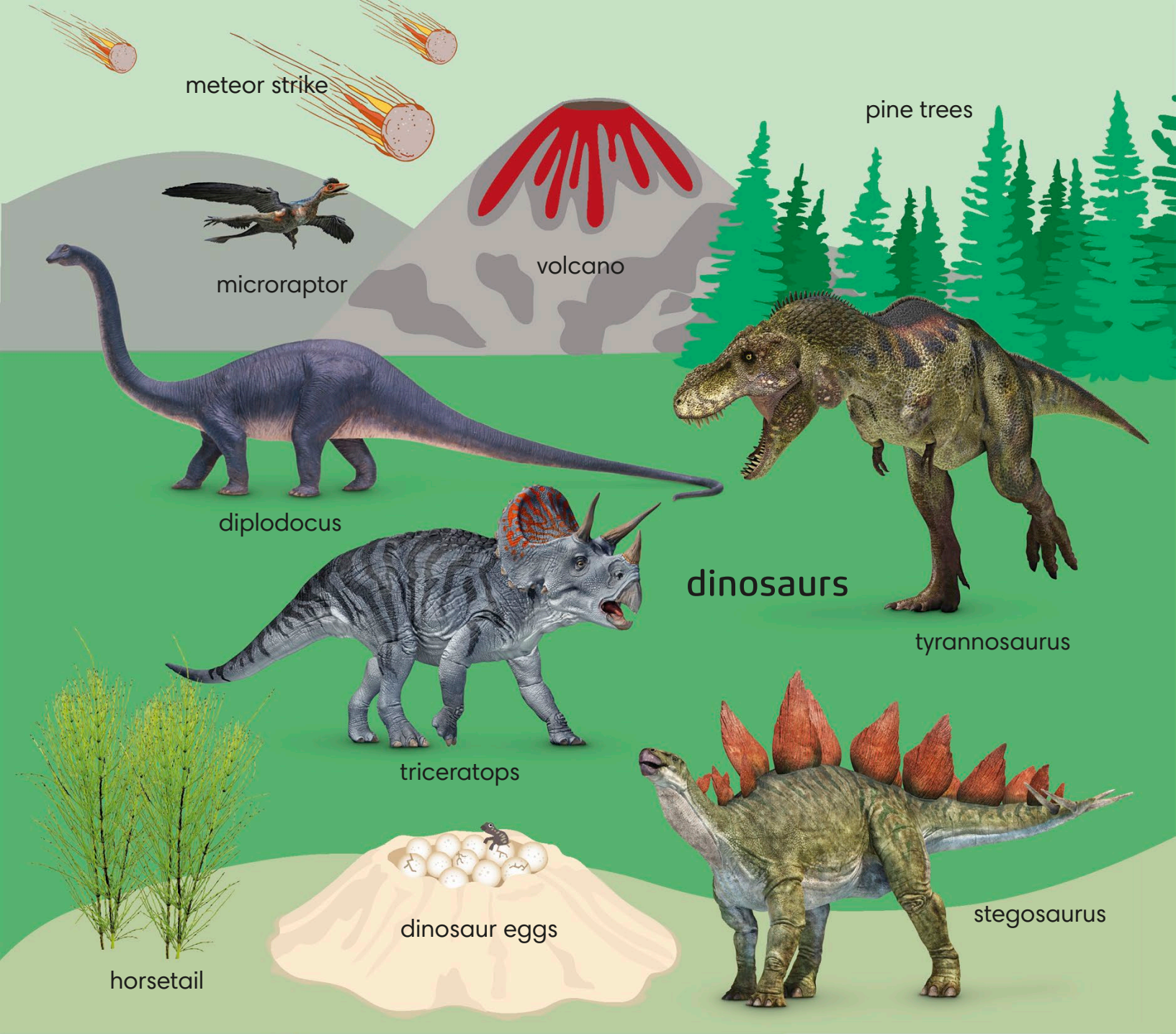
plesiosaur

ichthyosaur



horseshoe crab





meteor strike

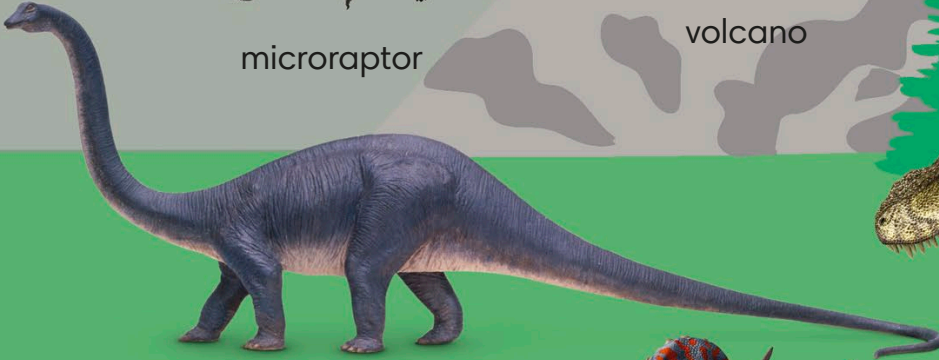
pine trees



microraptor



volcano



diplodocus



dinosaurs

tyrannosaurus



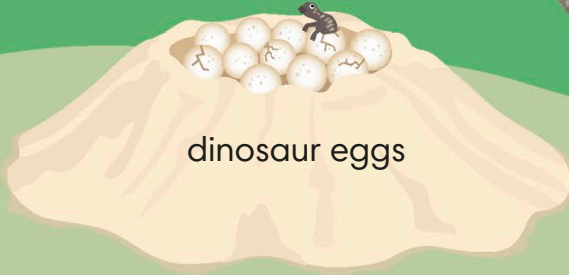
triceratops



stegosaurus



horsetail



dinosaur eggs



ice age



mammoth



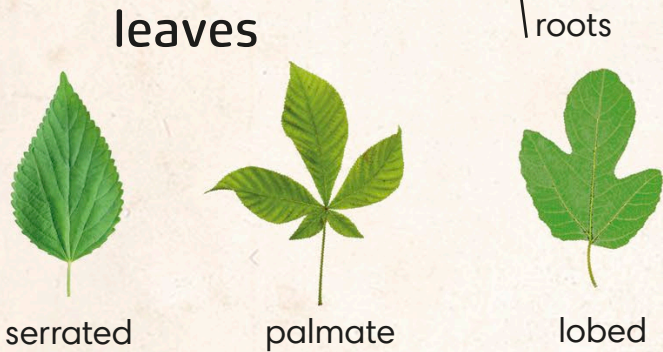
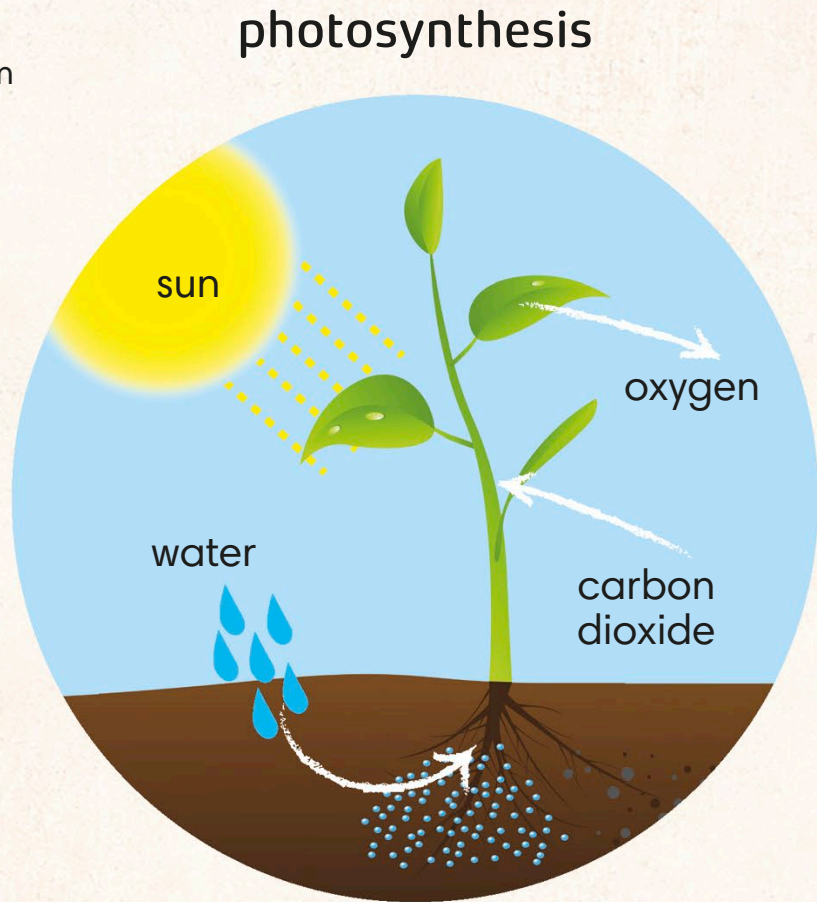
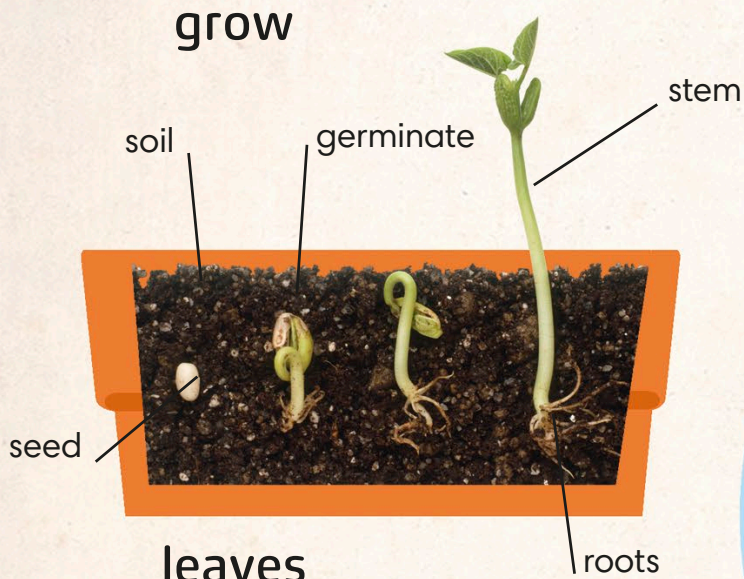
saber-toothed tiger



giant ground sloth

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.



branch

trees



deciduous



evergreen

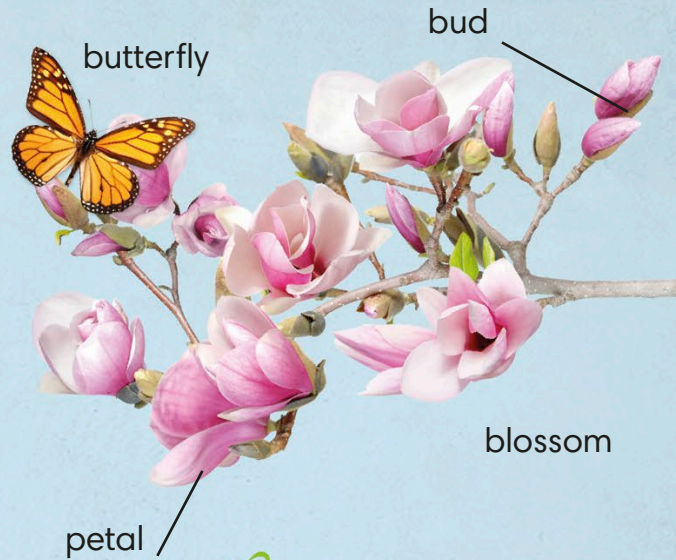
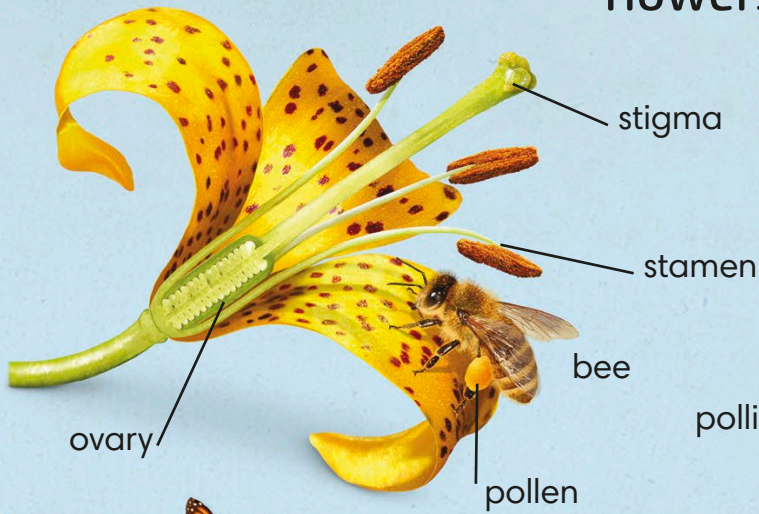


trunk



twig

flowers



plants



pinecone



soybeans



moss



climbing plant



cactus

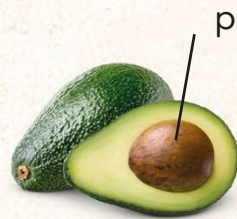
fruits



nuts



apple



avocado



mango



cherries

vegetables



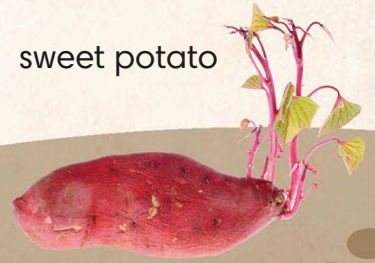
bulb



rhizome



root vegetable

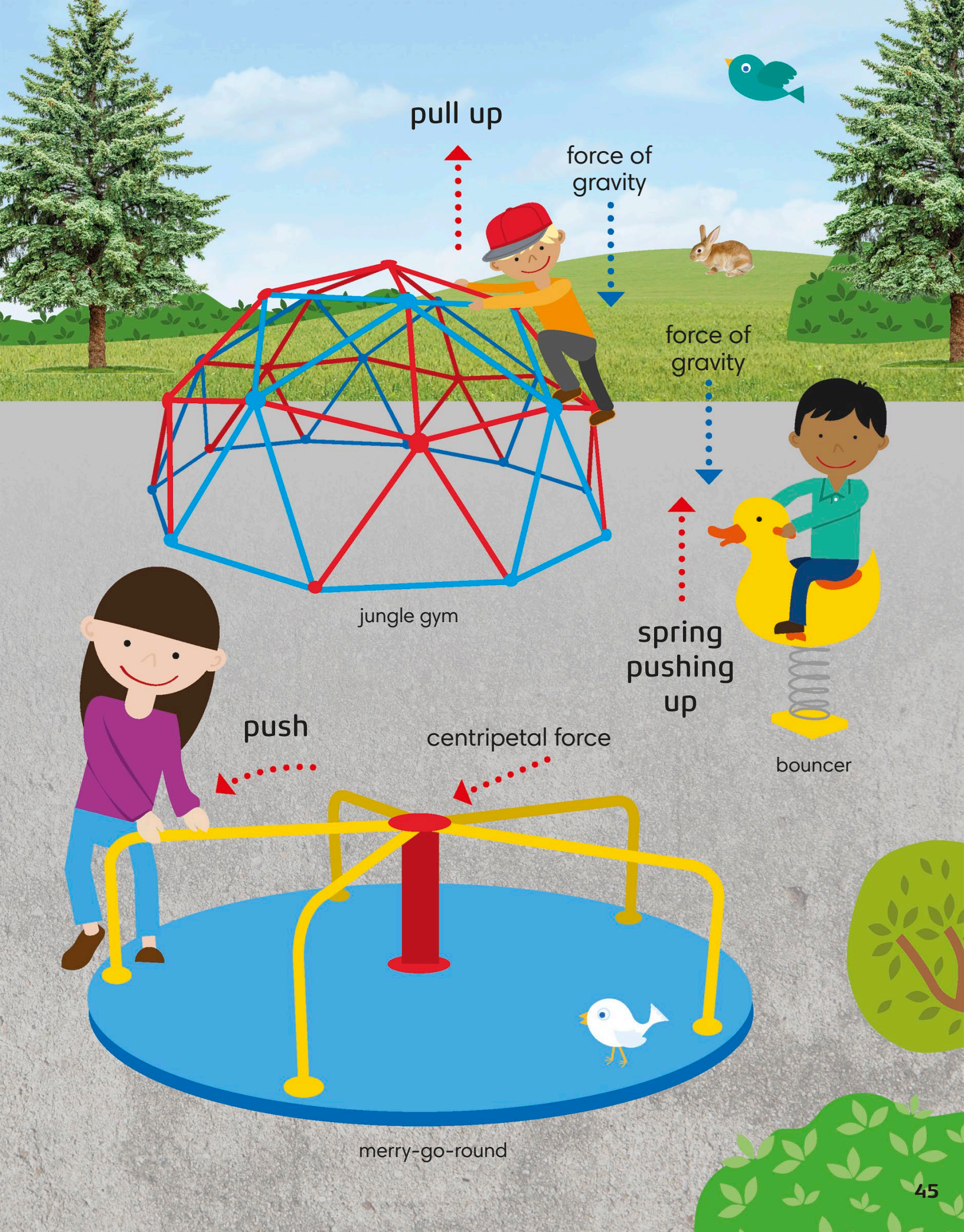


tuber

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!





pull up

force of gravity

force of gravity

jungle gym

spring pushing up

bouncer

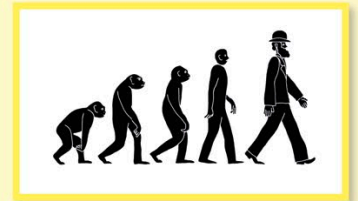
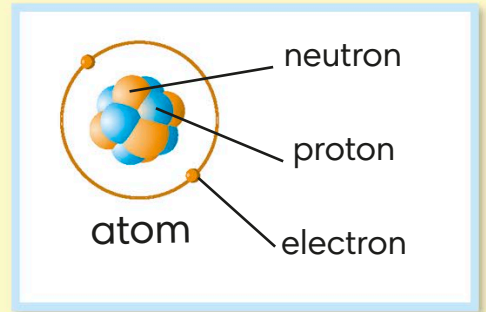
push

centripetal force

merry-go-round

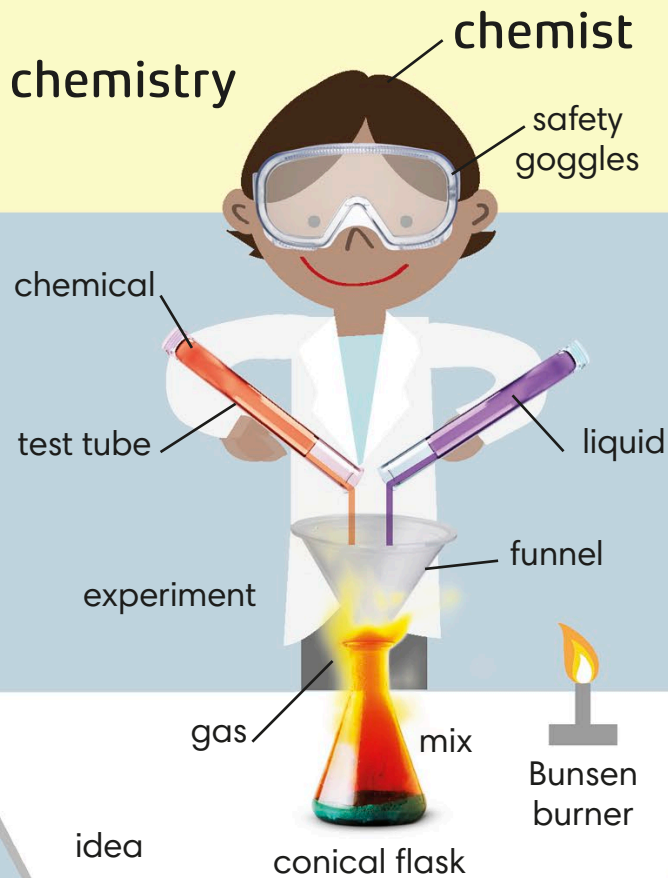
Laboratory

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

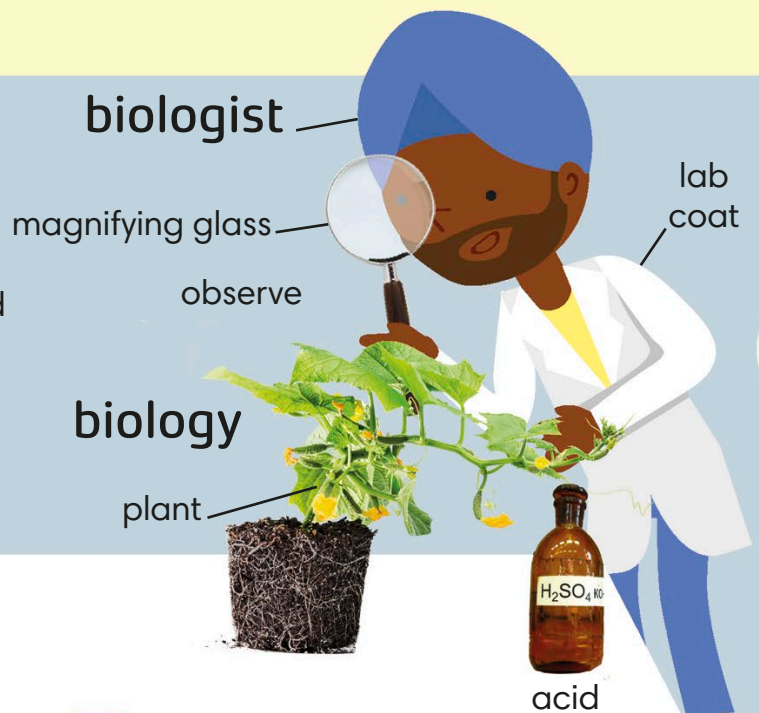


evolution

chemistry



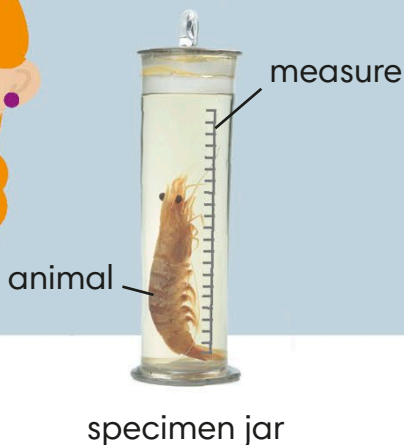
biologist



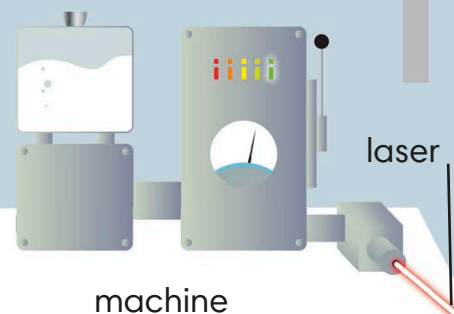
biology

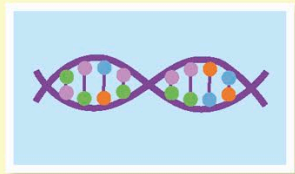


zoologist

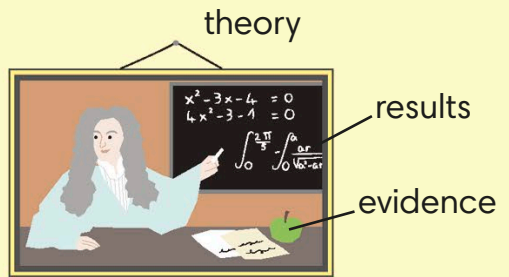


engineer





DNA



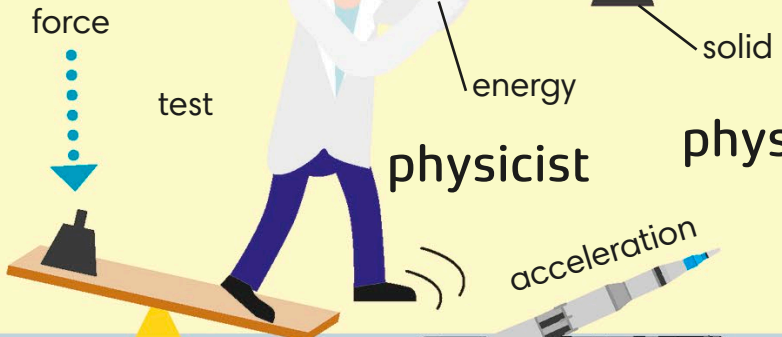
Isaac Newton

theory

results

evidence

space



physicist

physics



astronomer

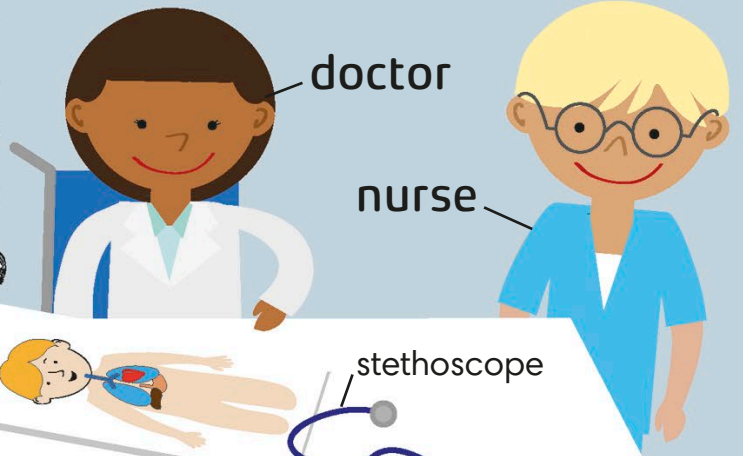
telescope



rocket scientist

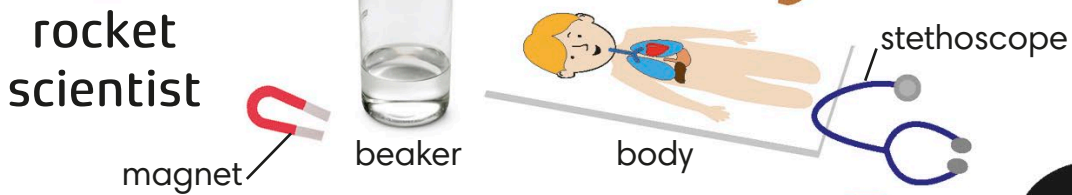


prediction



doctor

nurse

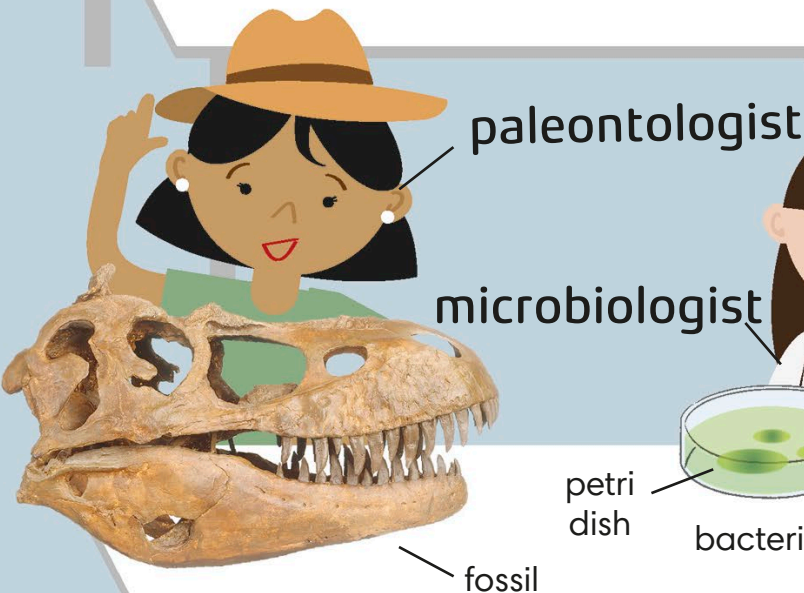


magnet

beaker

body

stethoscope



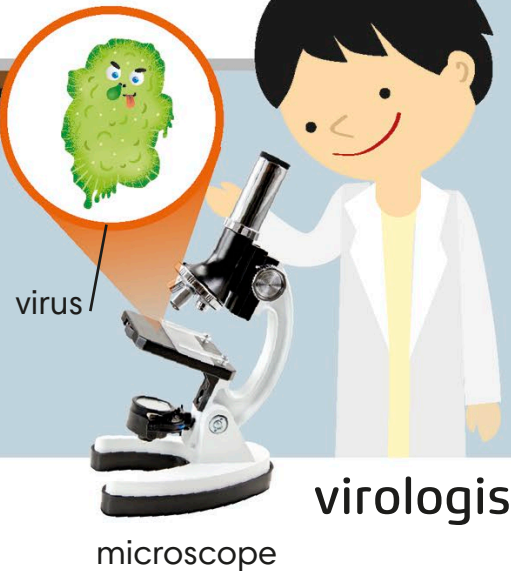
paleontologist

microbiologist

petri dish

bacterium

sample



virus

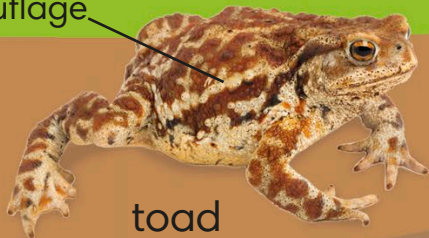
microscope

virologist

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.

camouflage



toad



frog



fish eggs



frog spawn

frogs die and release nutrients to help pondweed grow

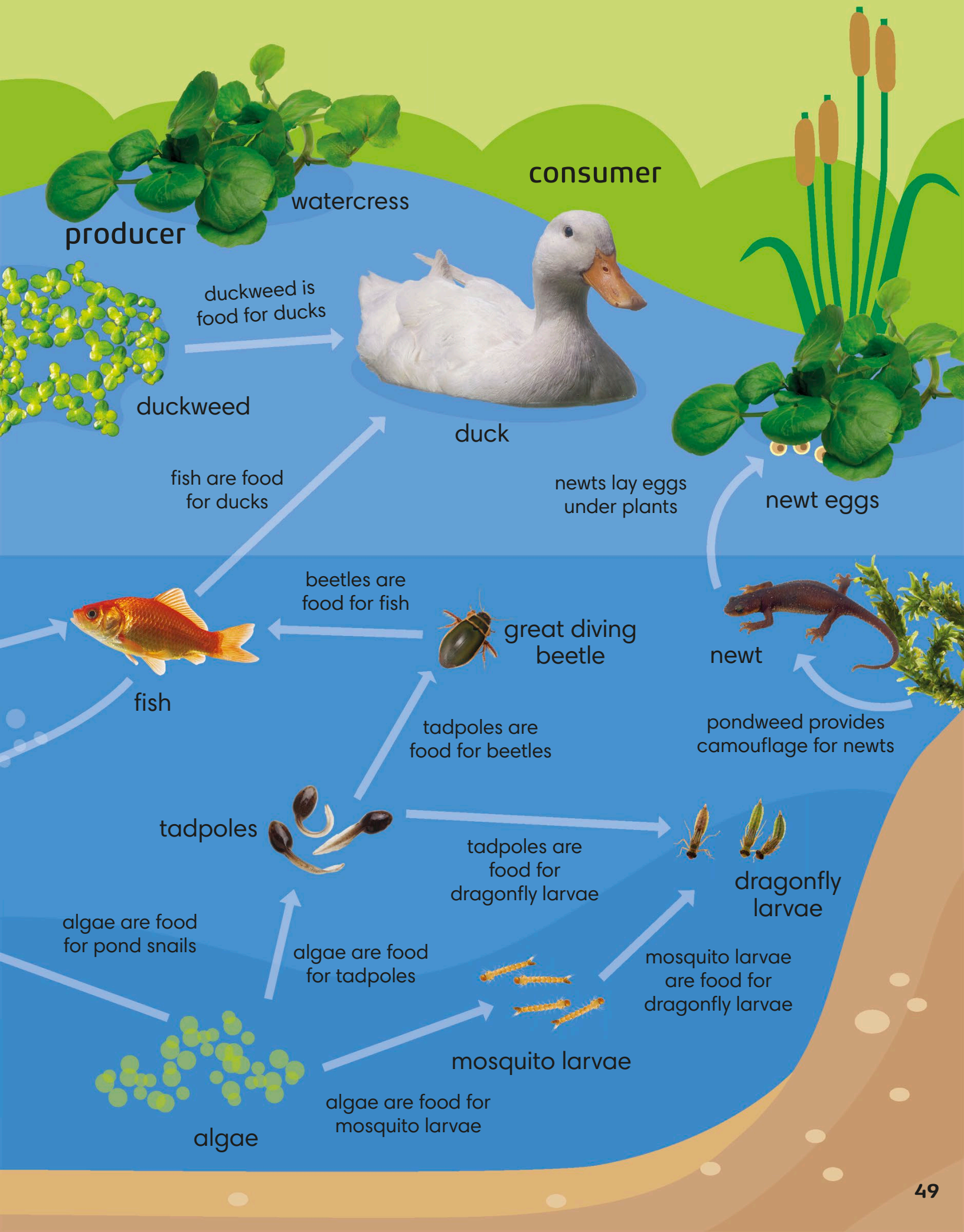
pondweed puts oxygen into water

fish give carbon dioxide to the plants

pond snail

pondweed is food for snails

pondweed



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



octopus



mussels

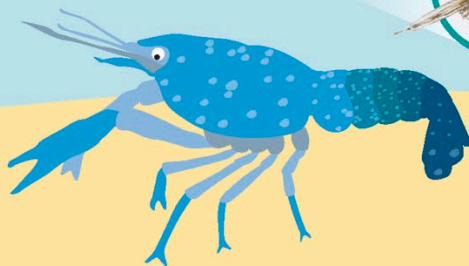


squid

crustaceans



crab



lobster



sea monkey



shrimp

arachnids



spider



scorpion

insects



beetle



fly



bee



butterfly



stick insect

invertebrates

birds



penguin



chicken

owl



duck



mammals



human



horse



dog



polar bear



rabbit

marsupials

duck-billed platypus



kangaroo

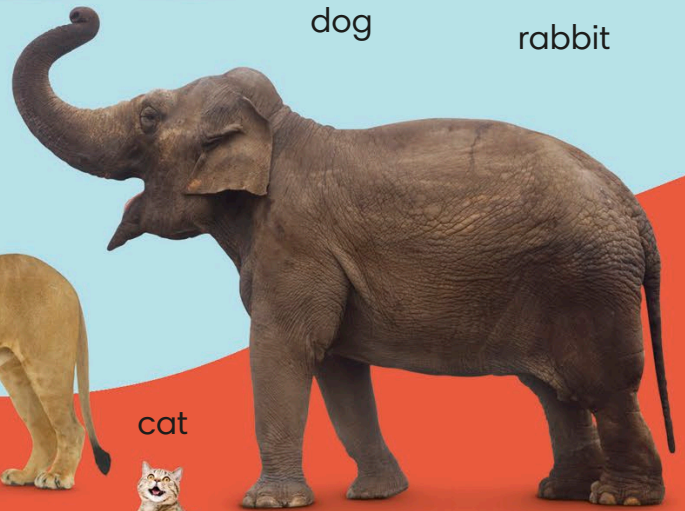


koala



lion

cat



elephant

amphibians



toad



newt

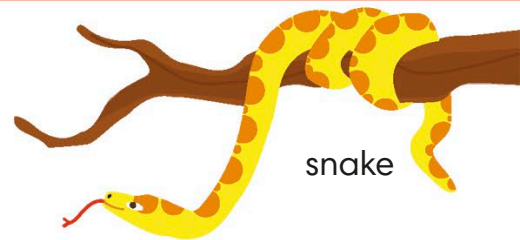


frog

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.



ocean

blue planet

aqueduct



lake

freshwater

reservoir

stream

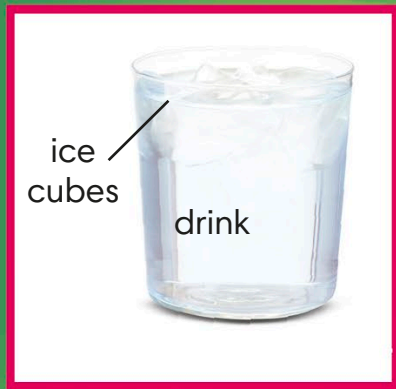
flood

river

waterwheel

well

canal



H₂O (water)

irrigation

dam

shadoof

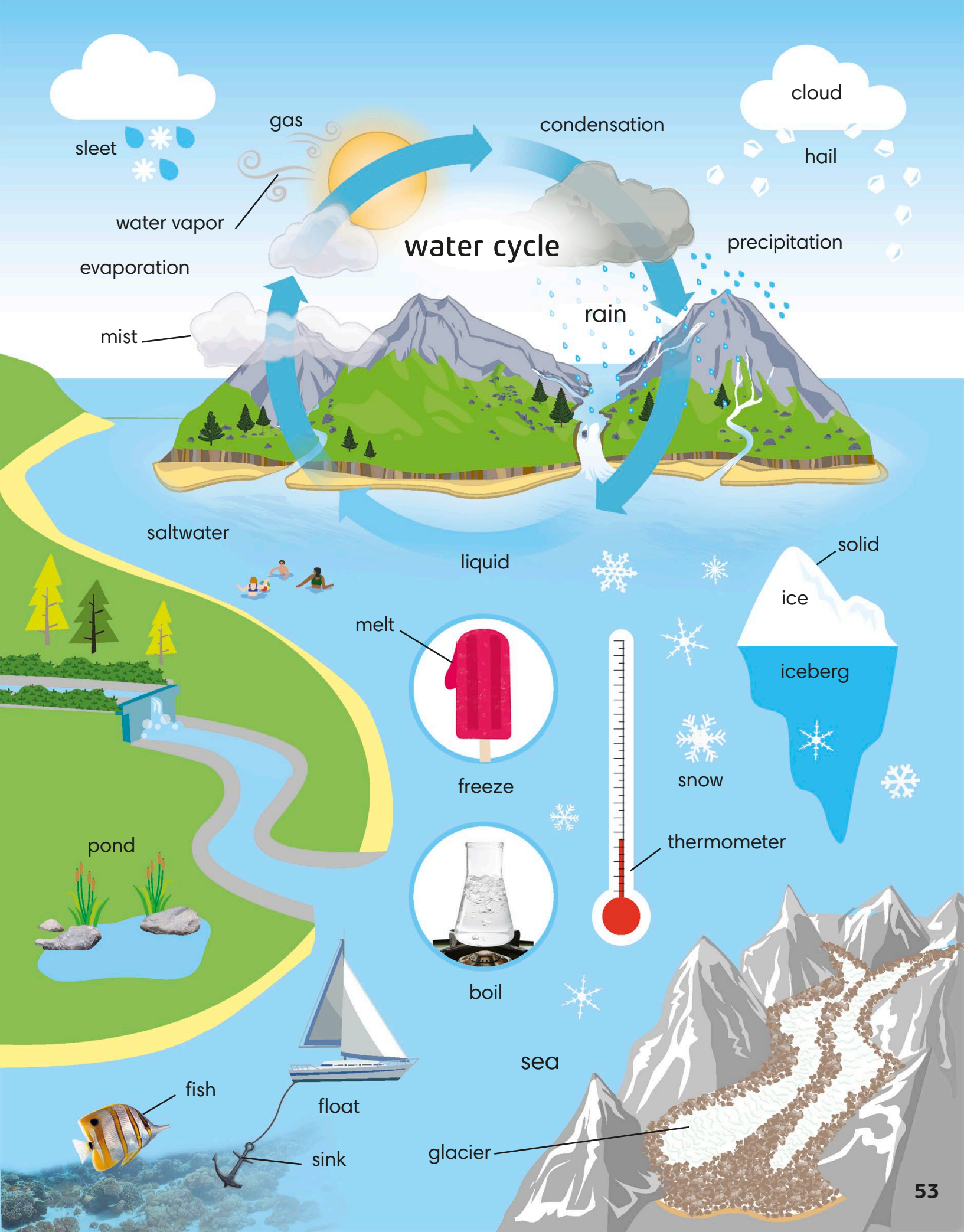
surf

riptide

current

wave

reef



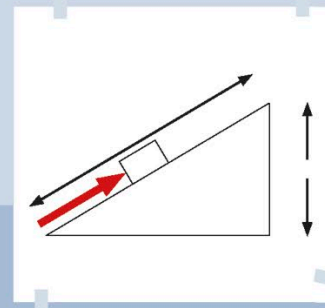
Experiments

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

equipment



Newton meter



diagram



microscope



beaker



ruler



rock sample



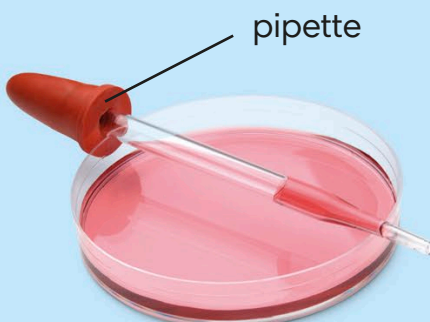
tweezers



thermometer



sound meter

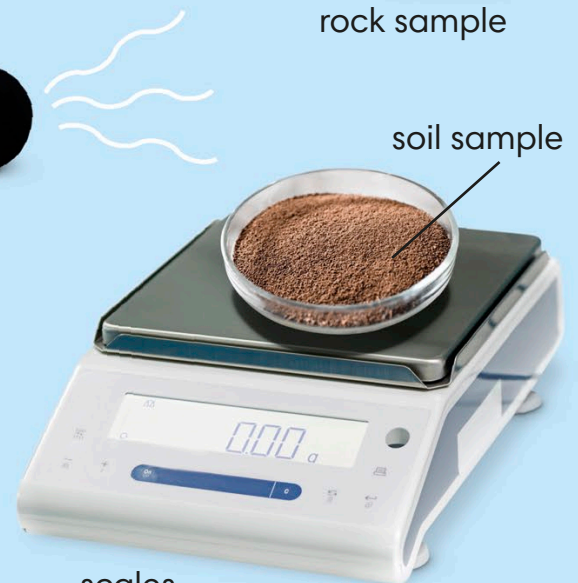


pipette

Petri dish

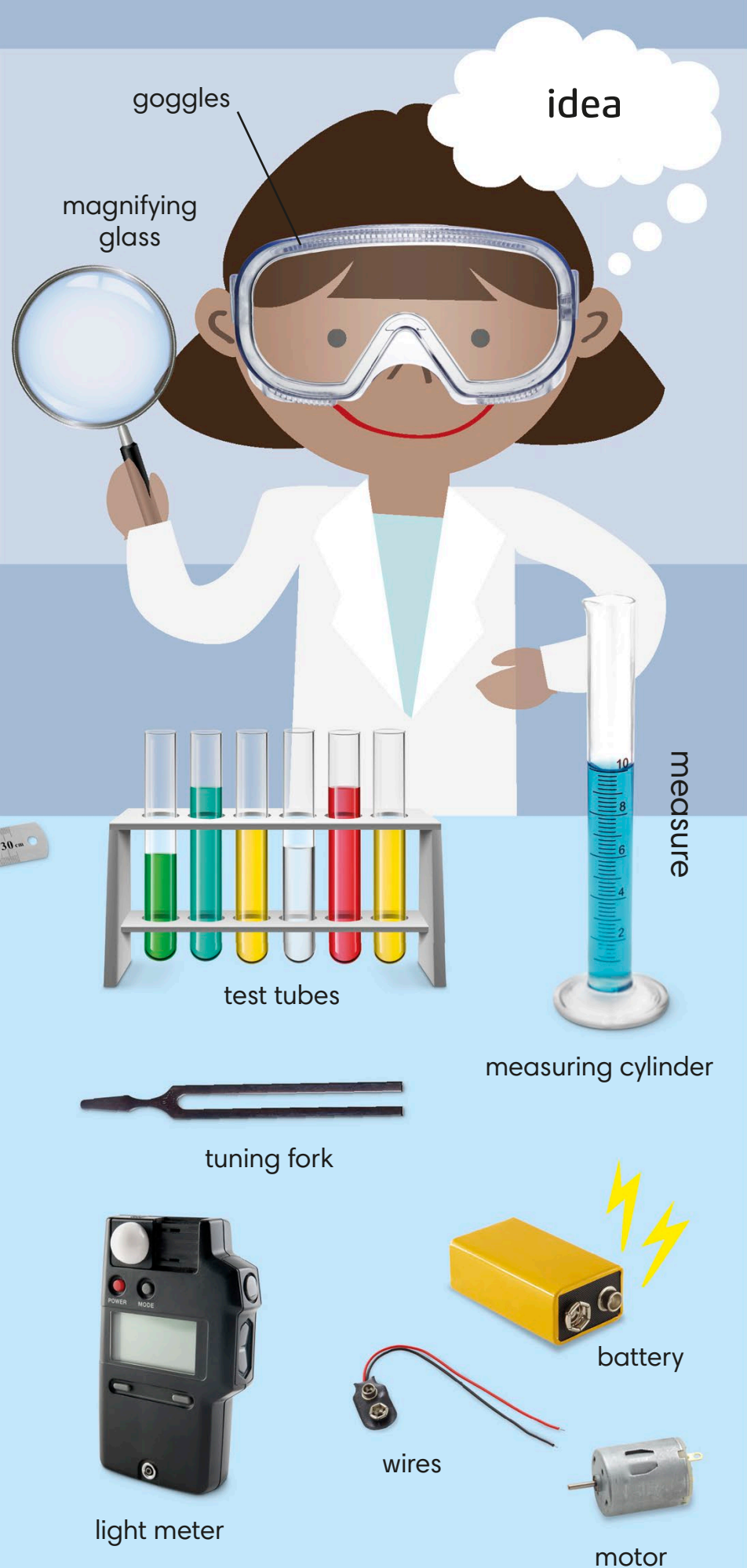


spoon



soil sample

scales



experiment

question



method



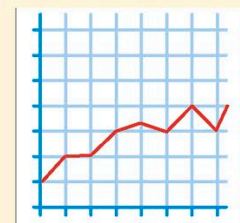
equipment



prediction



results



graph

conclusion

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

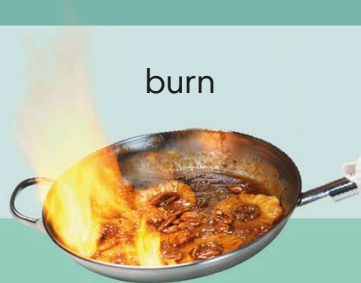
preserves

pickles



cook

burn



steam

bubble



mold



thermometer



raw



simmer

stove



boil



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.

shadow



flashlight

shadow puppet

light source



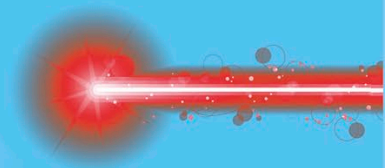
light bulb



candle



lamp



laser



screen

flame

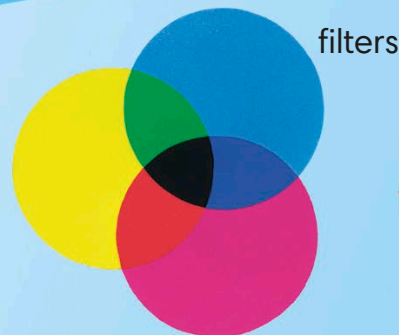


fire

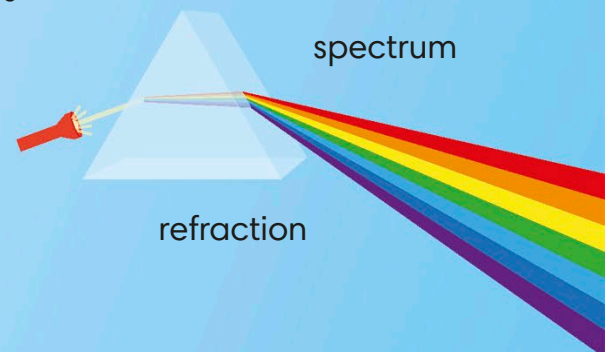


spotlight

color



filters

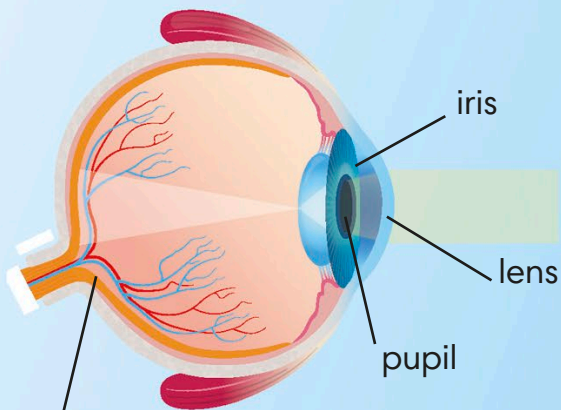


spectrum

refraction

see

eye



iris

lens

pupil

optic nerve

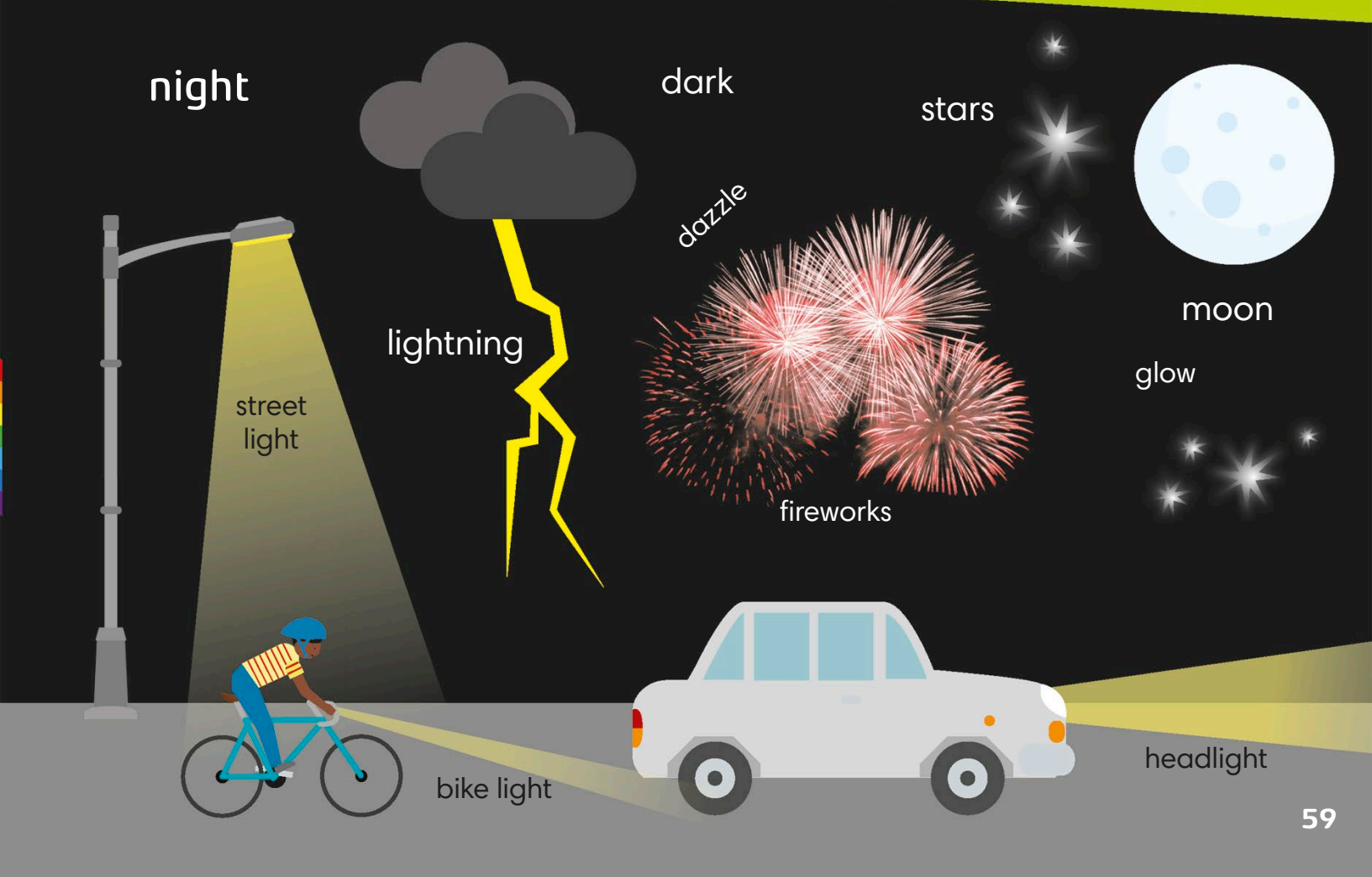
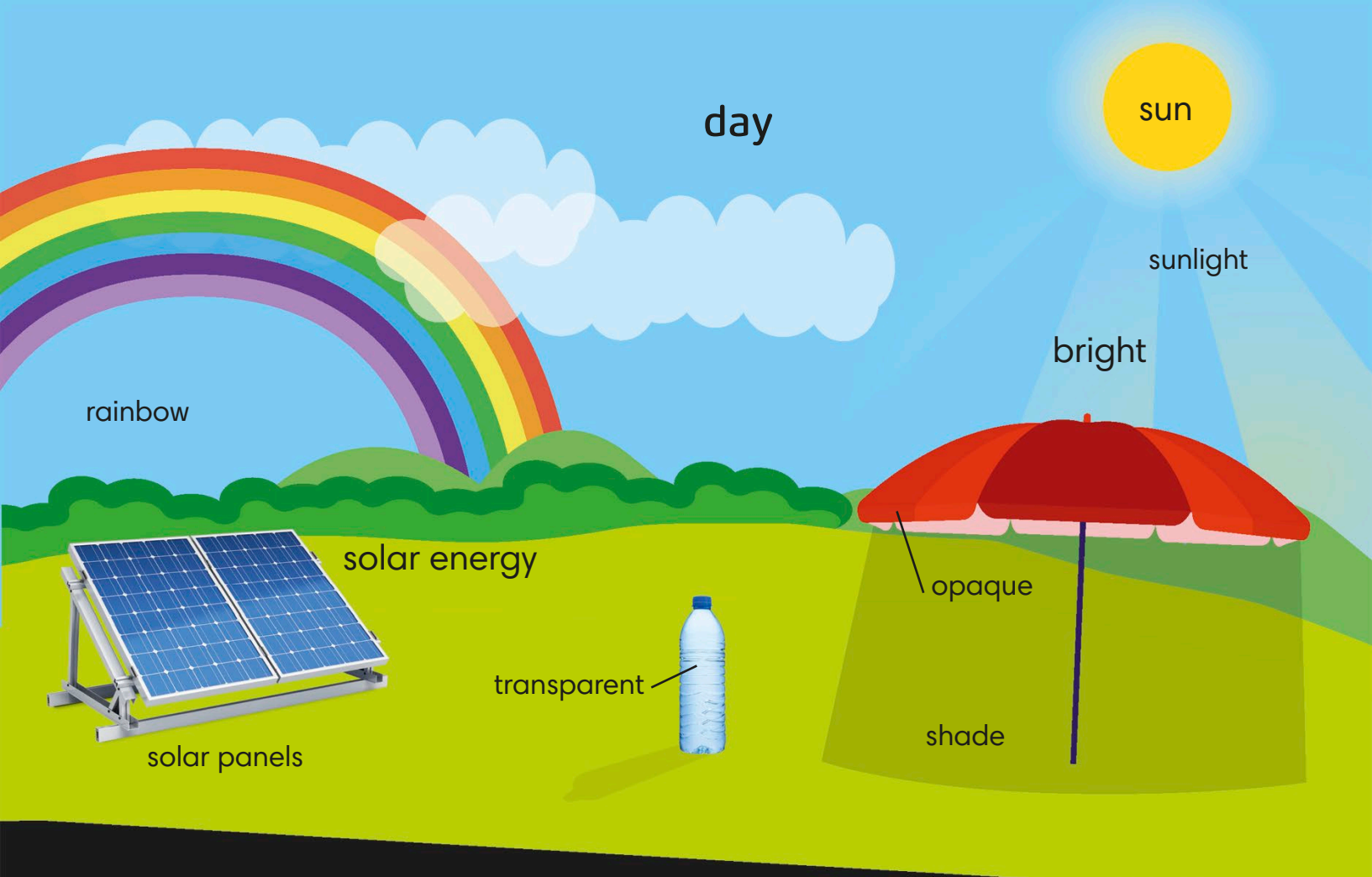
look



UV light



infrared



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

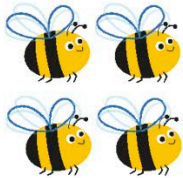
equal parts
of a half

half

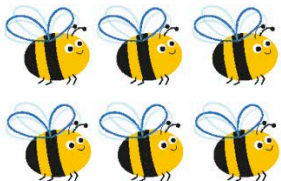
cut



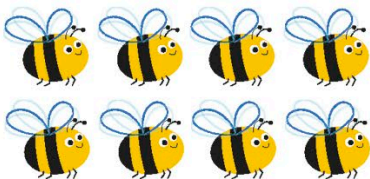
count in twos



2 sets of 2



2 sets of 3



2 sets of 4

share



equal

fair
share

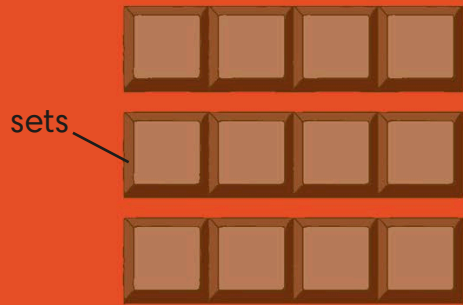
Half for you,
half for me.

multiply

$$1 \times 3 = 3$$

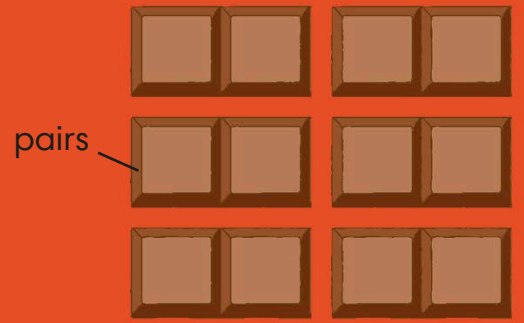


array



sets

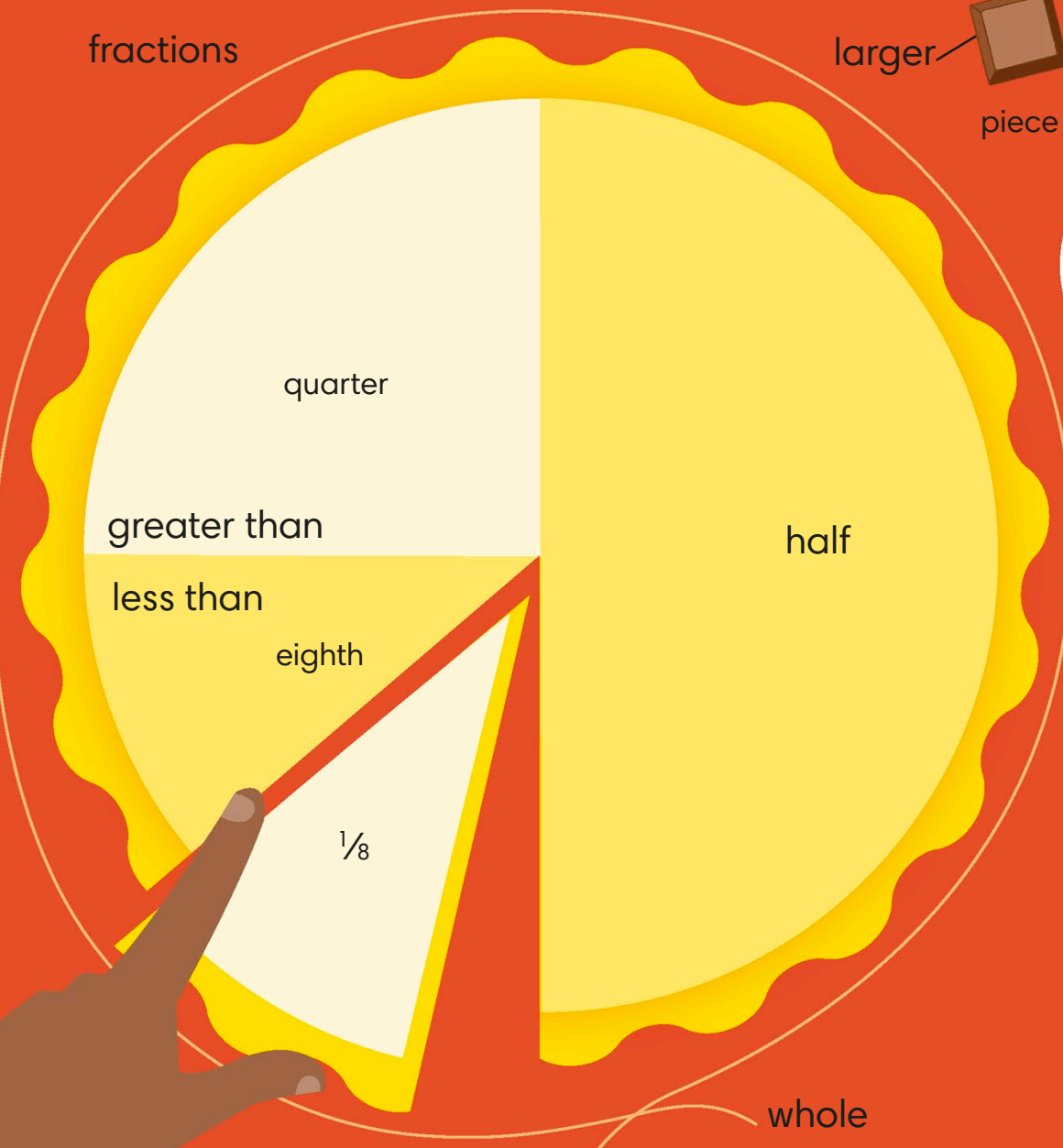
groups



pairs

equivalent

fractions



quarter

greater than

less than

eighth

$\frac{1}{8}$

half

whole

larger

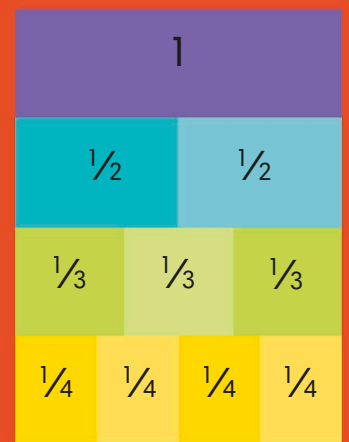
smaller

piece



pair

left over



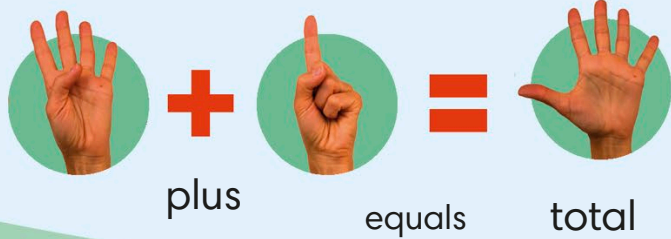
fraction wall

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.

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

sum



pairs that make 10



combine



more

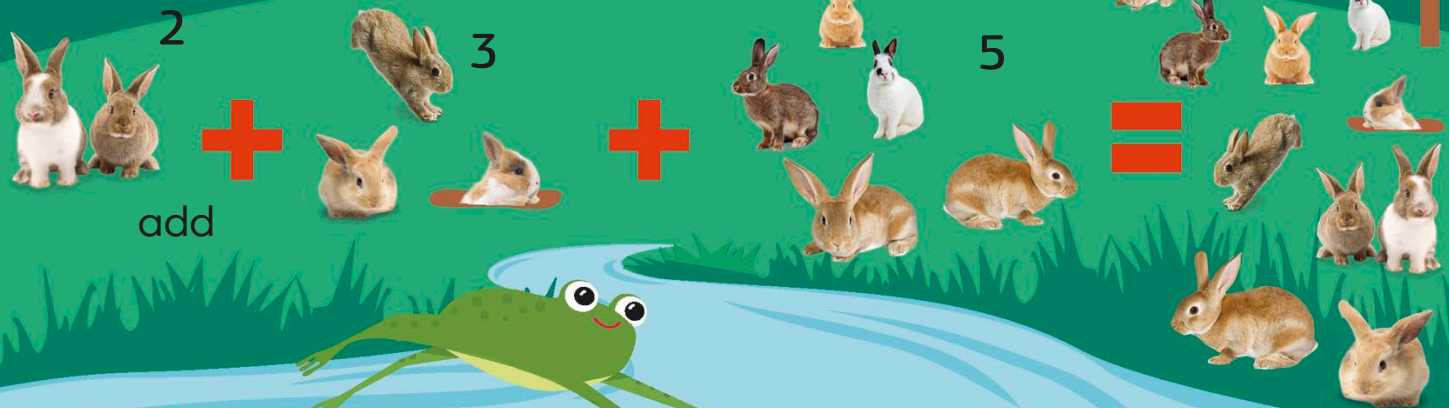
one more



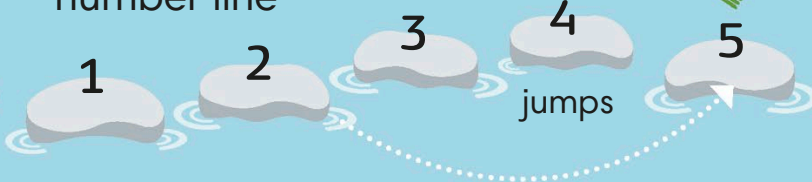
another one

100 square

how many?



number line



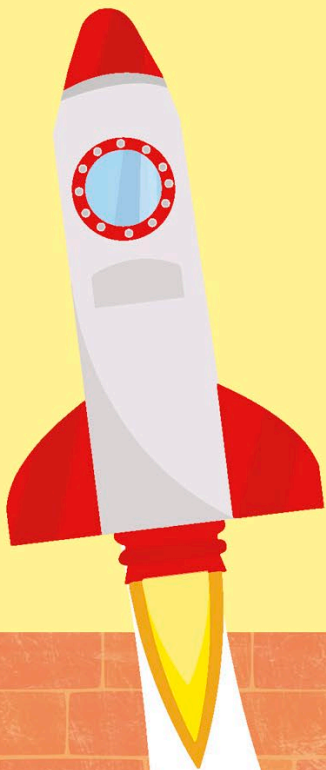
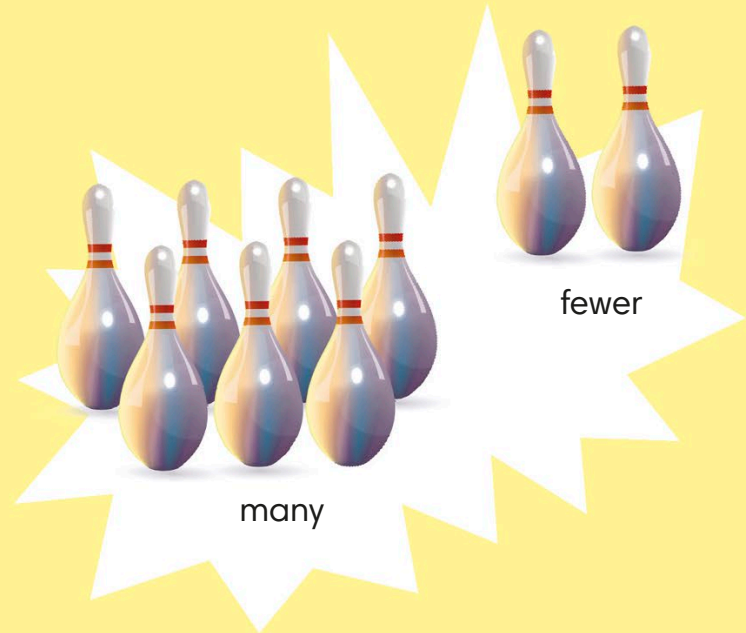
increase



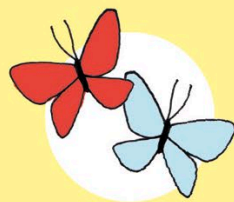
add

partition

$$12 = 10 + 2$$



blast off!



2

minus



1



1

less



how many?

what is left?



decrease

count back

number

0 1 2 3 4 5 6 7 8 9 10

subtract

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