



Forces Challenge Cards

Can you rearrange the letters in this anagram to make a word that describes a type of force?

caboyuny

What does it mean?

Forces Challenge Cards

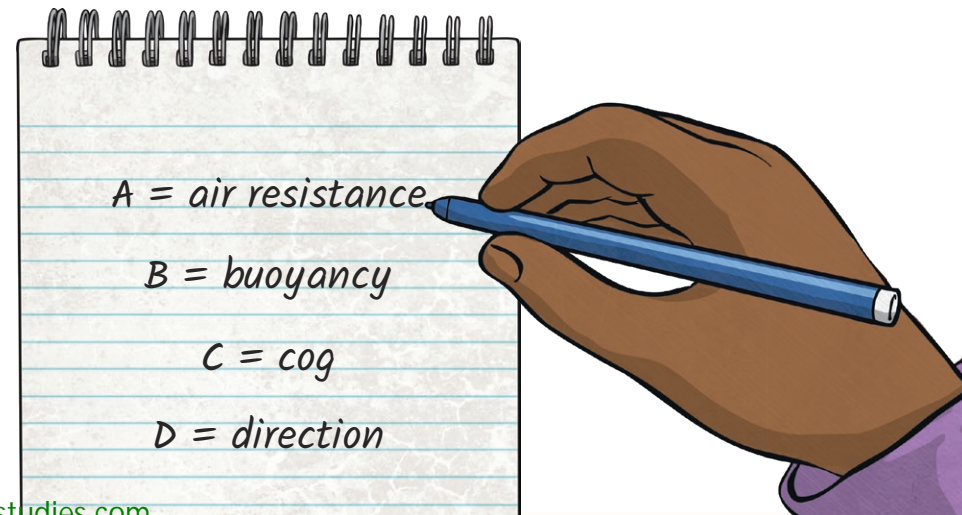
Can you rearrange the letters in this anagram to make a word that describes a type of force?

itocfnri

What does it mean?

Forces Challenge Cards

Can you create an A-Z of forces?



Forces Challenge Cards

Can you describe two features of streamlined shapes?



Forces Challenge Cards

Match these actions with the correct type of force:

Turning on a tap

Push

Walking with a pram

Pull

Rowing a boat

Push

Firing a bow and arrow

Pull

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Can you describe the different forces acting on each object?

- A bicycle cycling uphill
- A boat sailing on a lake
- A skier skiing downhill
- A skydiver parachuting from an aeroplane
- A swimmer swimming underwater



Forces Challenge Cards

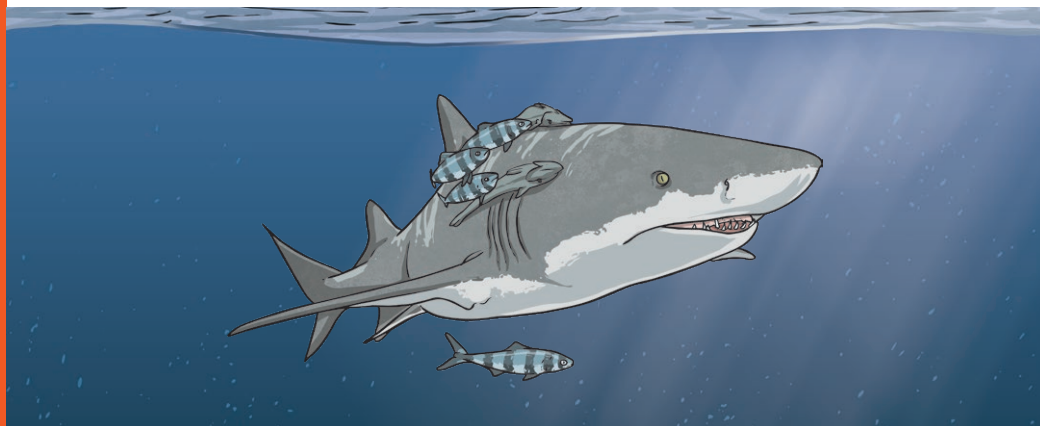
Are these statements true or false?

- Gravity pulls objects down towards the centre of the Earth.
- The measure of force is named after Galileo Galilei.
- Smooth surfaces create the most friction.
- Air resistance is a form of friction.
- Levers make it easier to lift heavy objects.



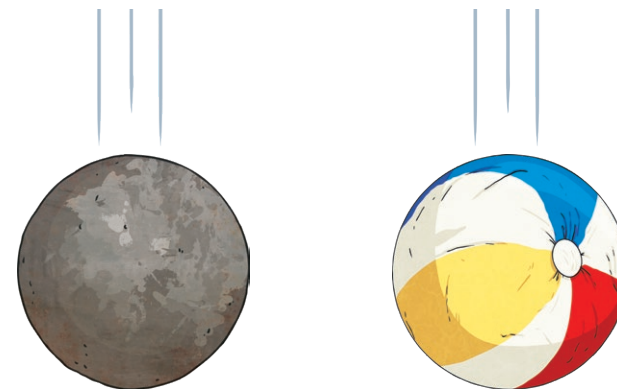
Forces Challenge Cards

Draw some annotated pictures of forces in nature, e.g. you might draw animals who experience air or water resistance.



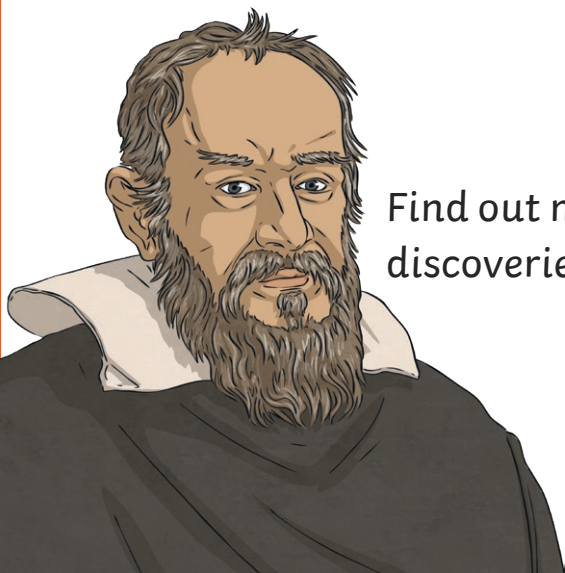
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Plan an experiment to show that objects of a similar shape and size (but with a different mass) will land from a height at the same time.



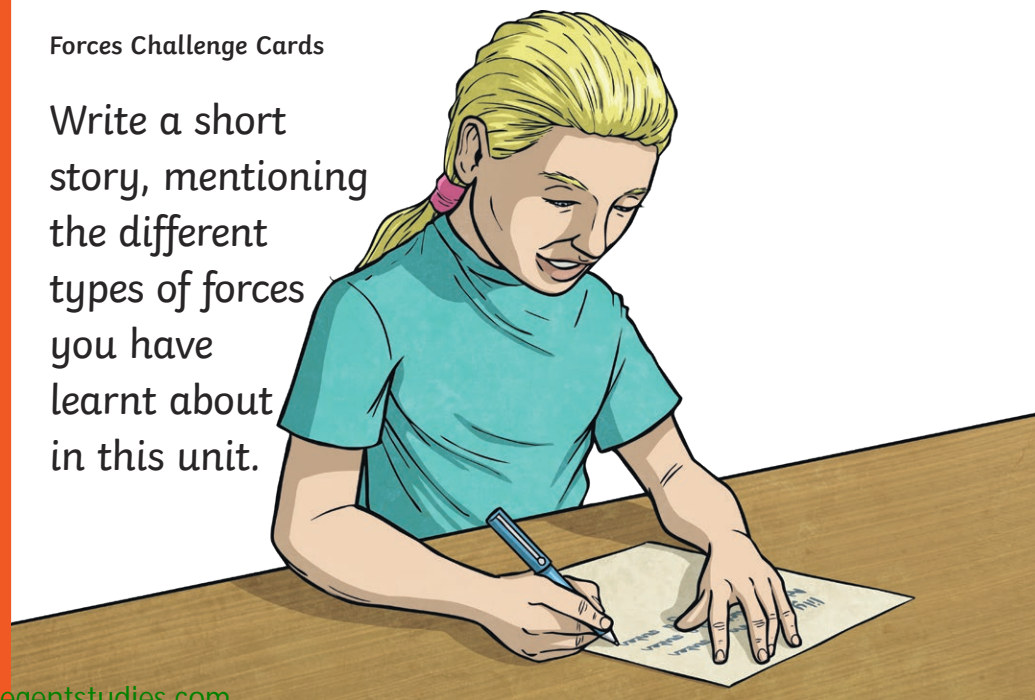
Forces Challenge Cards

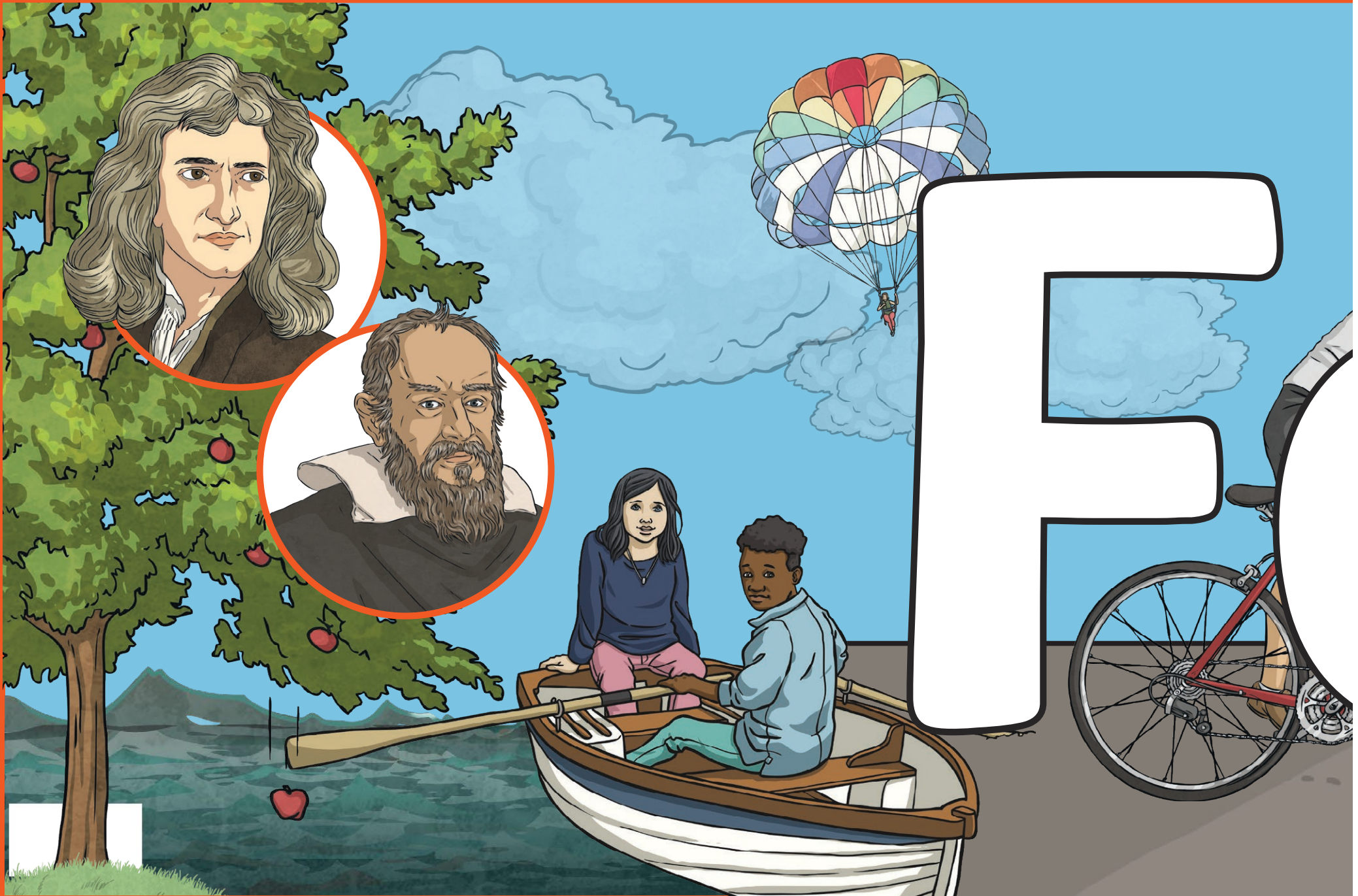
Find out more about the life and discoveries of Galileo Galilei.



Forces Challenge Cards

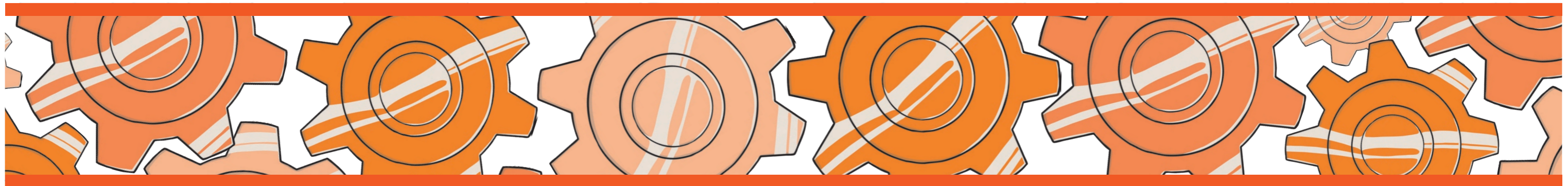
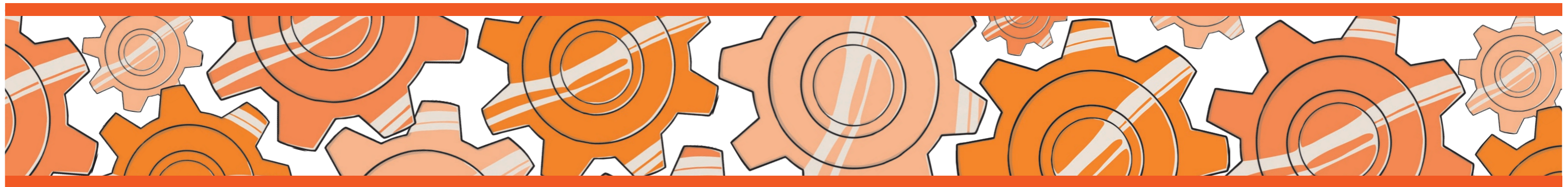
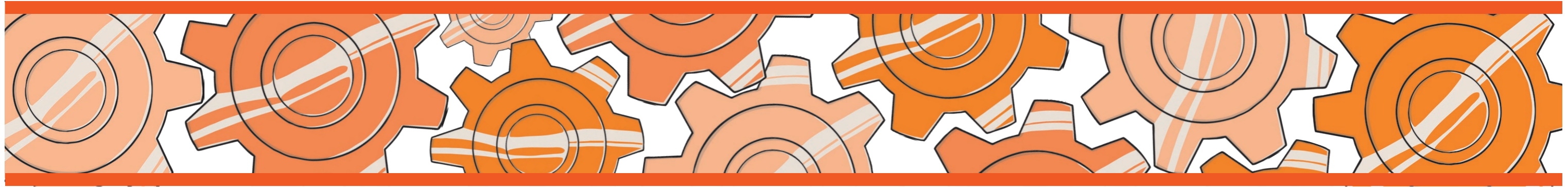
Write a short story, mentioning the different types of forces you have learnt about in this unit.

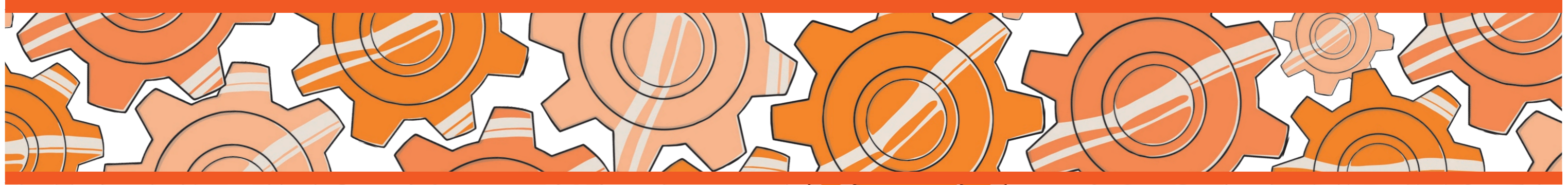


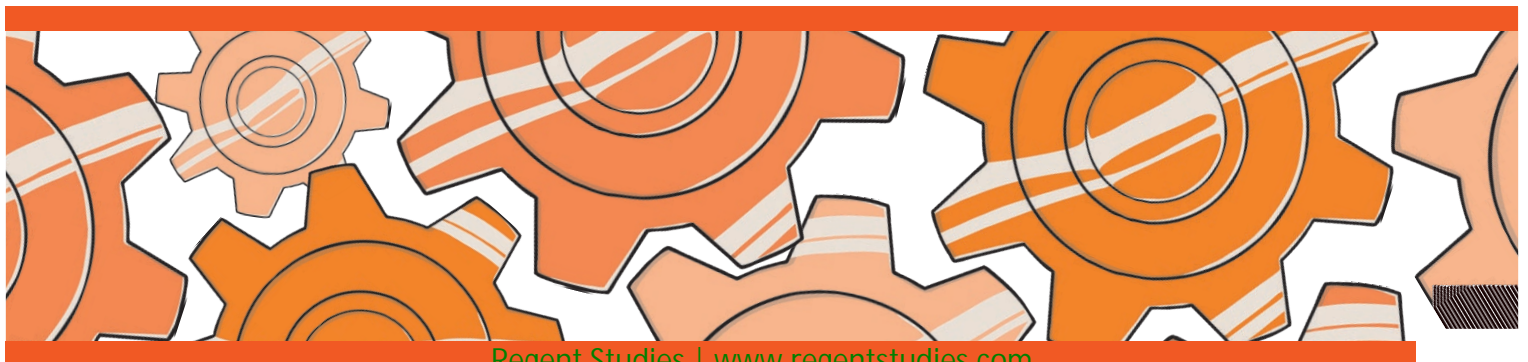
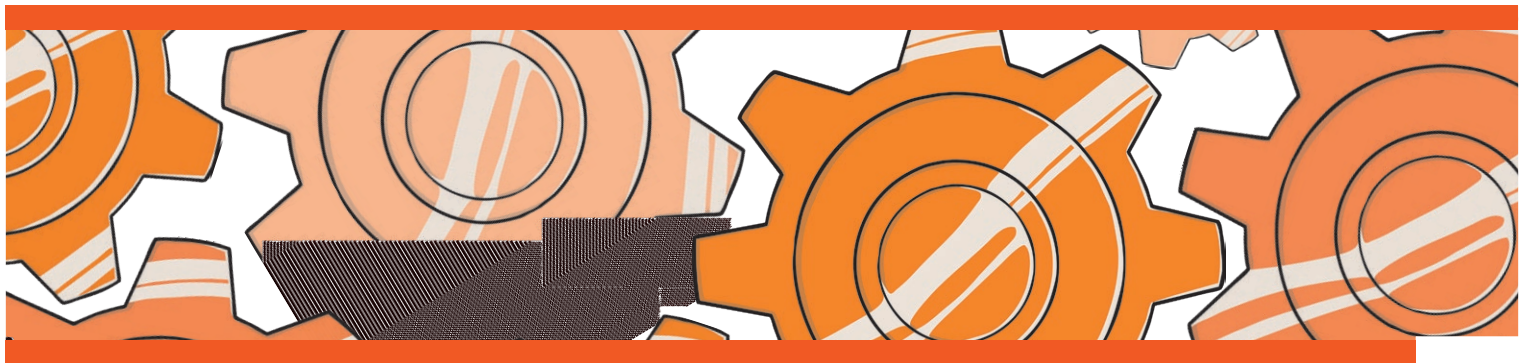
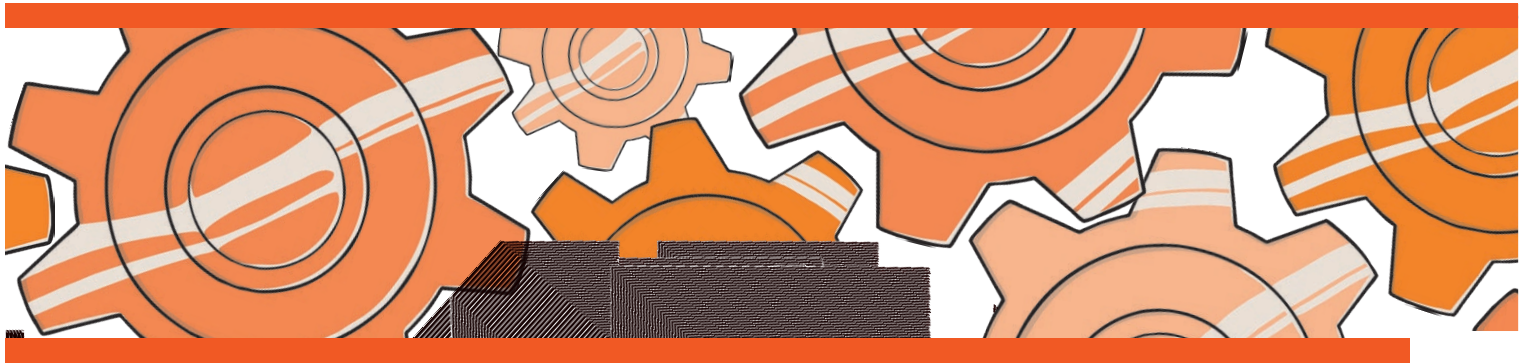
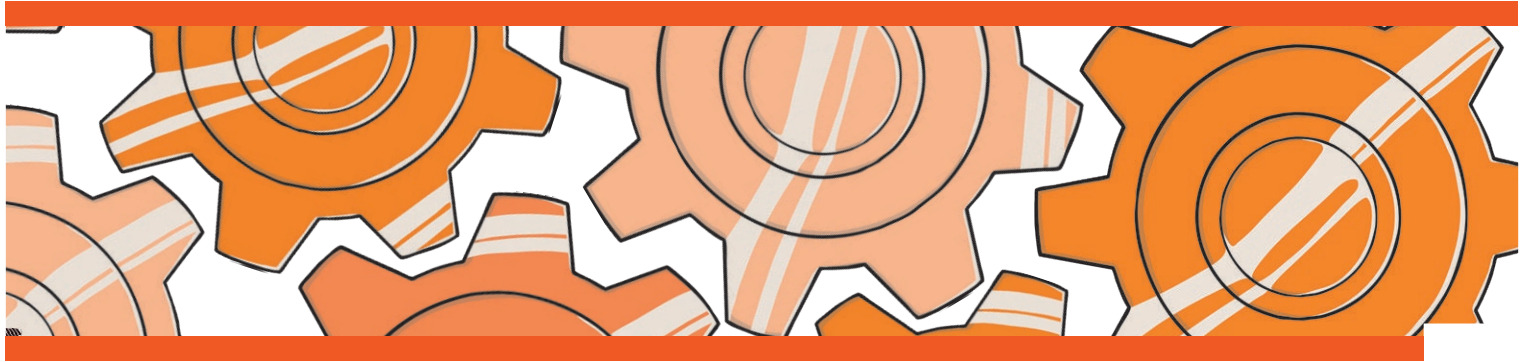
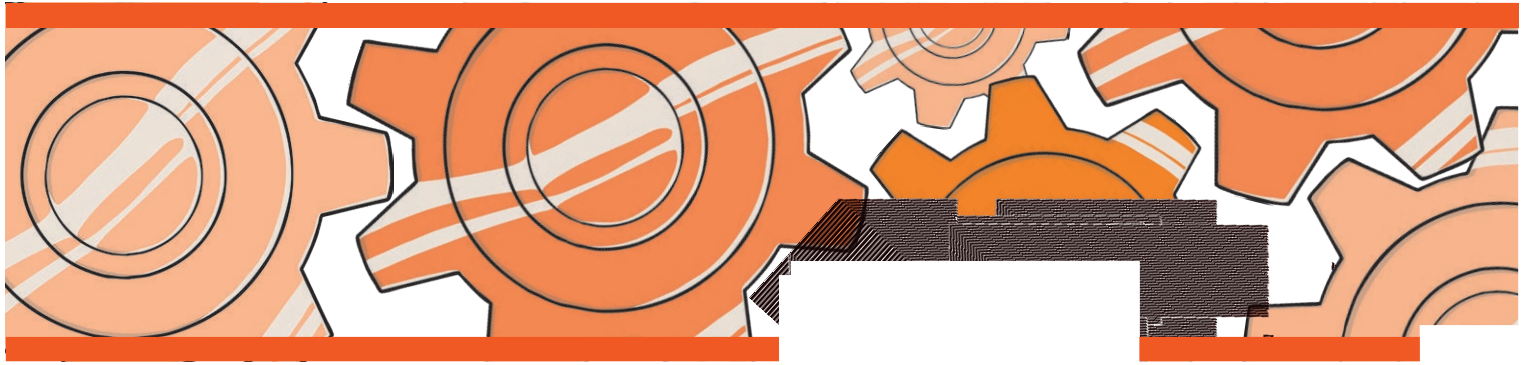


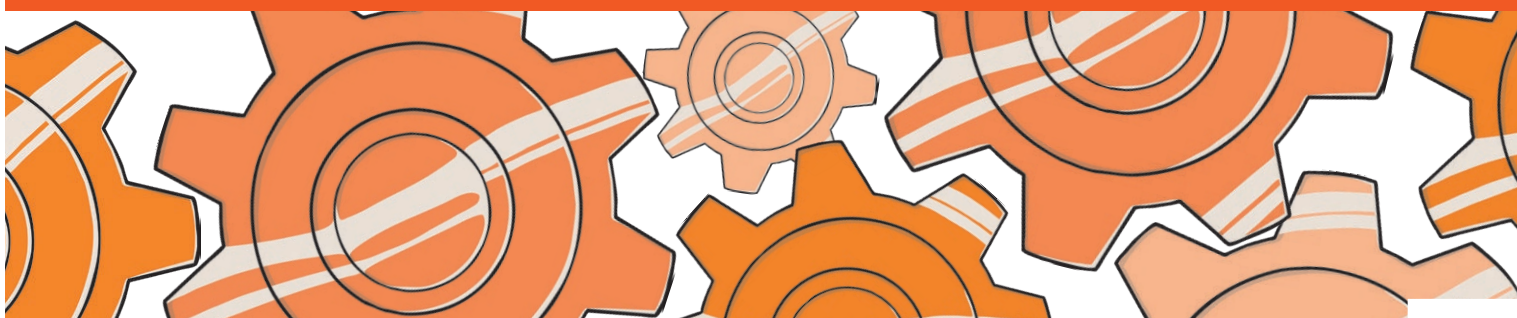


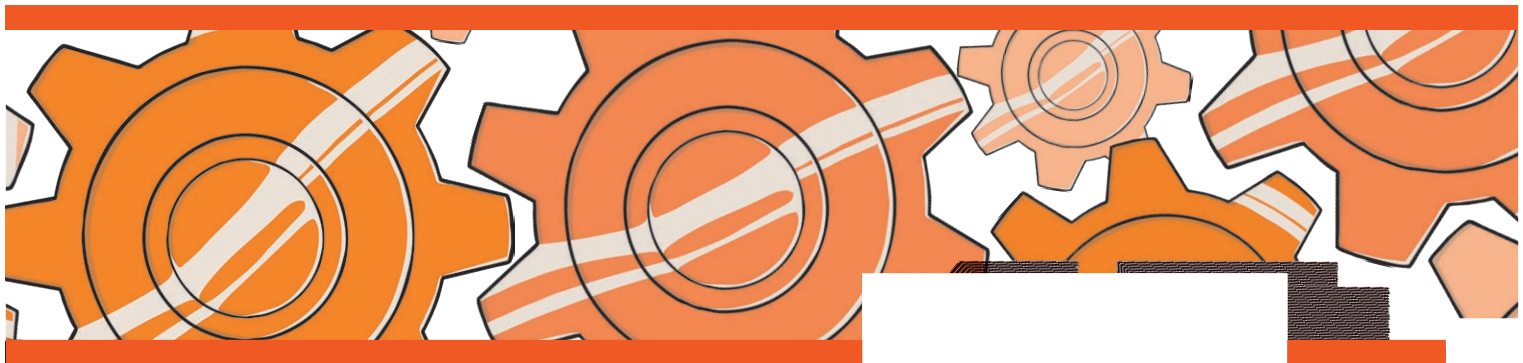
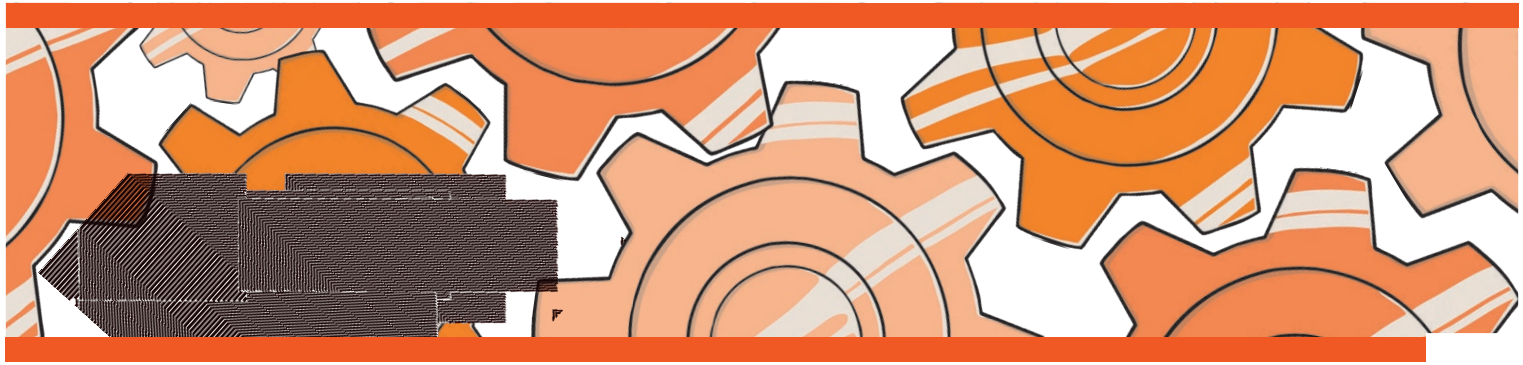


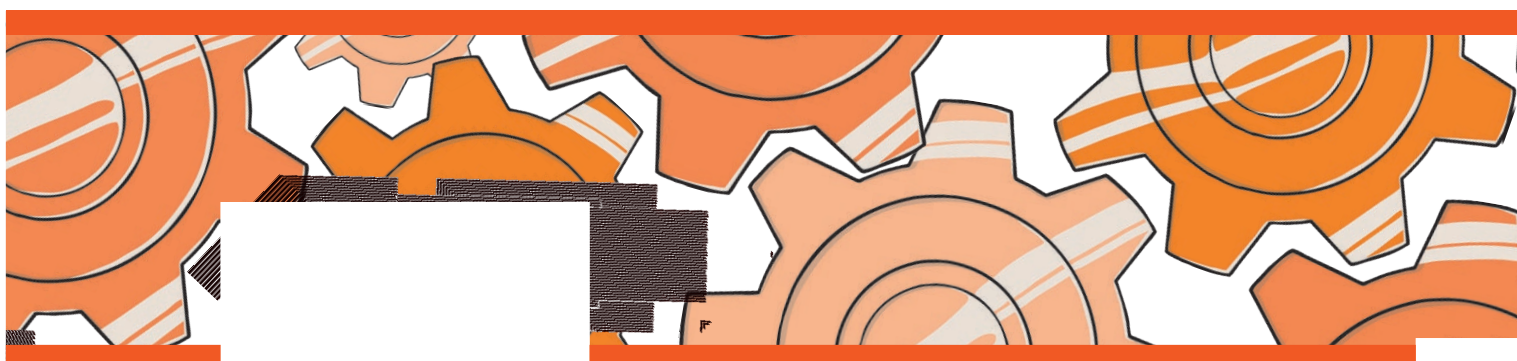


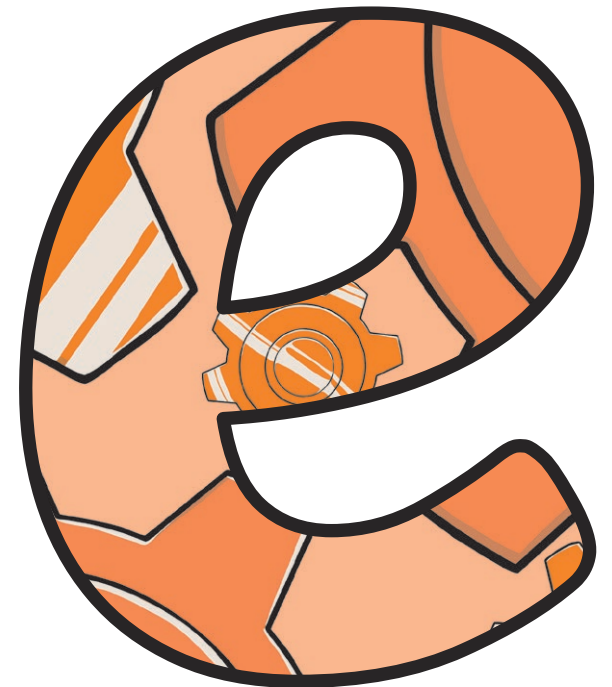
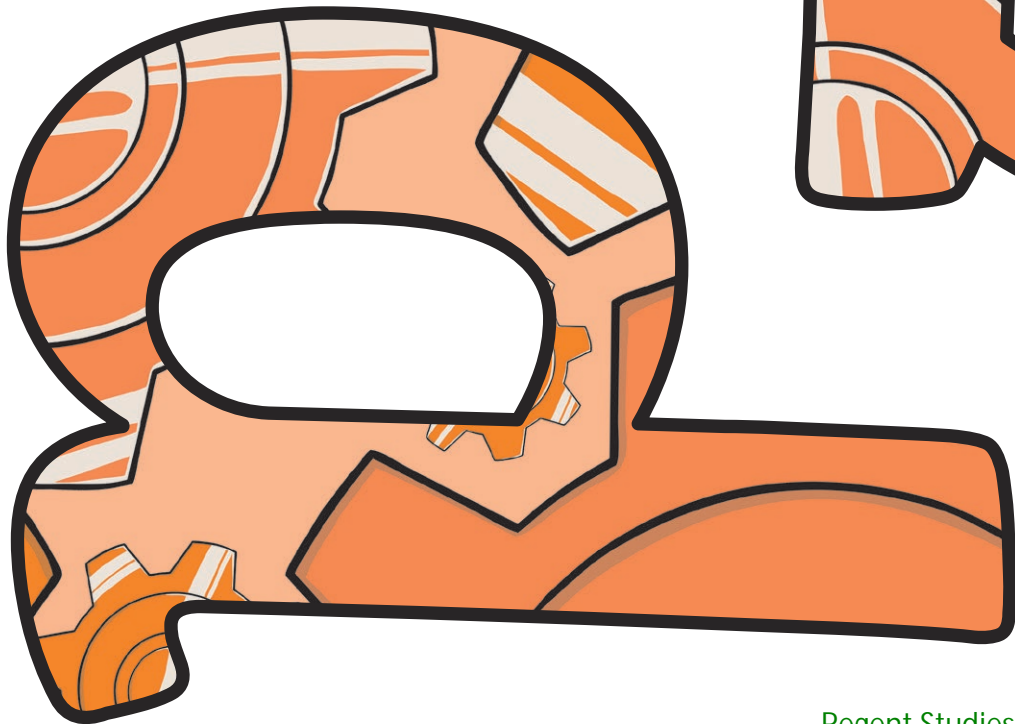
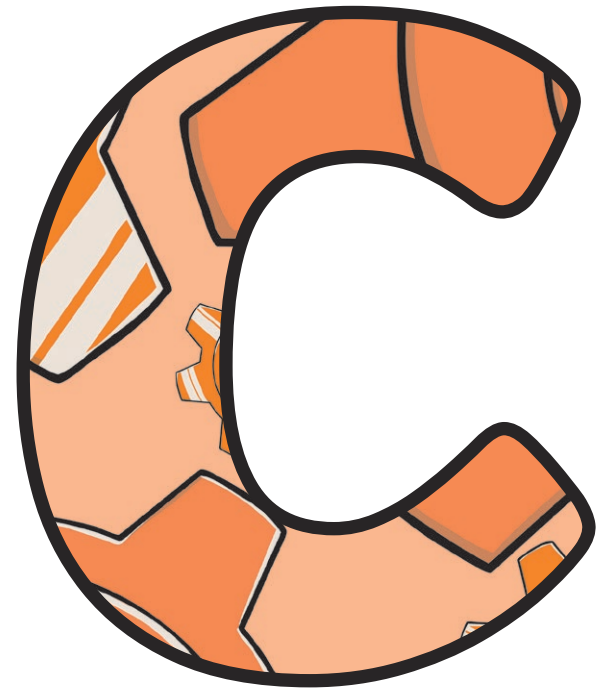
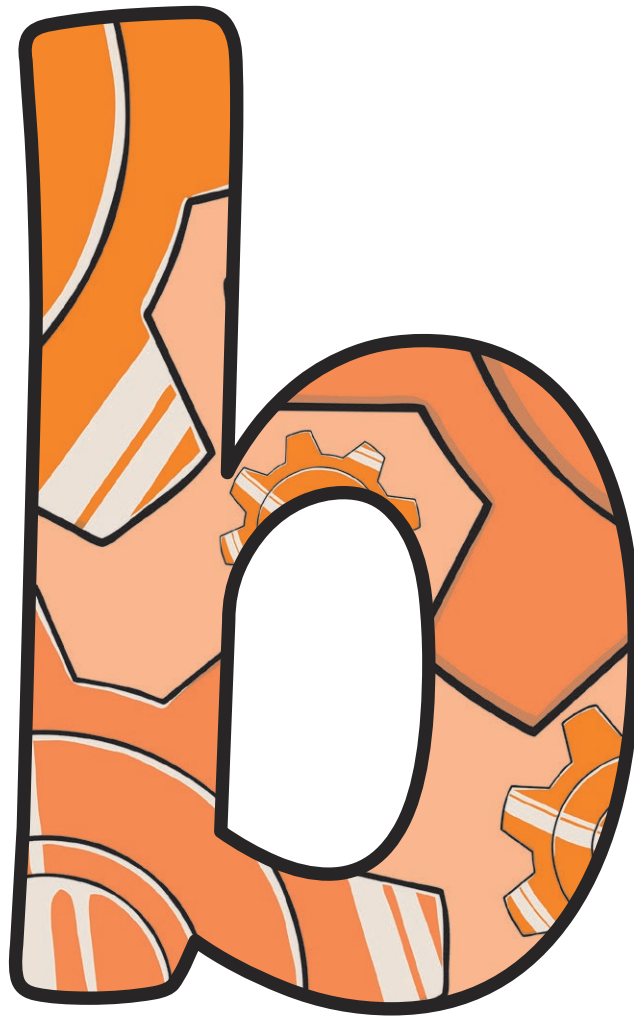
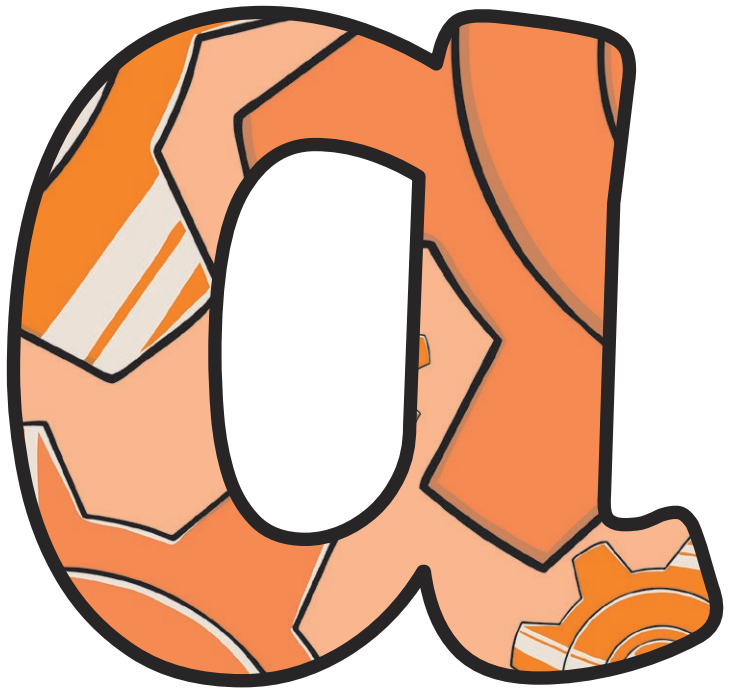


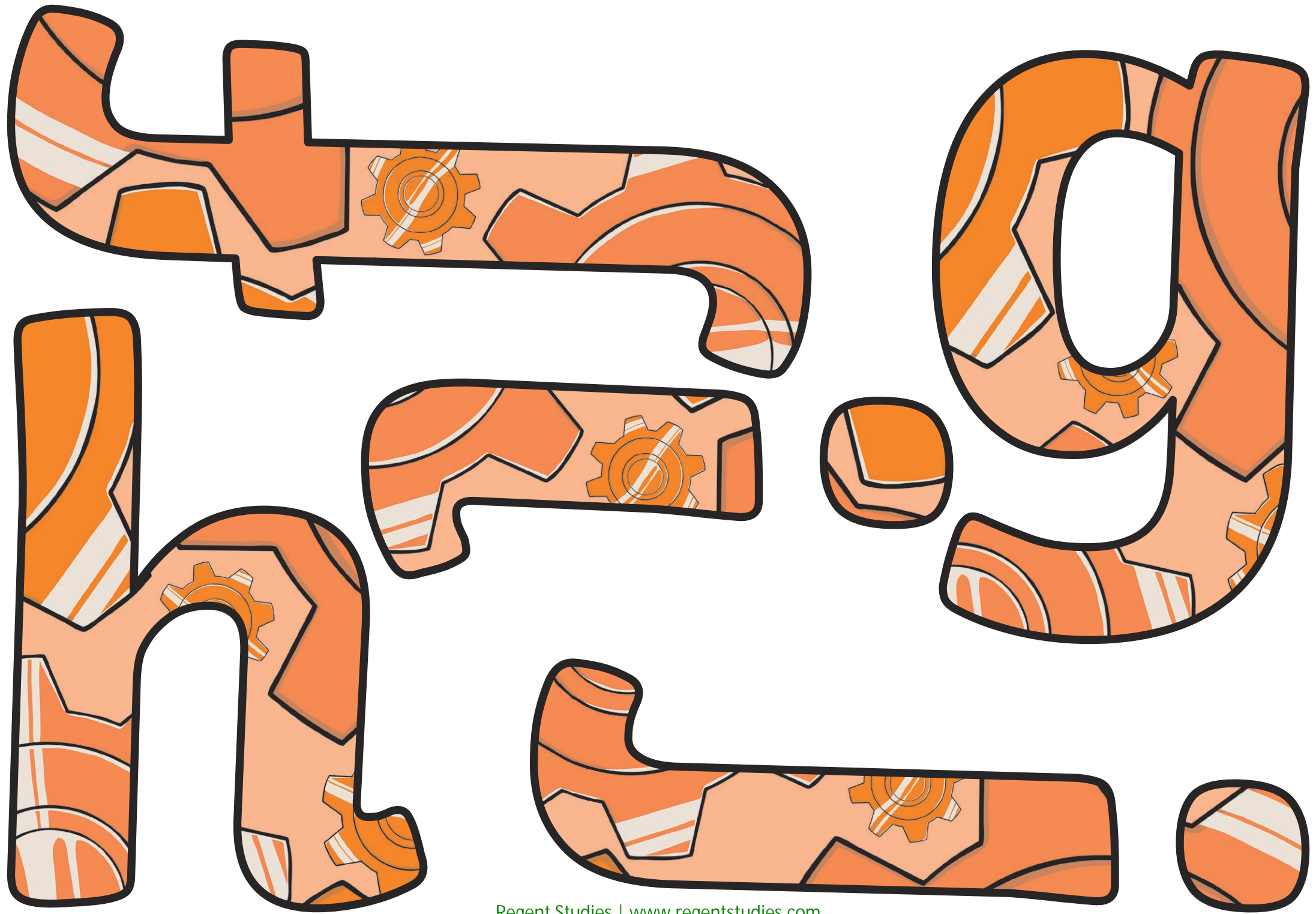


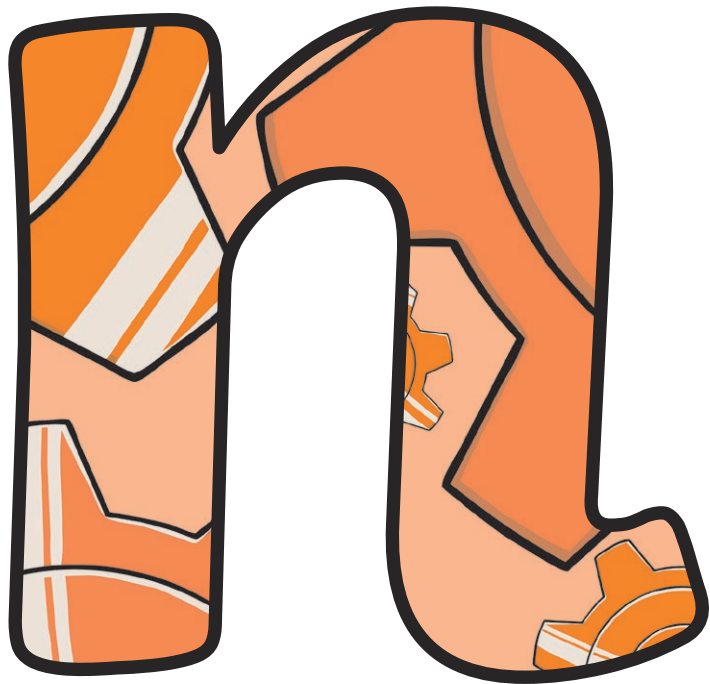
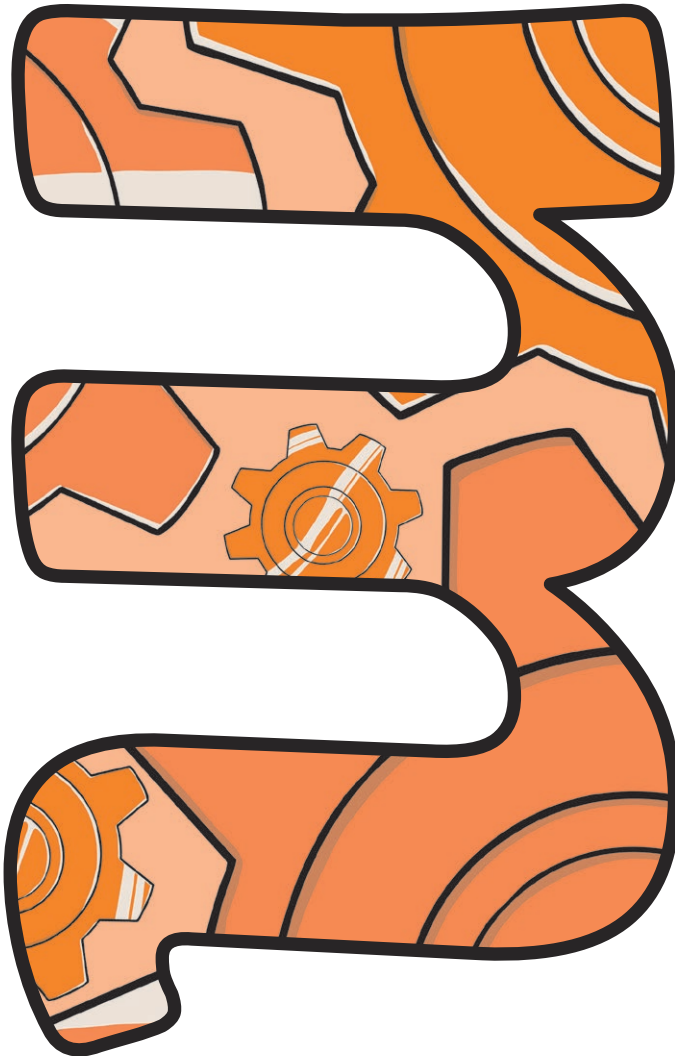
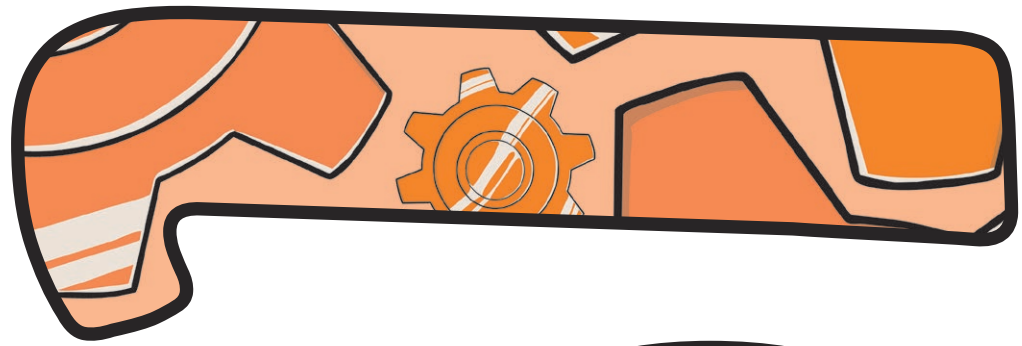
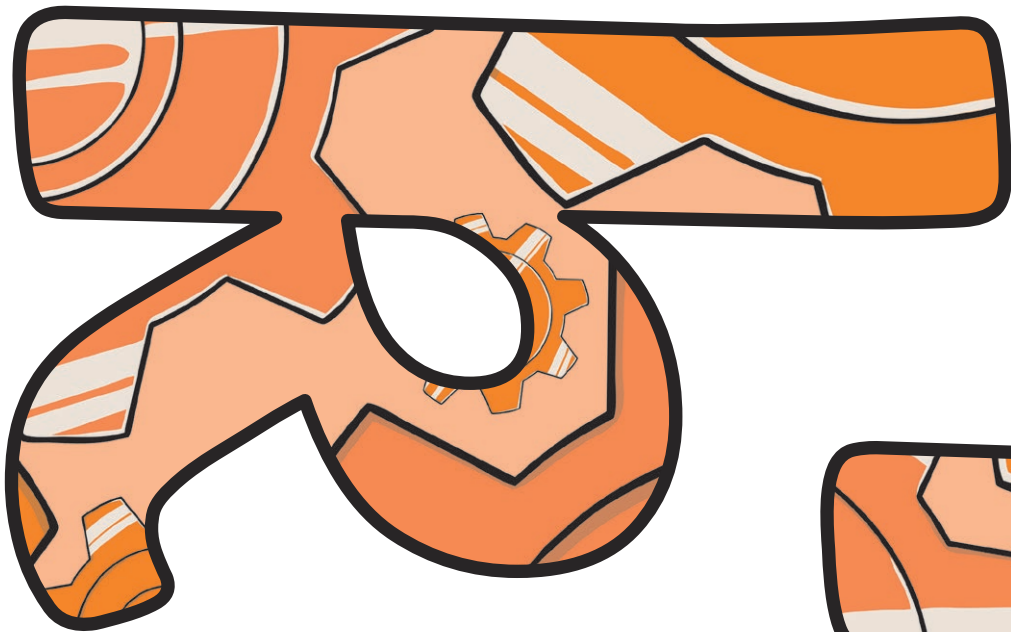


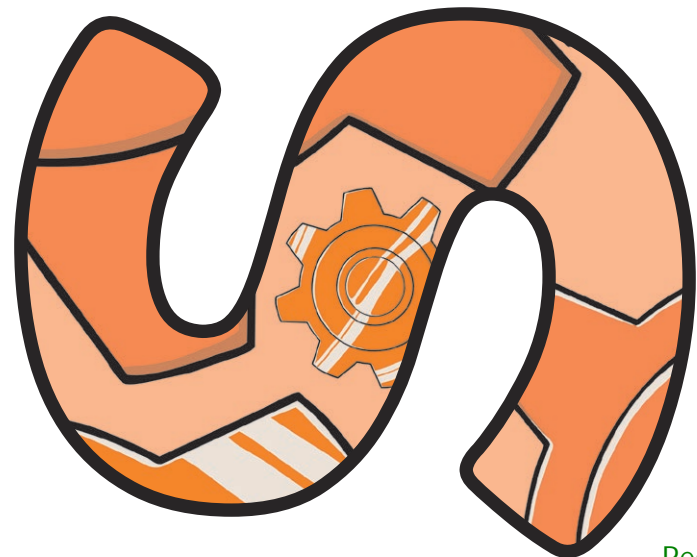
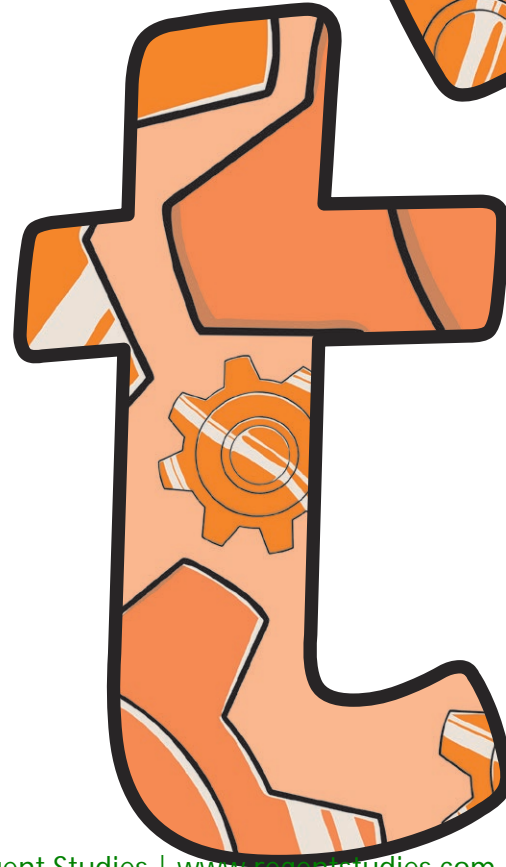
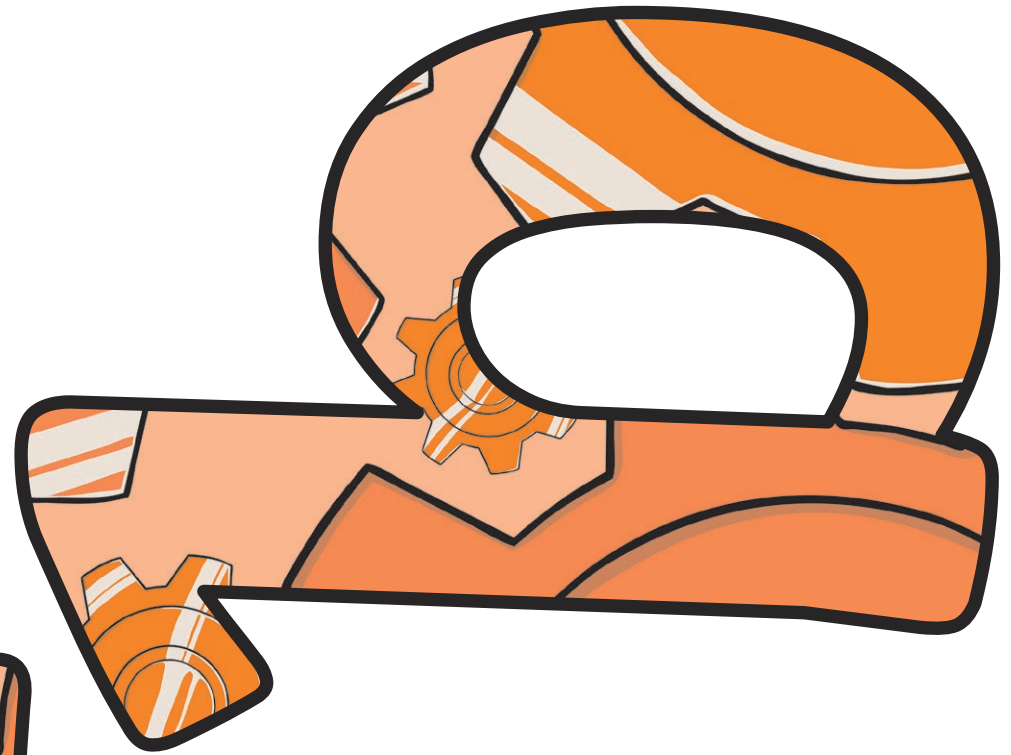
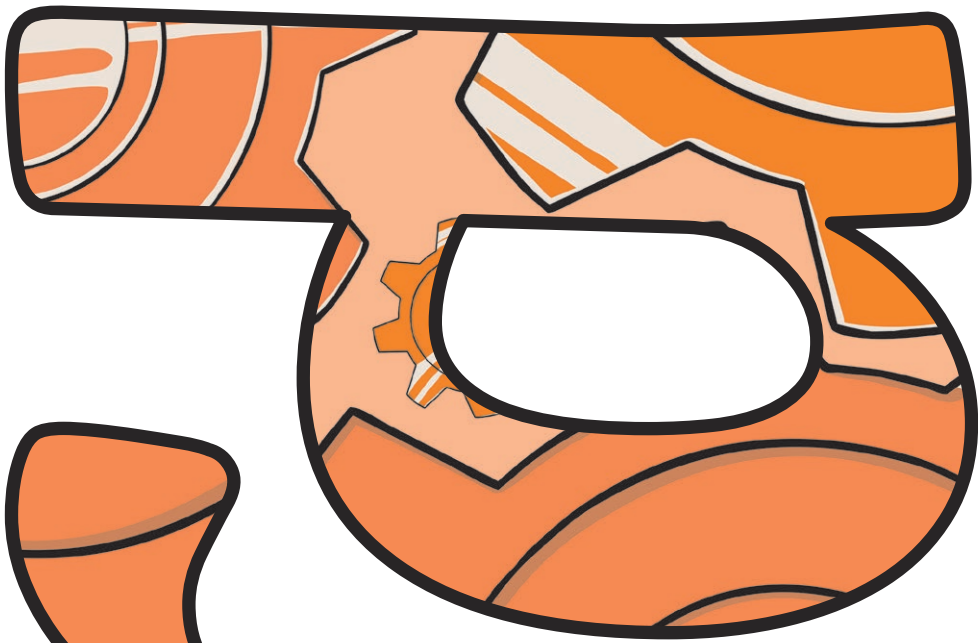


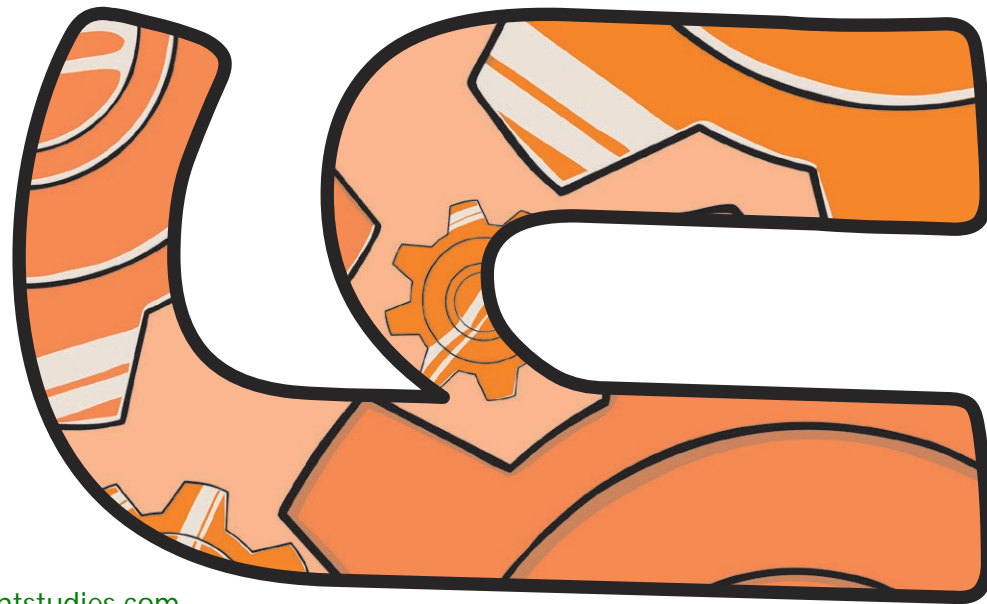
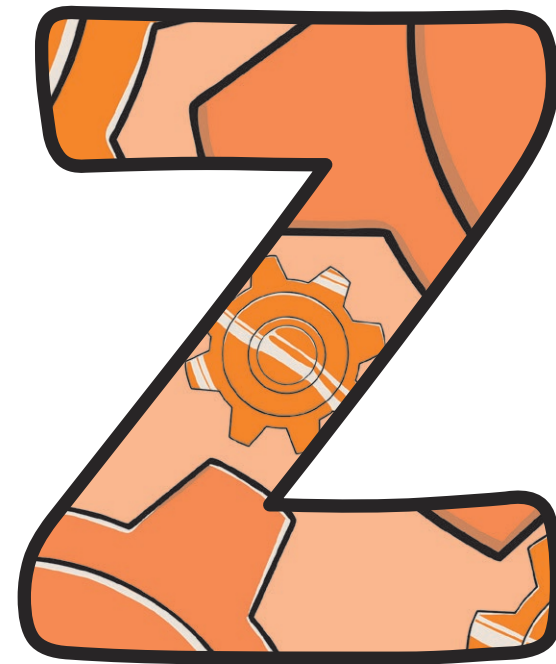
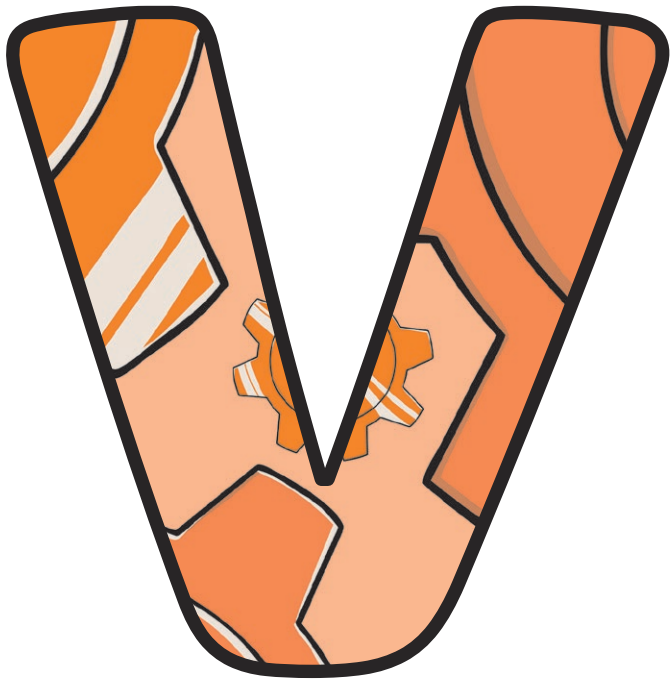


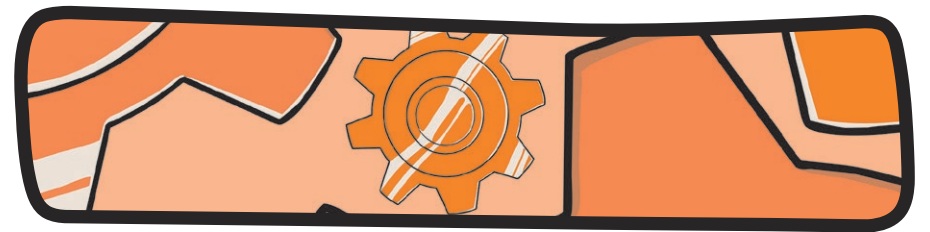
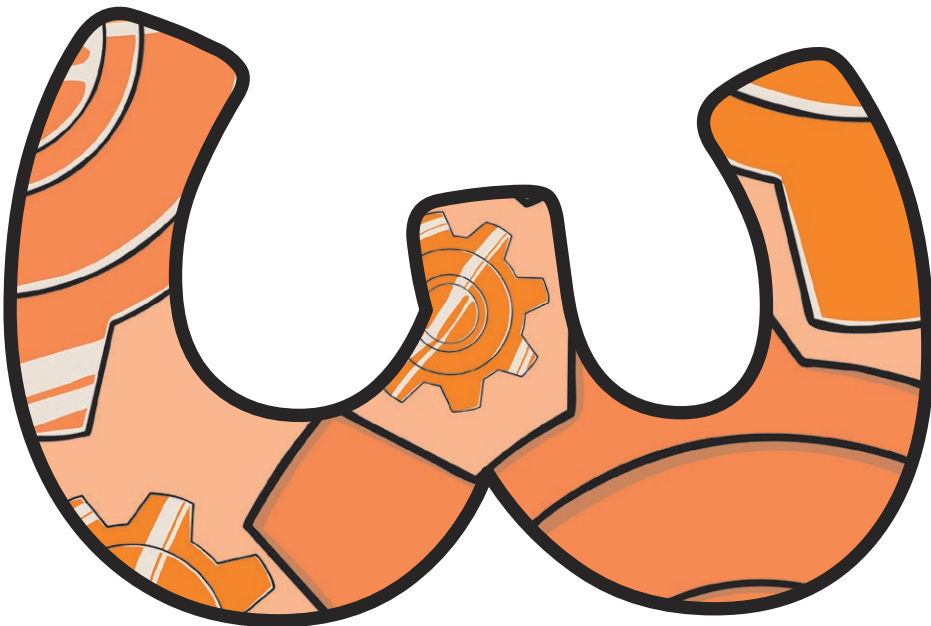
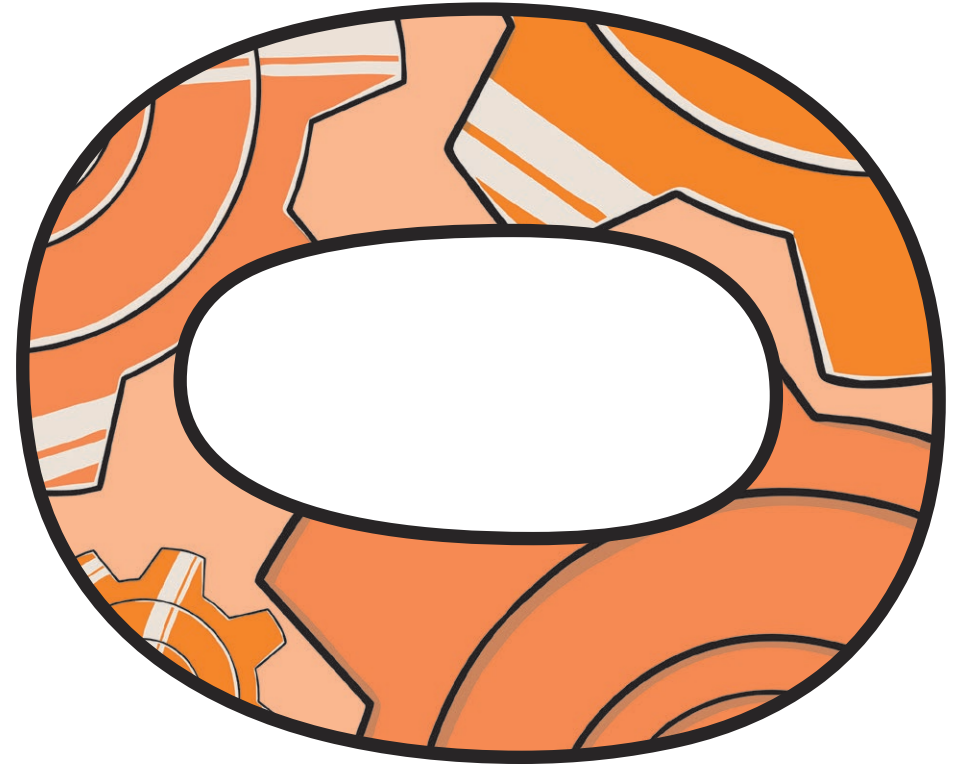
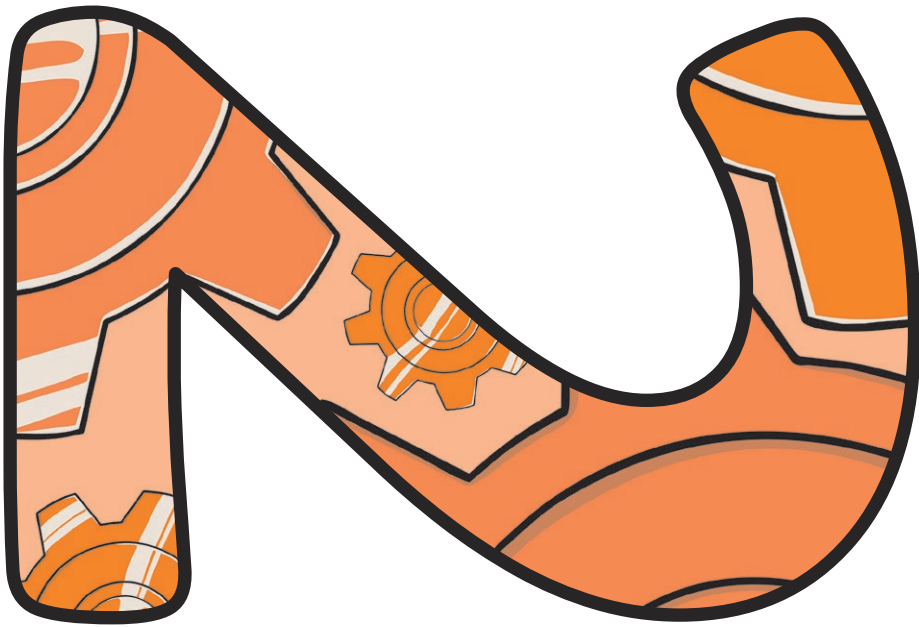


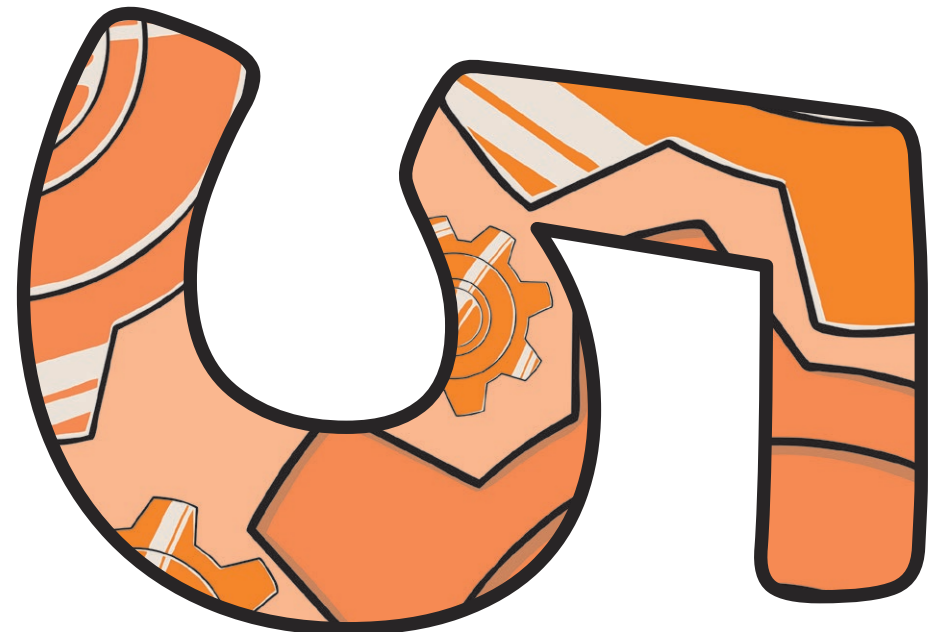
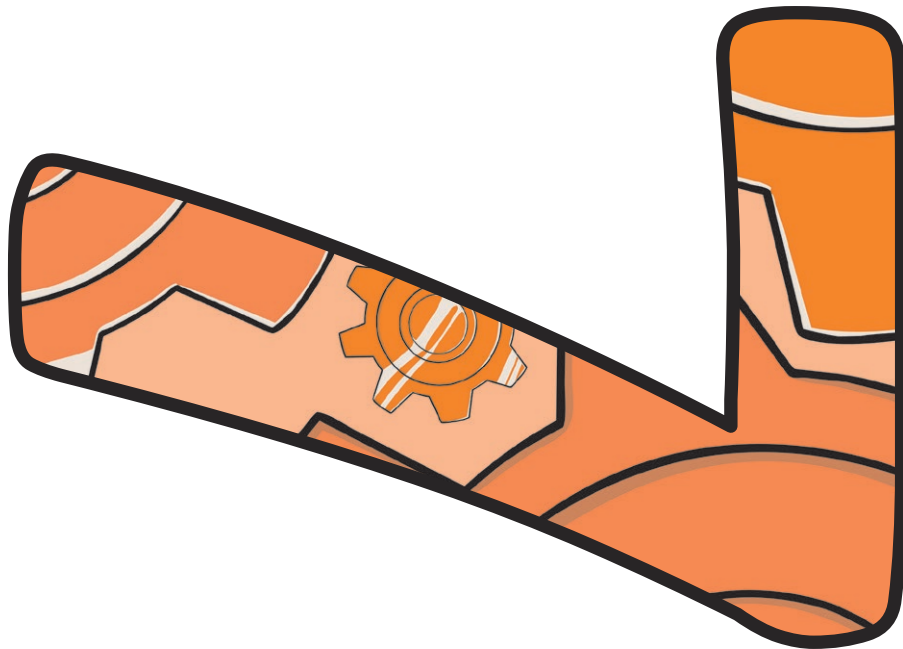
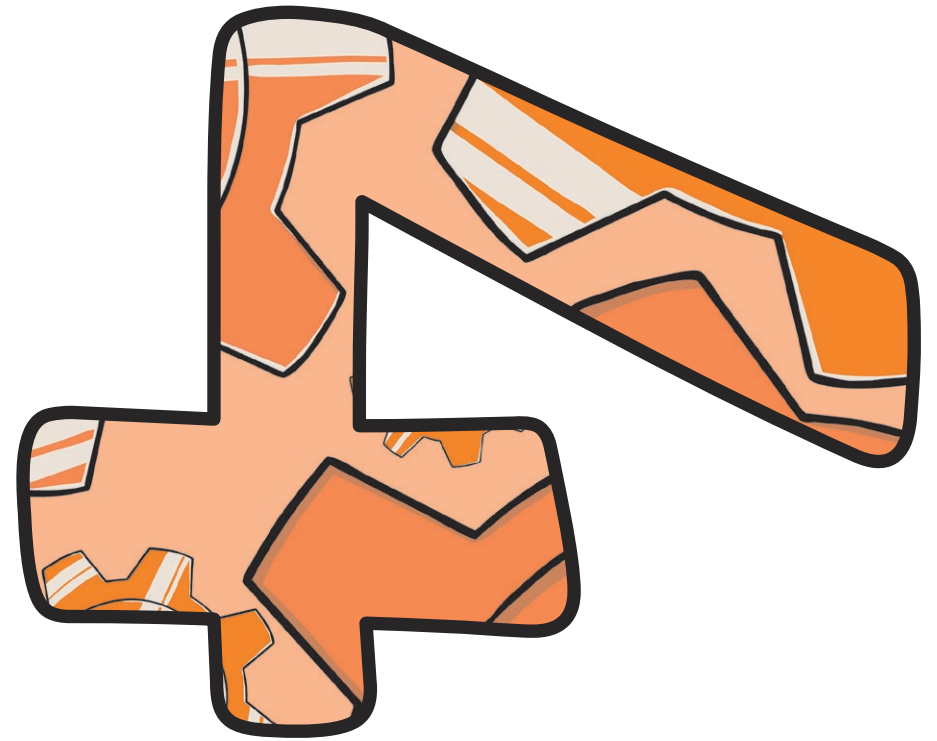
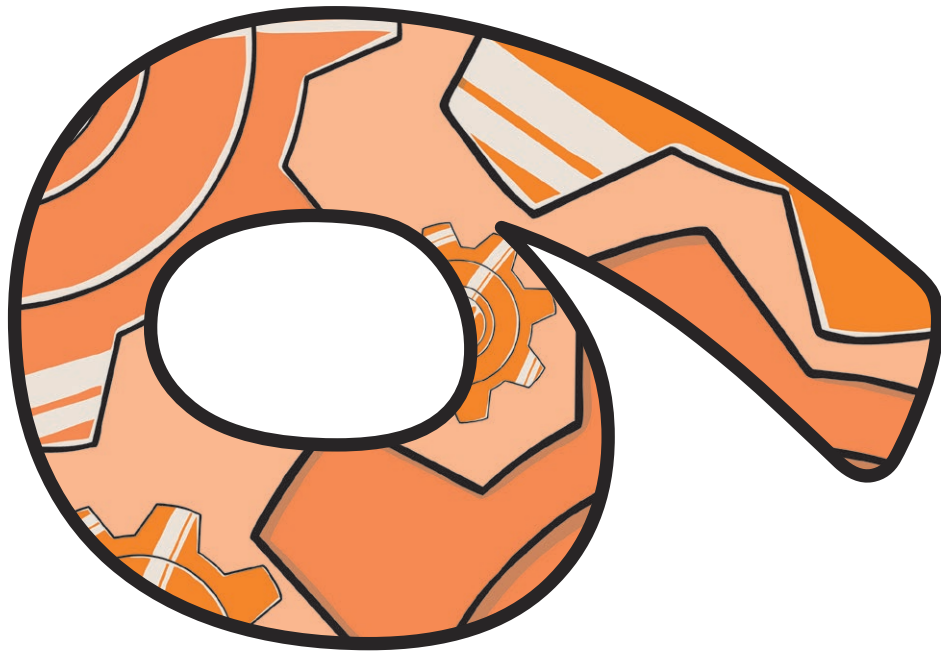


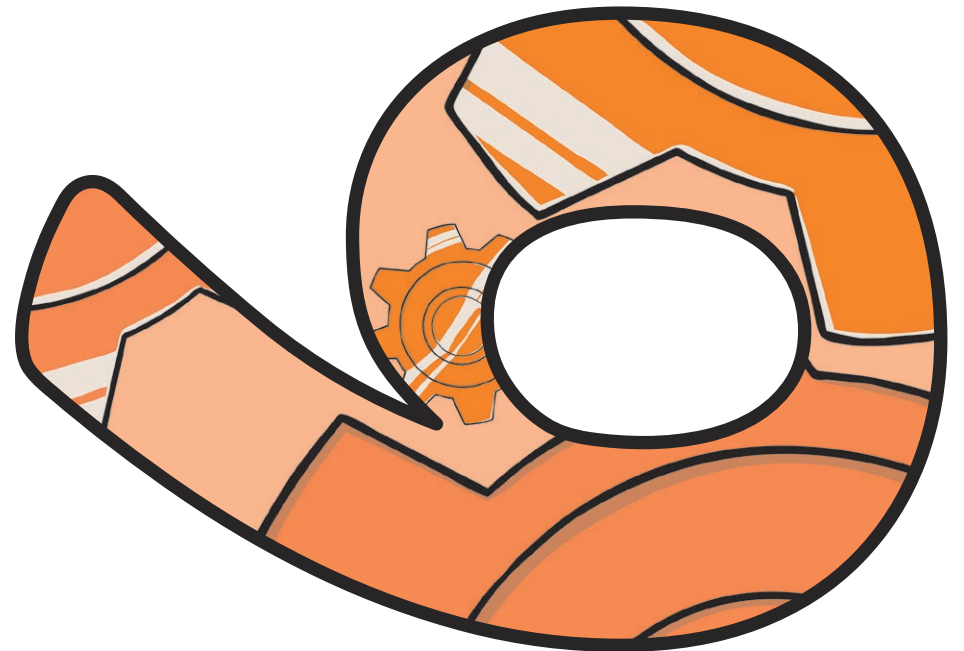
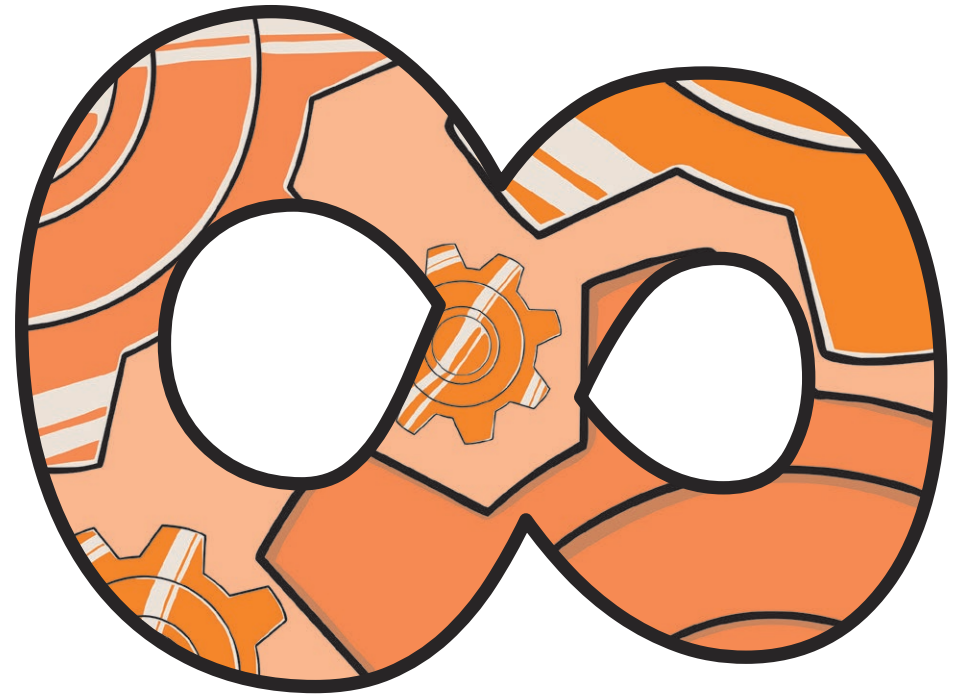


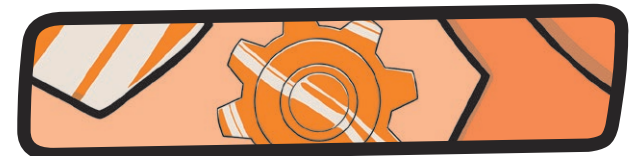
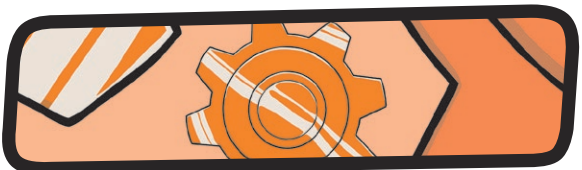
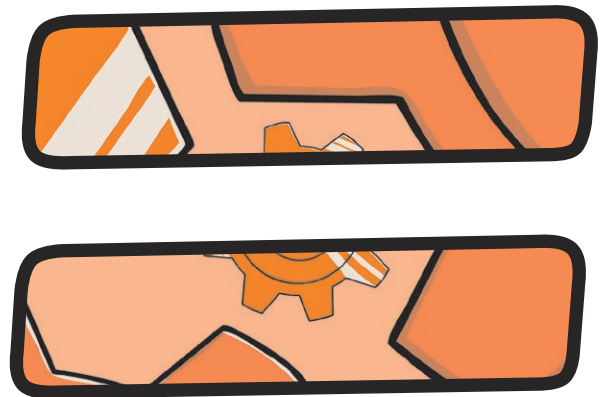
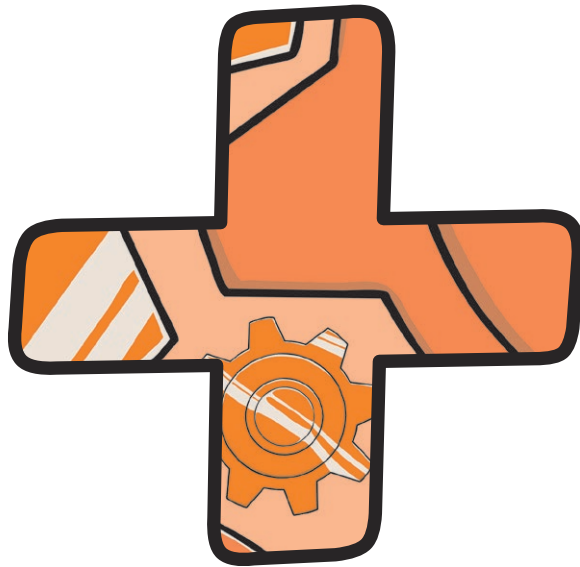
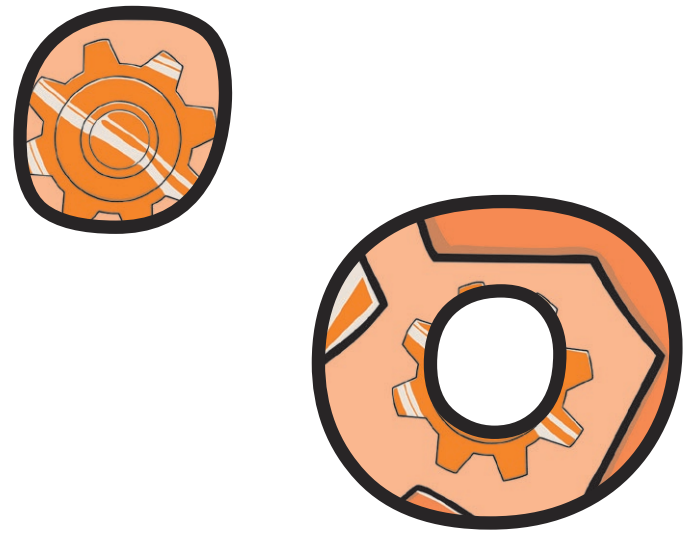
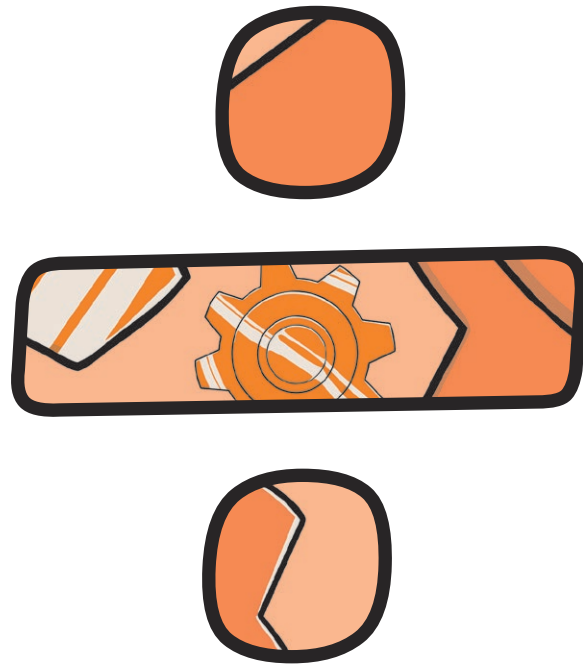


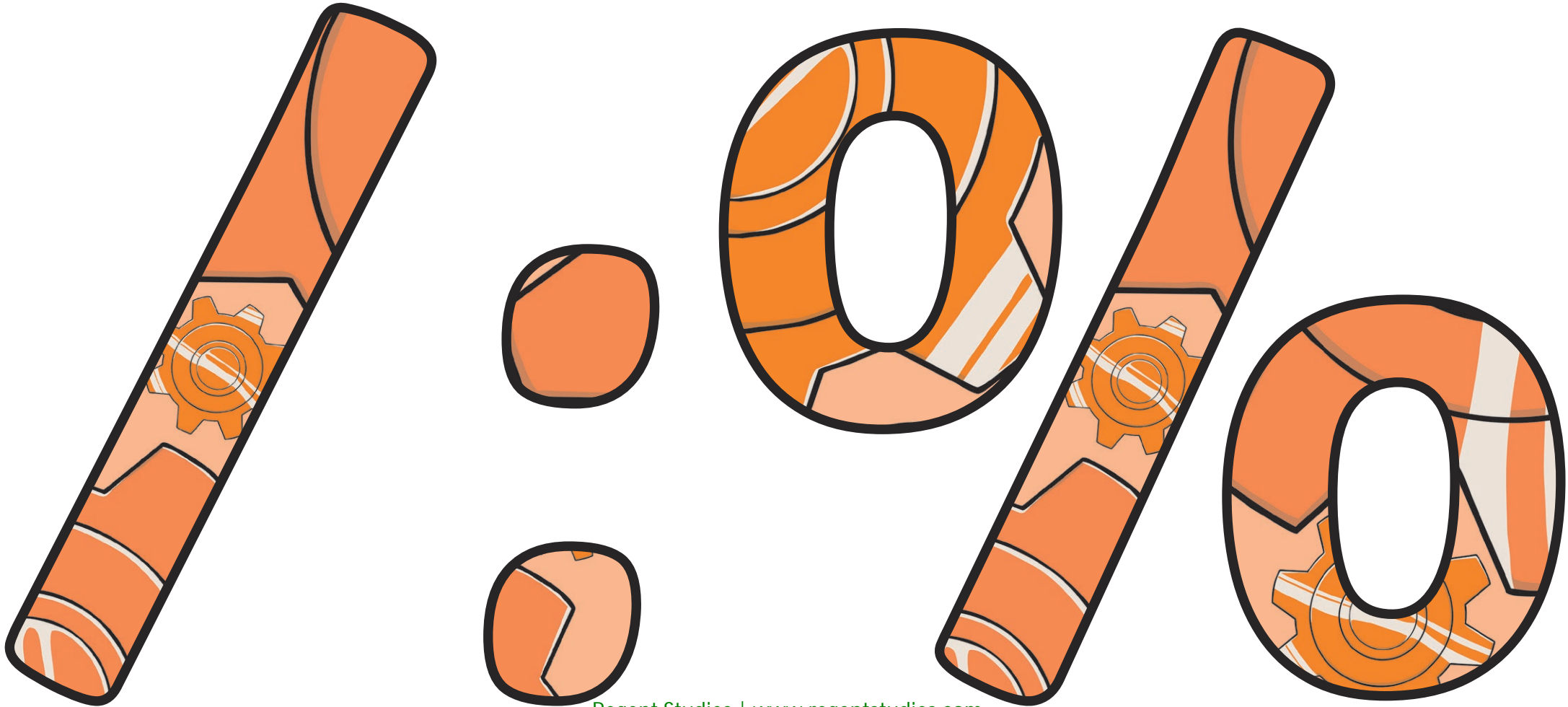
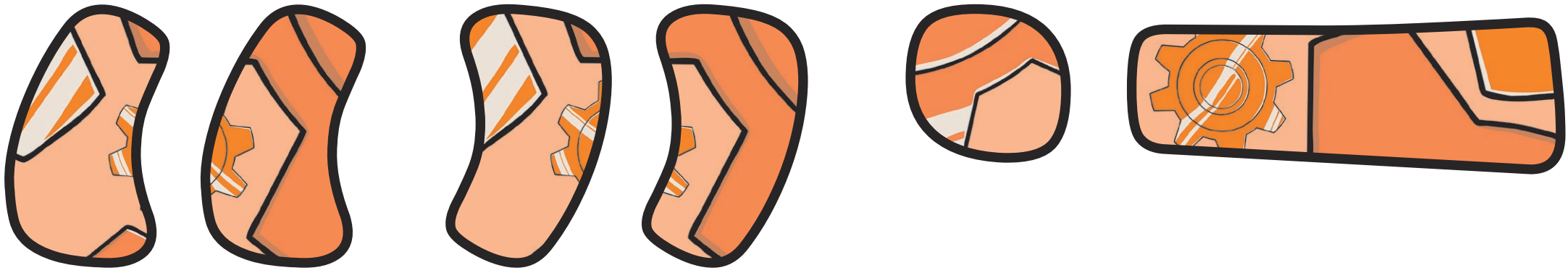


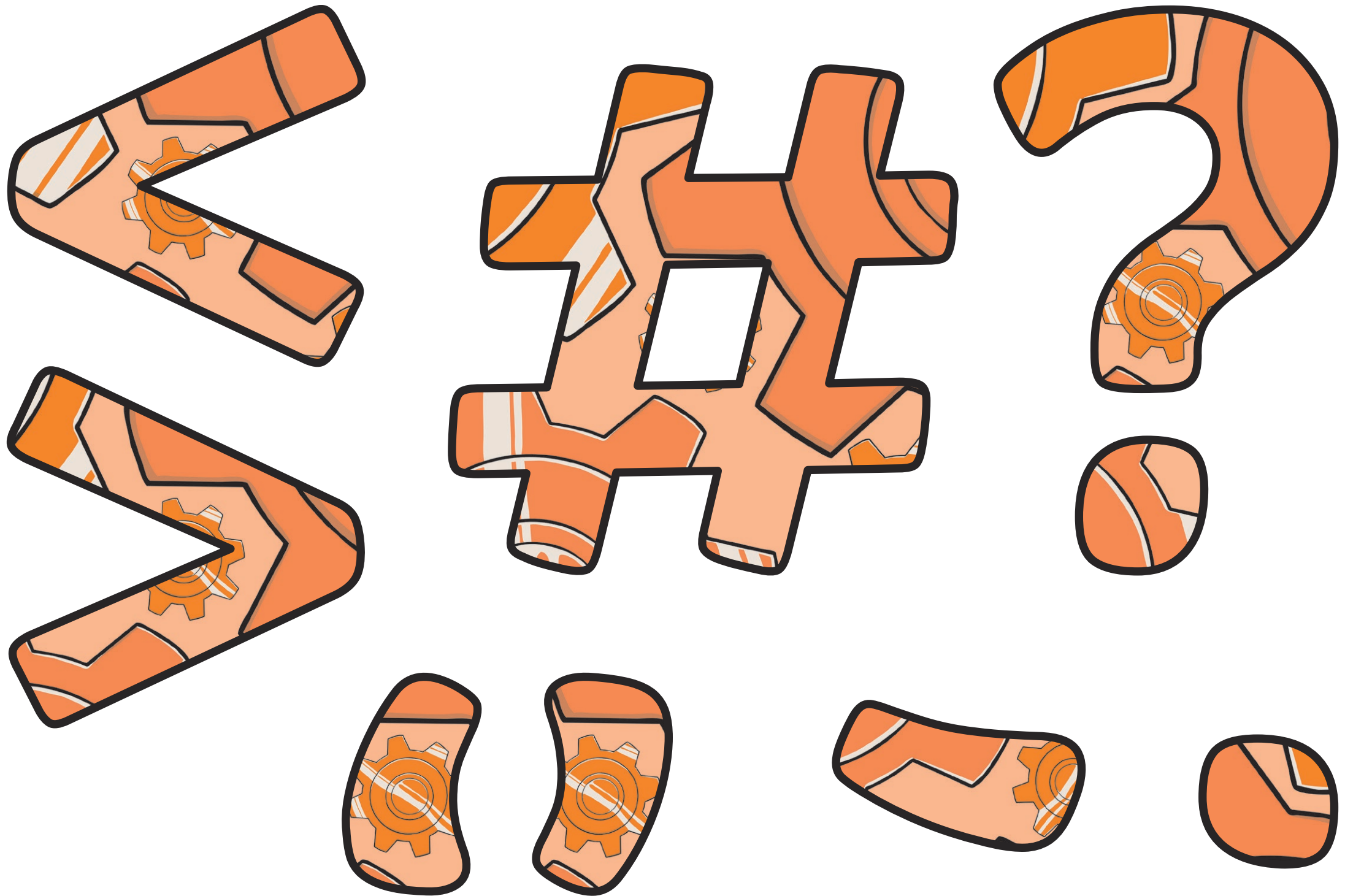


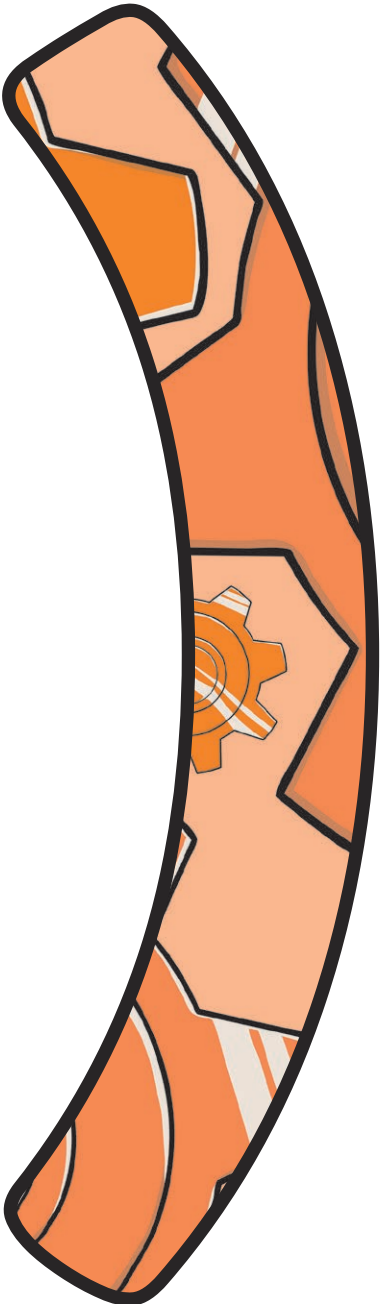
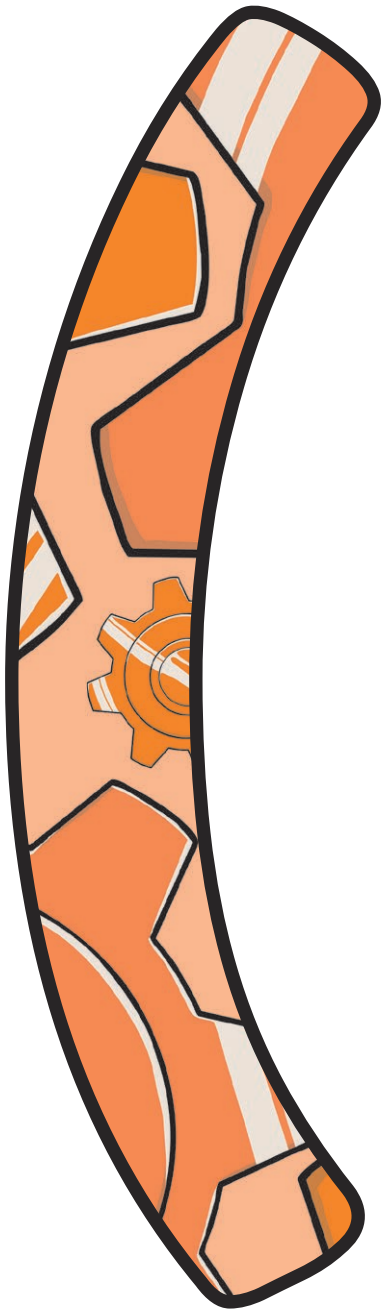
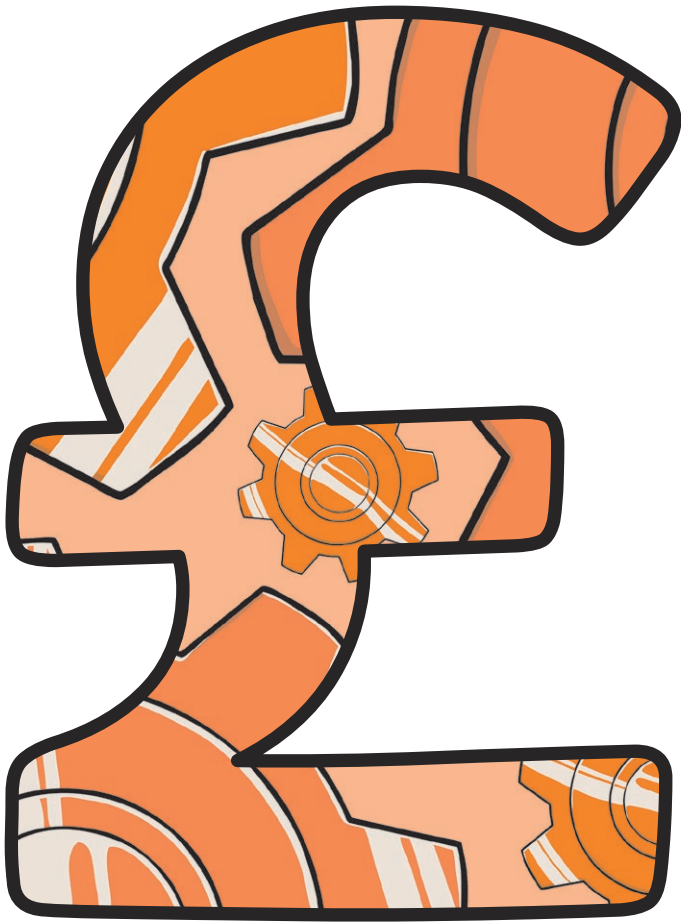




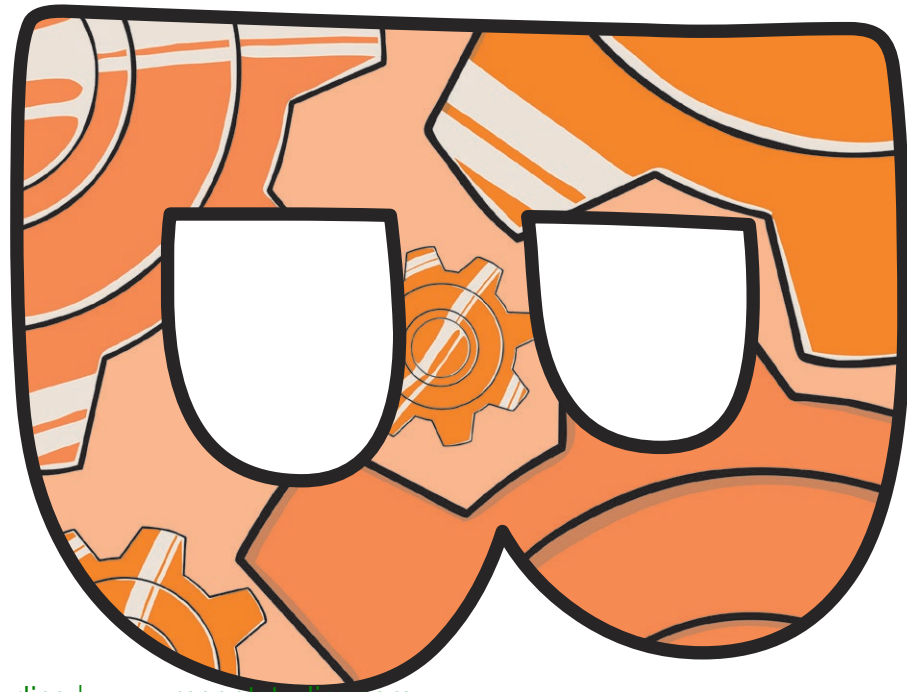
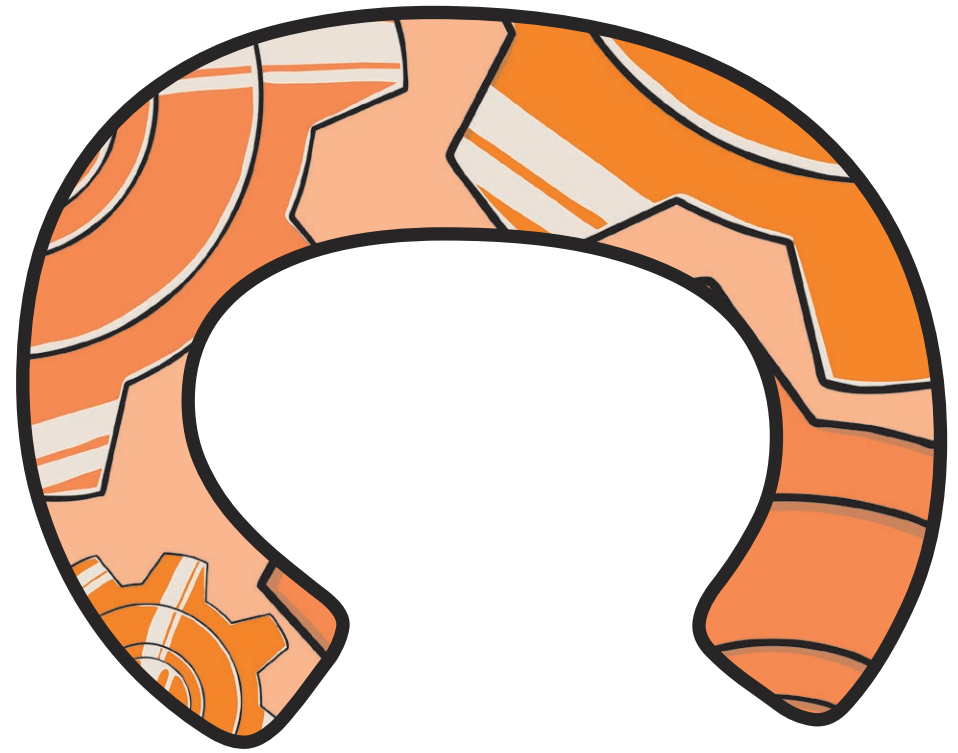
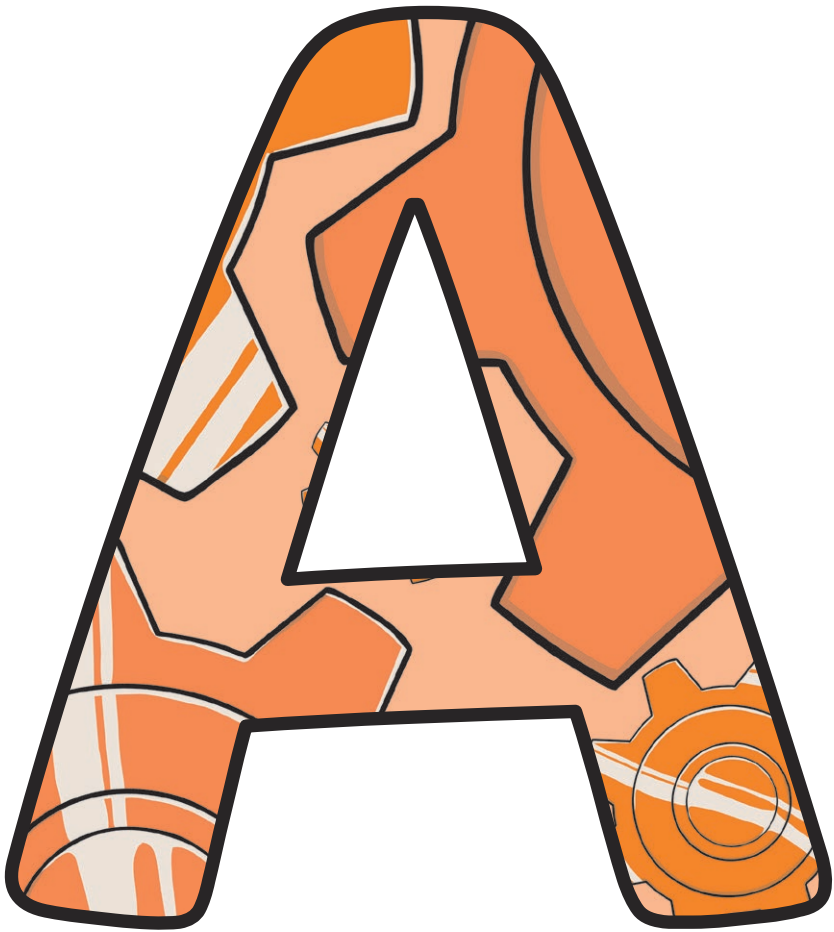


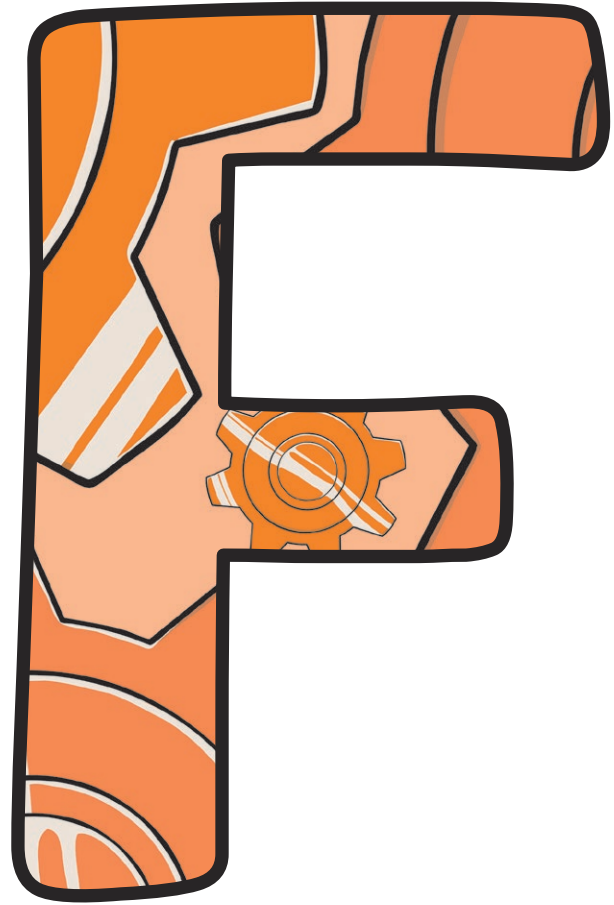
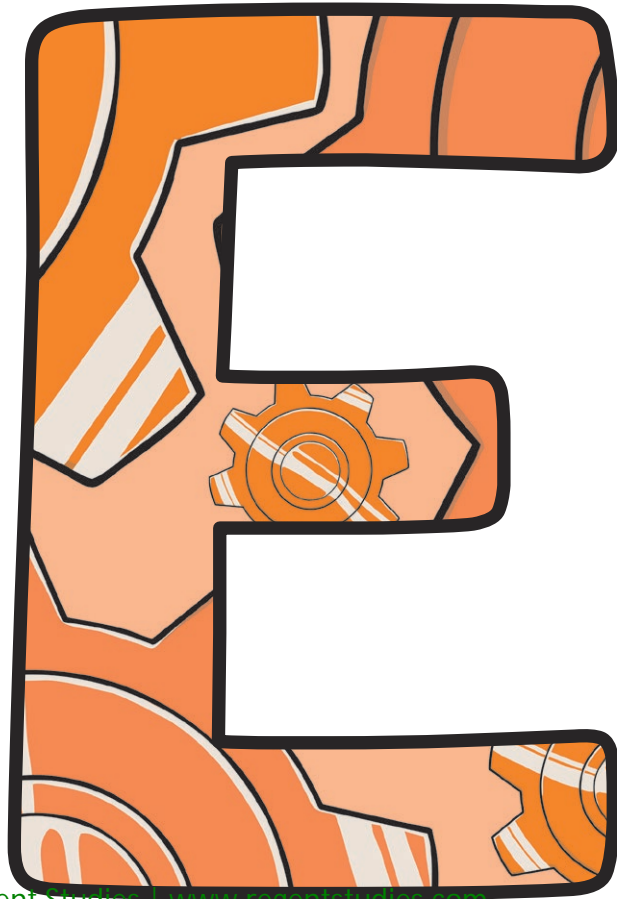
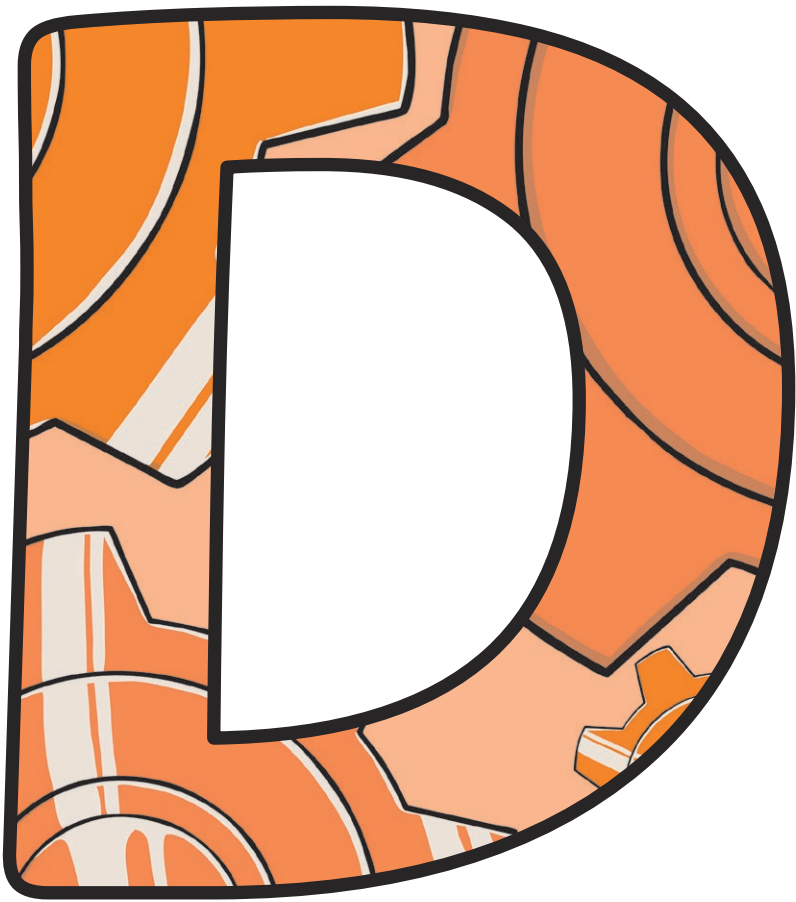


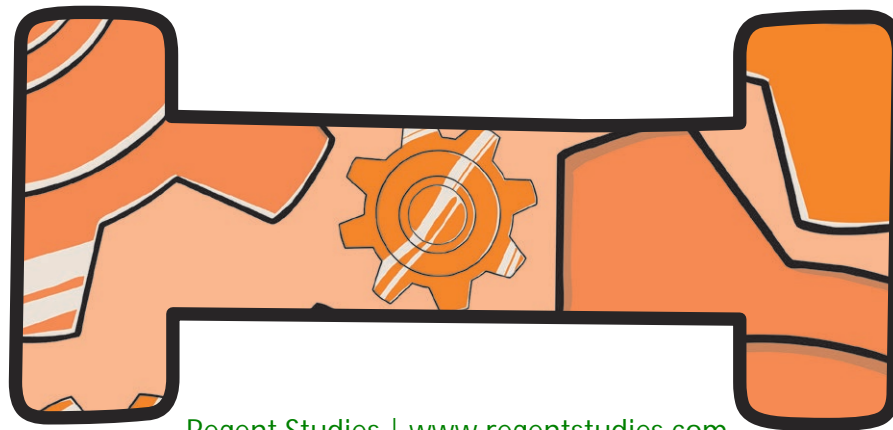
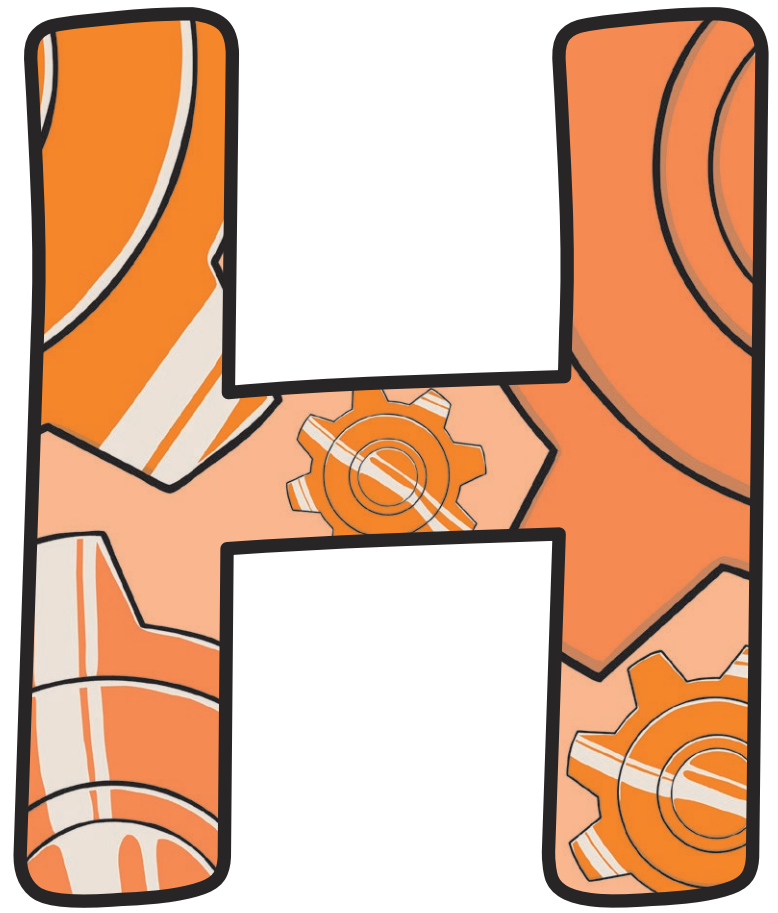


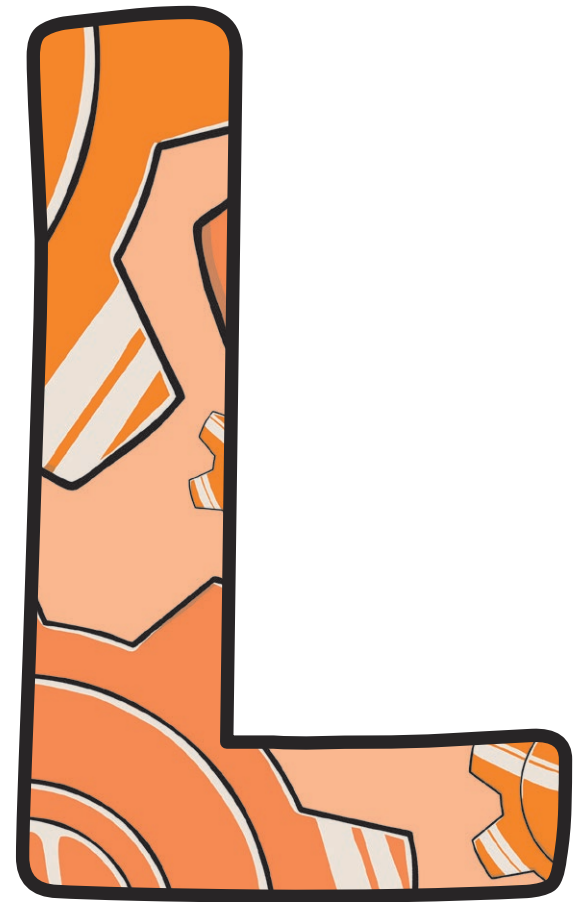
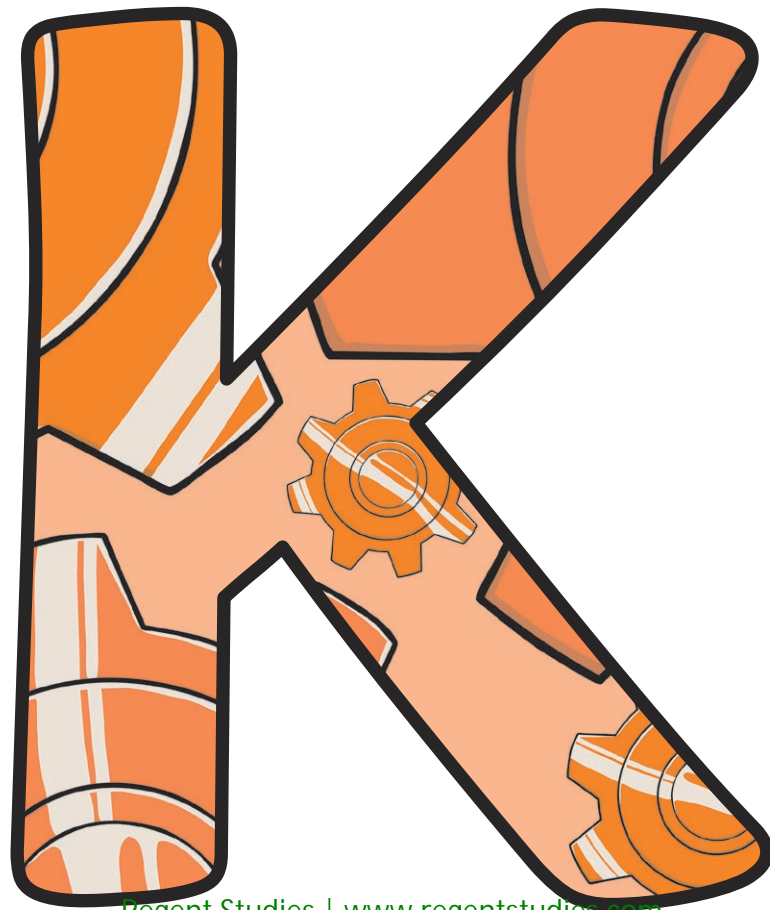
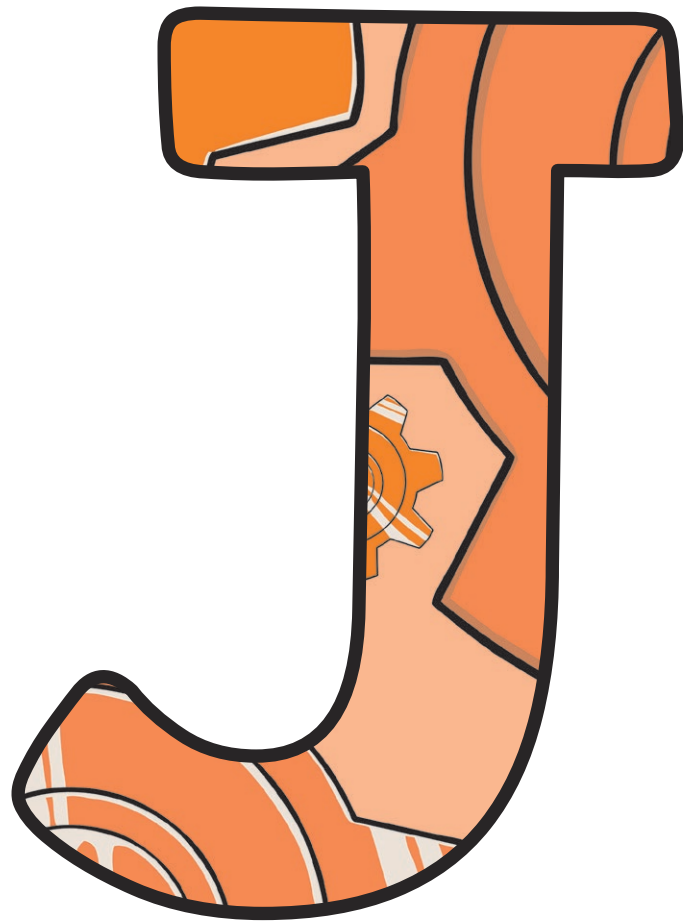


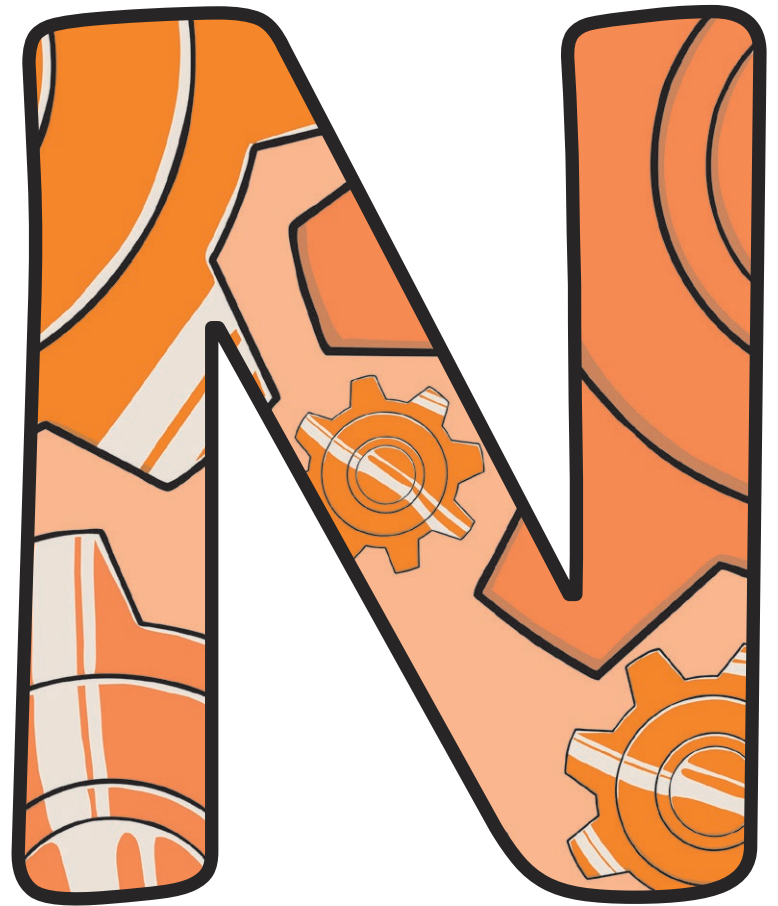






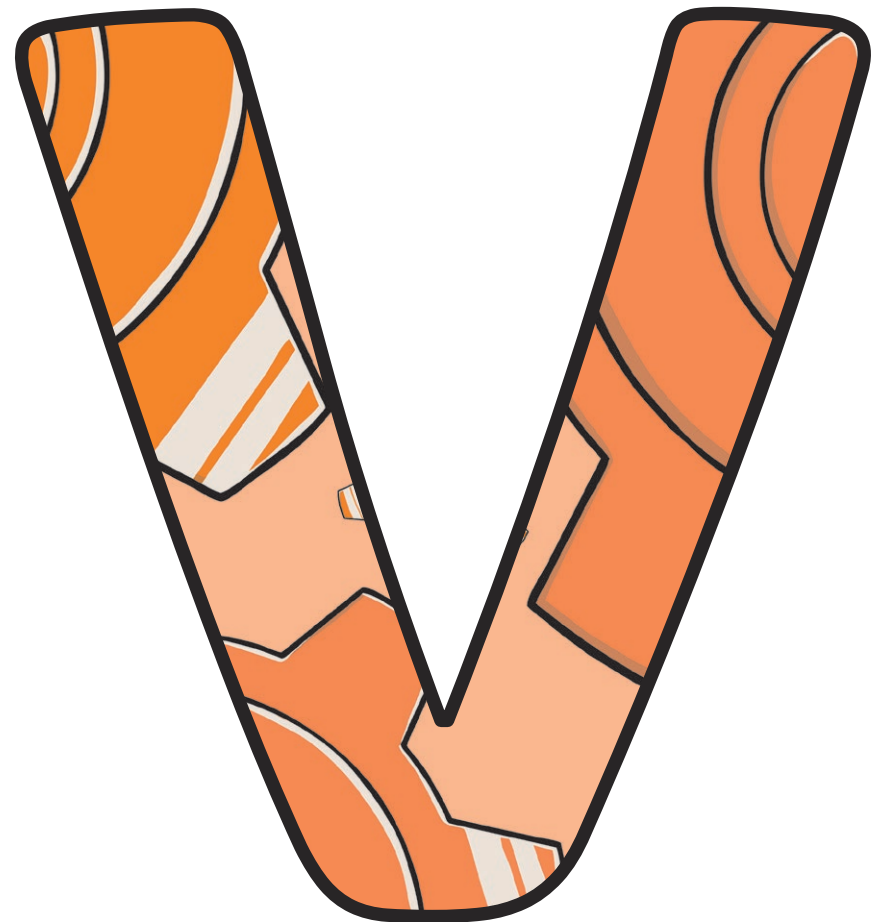


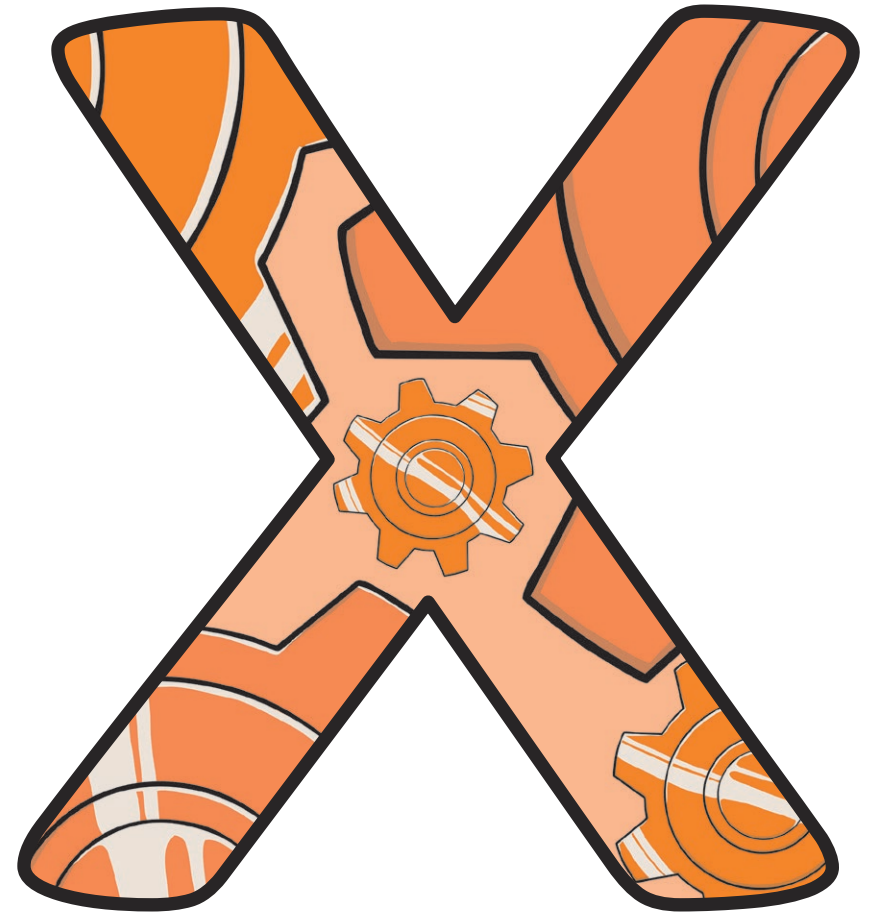


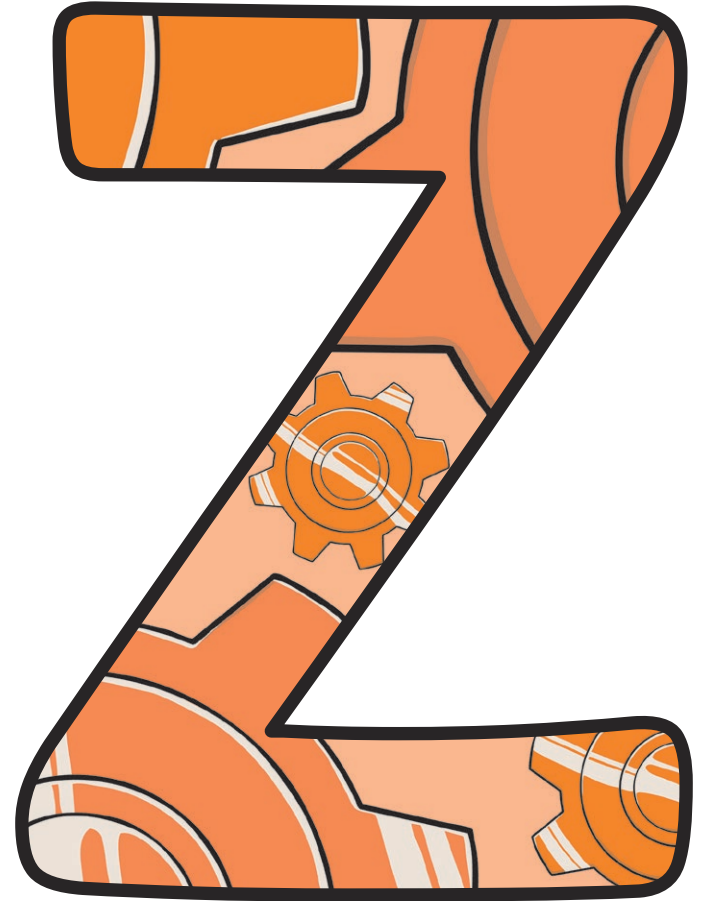
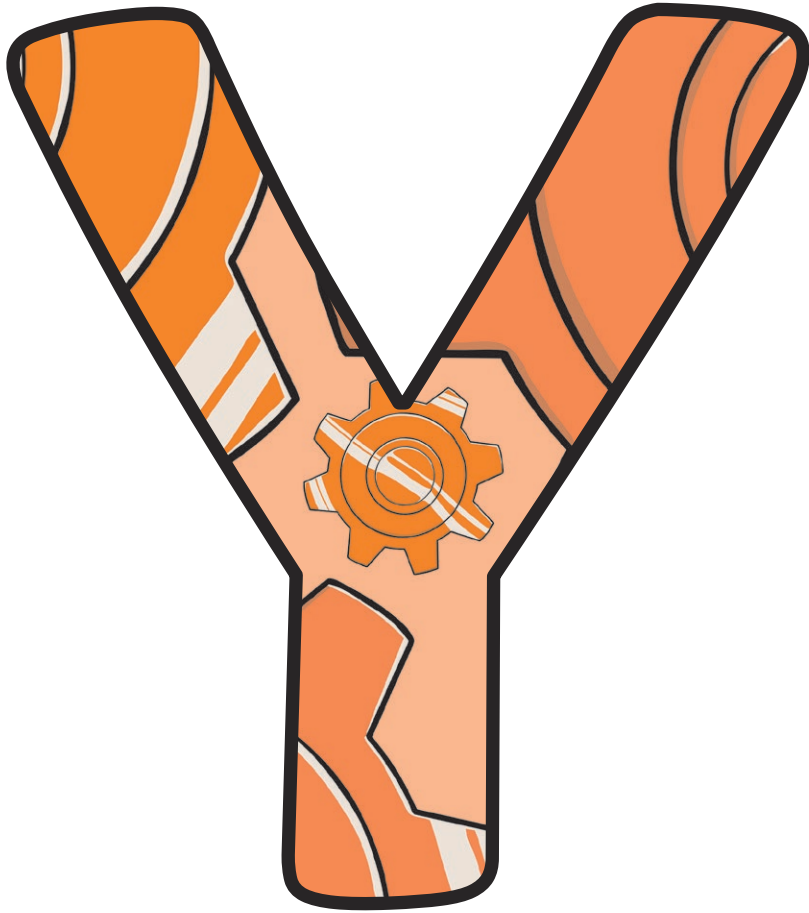












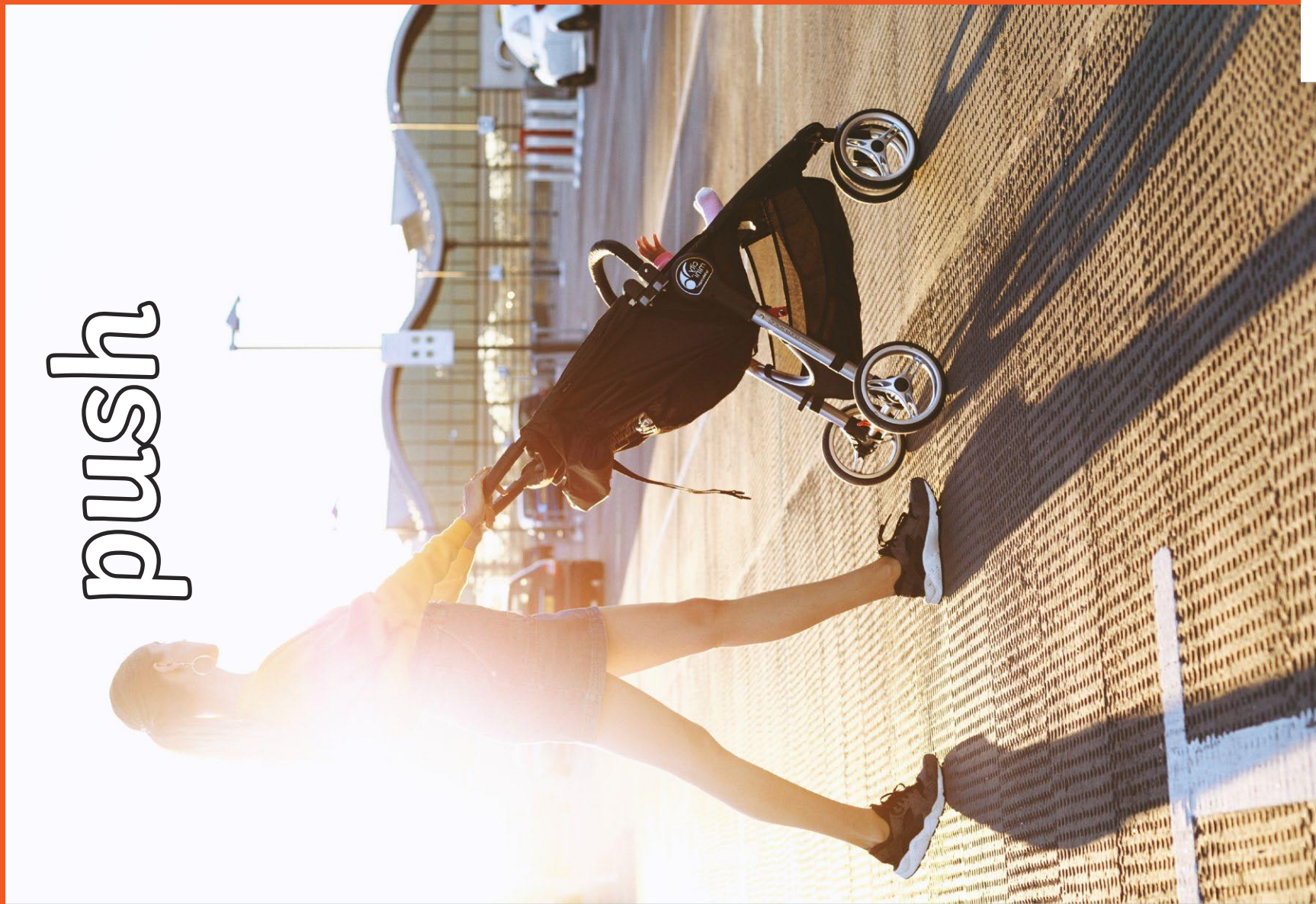
water resistance

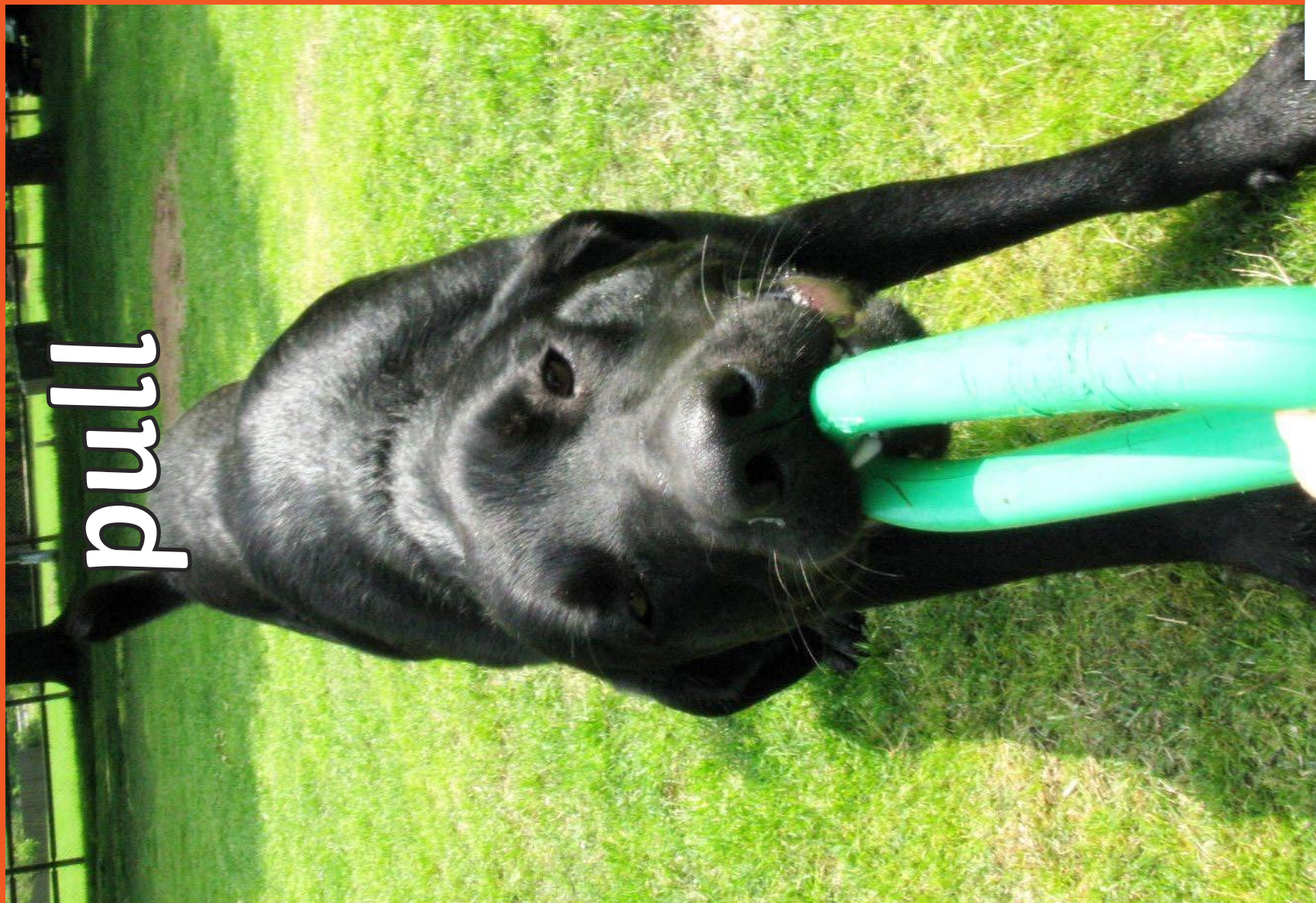


streamline



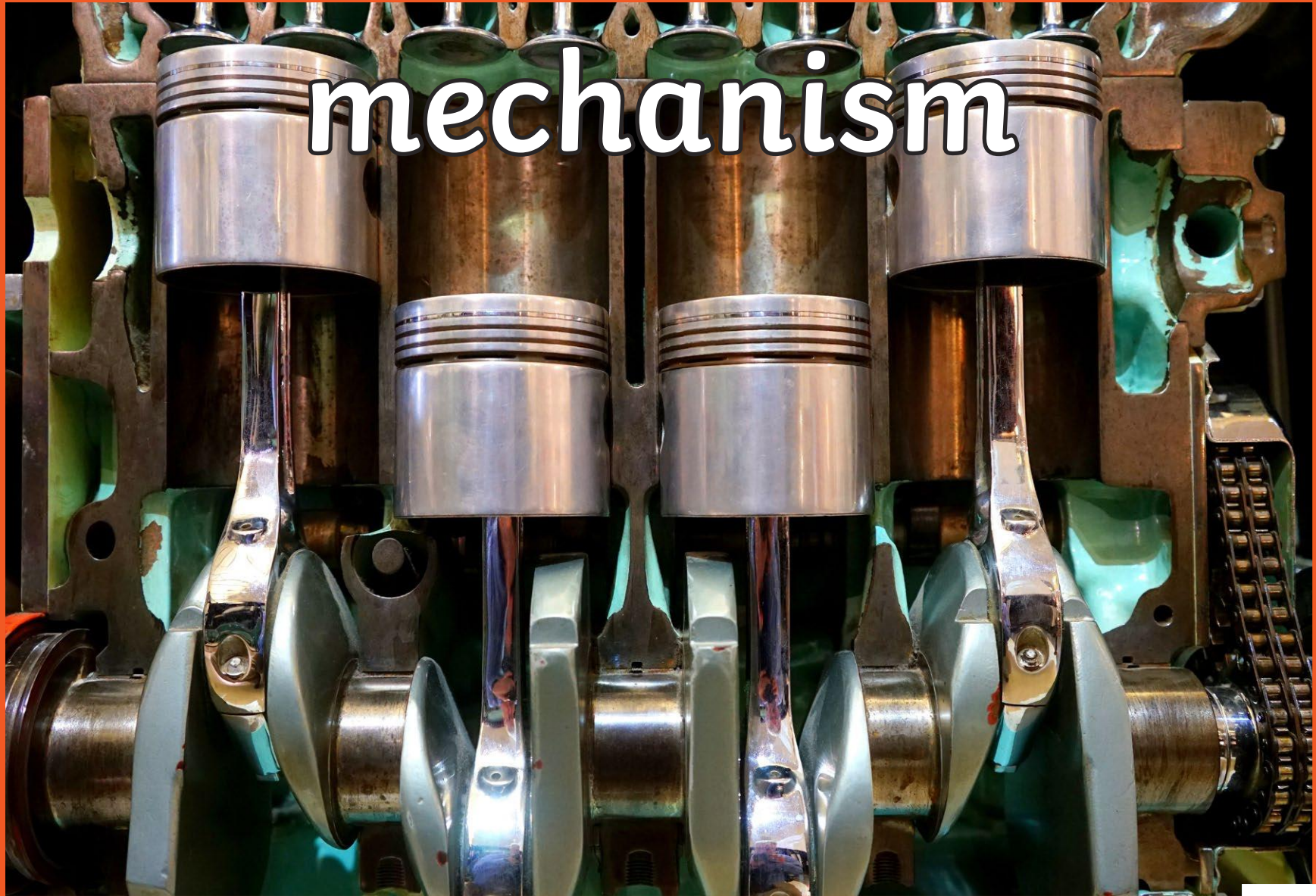
push





pull

mechanism



lever



Isaac Newton

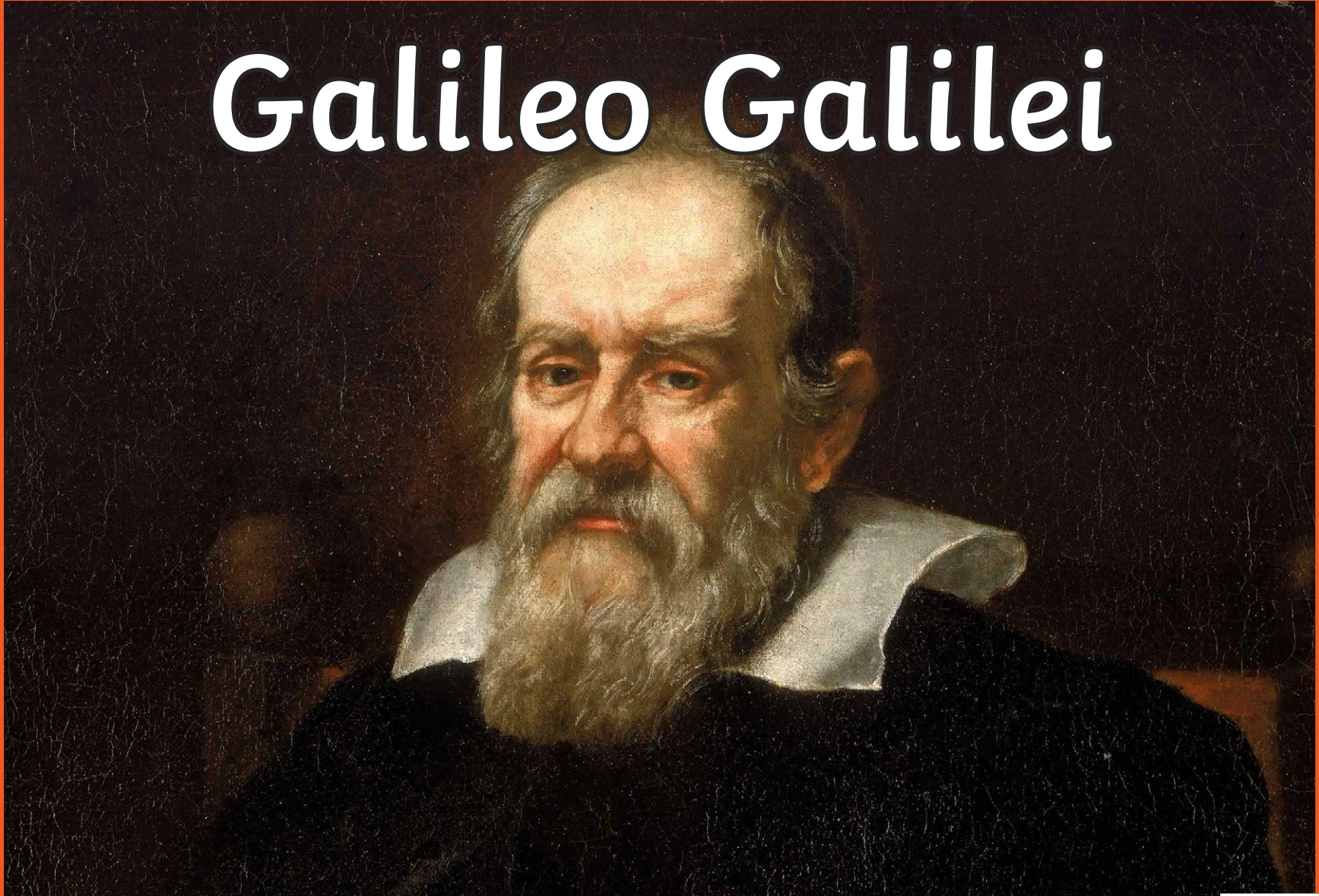


gravity





Galileo Galilei



friction



pulley





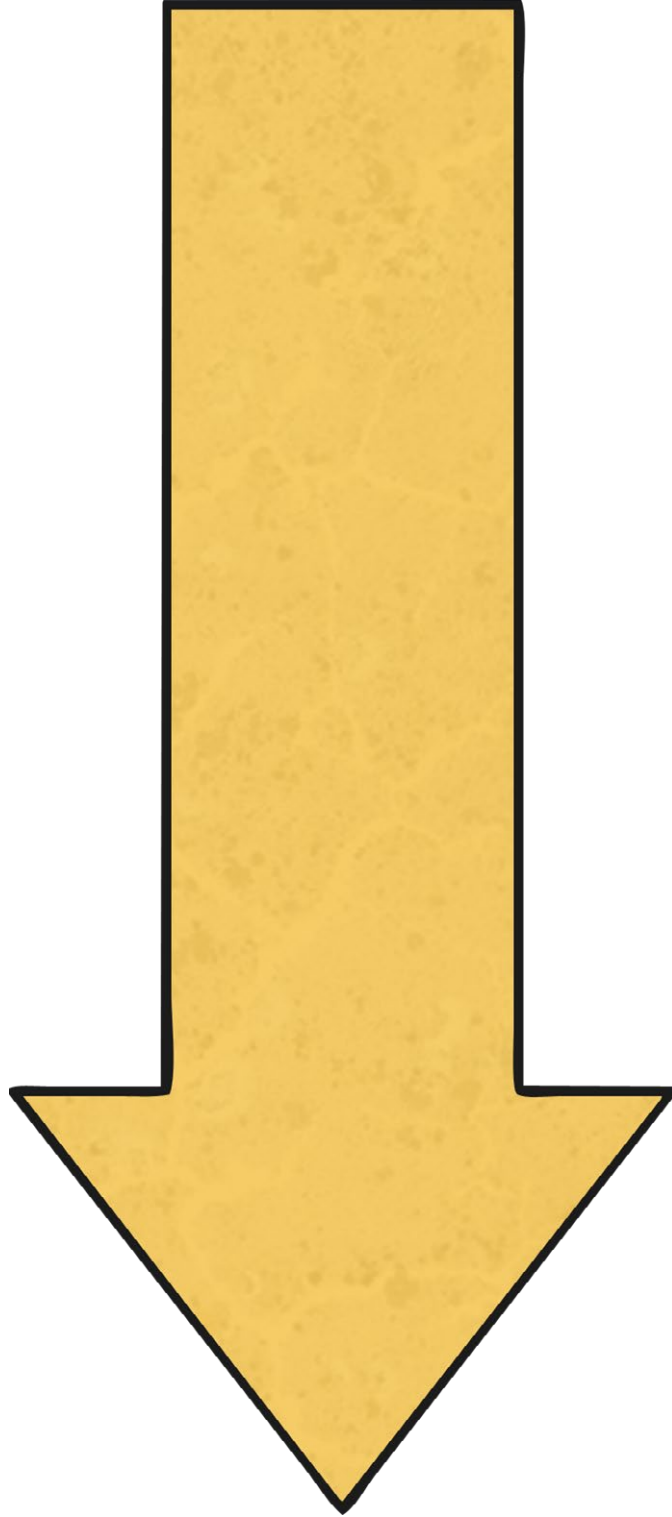
brake



air resistance



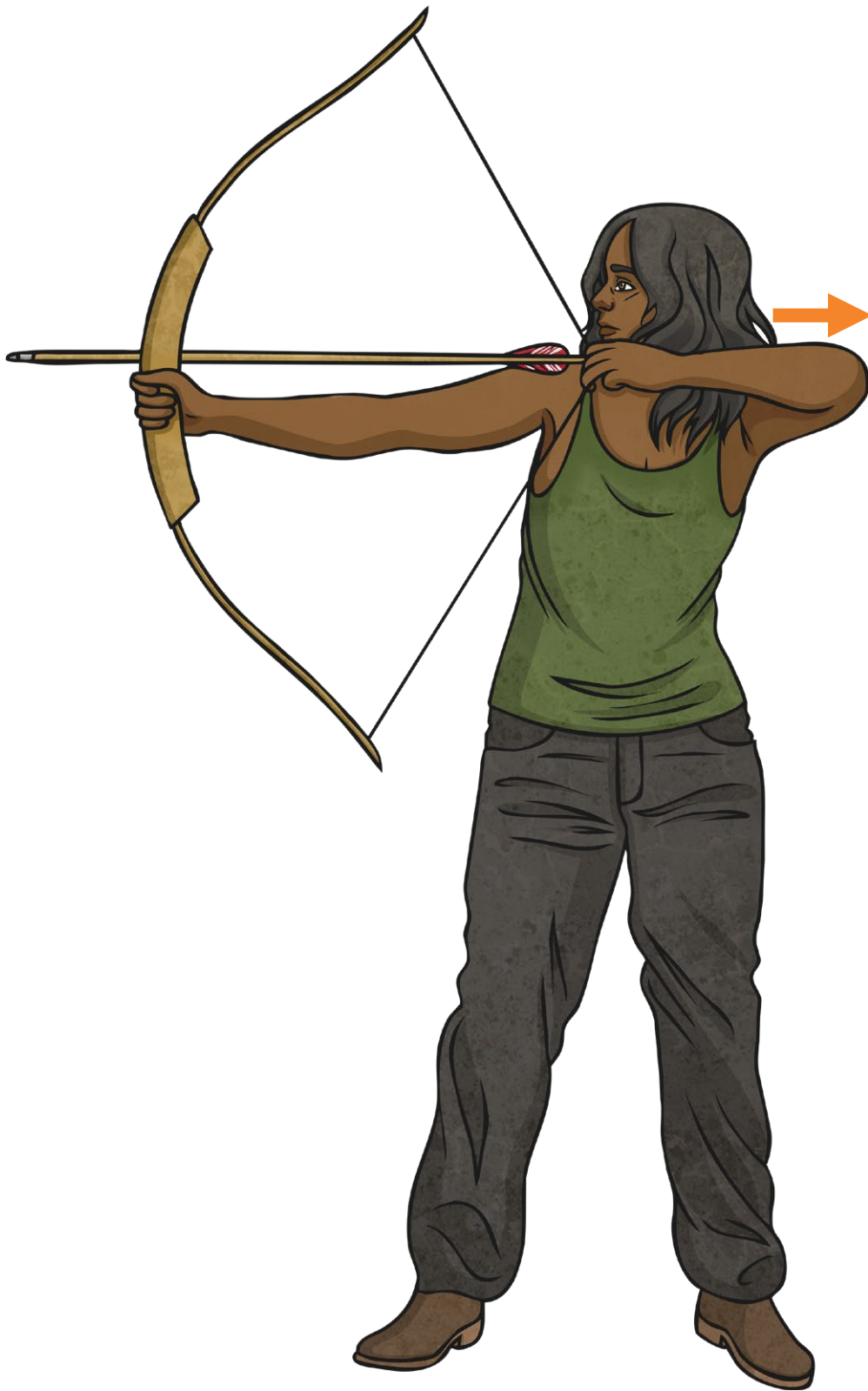
force



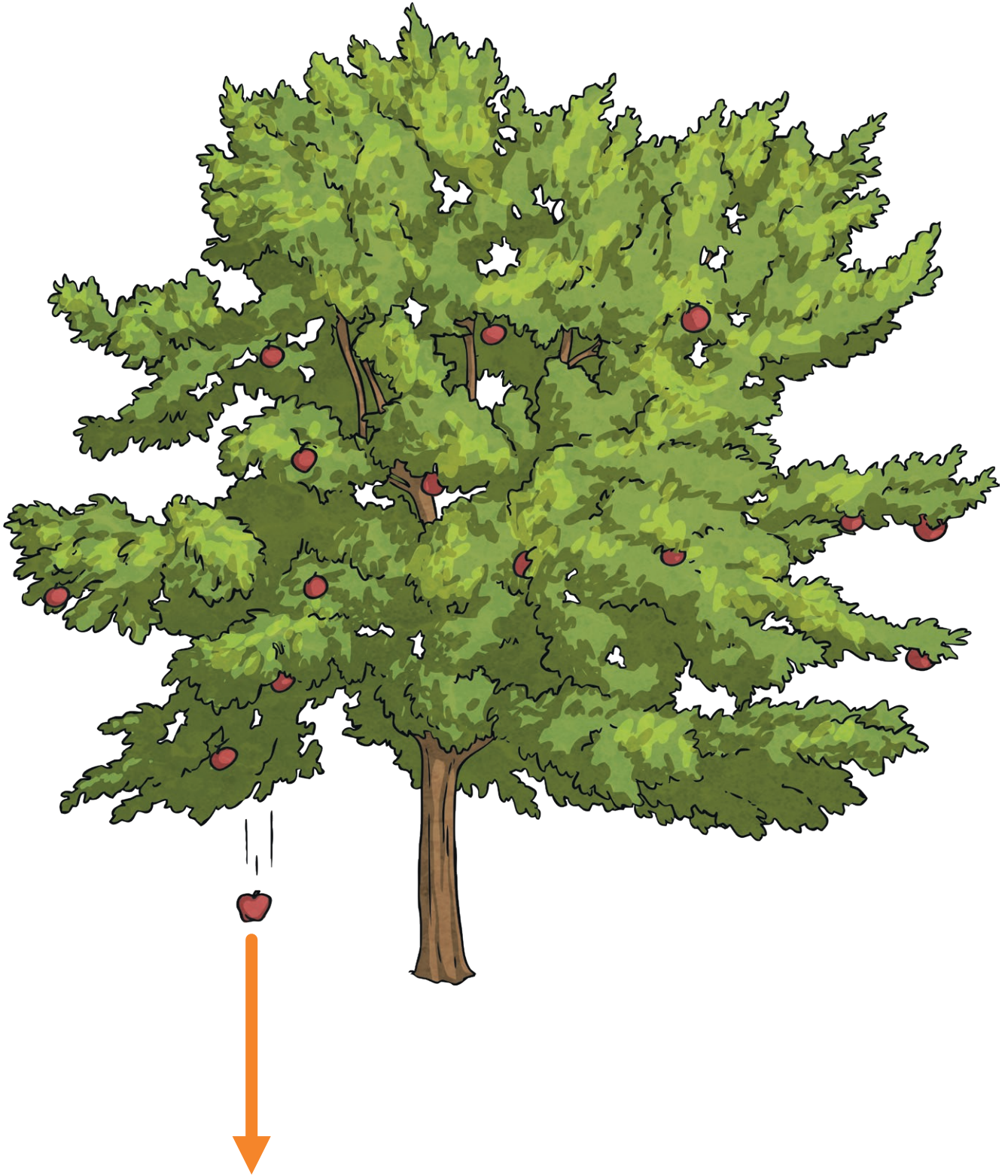
push



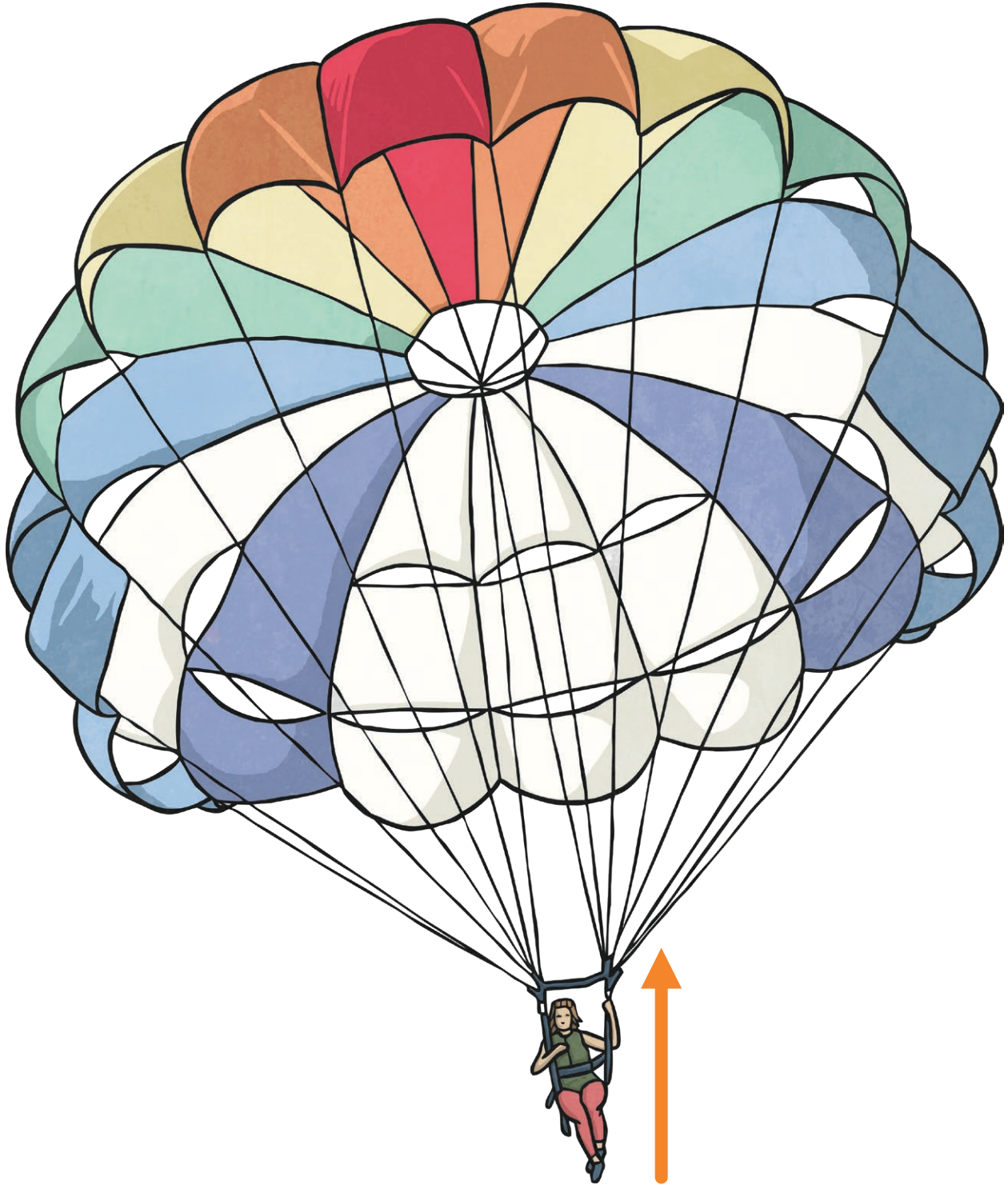
pull



gravity



air resistance



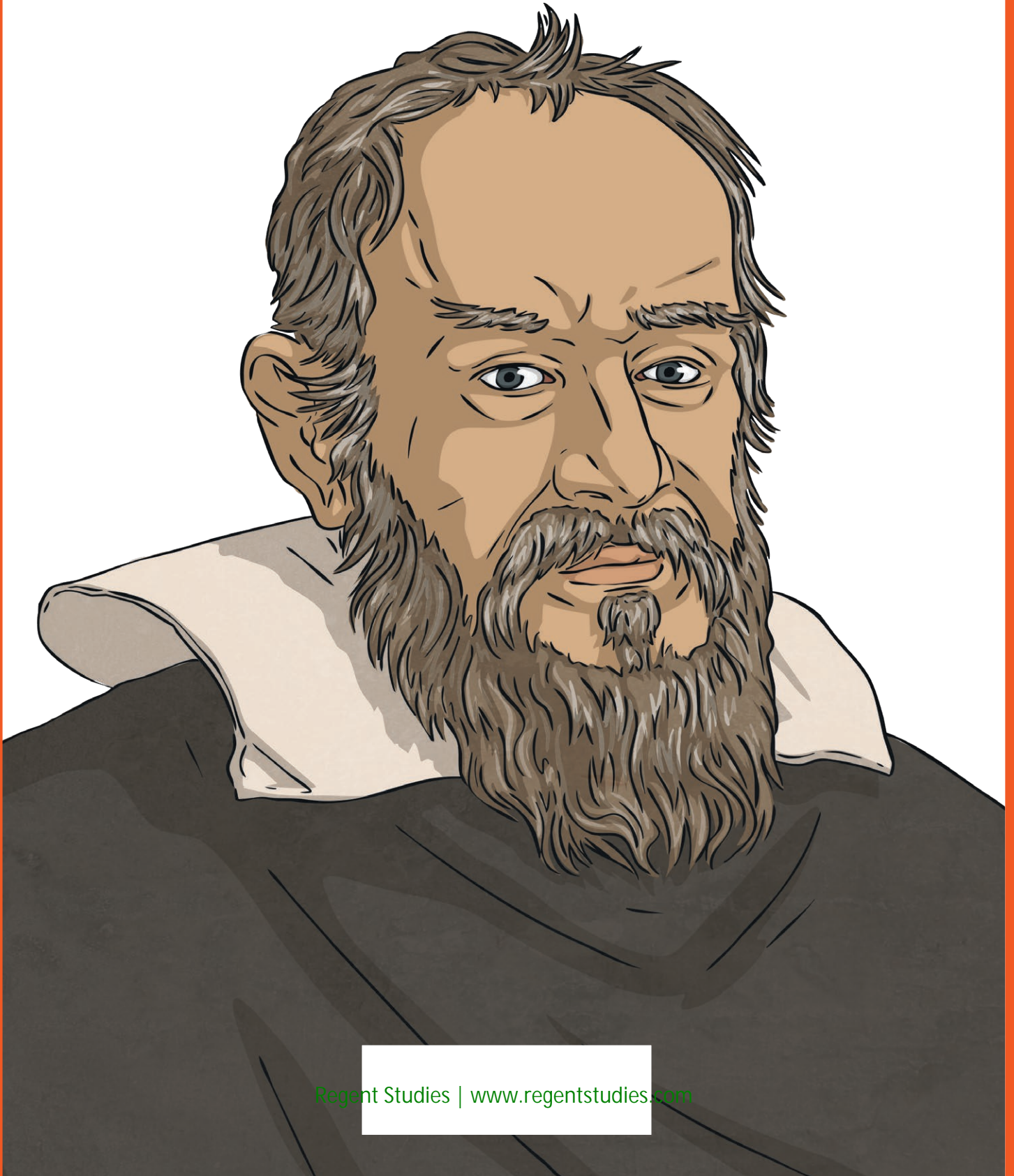
friction



Isaac Newton



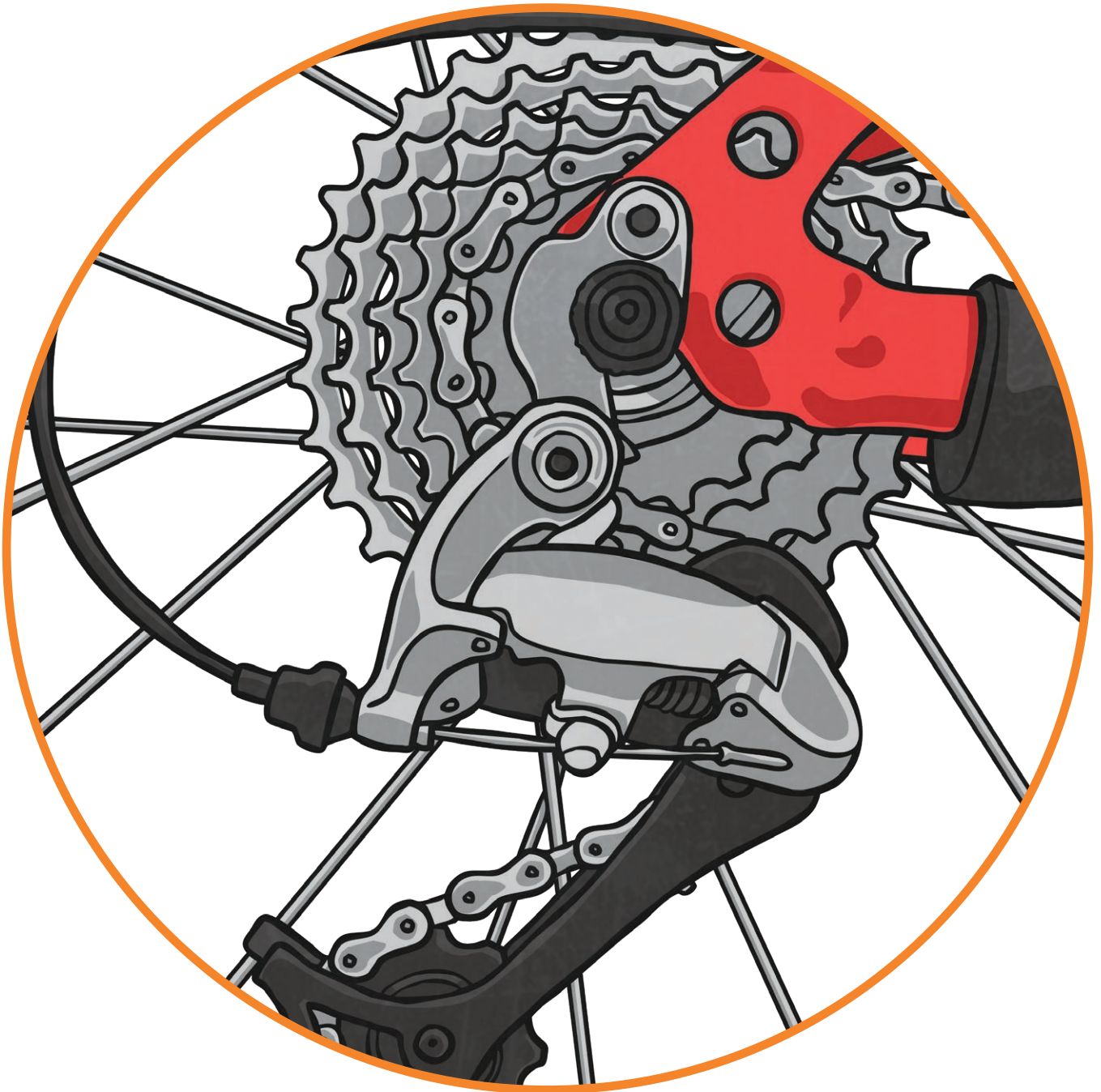
Galileo Galilei



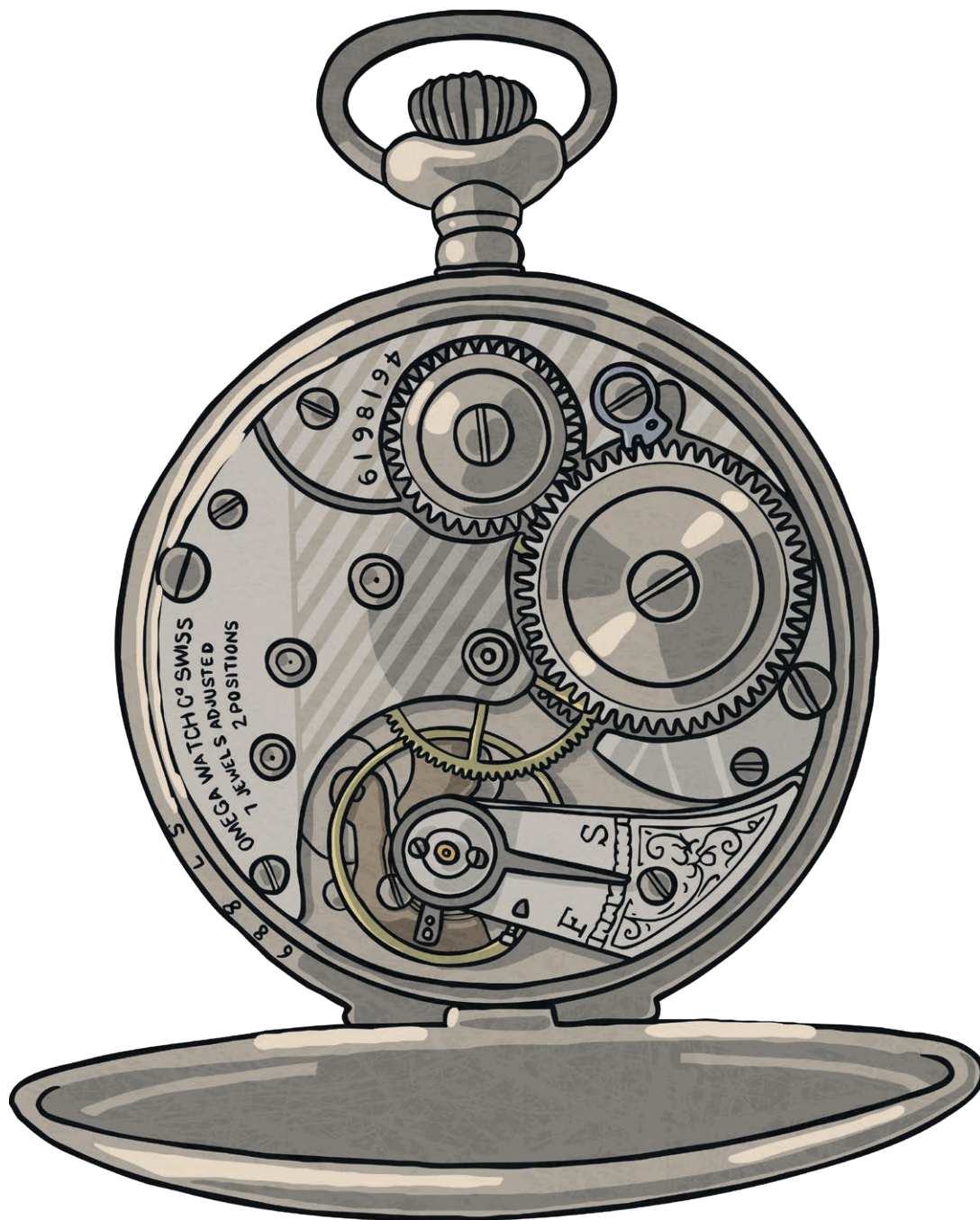
brake



gear



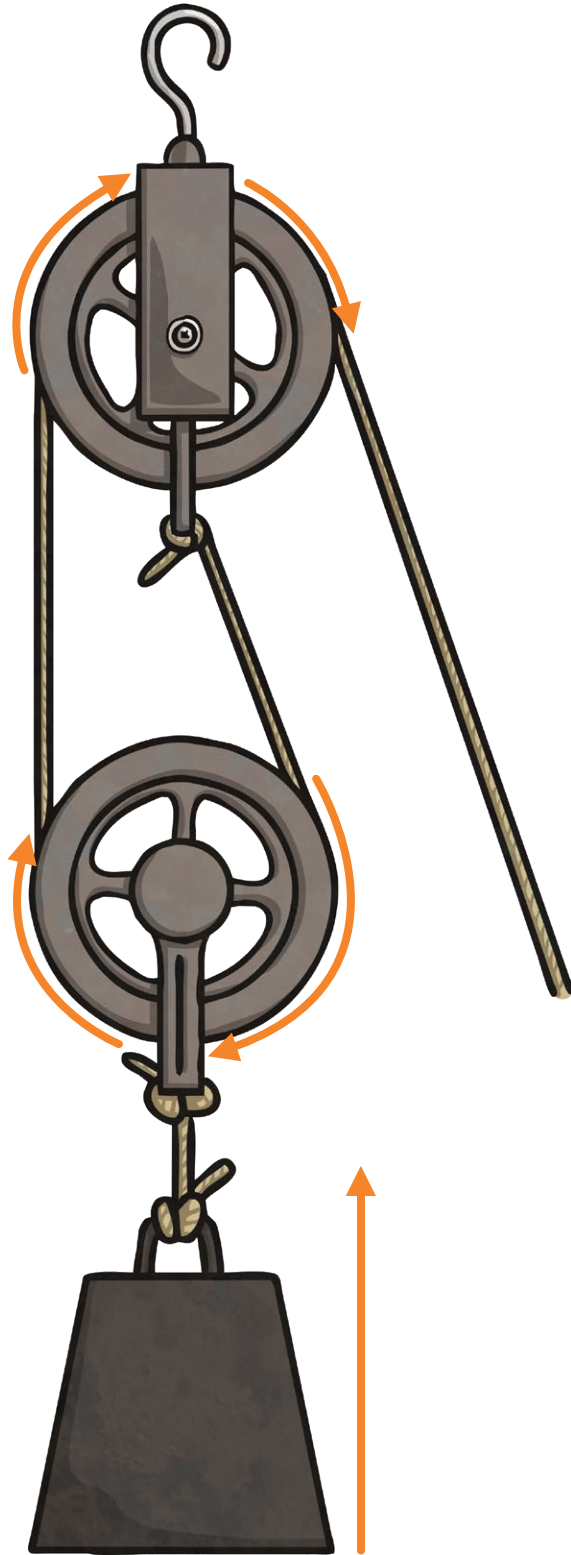
mechanism



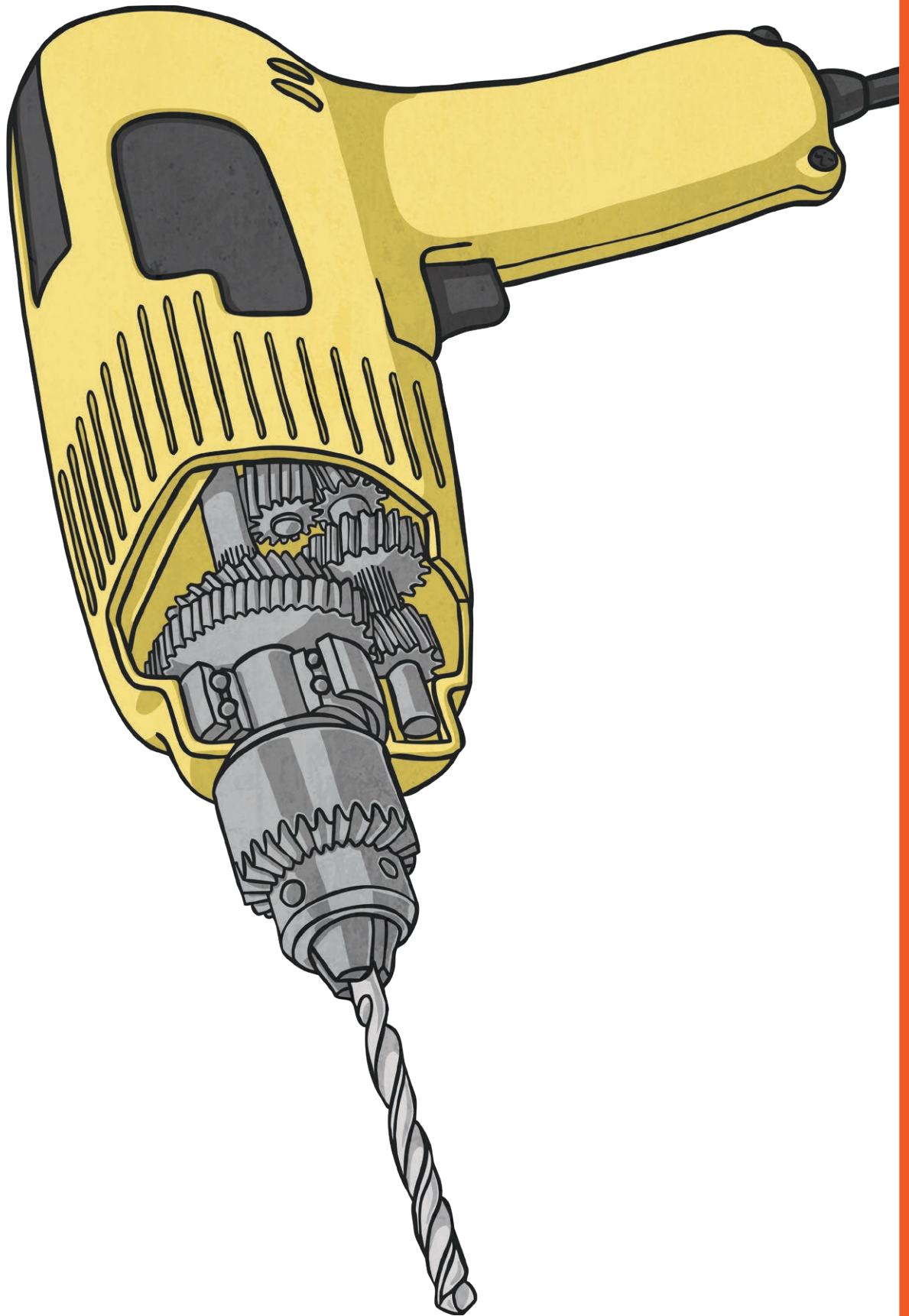
COG



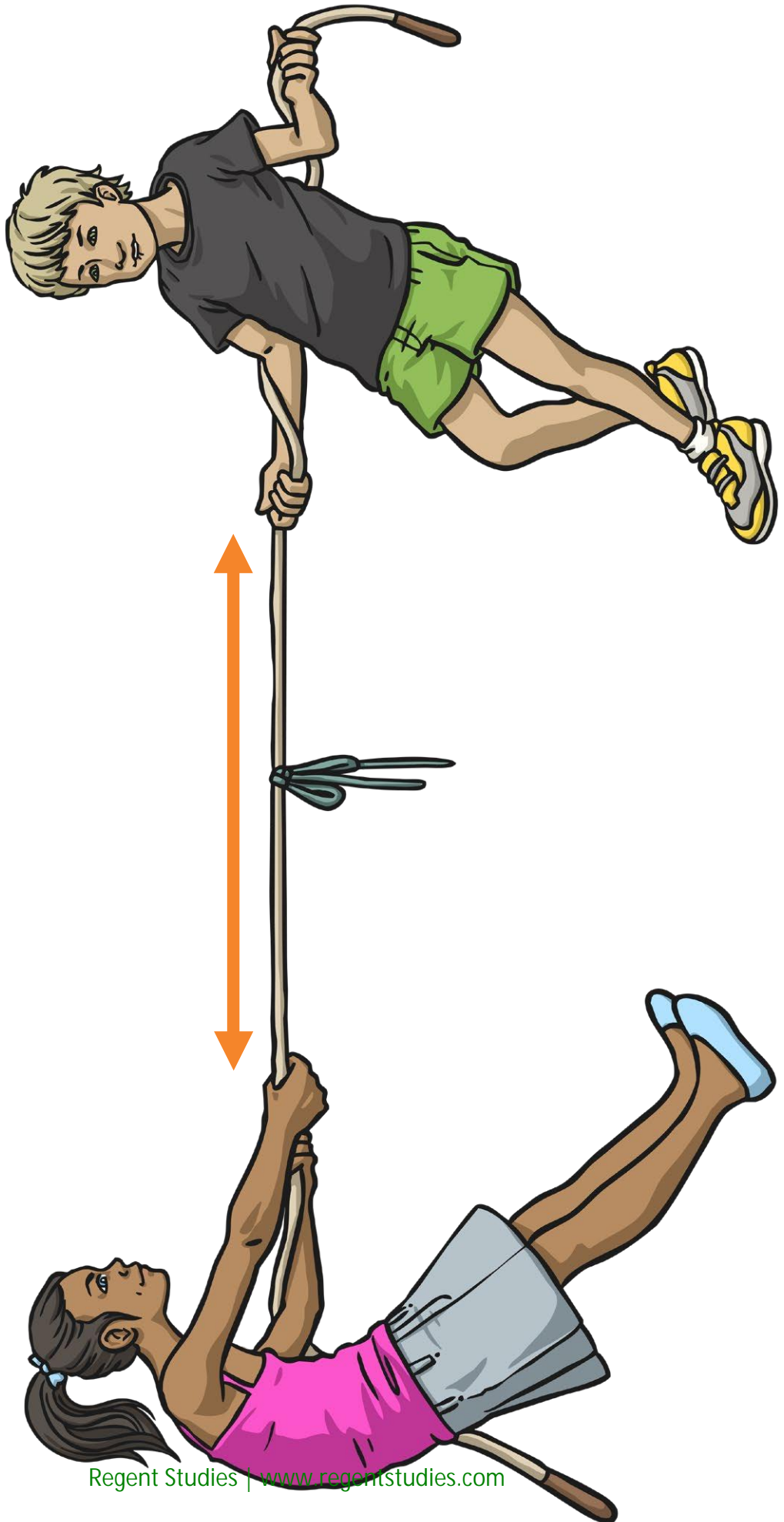
pulley



machine



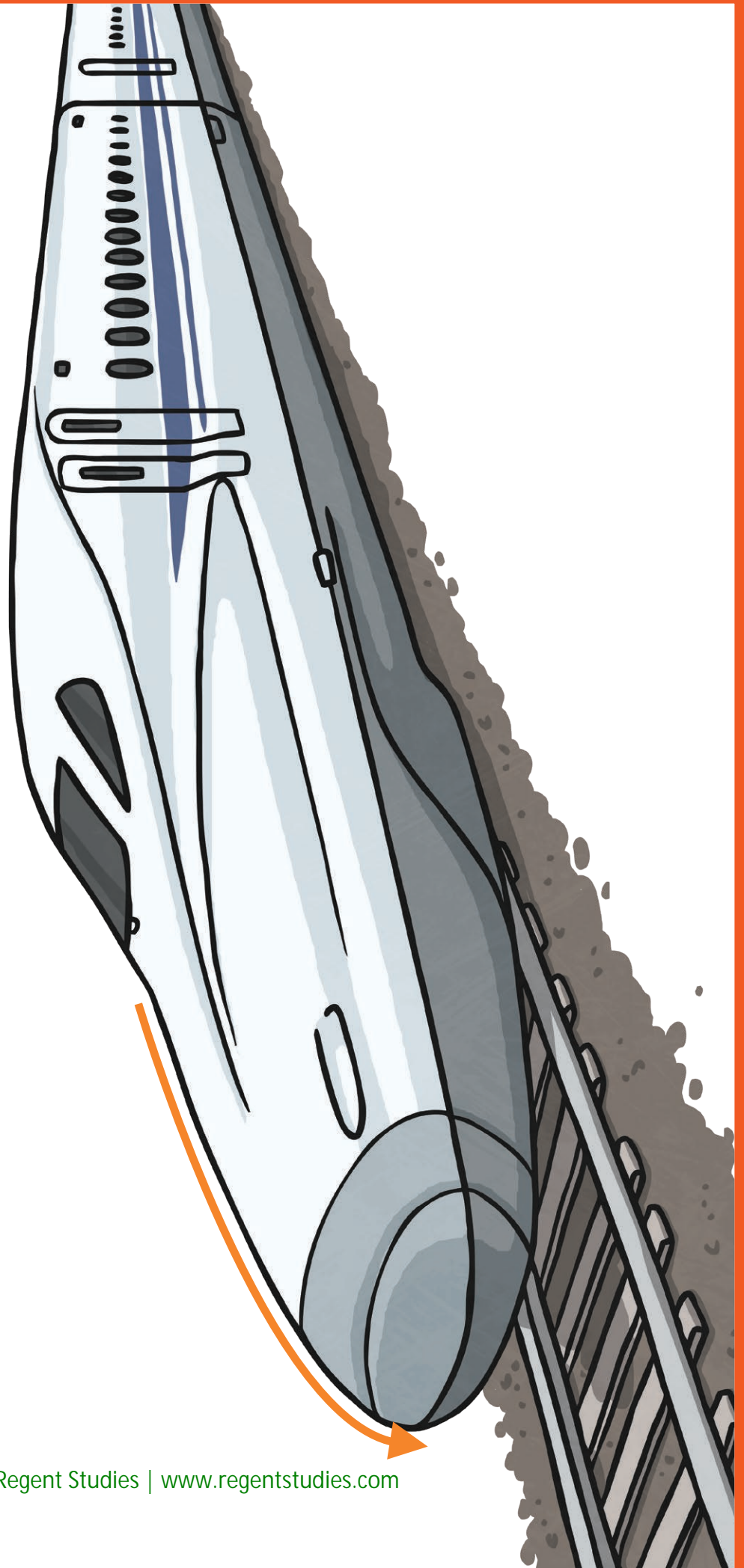
opposing



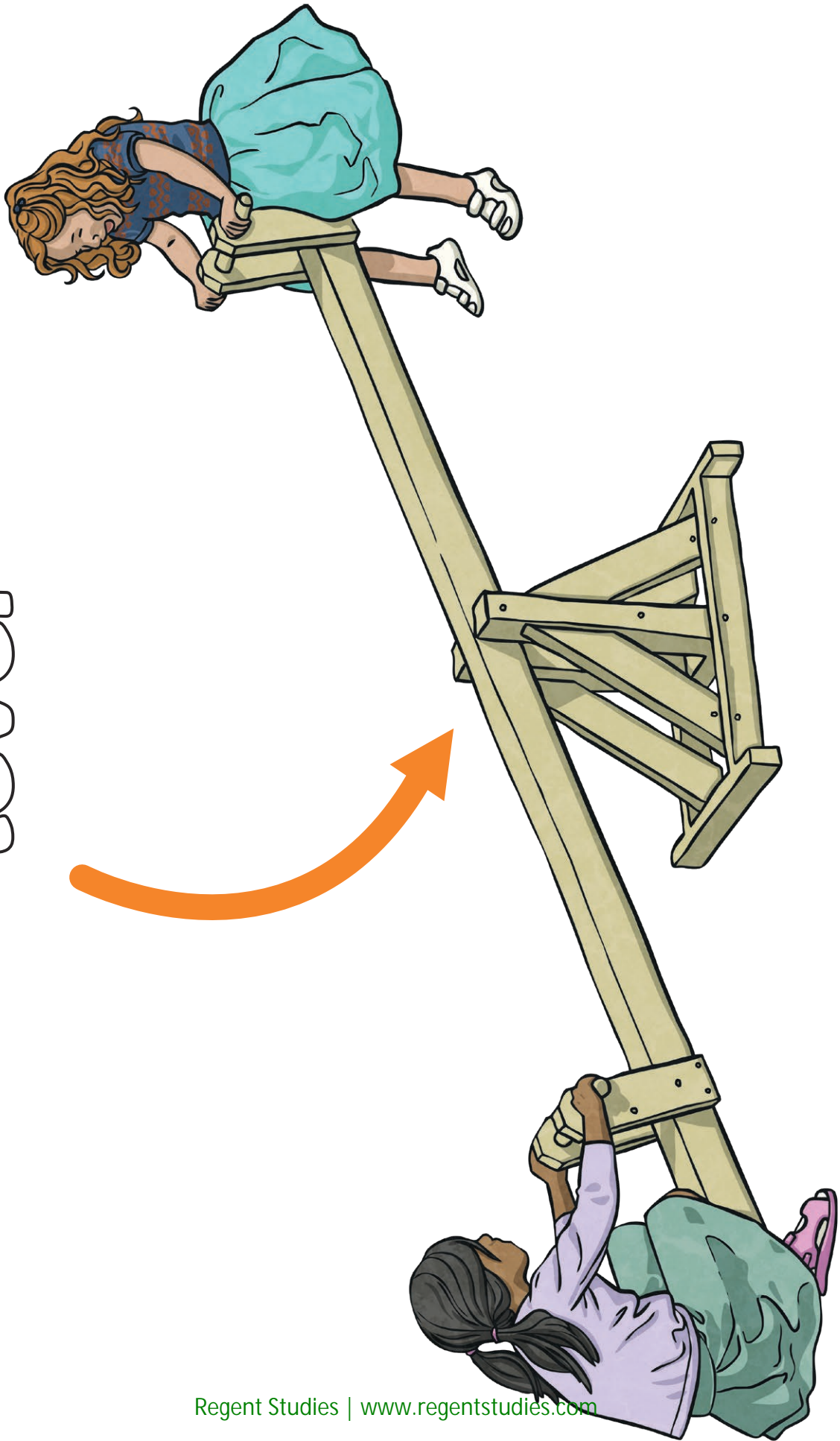
water resistance



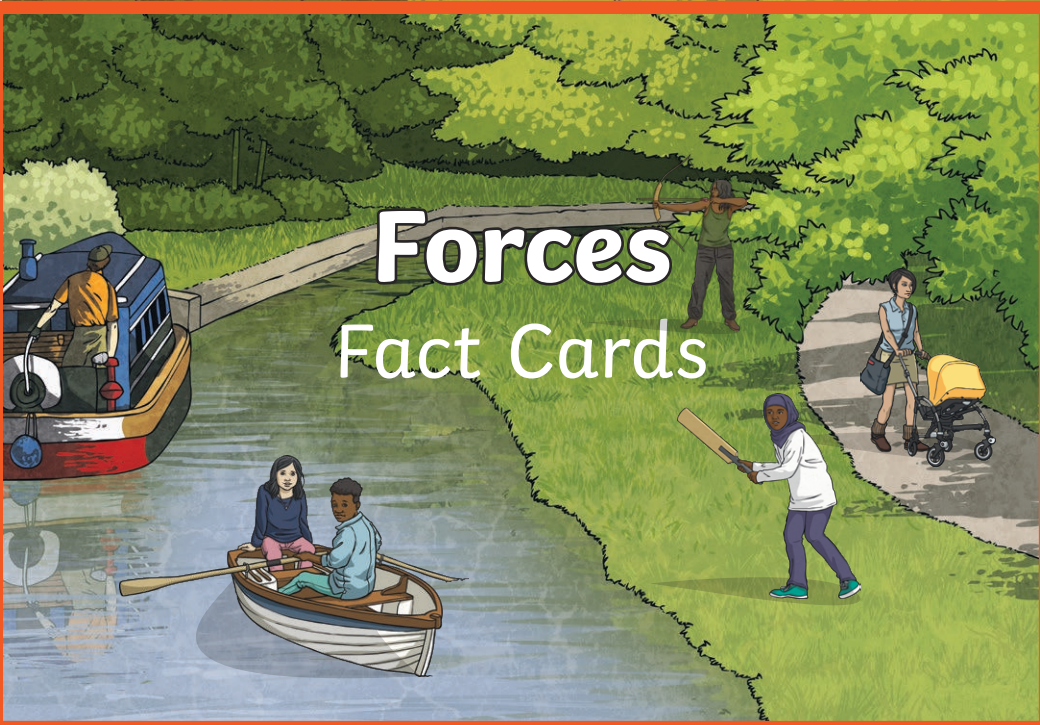
streamline



Lever



Forces Fact Cards



Forces Fact Cards

On Earth, the force of gravity is about 10 newtons for every 1 kilogram of mass.

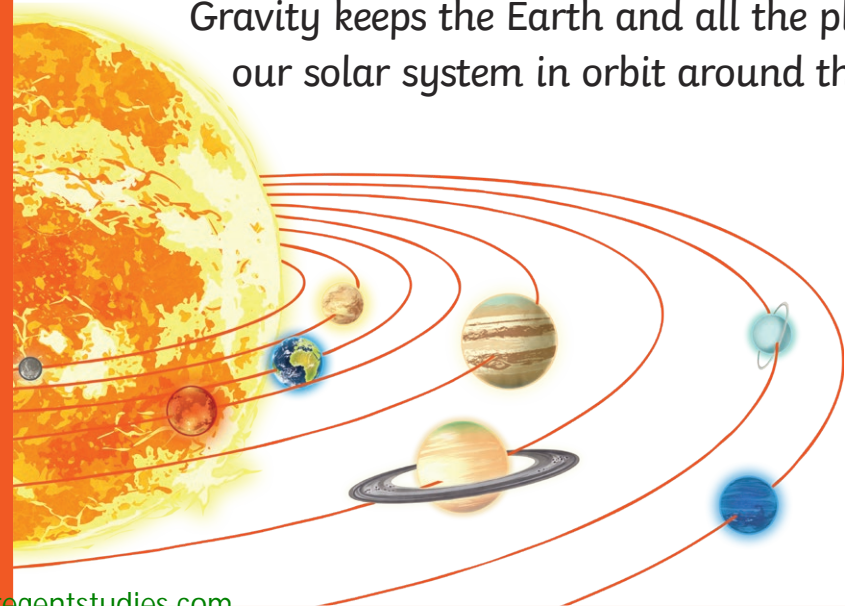
Forces Fact Cards

Friction between two surfaces can generate static electricity.



Forces Fact Cards

Gravity keeps the Earth and all the planets in our solar system in orbit around the Sun.



Forces Fact Cards



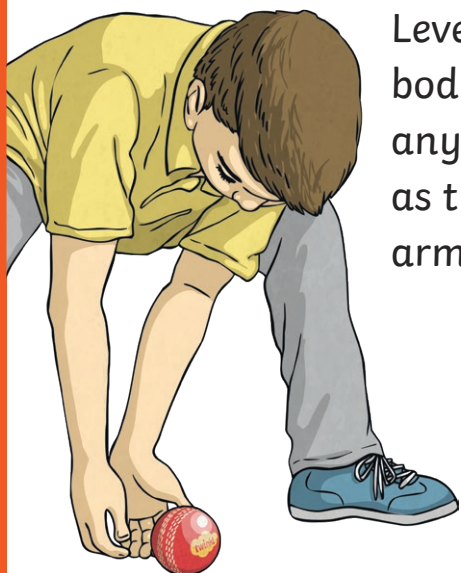
Slippery substances, such as oil, reduce the friction between two surfaces. This is known as lubrication.

Forces Fact Cards



When travelling at 50 miles per hour, a car uses around half its fuel just to overcome the effects of air resistance.

Forces Fact Cards



Levers occur naturally inside our bodies! Whenever you pick up anything heavy your elbow acts as the pivot of the lever and your arm bone acts as the lever itself.

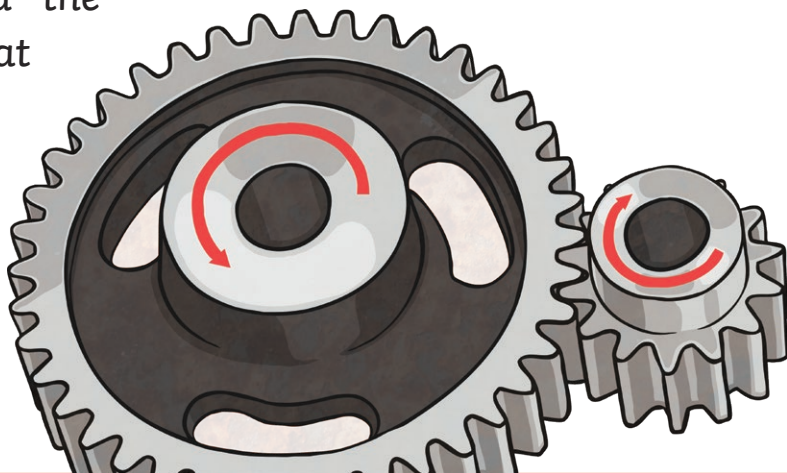
Forces Fact Cards



A ship floats in water because the force from the water pushing it up (buoyancy) is equal to the force of gravity pulling it down.

Forces Fact Cards

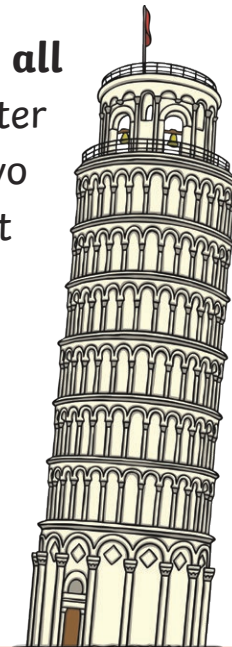
When two or more gears are connected, this is called a 'gear train.' The gear that you turn is called the 'driver' and the last gear that you are trying to move is called the 'driven' gear.



Forces Fact Cards

In 1590, **Galileo Galilei proved that all objects fall at the same rate**, no matter what their mass is. He dropped two balls of a similar shape and size, but with different masses, from the top of the Leaning Tower of Pisa.

They landed at the same time.



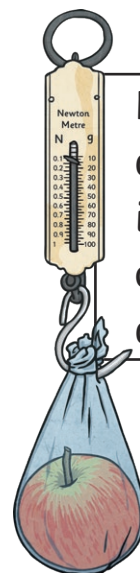
Forces Fact Cards

When a hammer and a feather were dropped on the moon, they both landed at the same time because there is no air resistance on the moon to slow the feather down.



Forces Fact Cards

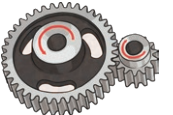
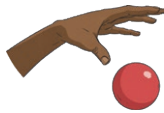
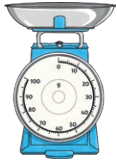
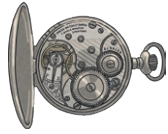
Forces are measured in newtons (N) using a newton meter. This unit of measurement is named after Sir Isaac Newton because of his important discoveries about gravity and forces.

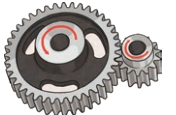
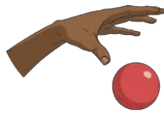
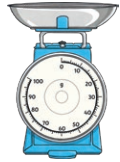
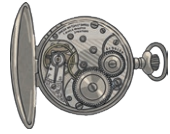


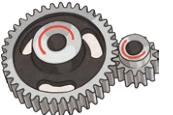
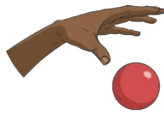
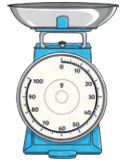
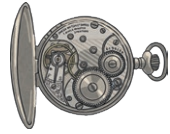
Forces Fact Cards

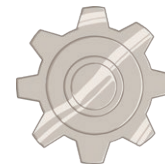
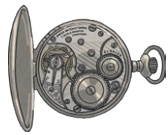
Levers were used to construct pyramids in ancient Egypt.

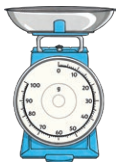










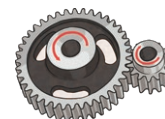
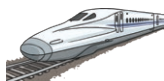


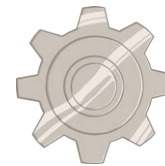
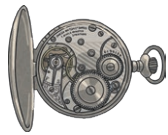


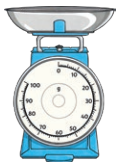




























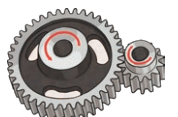
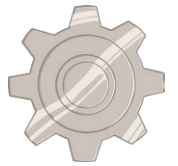
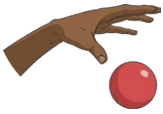
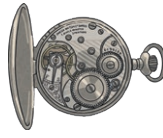


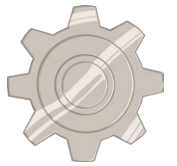
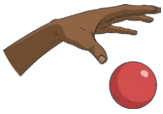
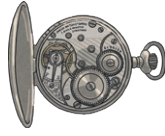


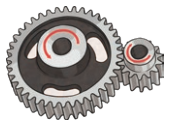
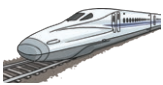


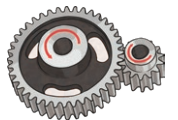
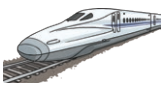
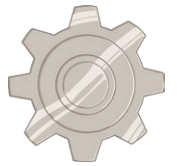
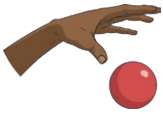
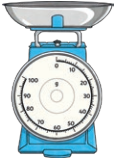
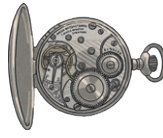


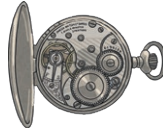


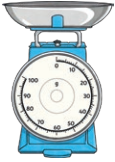


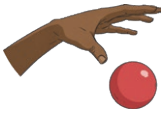


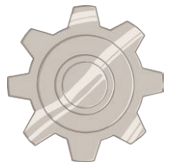






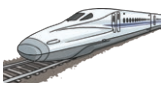








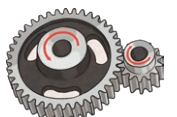


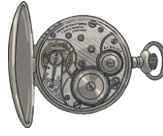


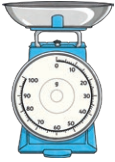


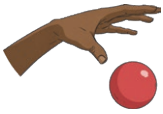


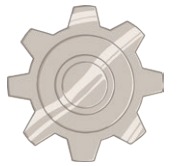




















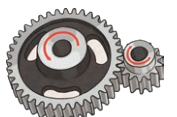












Forces

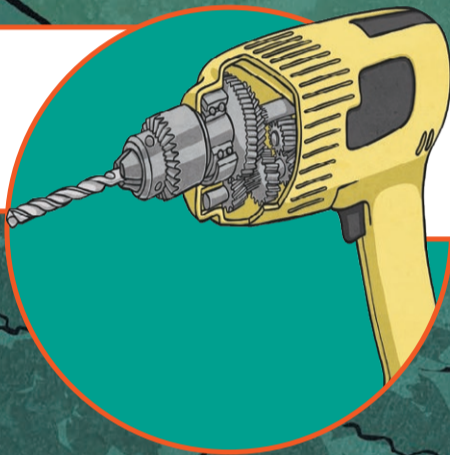


air resistance

gro

mech

gear

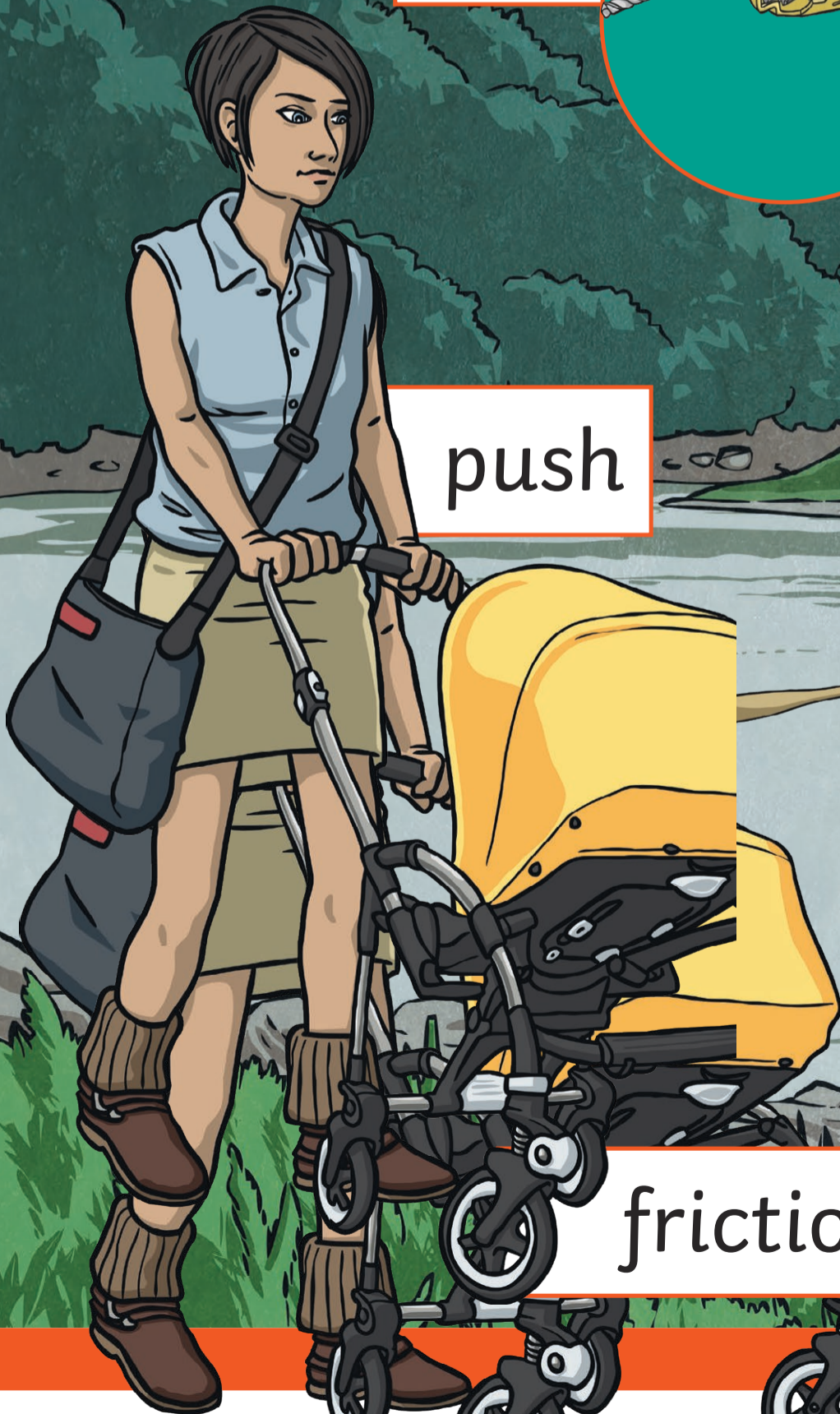


machine

brake



push



buoyancy

water

friction

nce

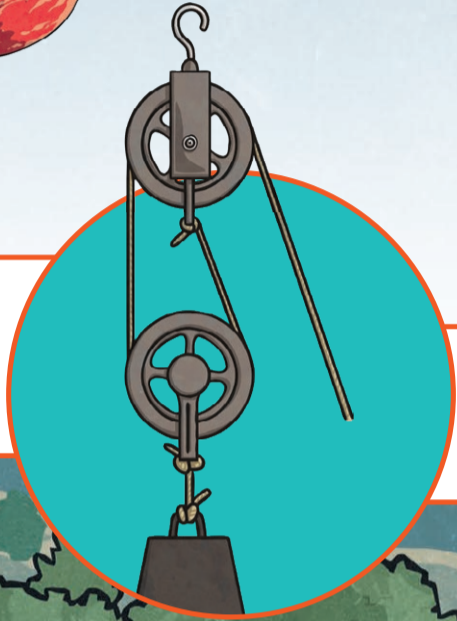
streamline



gravity



mechanism

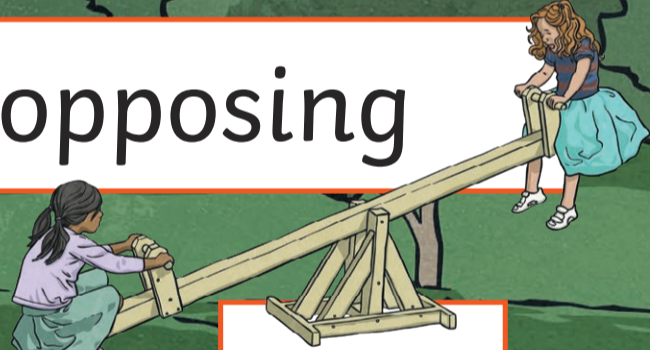
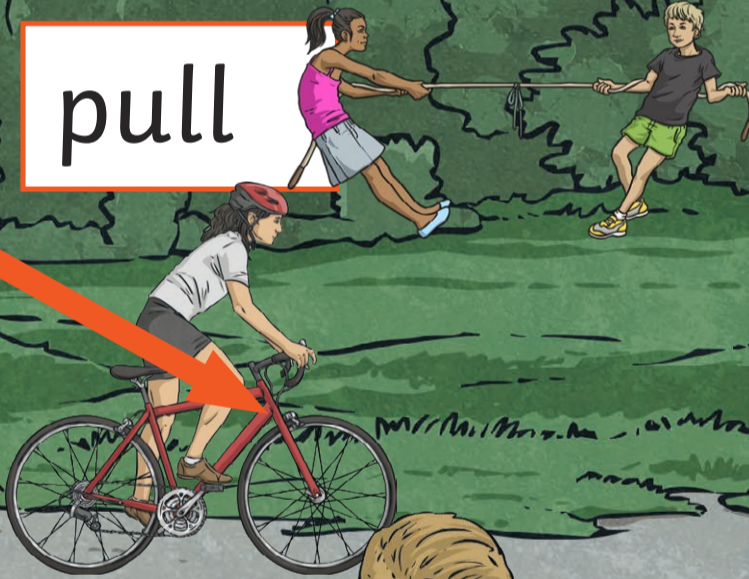


pulley



pull

opposing



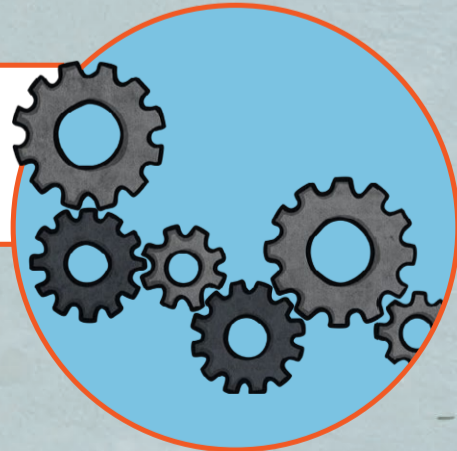
lever

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er resistance



cog



Forces

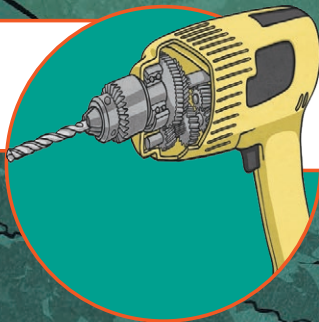


air resistance

gravity

mechanical

gear



machine

brake



push



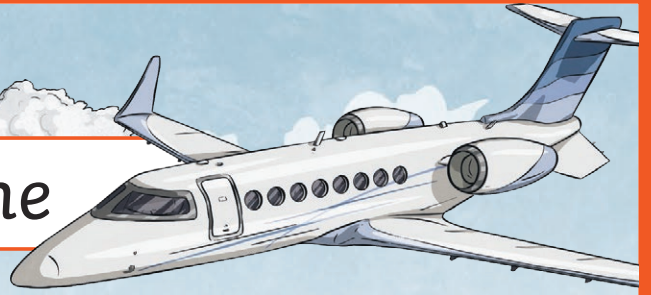
buoyancy

water

friction

nce

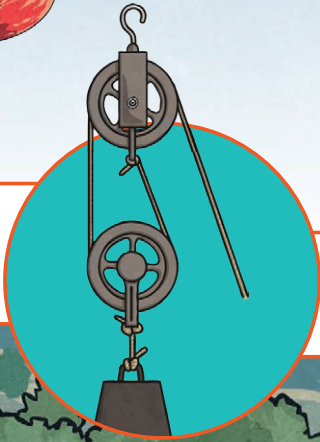
streamline



gravity



mechanism



pulley



pull

opposing

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er resistance



cog



Forces

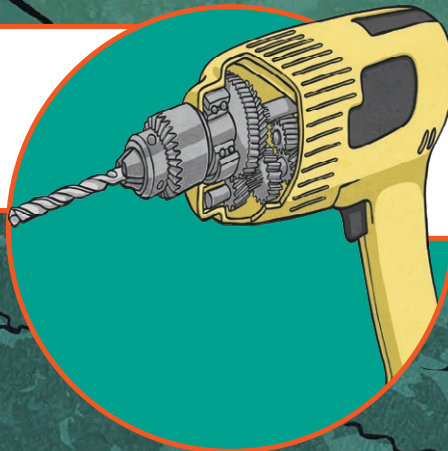


air resistance

gravity

mechanical

gear



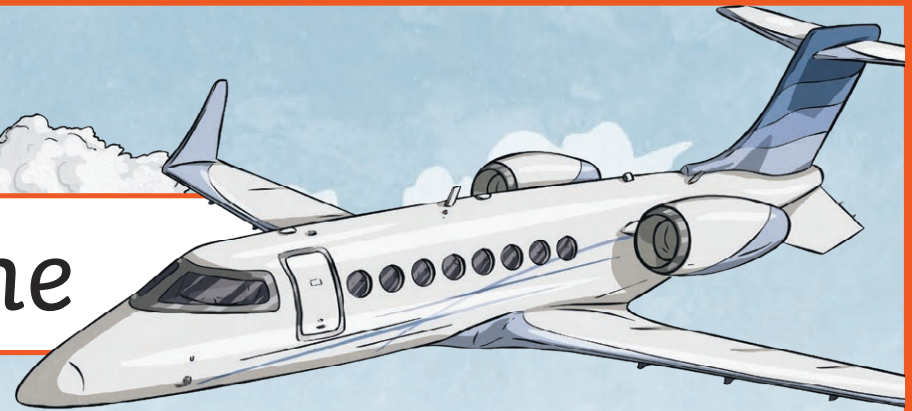
machine

brake



force

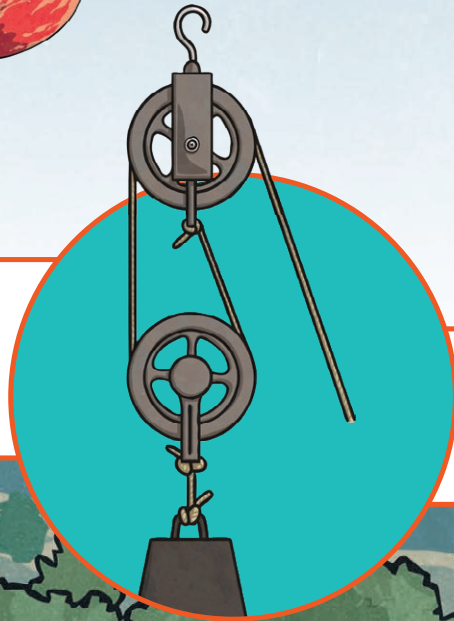
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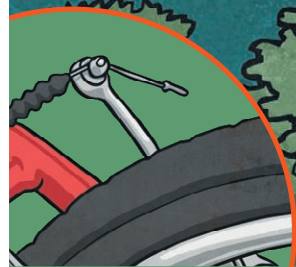
gravity



mechanism

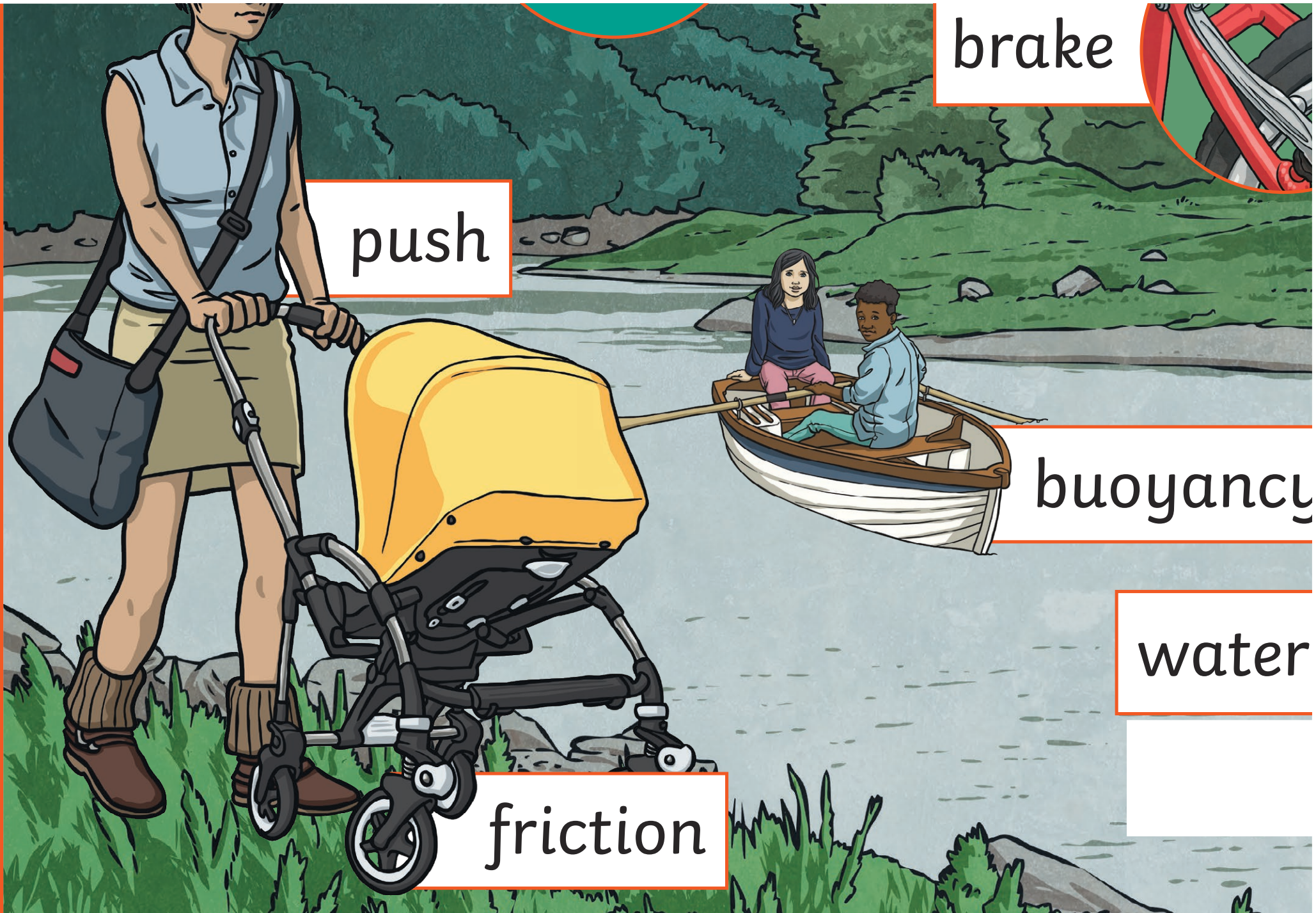


pulley



pull





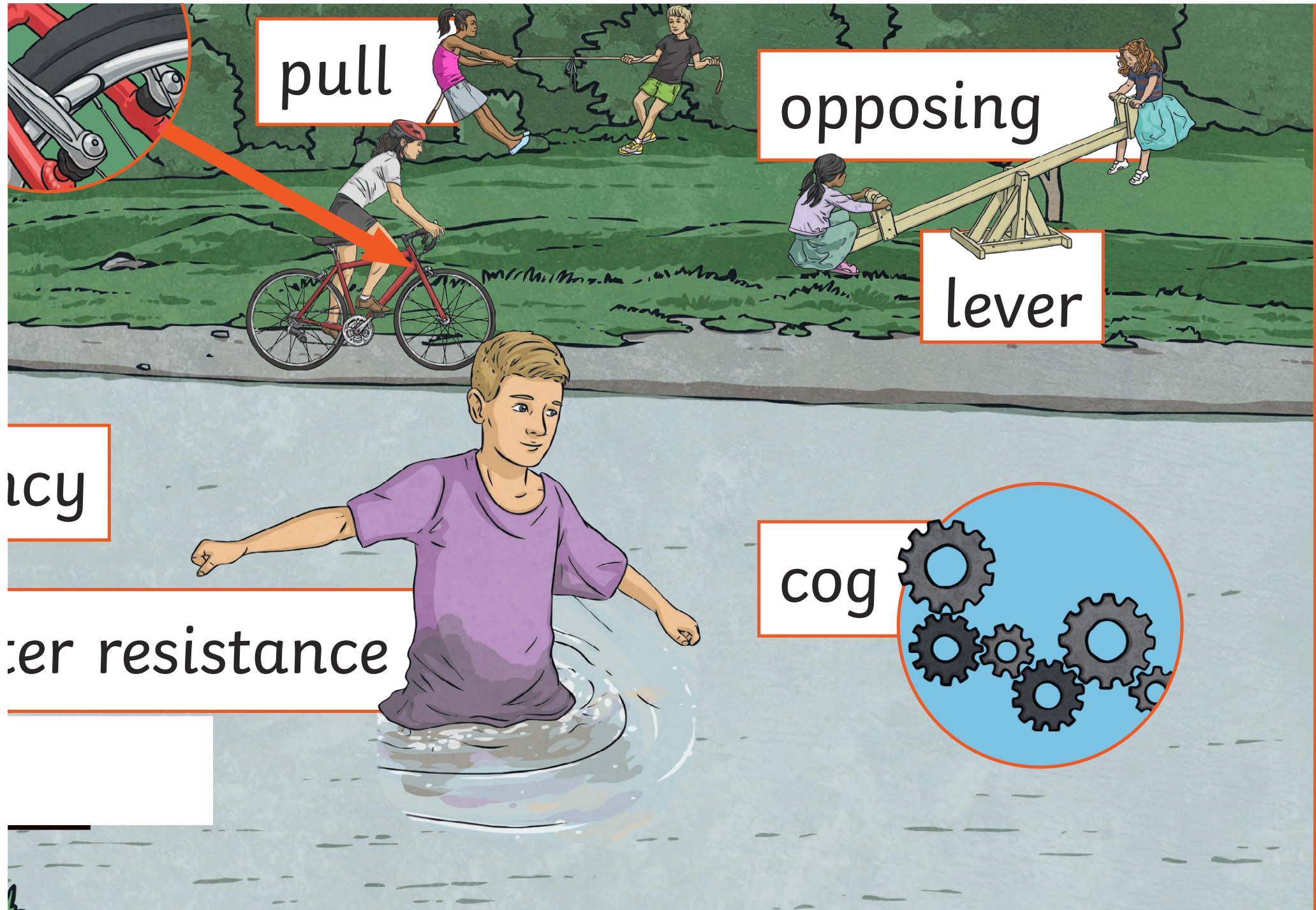
brake

push

buoyancy

water

friction



buoyancy

water resistance

cog



Forces



air resistance

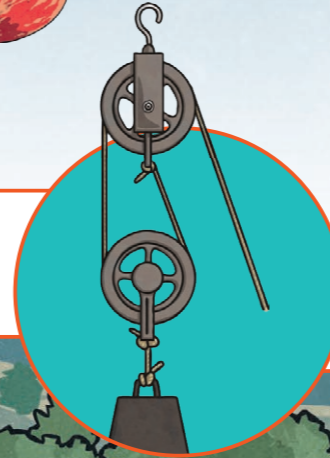
streamline



gravity

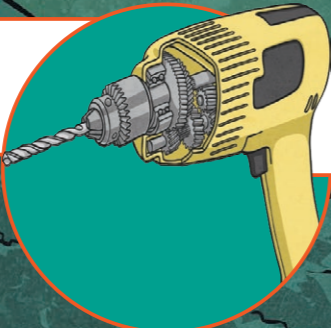


mechanism



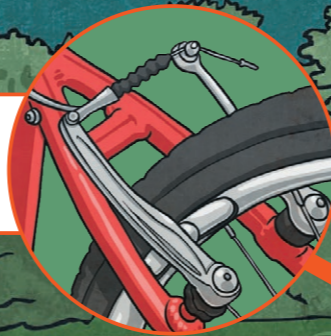
pulley

gear



machine

brake



pull



opposing



lever

push



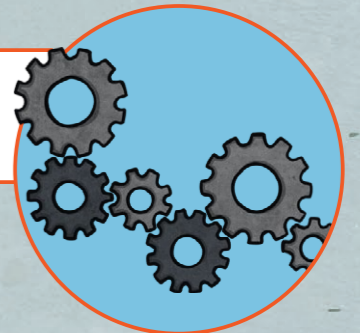
buoyancy



water resistance



cog



friction

Forces



air resistance

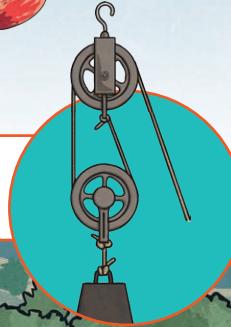


streamline

gravity

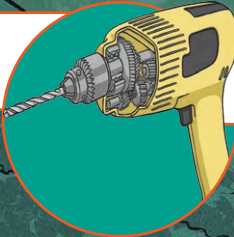


mechanism



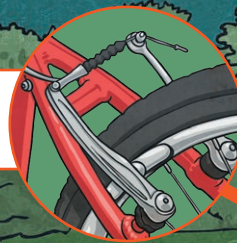
pulley

gear



machine

brake



pull

opposing

lever

push



friction

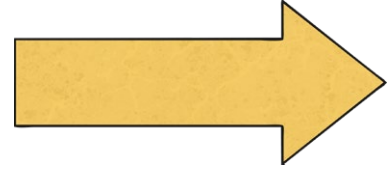
buoyancy

water resistance

cog



force



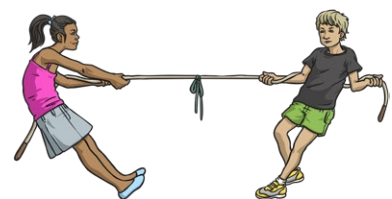
push



pull



opposing



gravity



**air
resistance**



**water
resistance**



friction



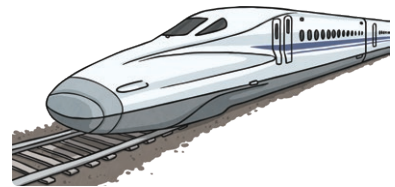
**Isaac
Newton**



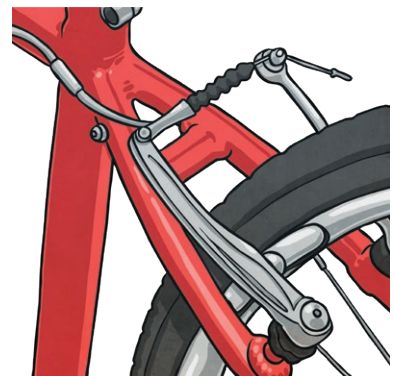
**Galileo
Galilei**



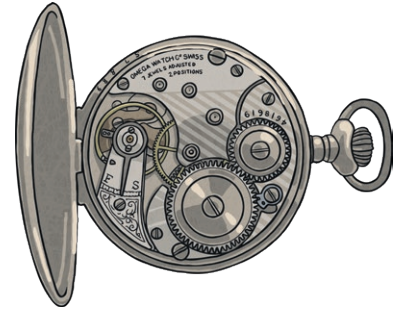
streamline



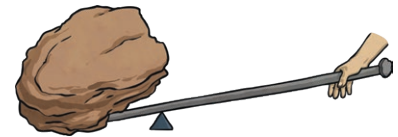
brake



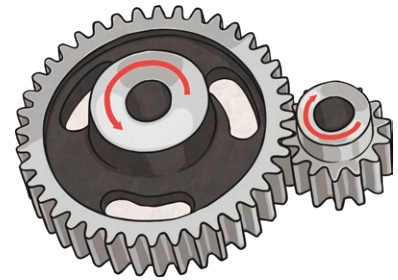
mechanism



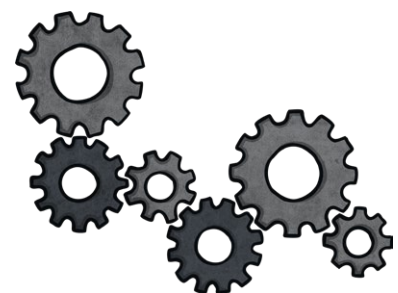
lever



gear



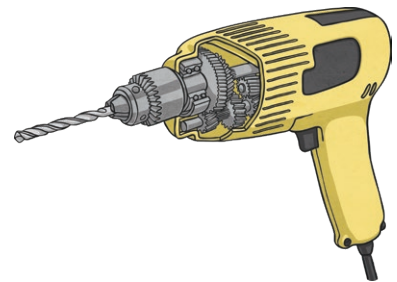
cog



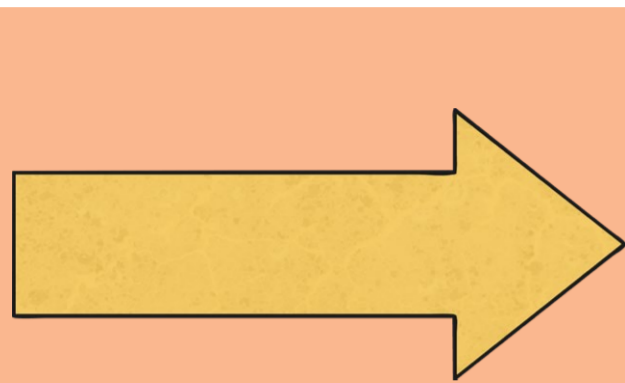
pulley



machine



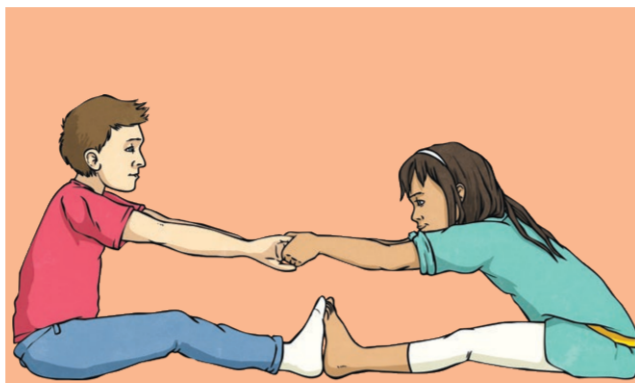
Forces



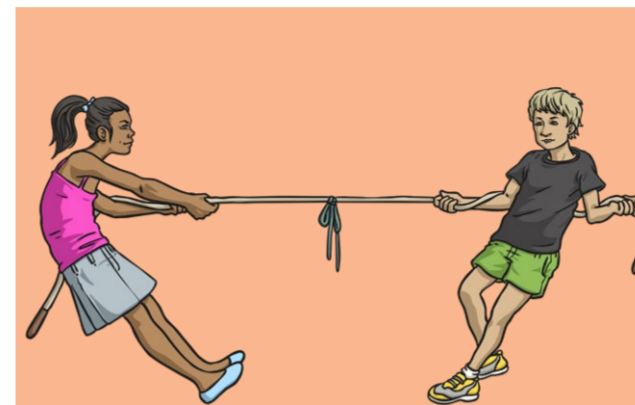
force



push



pull



opposing



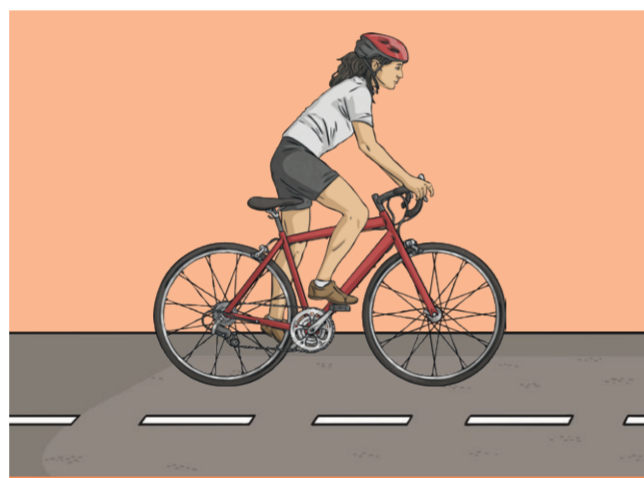
gravity



air resistance



water resistance



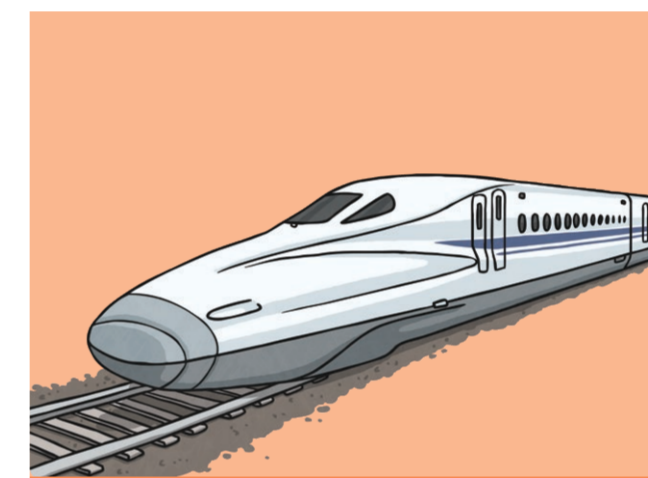
friction



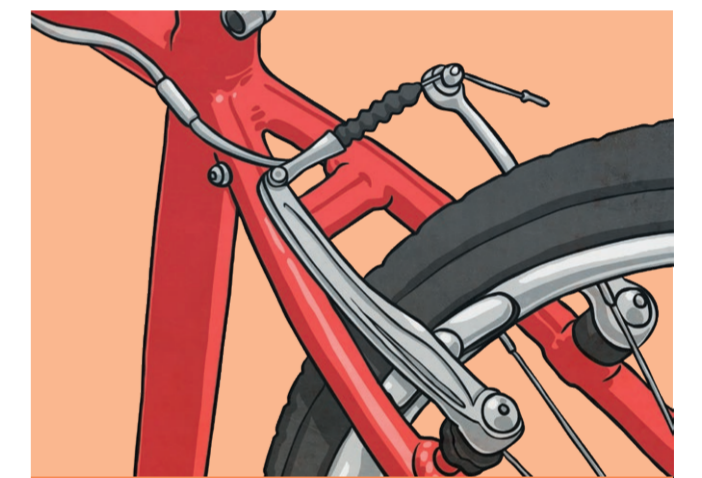
Isaac Newton



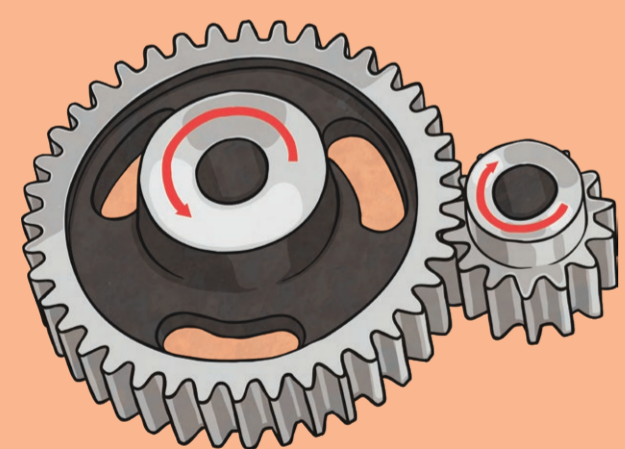
Galileo Galilei



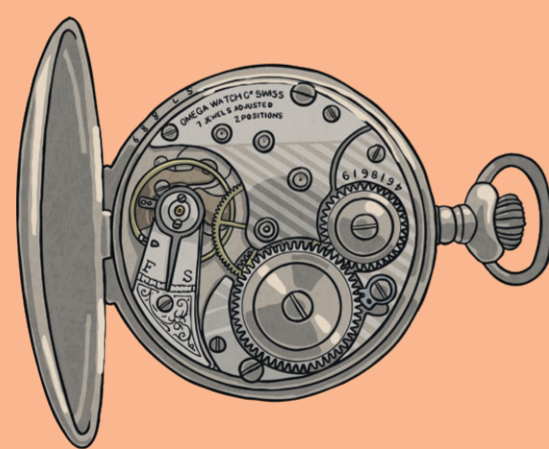
streamline



brake



gear



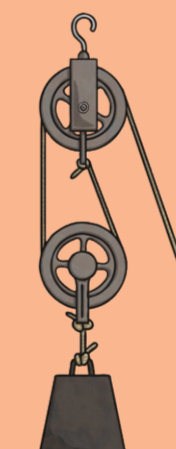
mechanism



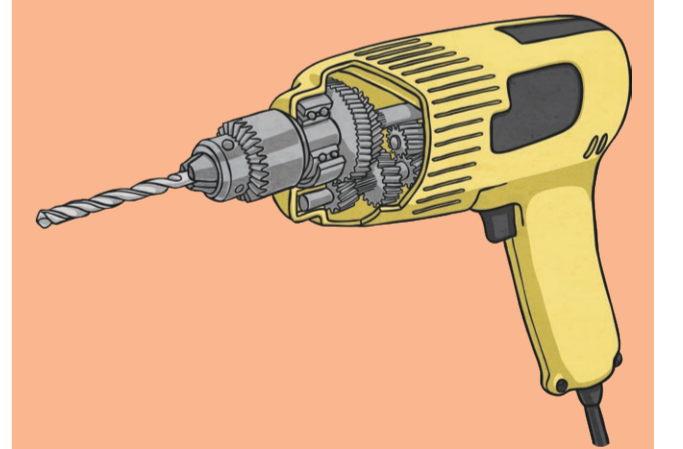
lever



cog



pulley



machine

Forces

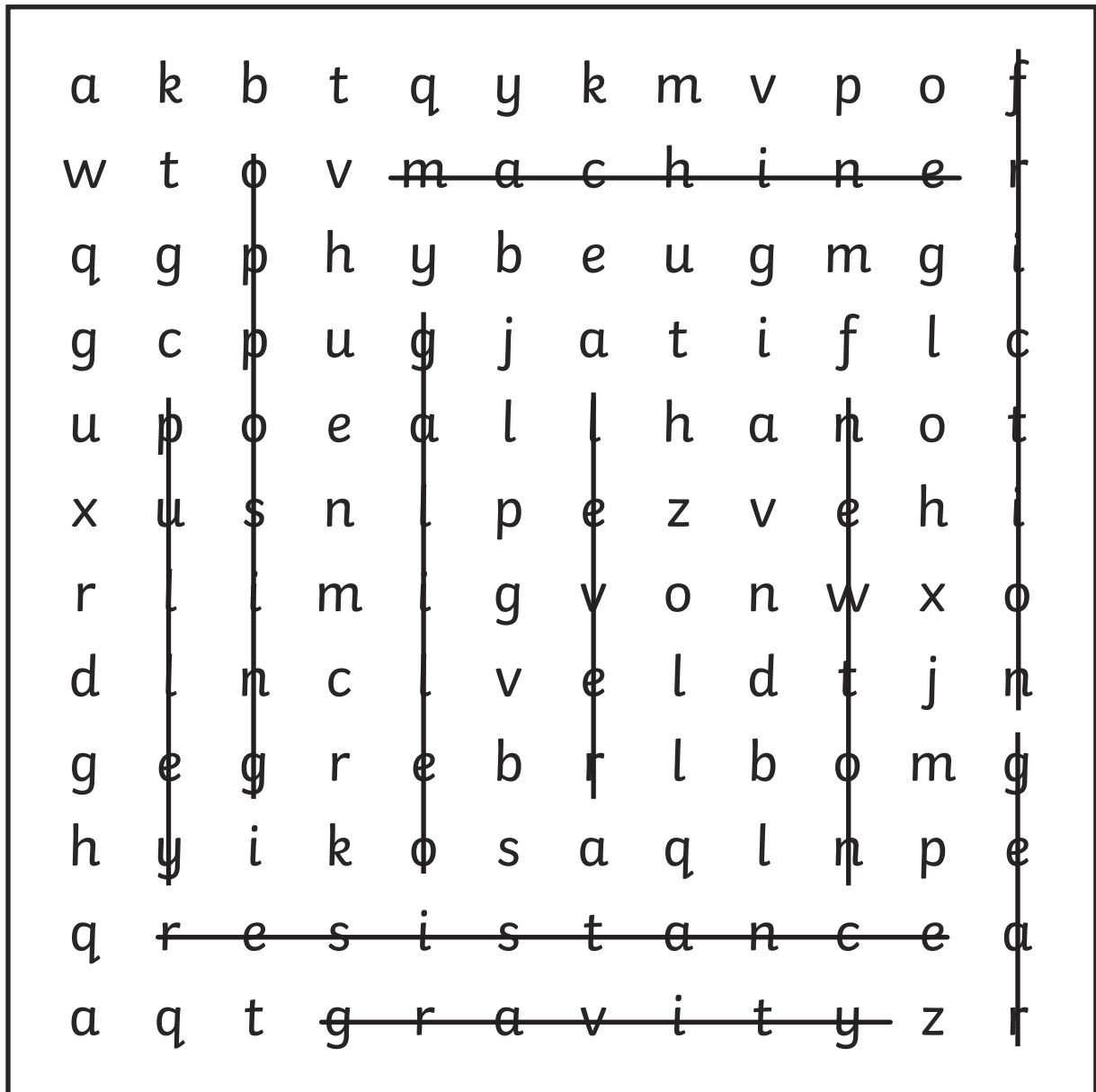
a k b t q y k m v p o f
w t o v m a c h i n e r
q g p h y b e u g m g i
g c p u g j a t i f l c
u p o e a l l h a n o t
x u s n l p e z v e h i
r l i m i g v o n w x o
d l n c l v e l d t j n
g e g r e b r l b o m g
h y i k o s a q l n p e
q r e s i s t a n c e a
a q t g r a v i t y z r

opposing
gravity
resistance
friction

Newton
Galileo
lever
gear

pulley
machine

Forces Answers



opposing	Newton	
gravity	Galileo	pulley
resistance	lever	machine
friction	gear	

Forces

w f m l m a c h i n e p
r g m l e z n v n s m l
e x e a d v r n u t o e
s p c c v g e a b r p f
i u h r n a t r u e p r
s l a v l l t c o a o i
t l n b g i g a y m s c
a e i n d l e v a l i t
n y s z s e a t n i n i
c o m b c o r b c n g o
e p l q a o v i y e n n
n e w t o n g b r a k e

opposing

resistance

friction

buoyancy

Newton

Galileo

streamline

brake

mechanism

lever

gear

cog

pulley

machine

Forces Answers

w	f	m	t	m	a	c	h	i	n	e	p
r	g	m	l	e	z	n	v	n	s	m	l
e	x	e	a	d	v	r	n	u	t	o	e
s	p	c	c	v	g	e	a	b	r	p	f
l	u	h	r	n	a	t	k	u	e	p	r
s	l	a	v	l	l	t	c	o	a	o	l
t	l	n	b	g	l	g	a	y	m	s	c
a	e	l	n	d	l	e	v	a	l	l	t
n	y	s	z	s	e	a	t	n	l	n	l
c	o	m	b	c	o	r	b	c	n	g	o
e	p	l	q	a	o	v	i	y	e	n	n
n	e	w	t	o	n	g	b	r	a	k	e

opposing	Newton	mechanism	
resistance	Galileo	lever	pulley
friction	streamline	gear	machine
buoyancy	brake	cog	

Forces

a k b t q y k m v p o f
w t o v m a c h i n e r
q g p h y b e u g m g i
g c p u g j a t i f l c
u p o e a l l h a n o t
x u s n l p e z v e h i
r l i m i g v o n w x o
d l n c l v e l d t j n
g e g r e b r l b o m g
h y i k o s a q l n p e
q r e s i s t a n c e a
a q t g r a v i t y z r

opposing

gravity

resistance

friction

Newton

Galileo

lever

gear

pulley

machine

Forces Answers

a	k	b	t	q	y	k	m	v	p	o	f
w	t	o	v	m	a	c	h	i	n	e	r
q	g	p	h	y	b	e	u	g	m	g	i
g	c	p	u	g	j	a	t	i	f	l	c
u	p	o	e	a	l	l	h	a	n	o	t
x	u	s	n	l	p	e	z	v	e	h	i
r	l	l	m	l	g	v	o	n	w	x	o
d	l	n	c	l	v	e	l	d	t	j	n
g	e	g	r	e	b	r	l	b	o	m	g
h	y	i	k	o	s	a	q	l	n	p	e
q	r	e	s	i	s	t	a	n	e	a	r
a	q	t	g	r	a	v	i	t	y	z	r

opposing	Newton	
gravity	Galileo	pulley
resistance	lever	machine
friction	gear	

Forces

w f m l m a c h i n e p
r g m l e z n v n s m l
e x e a d v r n u t o e
s p c c v g e a b r p f
i u h r n a t r u e p r
s l a v l l t c o a o i
t l n b g i g a y m s c
a e i n d l e v a l i t
n y s z s e a t n i n i
c o m b c o r b c n g o
e p l q a o v i y e n n
n e w t o n g b r a k e

opposing

resistance

friction

buoyancy

Newton

Galileo

streamline

brake

mechanism

lever

gear

cog

pulley

machine

Forces Answers

w	f	m	t	m	a	c	h	i	n	e	p
r	g	m	l	e	z	n	v	n	s	m	l
e	x	e	a	d	v	r	n	u	t	o	e
s	p	c	c	v	g	e	a	b	r	p	f
l	u	h	r	n	a	t	k	u	e	p	r
s	l	a	v	l	t	c	o	a	o	t	
t	l	n	b	g	l	g	a	y	m	s	c
a	e	l	n	d	l	e	v	a	l	t	
n	y	s	z	s	e	a	t	n	l	n	l
c	o	m	b	c	o	r	b	c	n	g	o
e	p	l	q	a	o	v	i	y	e	n	n
n	e	w	t	o	n	g	b	r	a	k	e

- | | | | |
|------------|------------|-----------|---------|
| opposing | Newton | mechanism | |
| resistance | Galileo | lever | pulley |
| friction | streamline | gear | machine |
| buoyancy | brake | cog | |

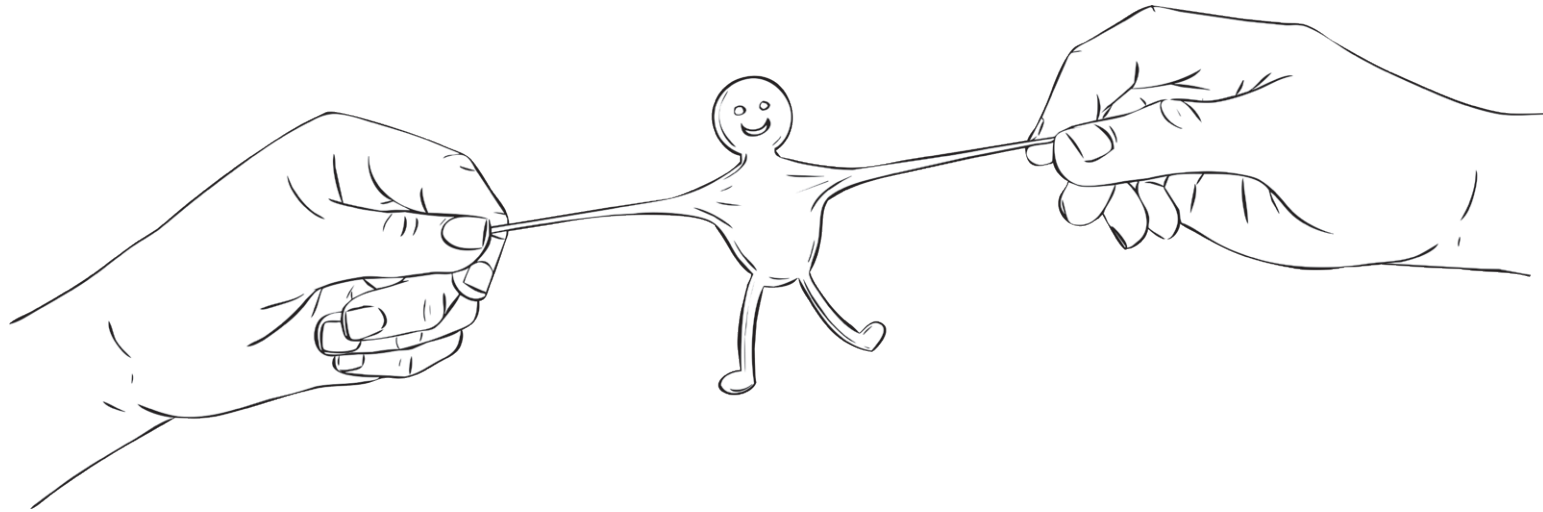


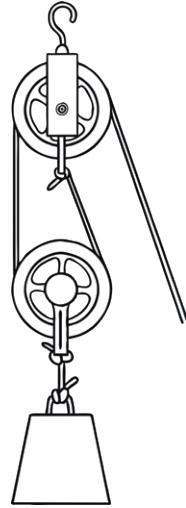


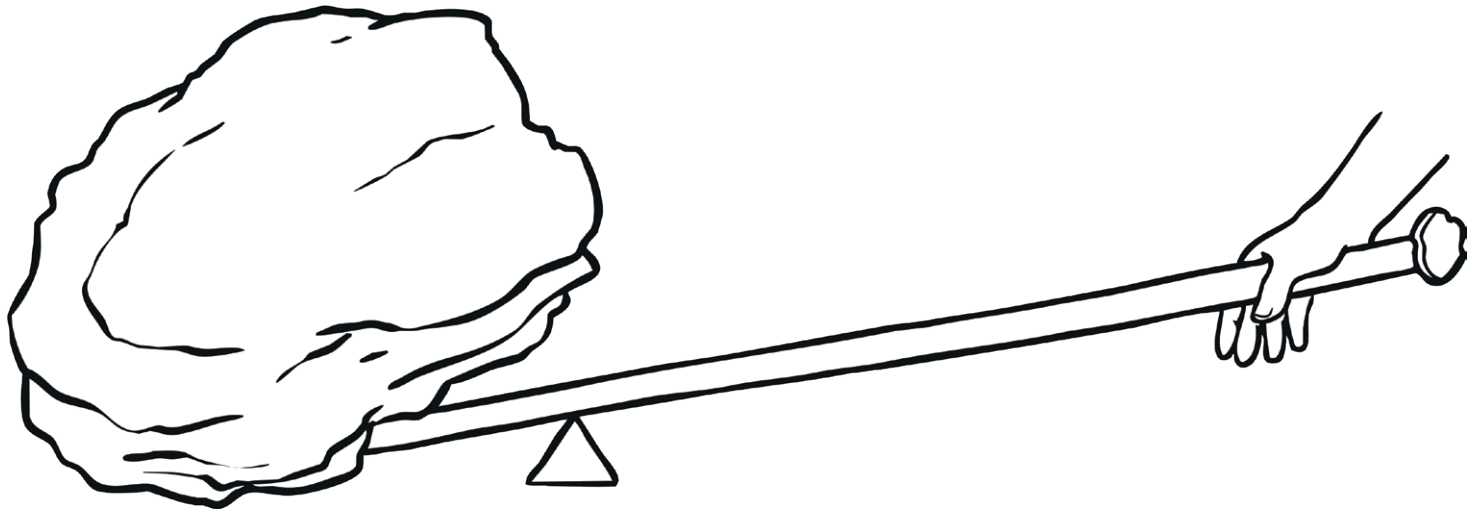


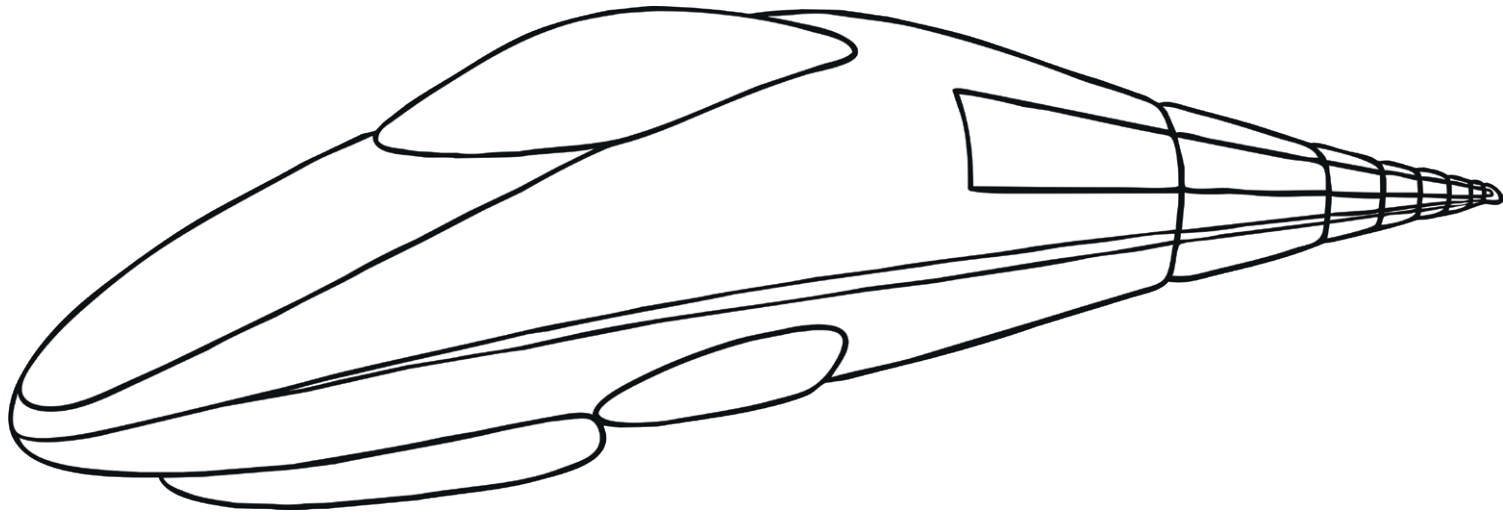


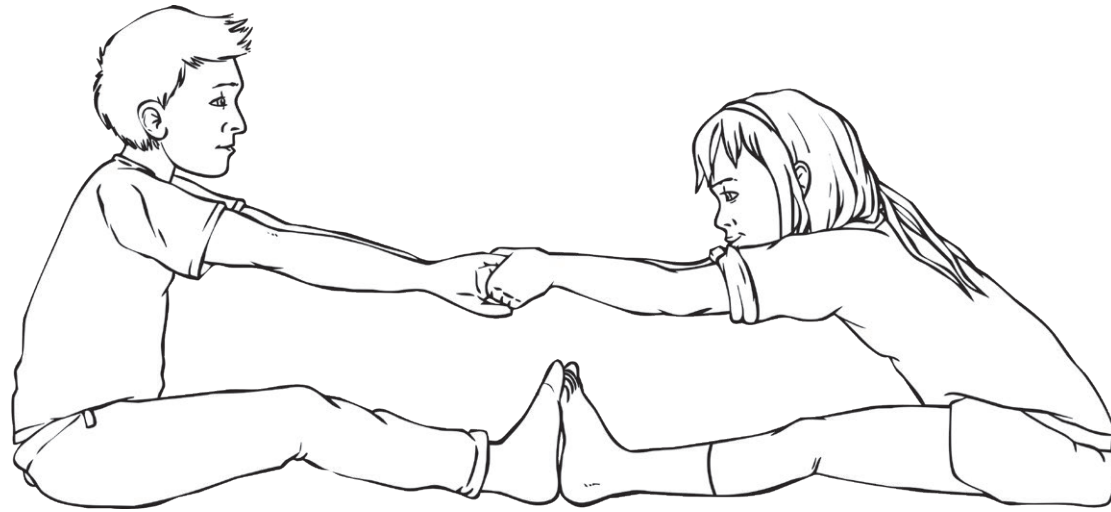


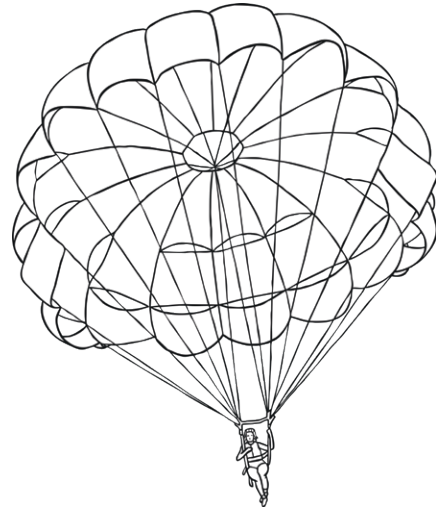












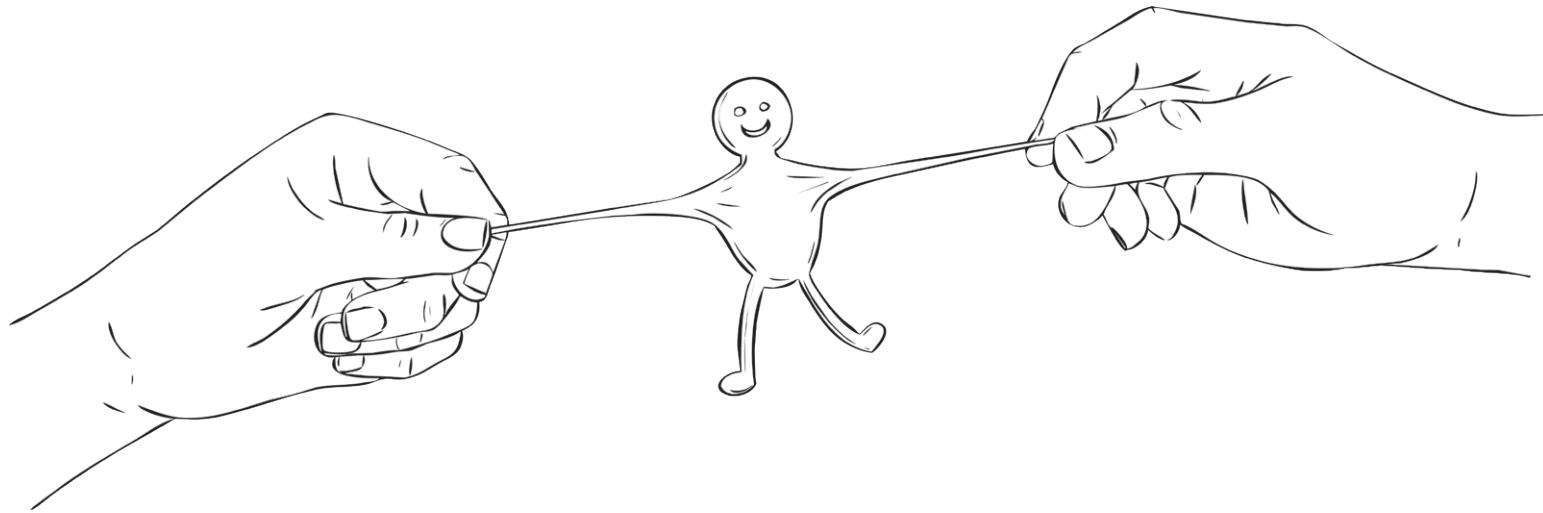


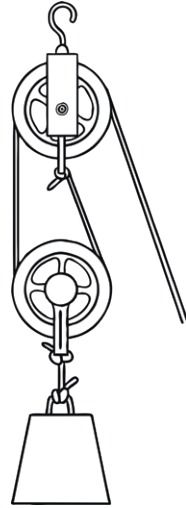


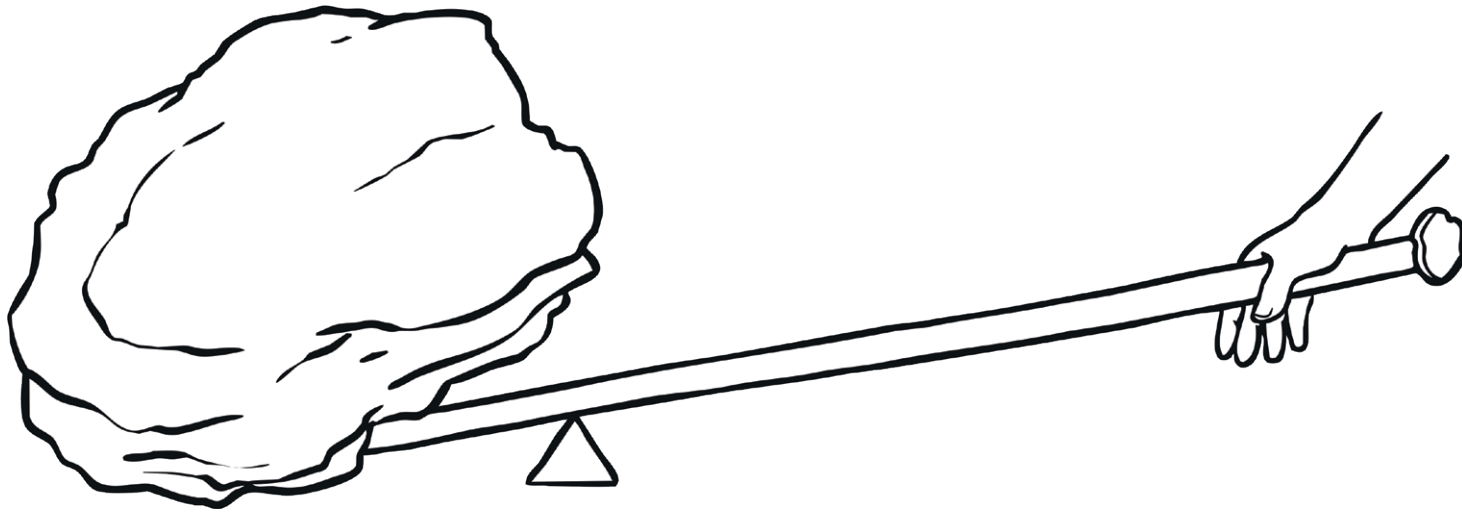


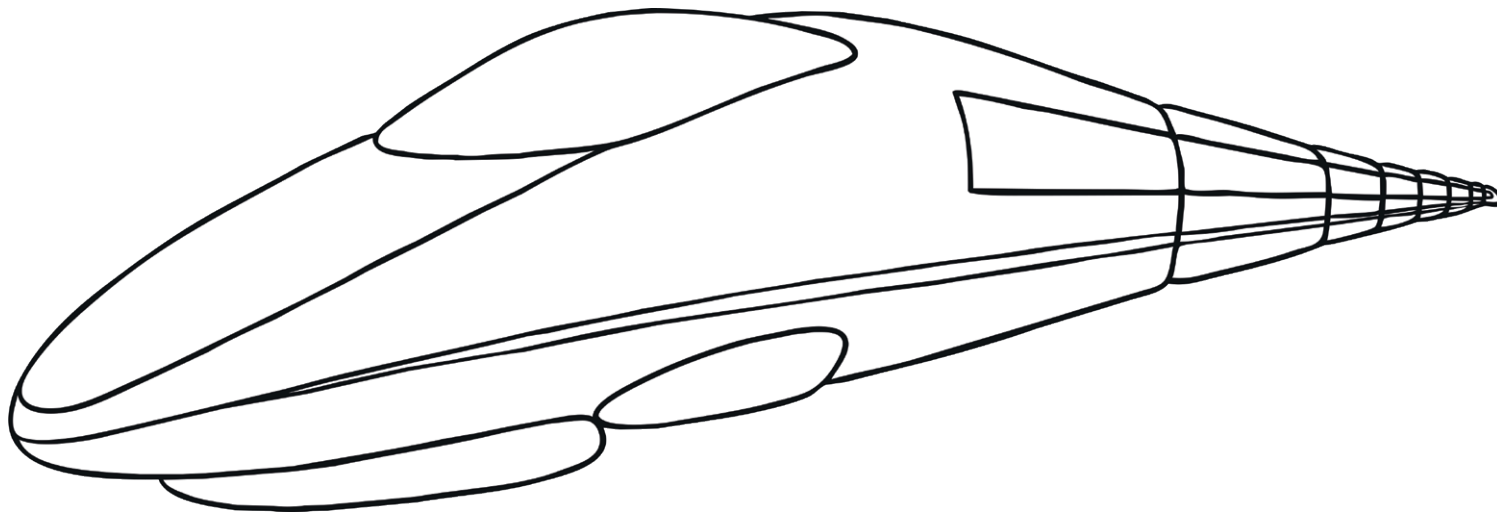


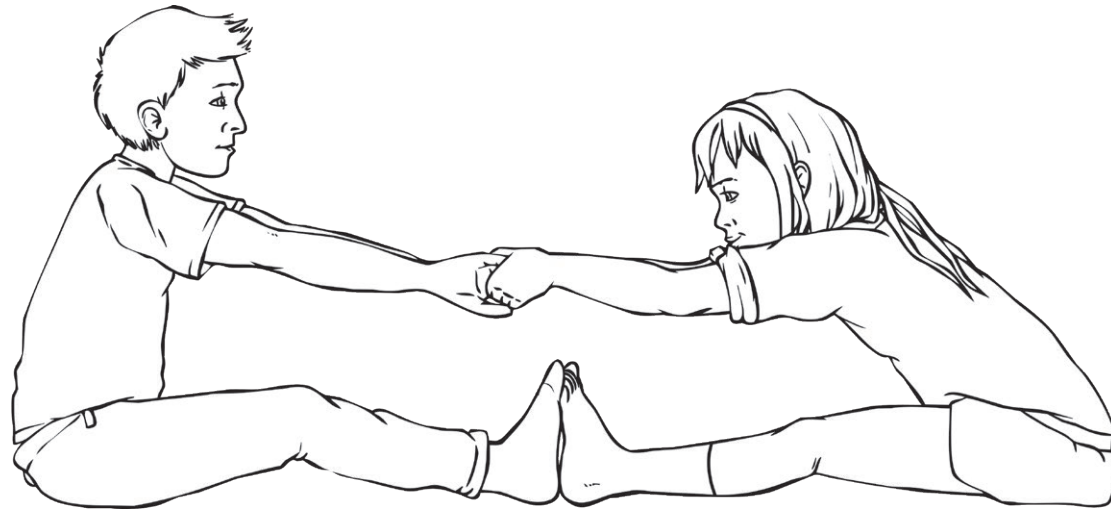


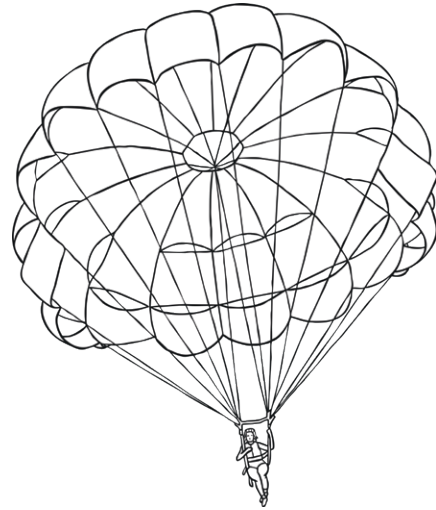












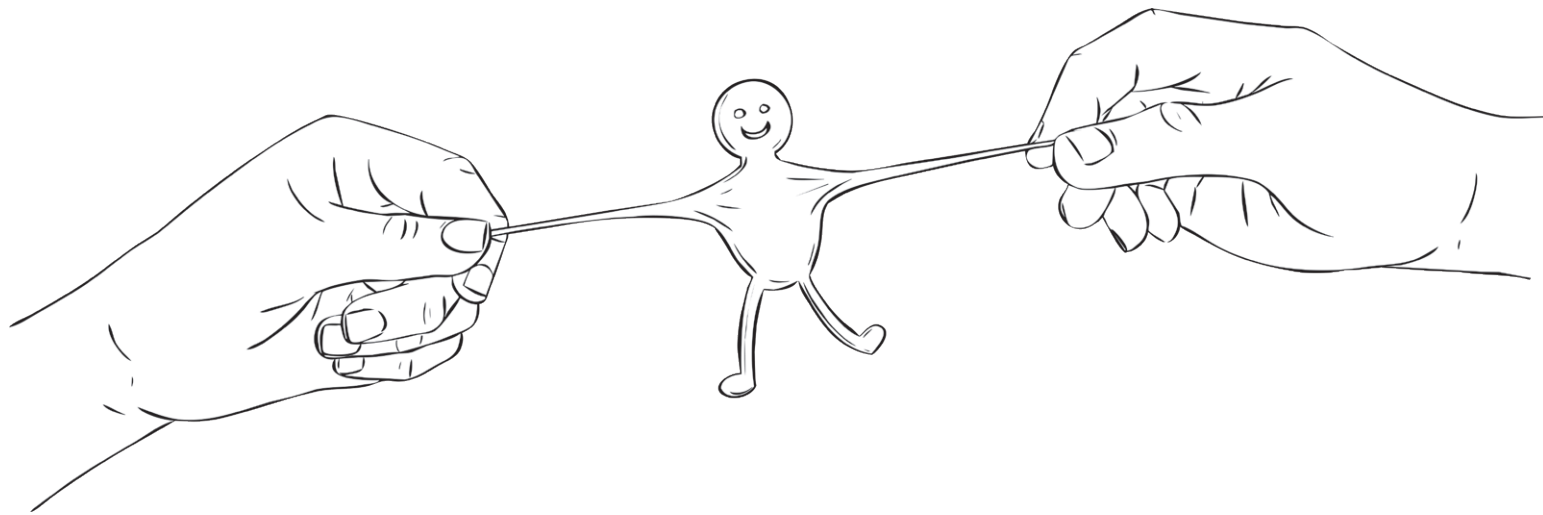


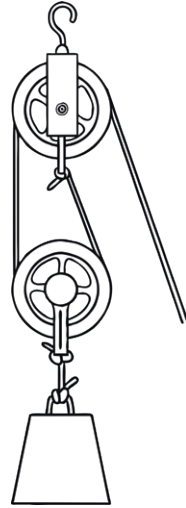


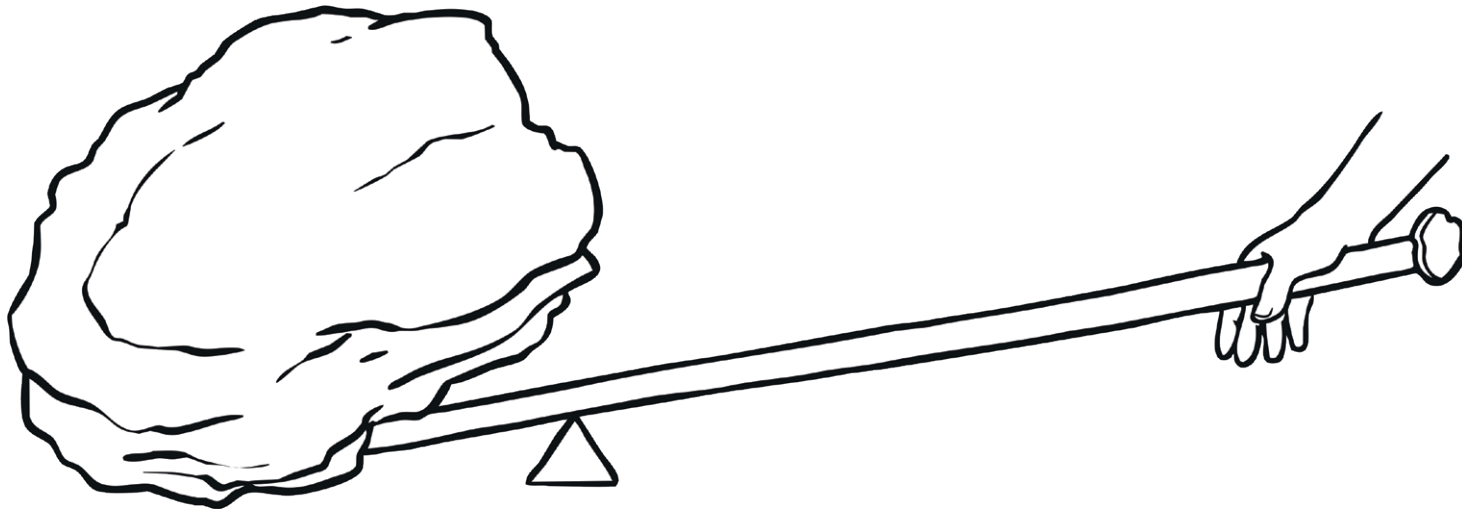


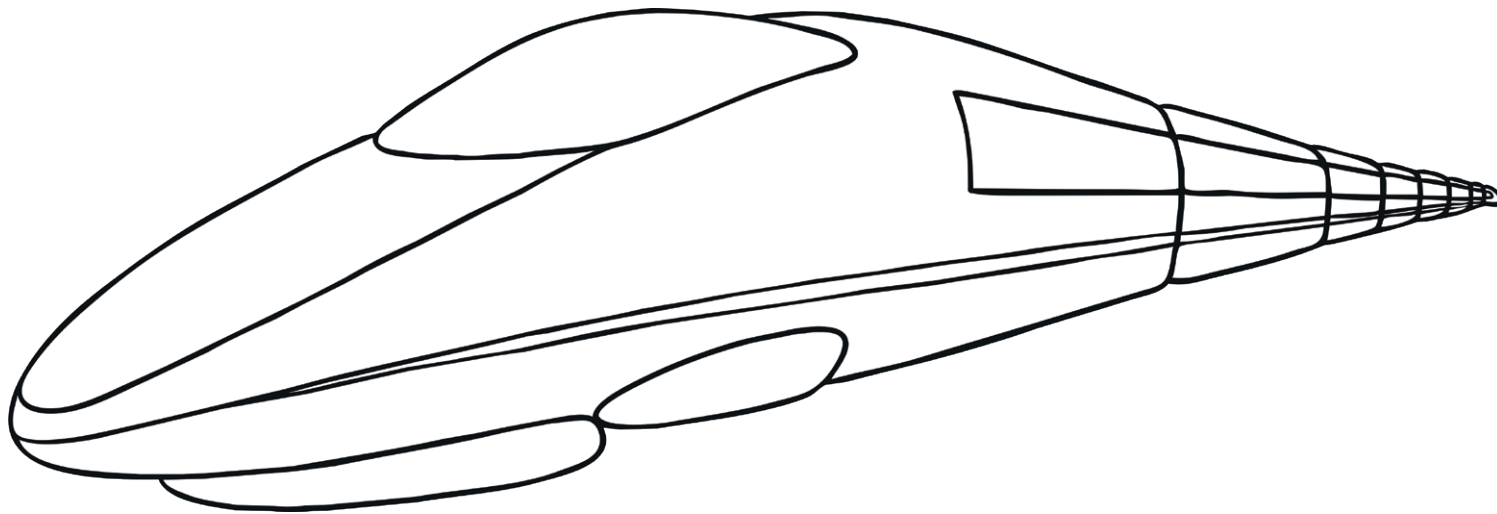


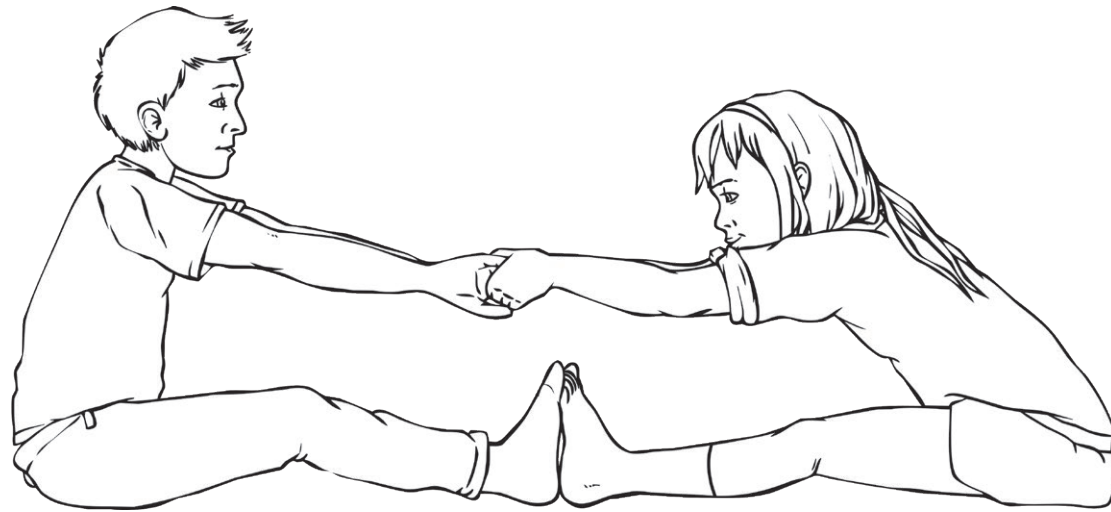


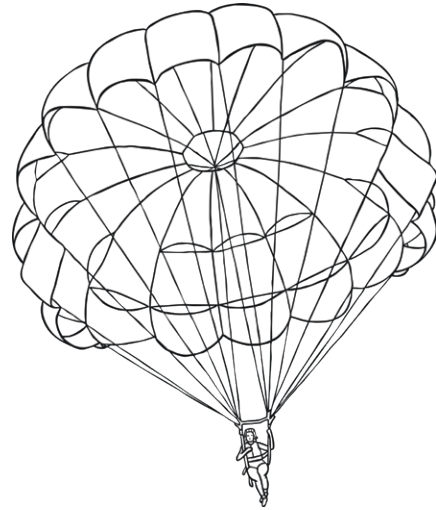


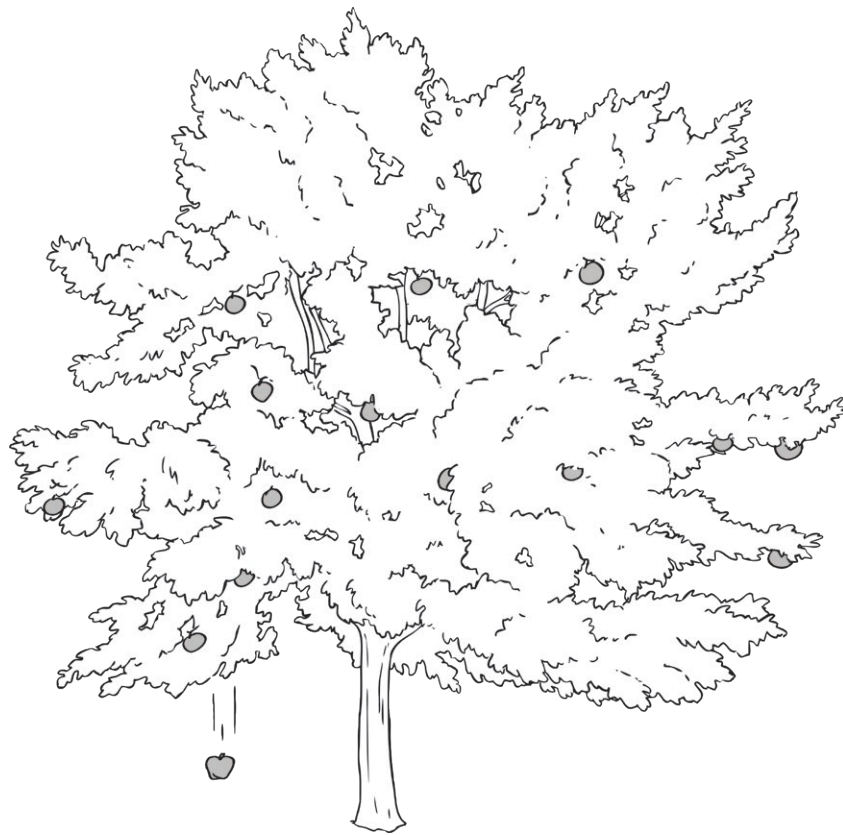


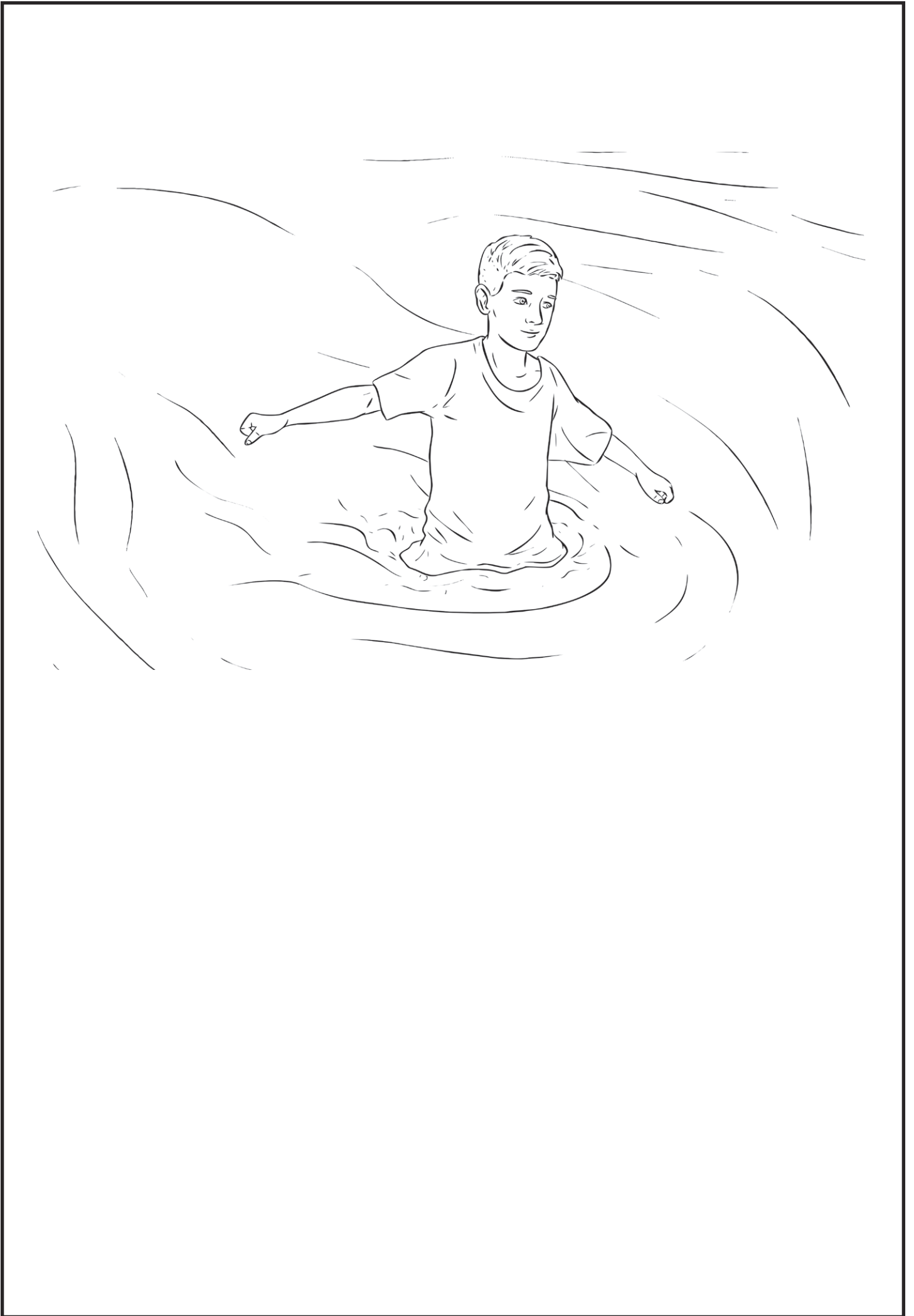








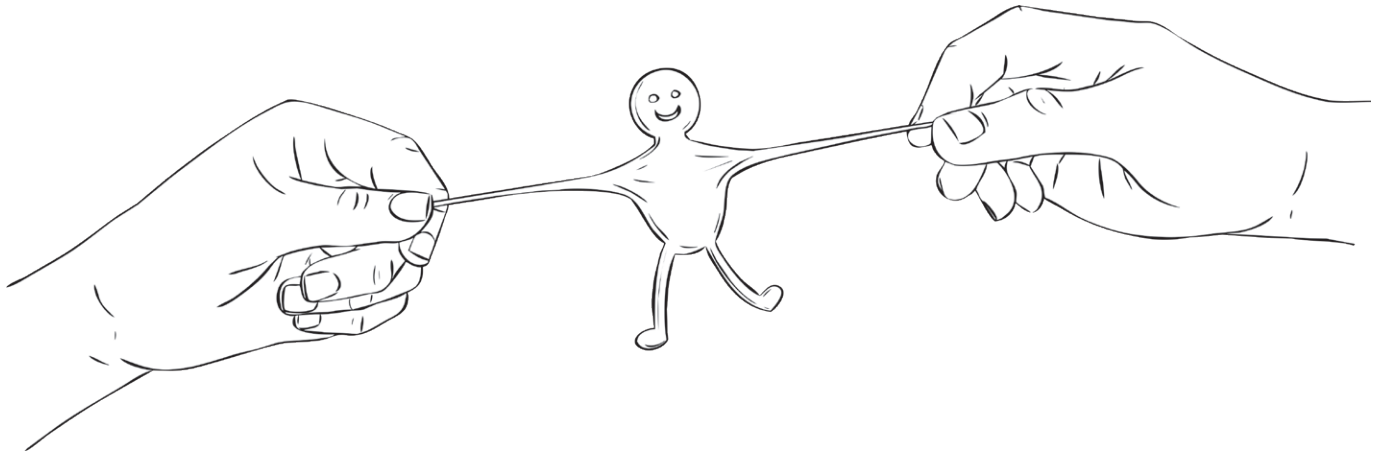


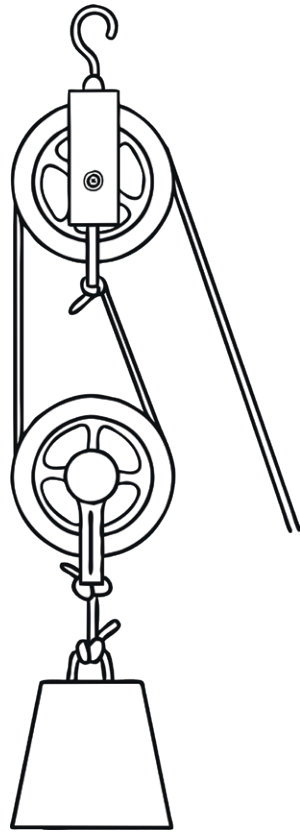


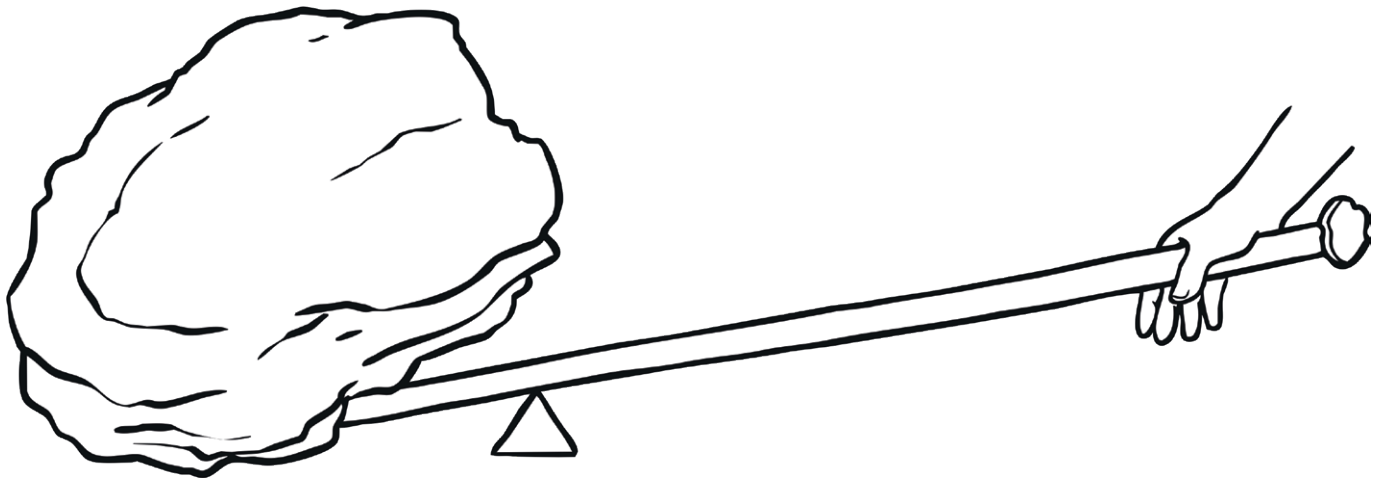


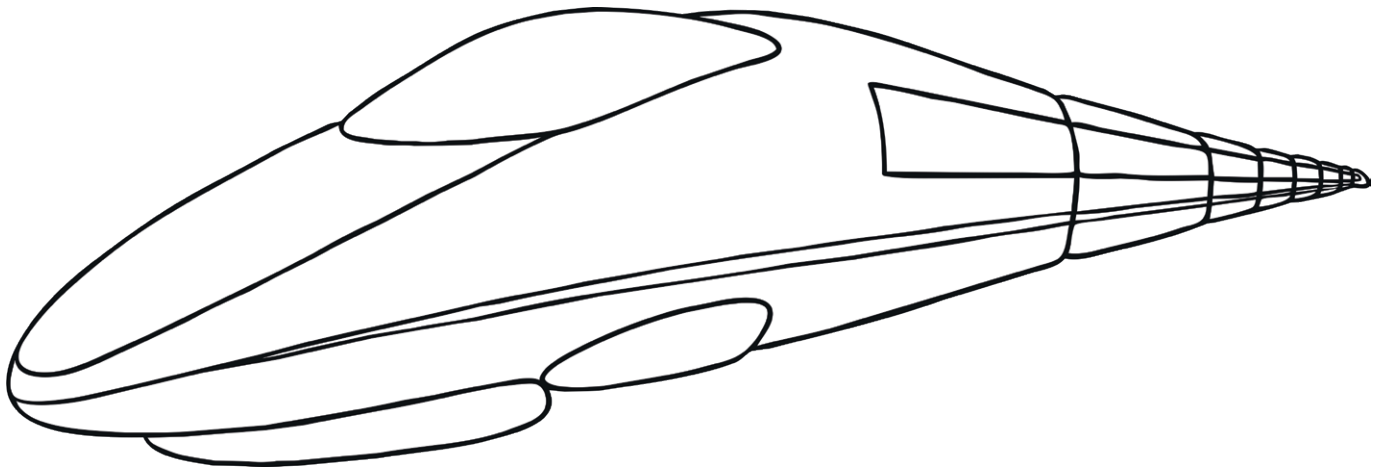


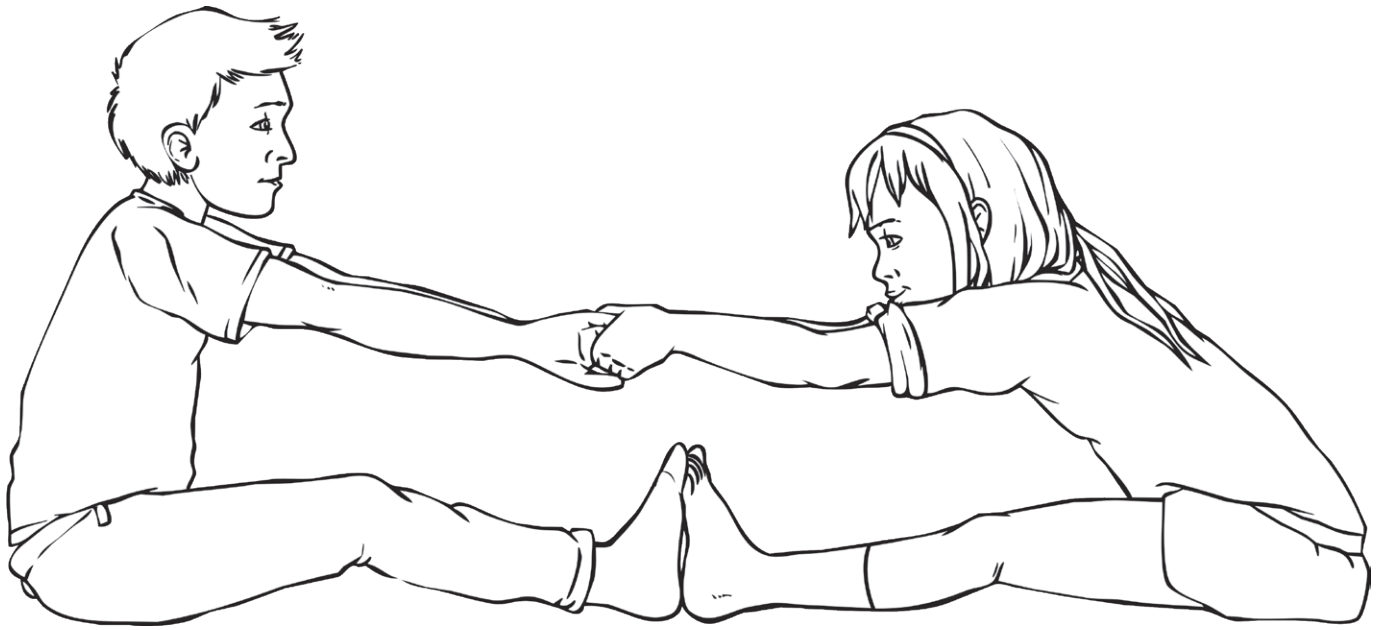


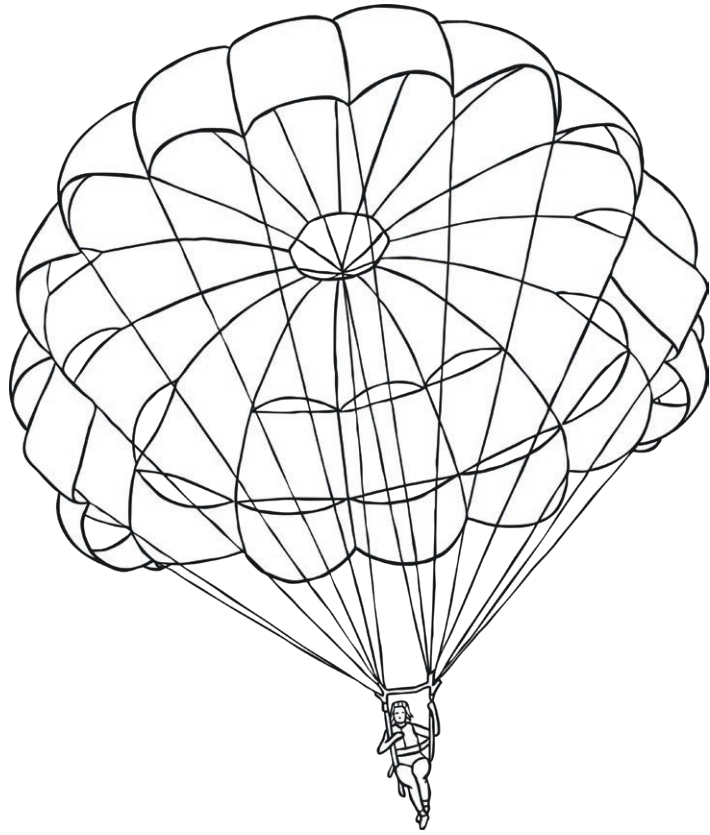








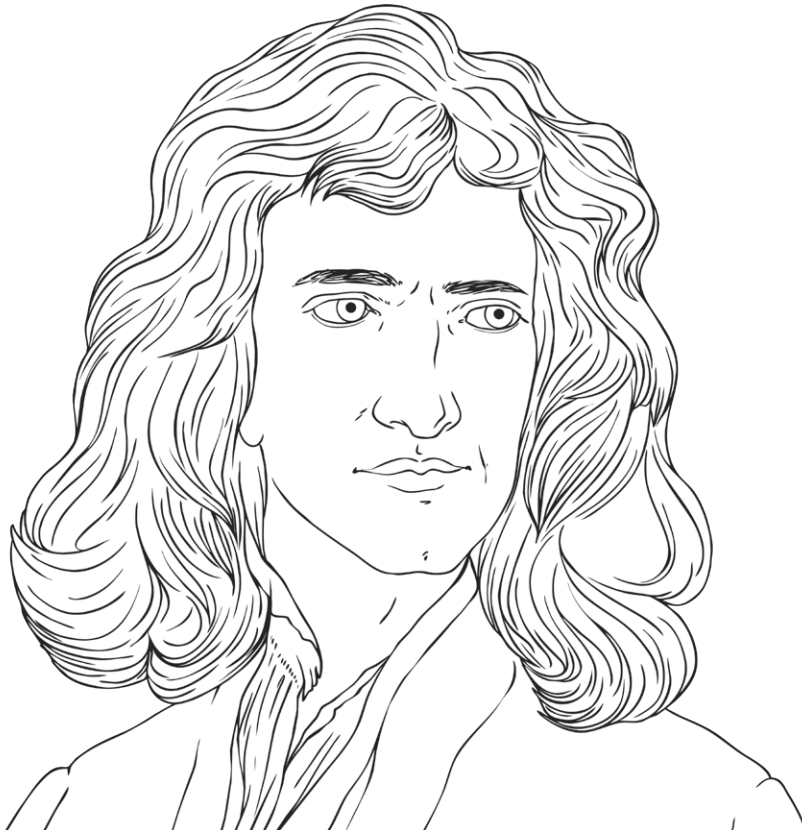




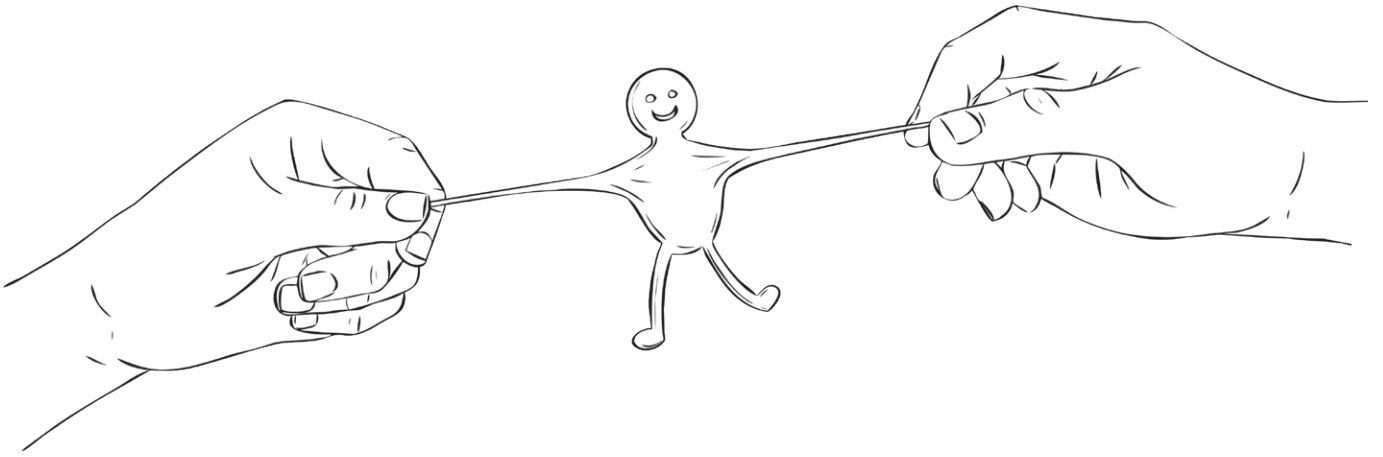


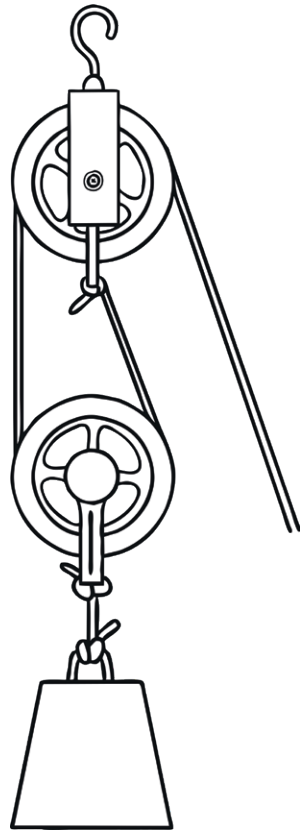


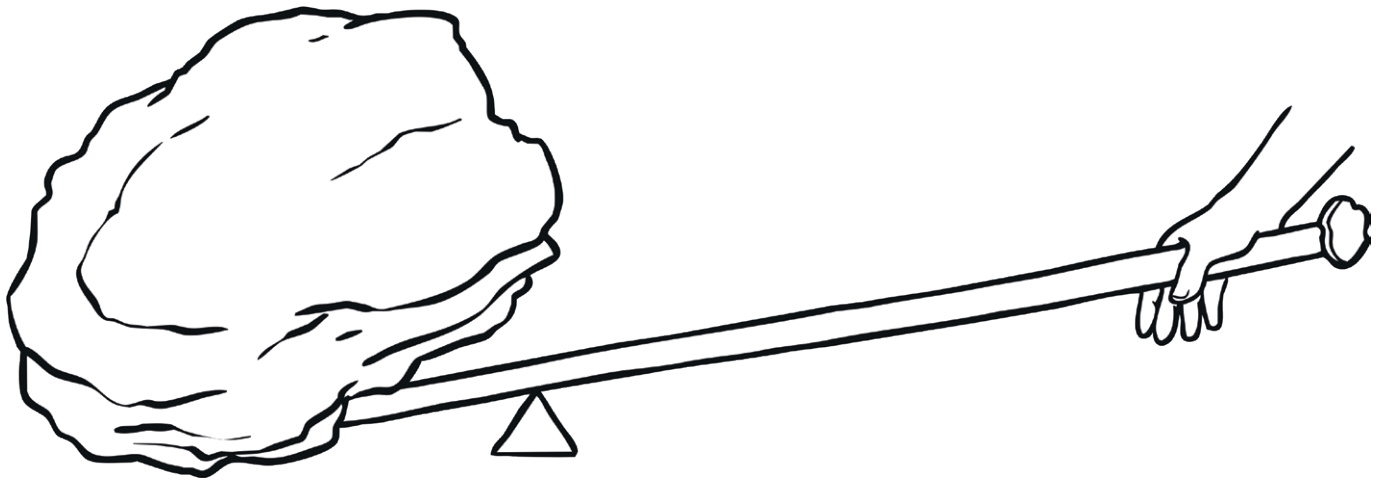


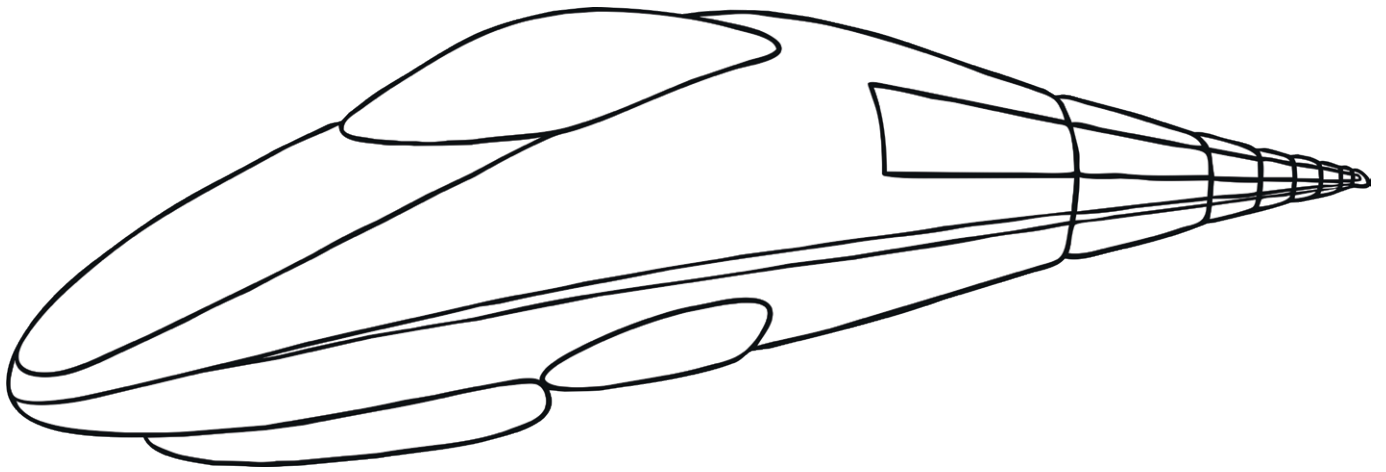


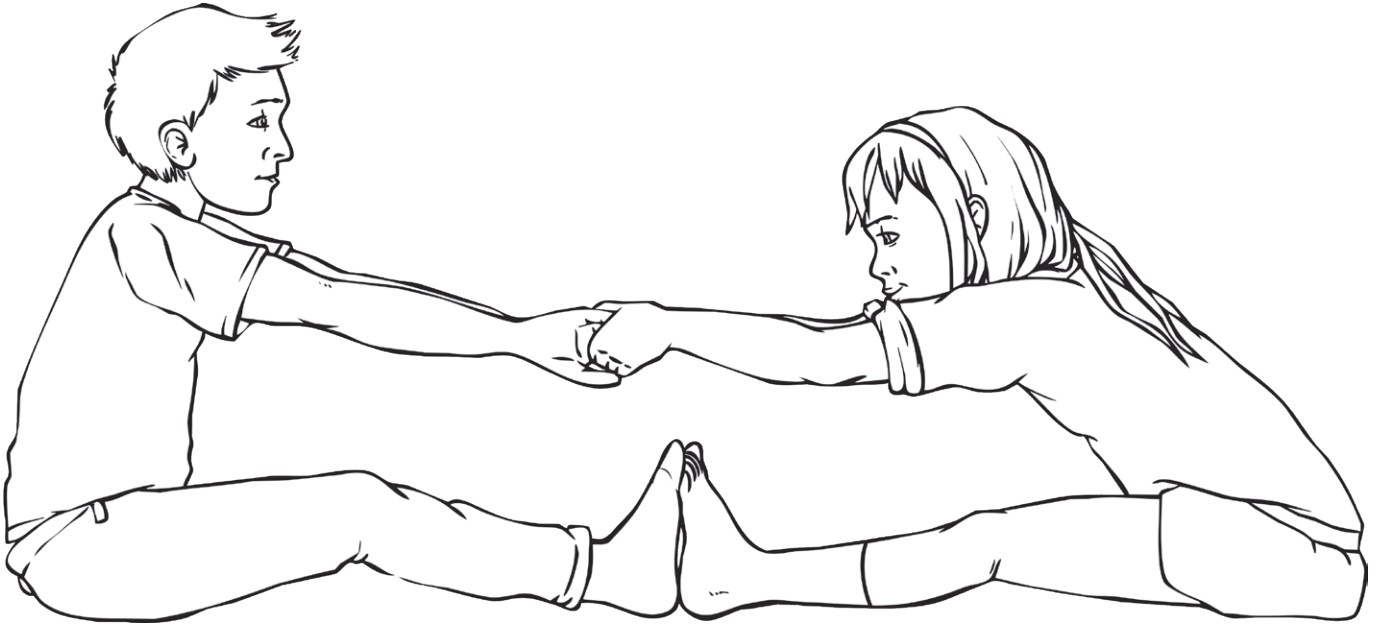


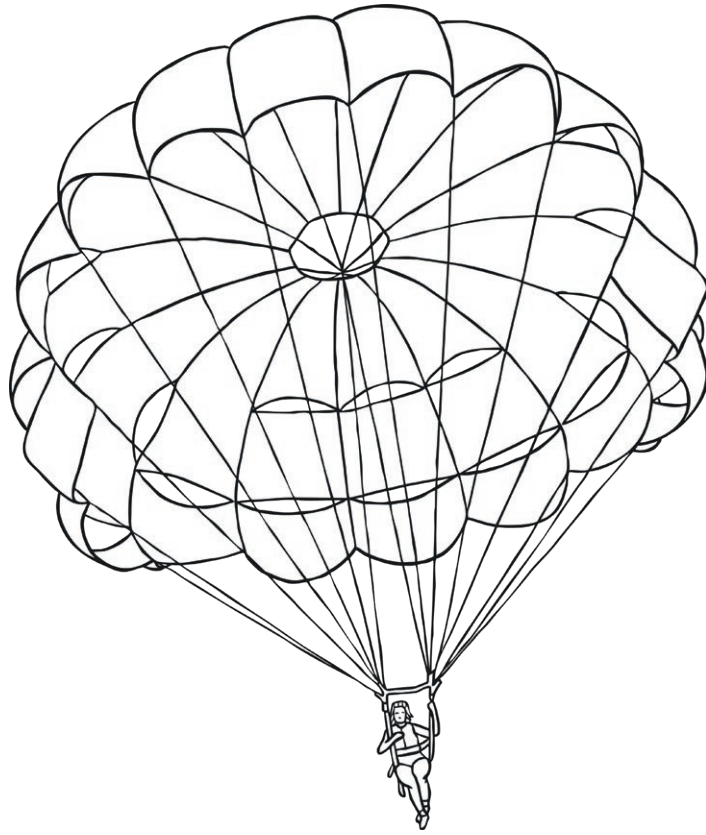


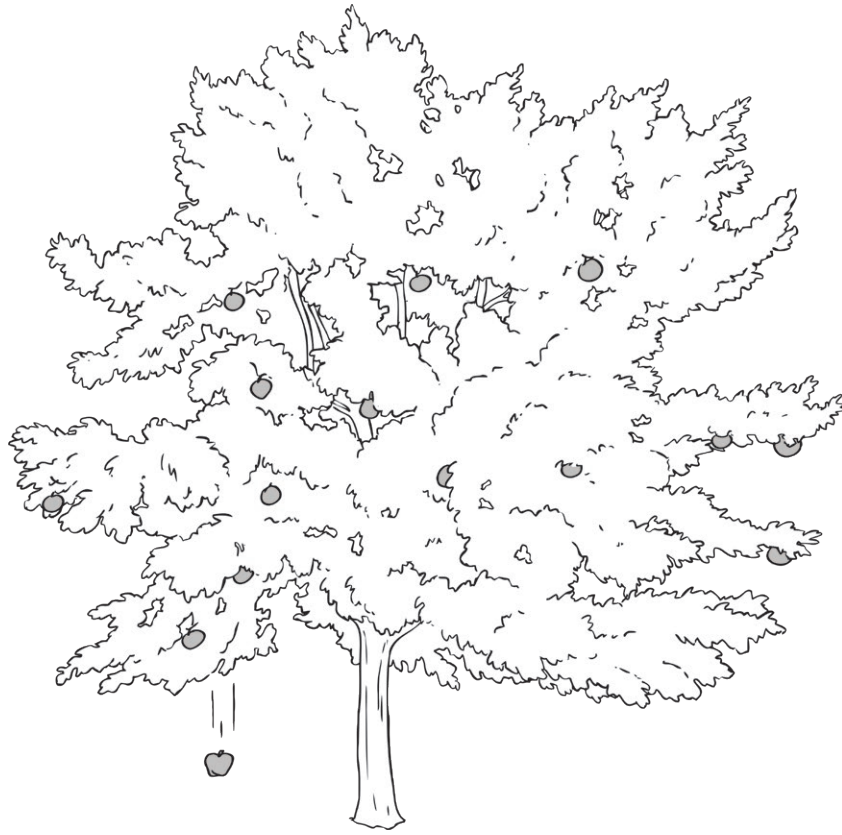










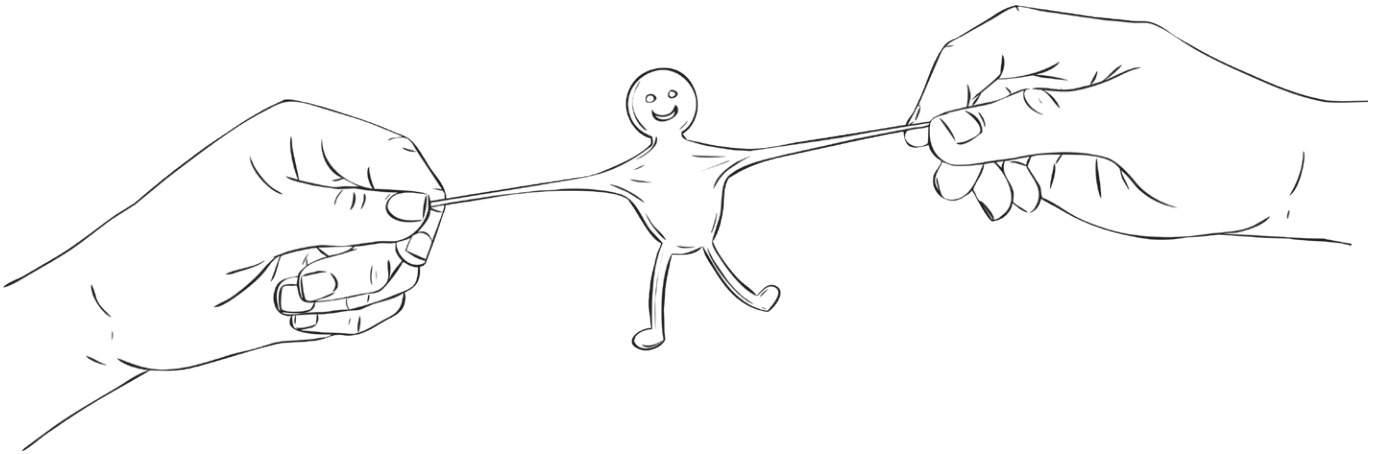


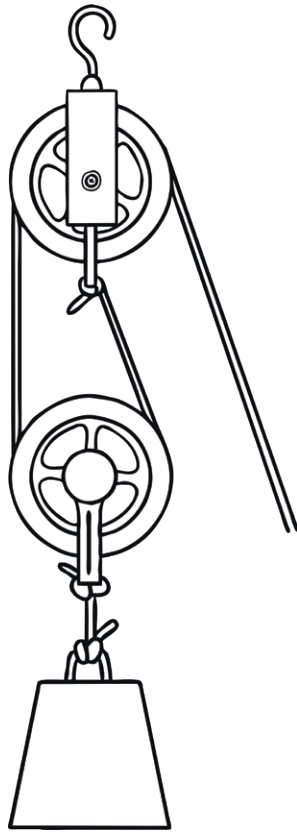












Handwriting practice lines consisting of ten horizontal lines.

