

Primary

Theme: Carnival Science/ Garden & park Science carnival

Amusement parks and local fairs are a big part of summer memory-making for many families, at least in non-pandemic times. Standing in long lines at amusement parks may be out this summer, but we've got fun science activities you can line up for a whole week's worth of carnival-inspired STEM!

Could you set up a fun outdoor amusement-park-style event using some of the activities listed here? Yes! From amusement park games to roller-coaster-inspired builds and even some fun with mirrors, this week's Summer of STEM roundup gives you a number of exciting ways to explore carnival-themed science. With each of these ideas, you can design or build something awesome that can be used as part of a homemade amusement park! (Don't forget to design some fun tickets, too!)

Now for those plant and animal lovers, how about Carnival Science in the garden or local park where you can have fun exploring nature, whether it is minibeast hunting or rock painting.

Whichever tickles your fancy you will find a selection of activities and projects for you to choose from.

We all hope you enjoy the different tasks. Have fun and remember to share those photos at: office@bwf.education or on the Woodside twitter page.

Please see a few of our ideas below:

	Task	Website/resources	
	Design own fun tickets for the amusement park		
A Really Long Straw: connect straws to make a really long straw. How long can it be and still work for drinking?	Crazy straw	https://www.sciencebuddies.org/stem-activities/long-straw?from=Blog	
Best Wand for Big Bubbles: what's the secret to making big bubbles? Make your own bubble wand and see what you can discover! (Tip: this activity will also help you find out what bubble solution works best!	Best Wand for Big Bubbles	https://www.sciencebuddies.org/stem-activities/big-bubble-wand?from=Blog	
	CAN KNOCK DOWN!	https://www.carnivalsavers.com/can_knock_carnival_game.html	

	DIY FISH CUP GAME	https://www.carnivalsavers.com/fish_cup_carnival_game.html	
	Build a Paper Rollercoaster	https://www.sciencebuddies.org/stem-activities/paper-roller-coaster?from=Blog#summary	
	Mini-magnetic fishing game		
	Magnetic sand		

<https://www.nhm.ac.uk/discover/how-to-make-an-origami-frog.html>

<https://www.nhm.ac.uk/discover/how-to-grow-a-cress-caterpillar.html>

https://www.backyardnature.org/wp-content/uploads/2020/02/E02516276-ICL-Back-Yard-Nature-Bug-Hotel-Nov19_V6_PRINT-1.pdf

<https://www.nhm.ac.uk/discover/how-to-grow-a-cress-caterpillar.html>

<http://www.fieldsintrust.org/Upload/file/bpty2020/Making-Faces.pdf>

Thought they might also be able to turn this into a Ferris Wheel:

<https://outdoorclassroomday.org.uk/resource/water-wheel-investigation/>

<https://www.childrensgardeningweek.co.uk/things-to-do/rock-painting-bugs/>

<https://www.childrensgardeningweek.co.uk/wp-content/uploads/2020/03/Colouring-Pad-Web.pdf>

<https://www.twinkl.co.uk/resource/t-a-011-minibeast-wordsearch>

<https://www.twinkl.co.uk/resource/T-T-019-Minibeast-hunt-sheet>

<https://www.twinkl.co.uk/resources/twinkl-partnerships/mind-partnerships>

<https://www.twinkl.co.uk/resource/t-t-19367-minibeast-description-cards>

<https://www.twinkl.co.uk/resource/t-t-5064-minibeasts-legs-or-no-legs-sorting-activity>

<https://www.twinkl.co.uk/resource/us2-t-168-nature-walk-scavenger-hunt->

<https://www.twinkl.co.uk/resource/t-t-1103-plants-and-flowers-hunt-sheet>

<https://www.twinkl.co.uk/resource/t-tp-1086-minibeasts-i-spy-and-count-activity>

<https://www.twinkl.co.uk/resource/t-tp-1168-2d-shape-minibeasts-pictures-resource-pack>

<https://www.twinkl.co.uk/resource/au-t-3745-five-senses-scavenger-hunt-worksheet>

My Carnival Costume

This Carnival I will dress up as a . This is what my costume looks like:

Write why you have chosen this costume:

MINI MAGNETIC FISHING GAME

- Materials:
- Tray/dish
- Blue tissue paper
- Small stick
- Beads
- Paperclips
- Tape
- Scissors
- Googly eyes
- Glue

MAKING THE FISH

To make the fish, you cover the paperclip in tape so that you have a bit of extra tape left on top and on the side. Next, cut the extra bit of tape hanging over the top and side into the shape of a fin. Glue on the eyes both sides.

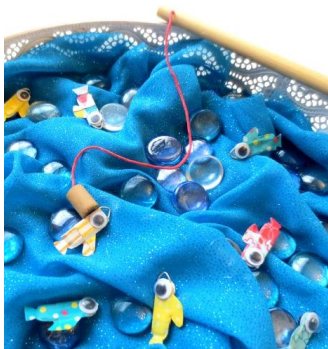


PUTTING IT ALL TOGETHER



Place the blue tissue paper into the tray/dish.

Try to create the illusion of waves with the tissue paper. Place the beads and fish in tray/dish. Move things around a bit, maybe hide a few fish to make the game a bit more challenging.



Hold the stick with a magnet attached over the fish, see how many fish you can catch.

Making a Cereal Box Marble Run

Ever wondered what to do with those empty cereal boxes?

Follow these simple instructions to make a cereal box marble run.

You will need:

- 2 cardboard cereal boxes
- glue
- sticky tape
- scissors
- marbles



1.



Start off with your empty cereal box. Tape the lid shut and then cut off the front panel (take care, scissors are sharp!). Make sure you leave a little ledge at the bottom. This will stop the marbles rolling out everywhere when they reach the end of the run.

2.



Then take the detached front panel and cut it into three strips. Bend them at the ends and cut a notch on one side for the marble to run through.

3.



Next, take a little extra cardboard from another cereal box and fold the end of it and tape it onto the bottom. The folded end makes the marble run tilt back a little bit so the marble goes down the holes and doesn't fall out of the box.

4.



Finally, tape the strips into the box and cut a little hole at the top to drop the marble through. Then go and find some marbles!

Doing science at home

www.sciencebuddies.org



Activity 30: Marble Run

https://www.youtube.com/watch?v=zTTuB_afFyQ







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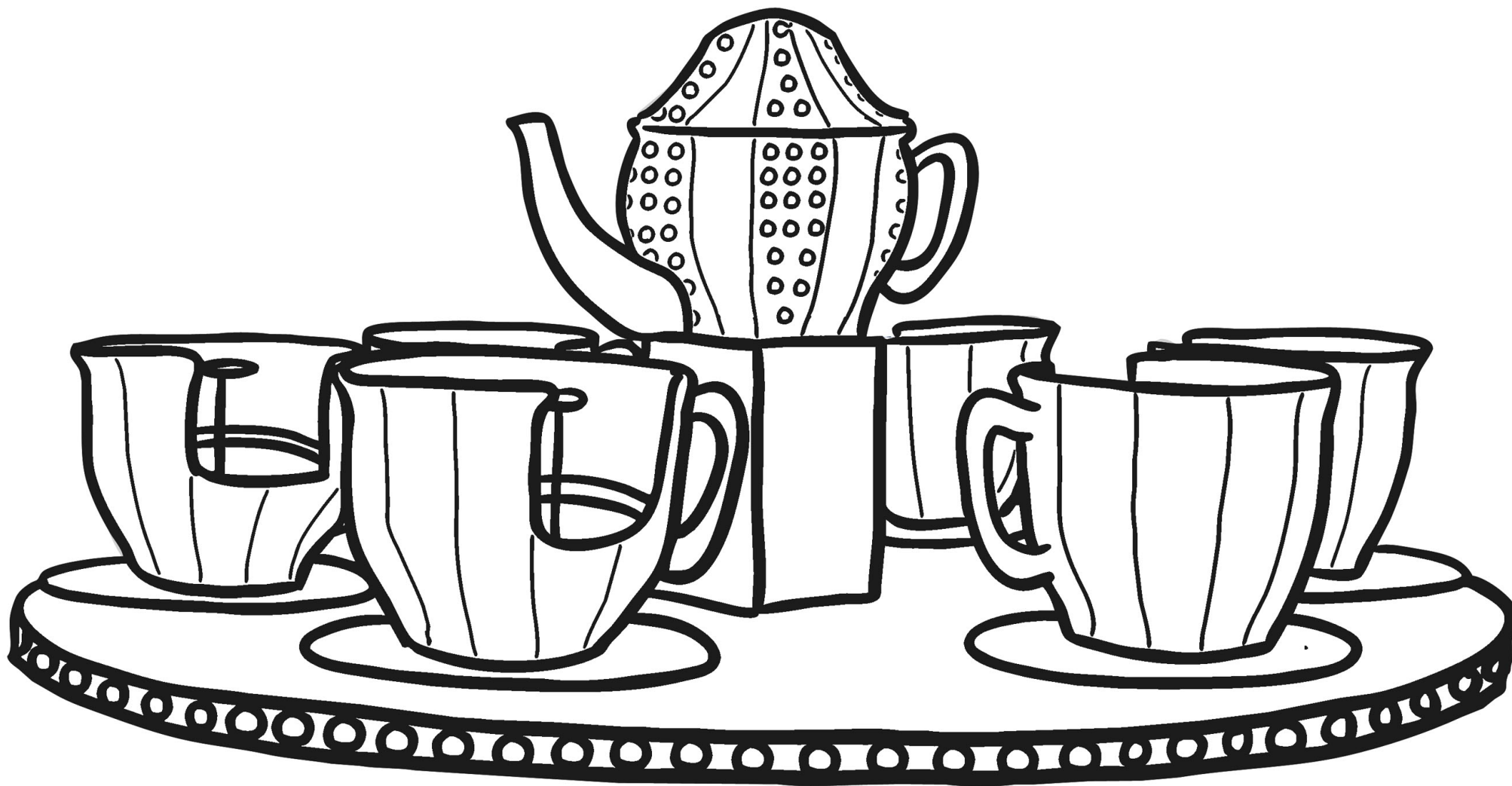
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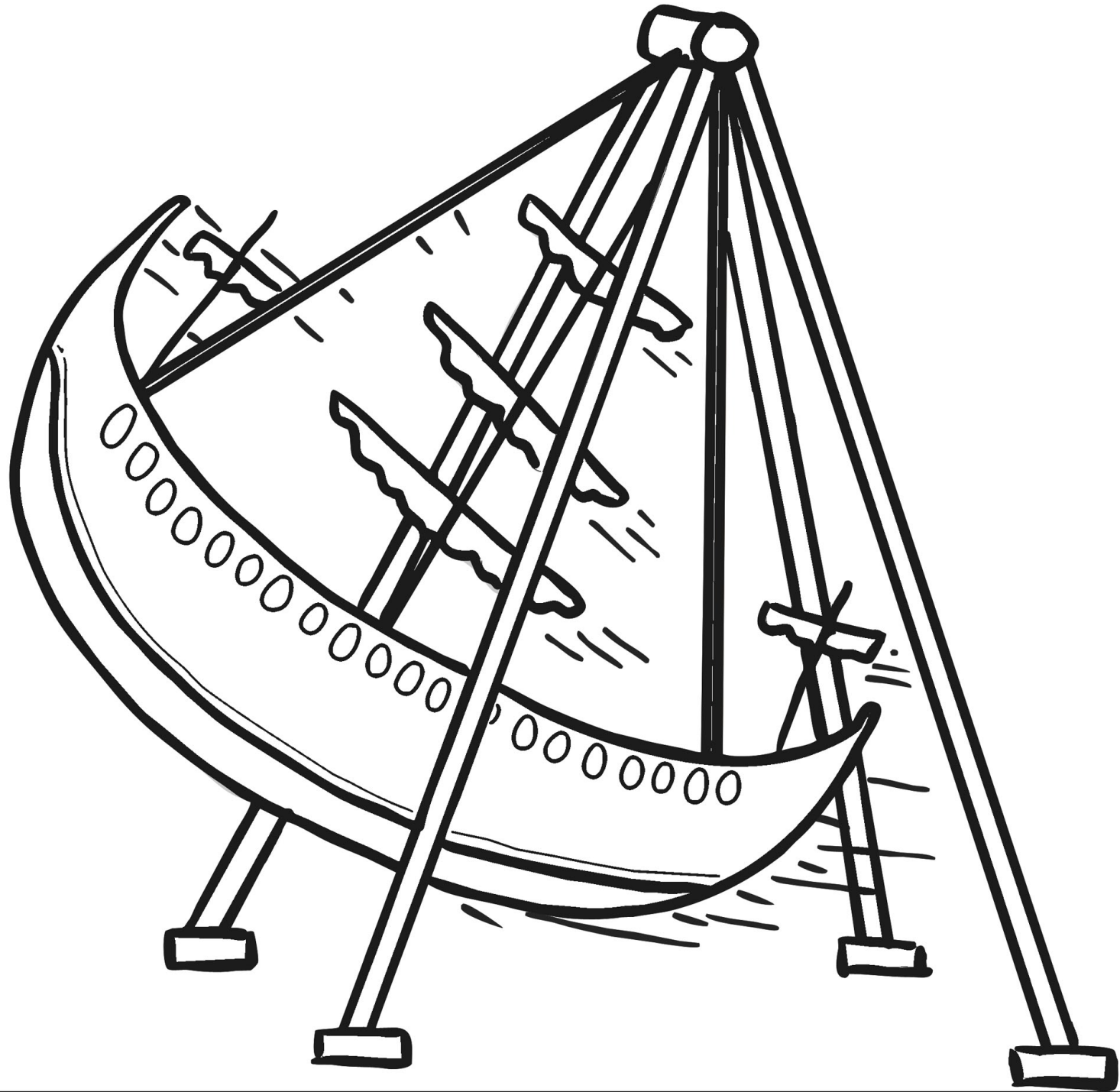


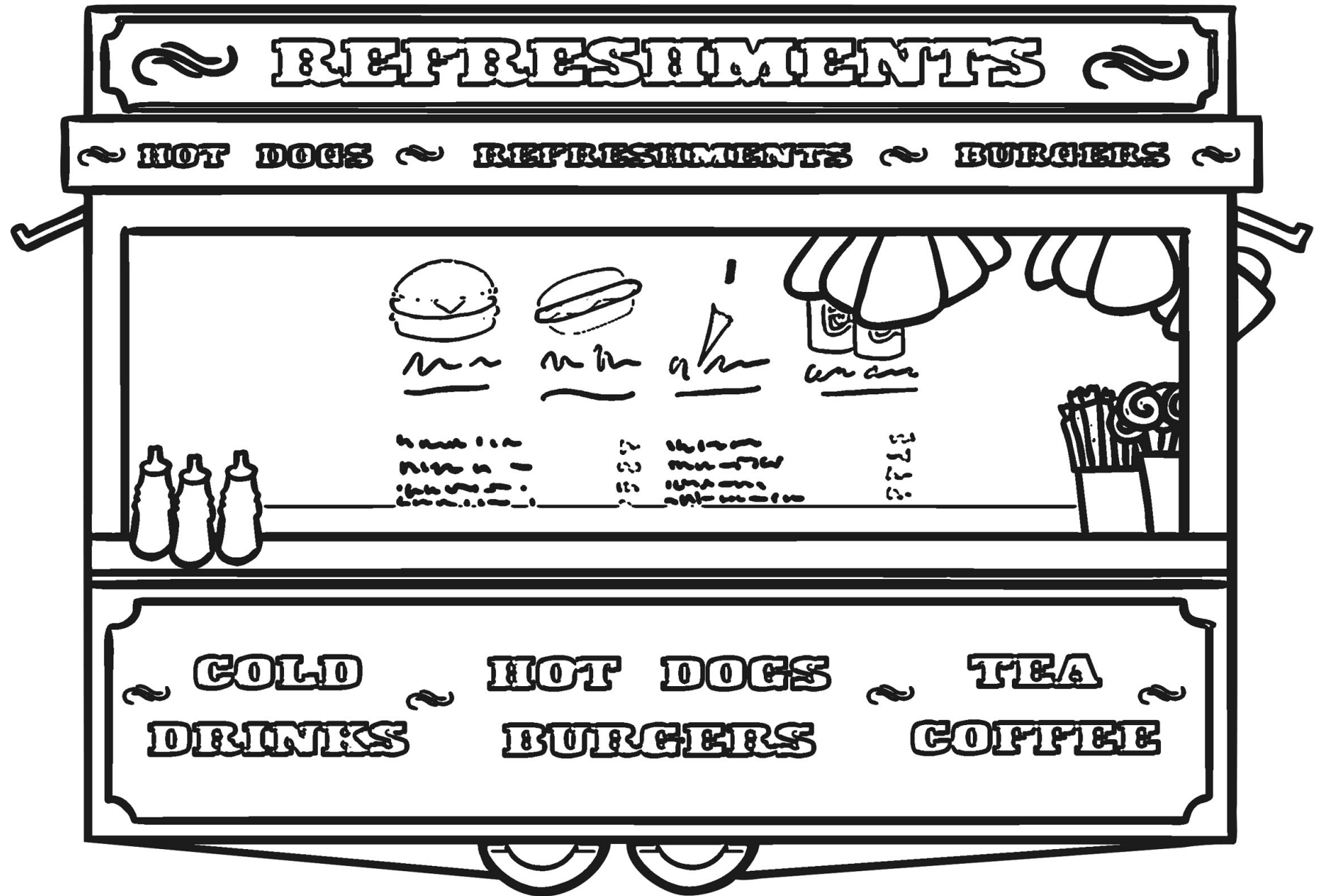












Make and knock down tin cans/bottles

Collect some empty tin cans and cover them in paper or paint them using paint and PVA glue mix. Once dry arrange them as shown in the picture and take turns throwing small balls to see how many you can knock down.



Throwing balls into buckets

Arrange some buckets at an angle and practise throwing balls into them. How many can you get inside the bucket?



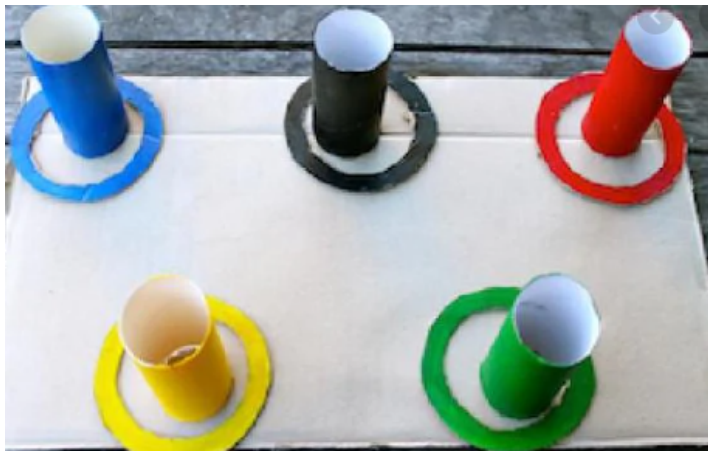
Hook the duck

Use a small swimming pool or a washing up bowl and fill halfway with water. Put in some plastic ducks that have hooks attached (alternatively use a net) and use a hook to hook the ducks and pull them out. How many can you get in two minutes?



Hoopla

You will need any kind of cylinder object you have at home (toilet rolls, pringles tube, empty spice jars etc) which can be stuck to a piece of cardboard if required. Then use some more cardboard to make the rings if you don't have any. Object of the game is to throw the ring over one of the posts. How many can you get?



Target game

Make some targets and attach these to a wall outside. The targets can be colours, numbers or letters. Fill a bucket with water and get some small sponges/foam balls. Wet a sponge and throw it at a target. Which number/colour or letter can you get?



Water Wheel Investigation

Learn how energy can be harnessed by the flow of water over your own water wheel

12+

Craft & Design
Technology



An engaging STEM activity to introduce hydropower as a form of **renewable energy** and to introduce the concept of **forces** and **energy transfer**.

Watermills have been used through history and the kinetic energy of the water has been harnessed and/or transferred to grind corn, supply drinking water to villages, irrigate crops and power textile mills.

Modern hydropower uses falling water often retained by a dam to generate electricity.

As an extension you could attempt to harness the energy from your wheel attaching a string and a small weight to the shaft to see how much weight the mechanism can lift.

Equipment for 1 water wheel

2x sturdy paper plates
Ruler and pencil
Plastic tub
Length of dowel longer than the width of the tub
Scissors
Sticky tape
Recycled plastic cups, pots or paper cups
Permanent marker
Stapler
Jug or watering can
Water

To Make the Water Wheel

1. Measure and mark the centre of the two paper plates.
2. Perforate the plates with a pencil at the marks.
3. Push the dowel through the two plates.
4. Staple a minimum of three cups snugly between the two plates.
5. The cups should be evenly spaced and all facing the same direction.
6. Mark one of the cups prominently with a permanent marker.
7. Balance the wheel width-ways across the tub.

Investigation

Steadily pour the water from a jug into the top cup of the water wheel and watch it begin to rotate as the water flows. Count how many rotations the wheel makes using 1 litre of water. Use the marked cup to keep track of rotations. Experiment by changing the height and speed of the flow of water. What difference does a faster flow make?



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For more resources visit www.ltl.org.uk/free-resources

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Making faces



Here's a challenge: go out into your garden, or as part of your daily trip to the local park, and gather up some materials that you think will help you make a picture of a face! You could use leaves, twigs, grass - whatever you can find. Just be sure to leave any animals or creepy crawlies alone as we've been told they don't like being made into faces!

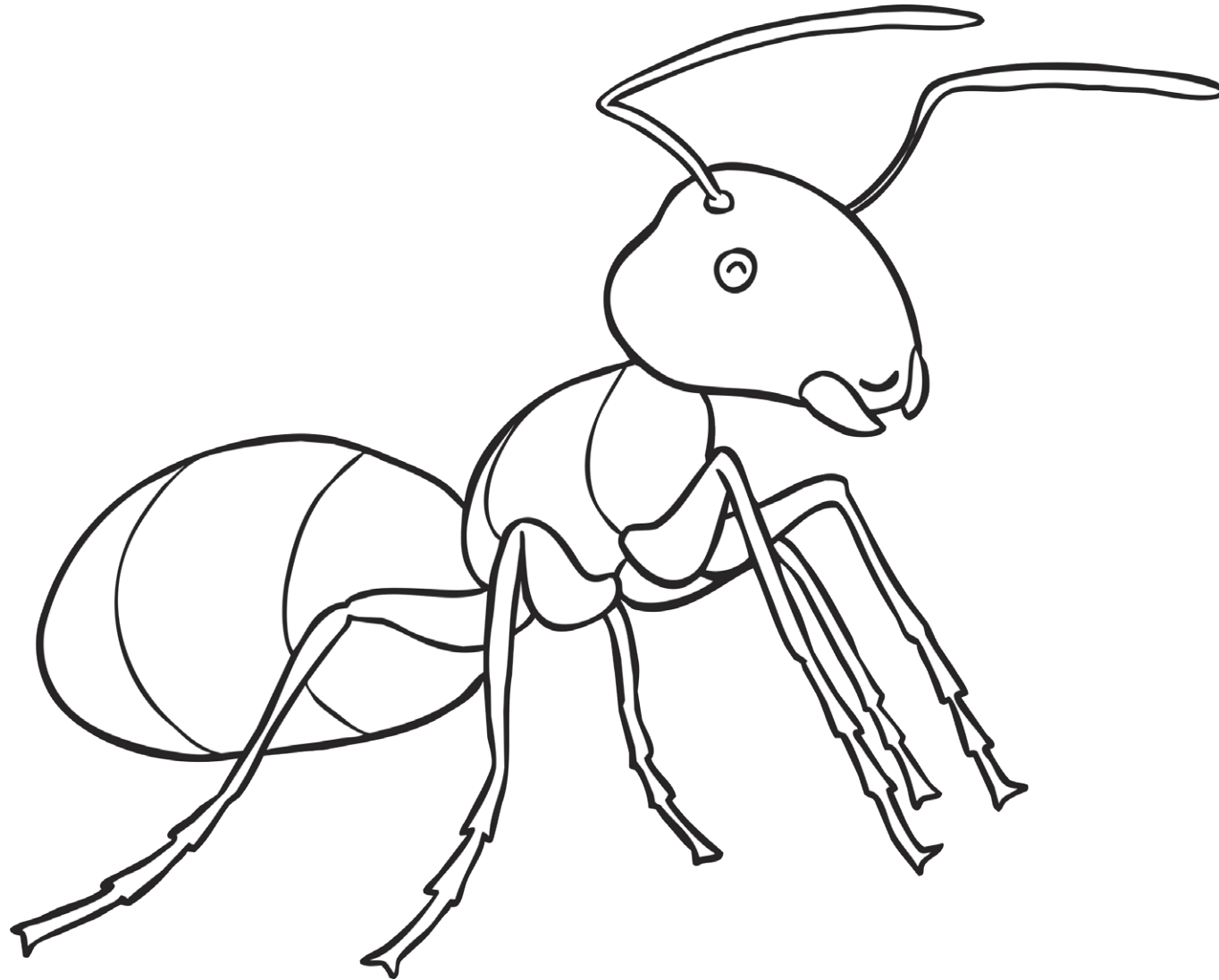


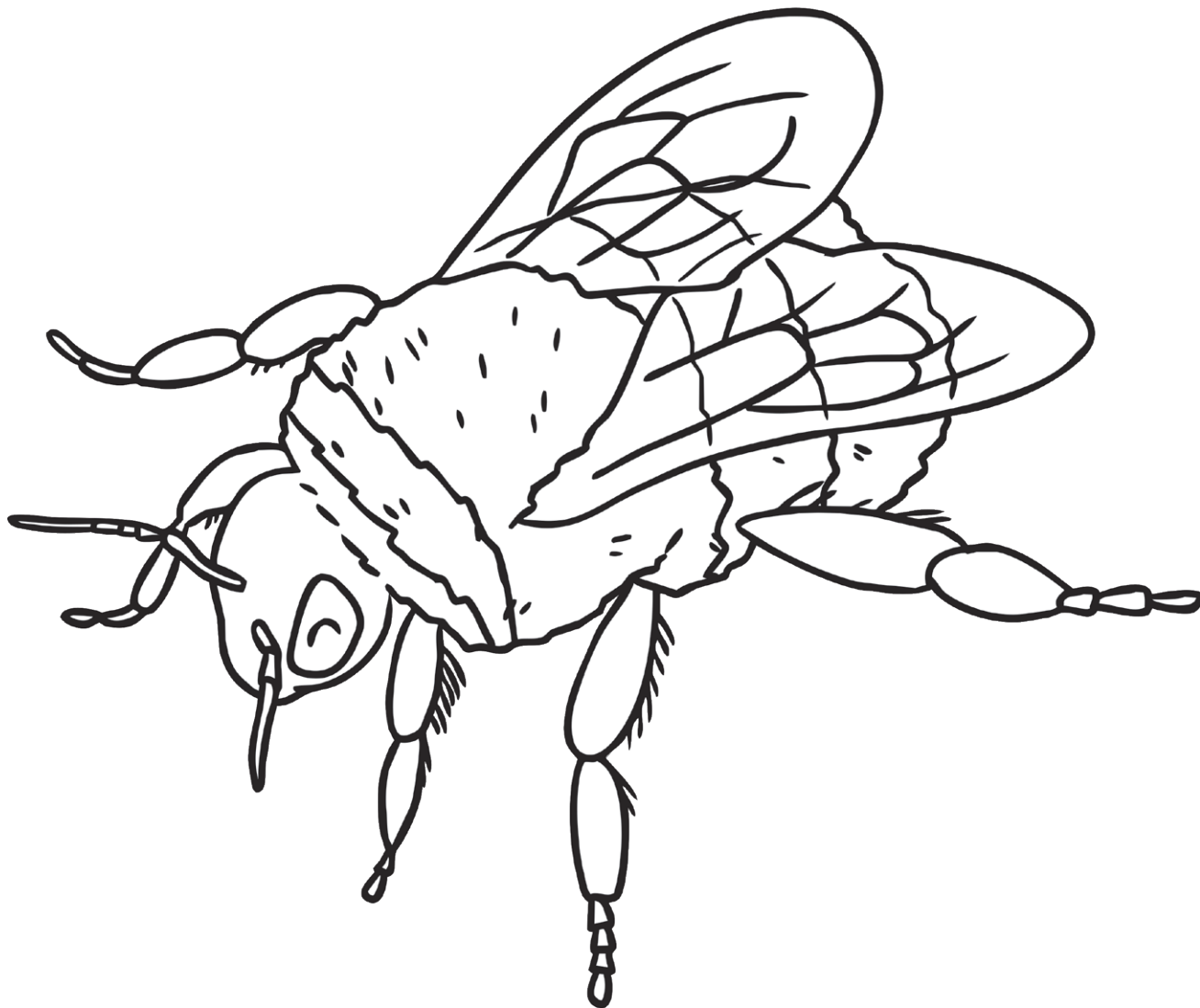
Here's one we made earlier to show what your nature face might look like once you've finished!

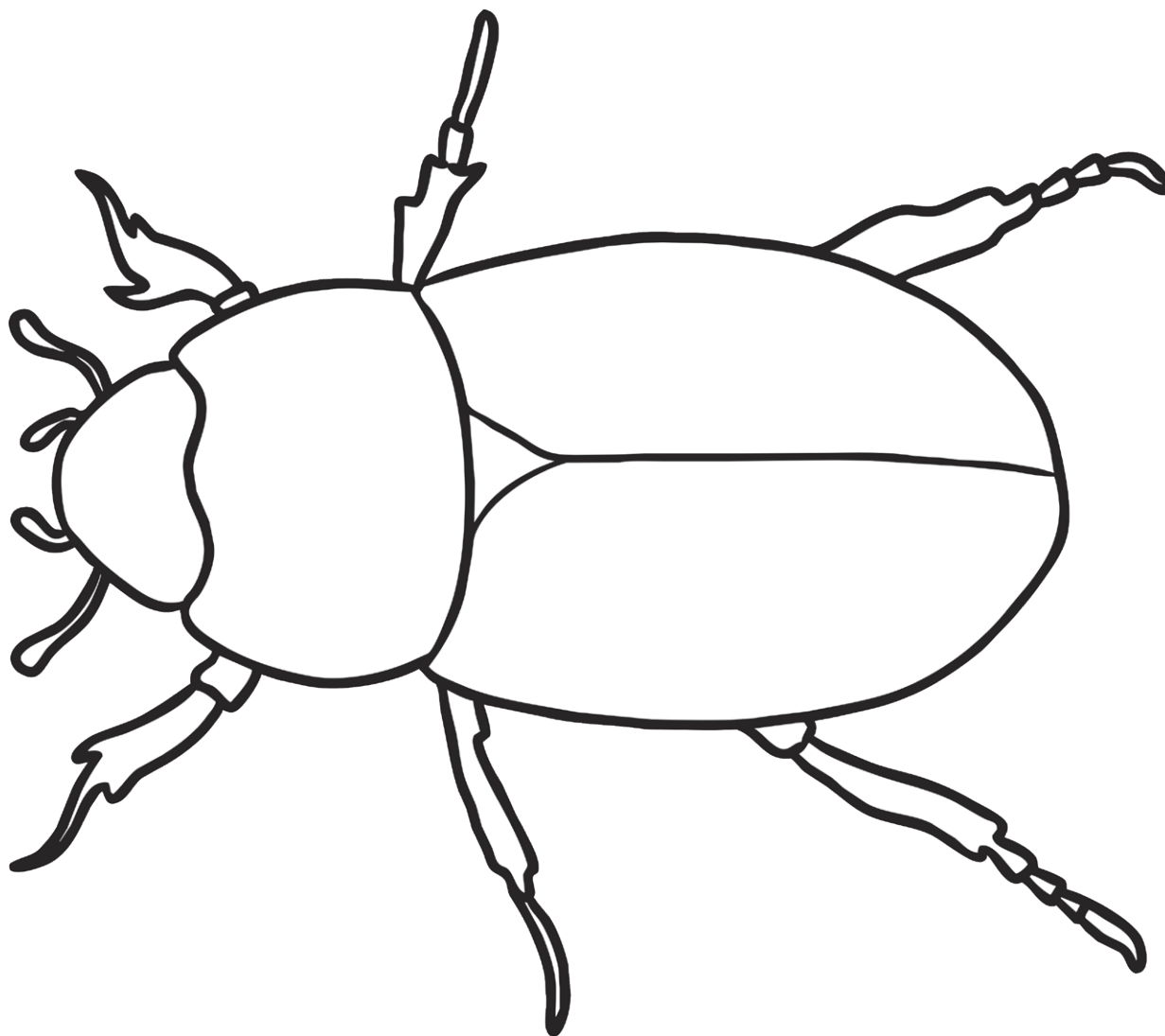


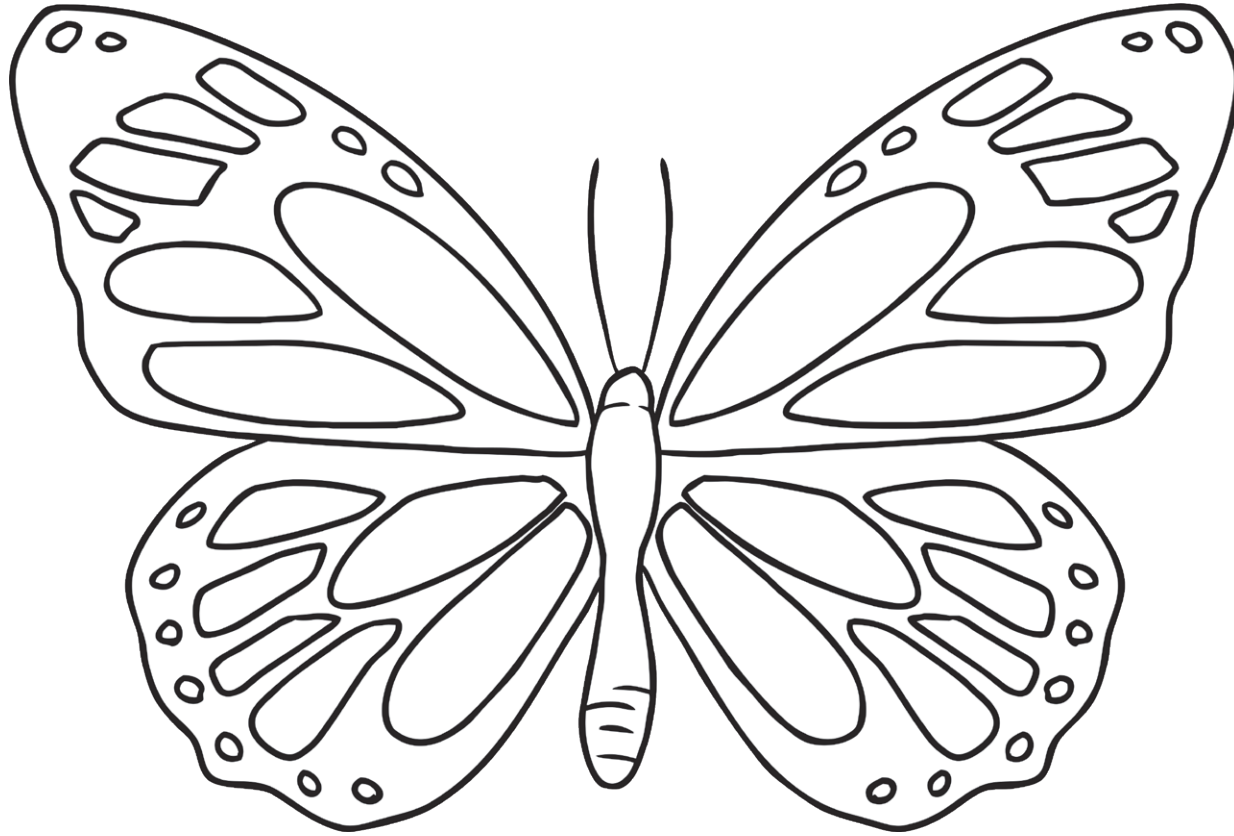
Fields in Trust
#LoveYourLocalPark

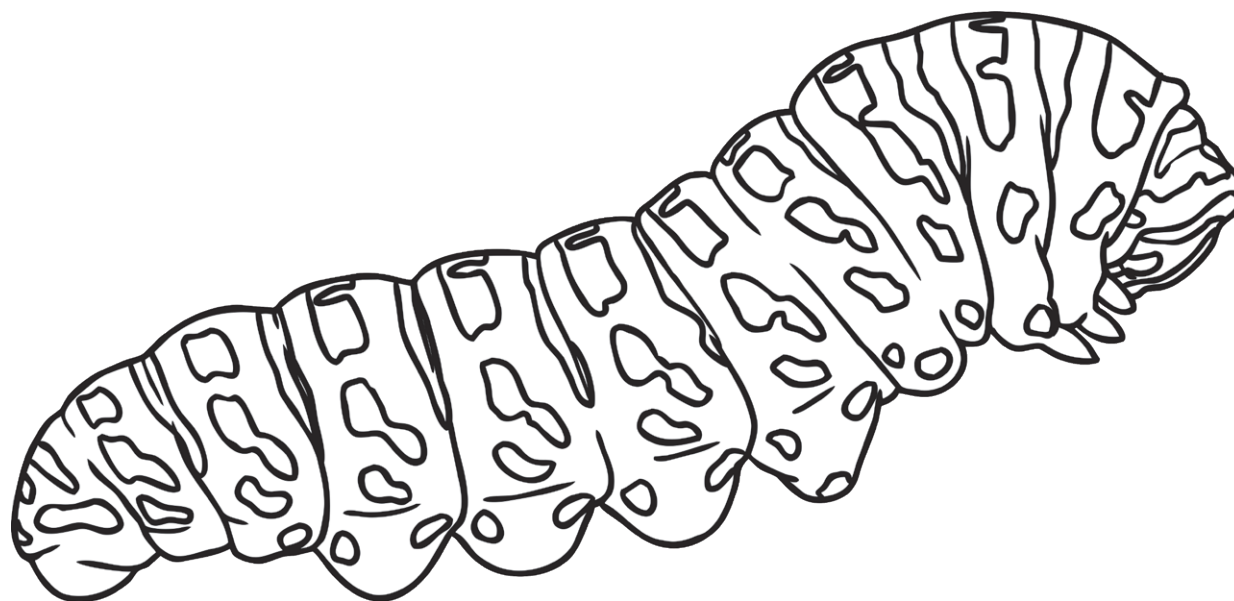


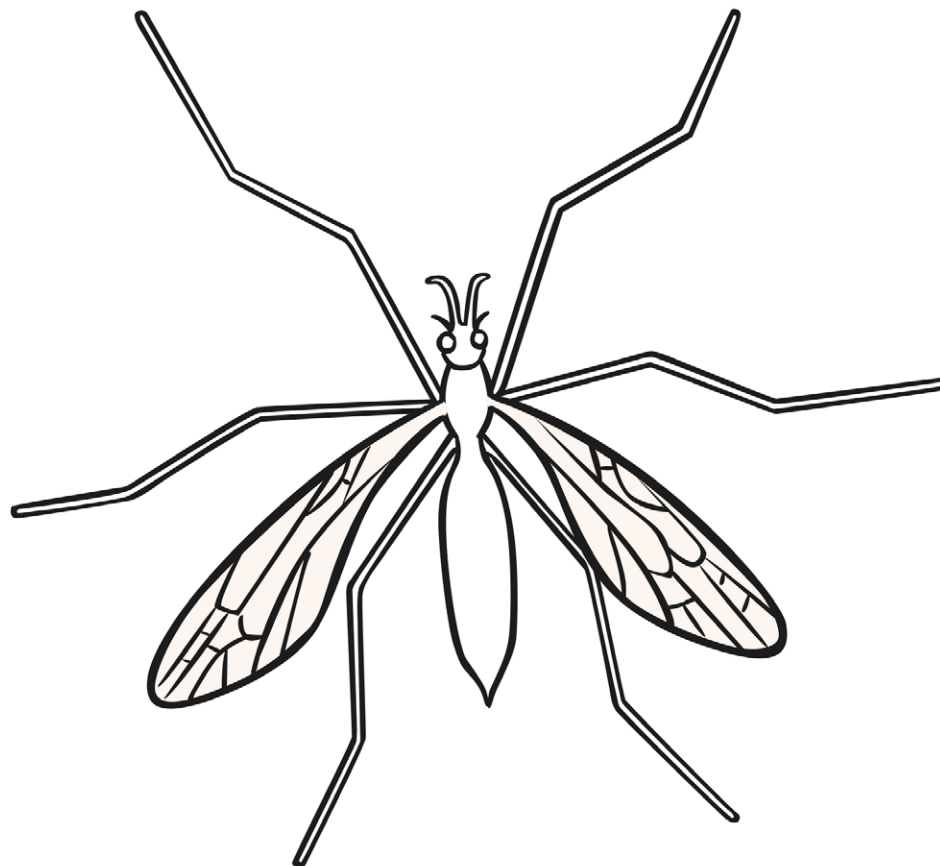


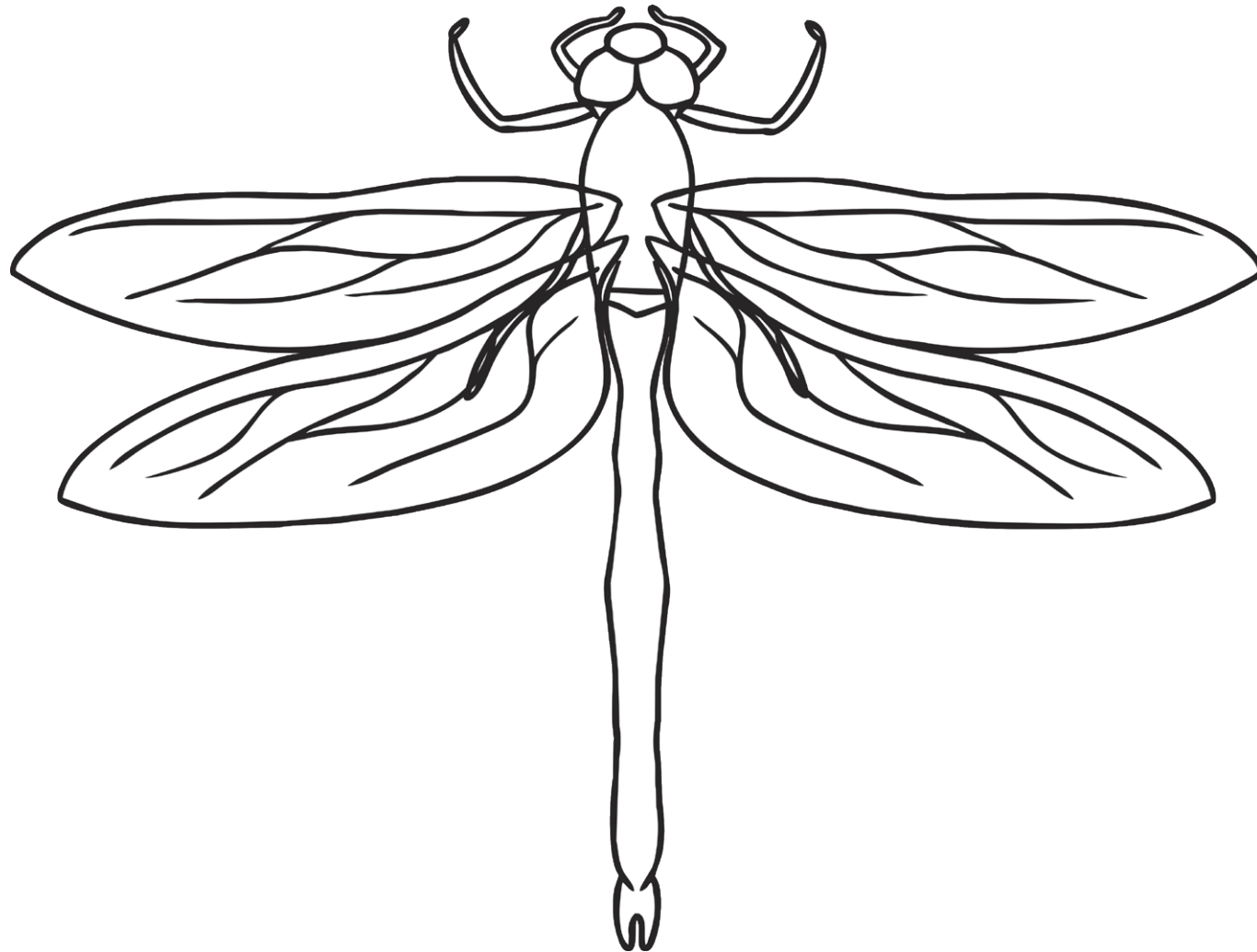


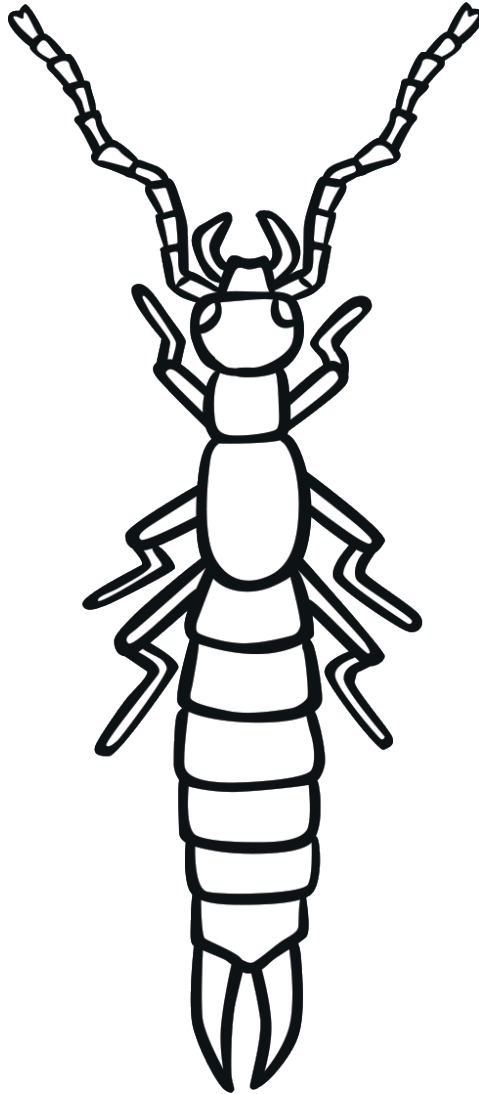


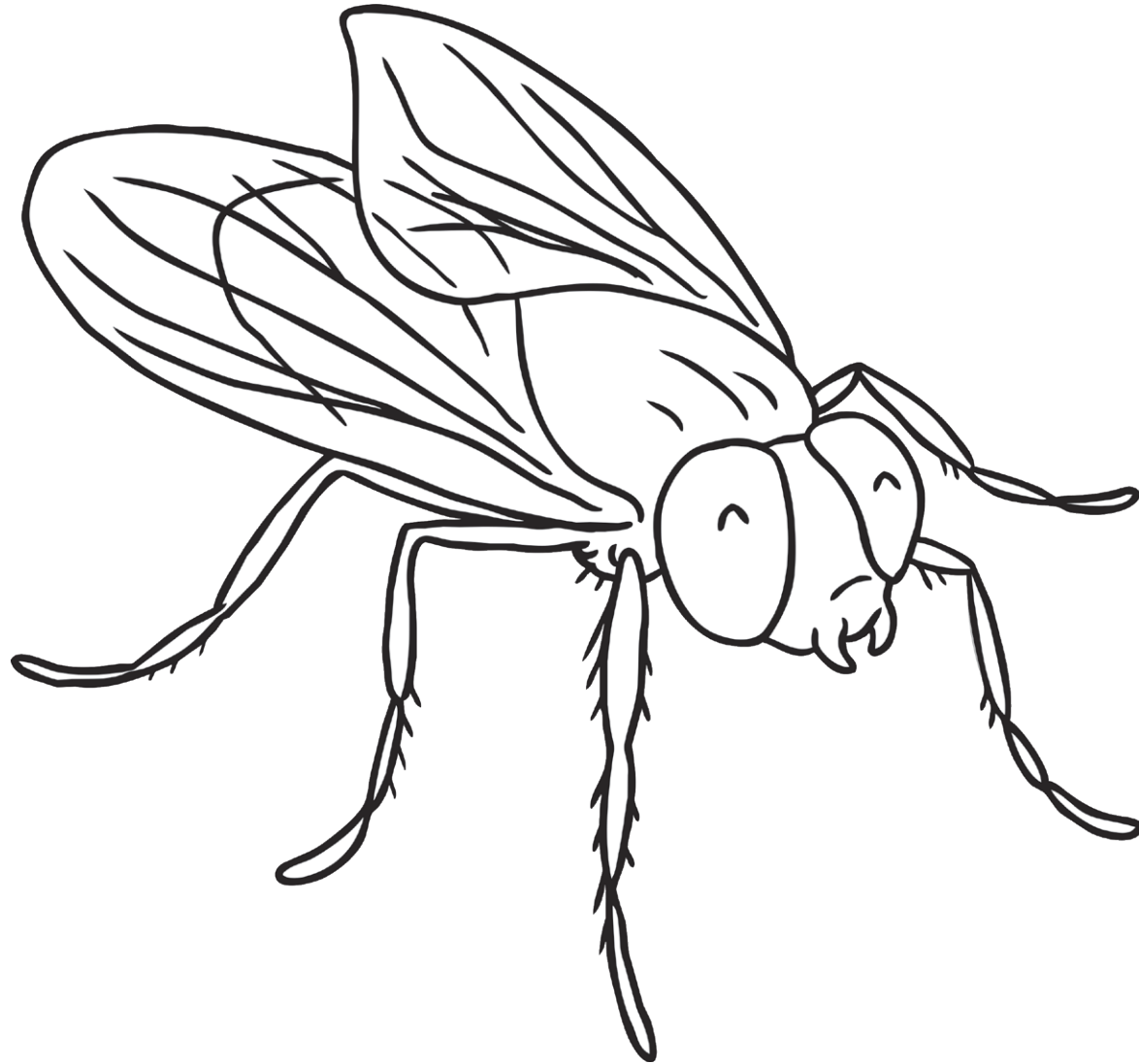


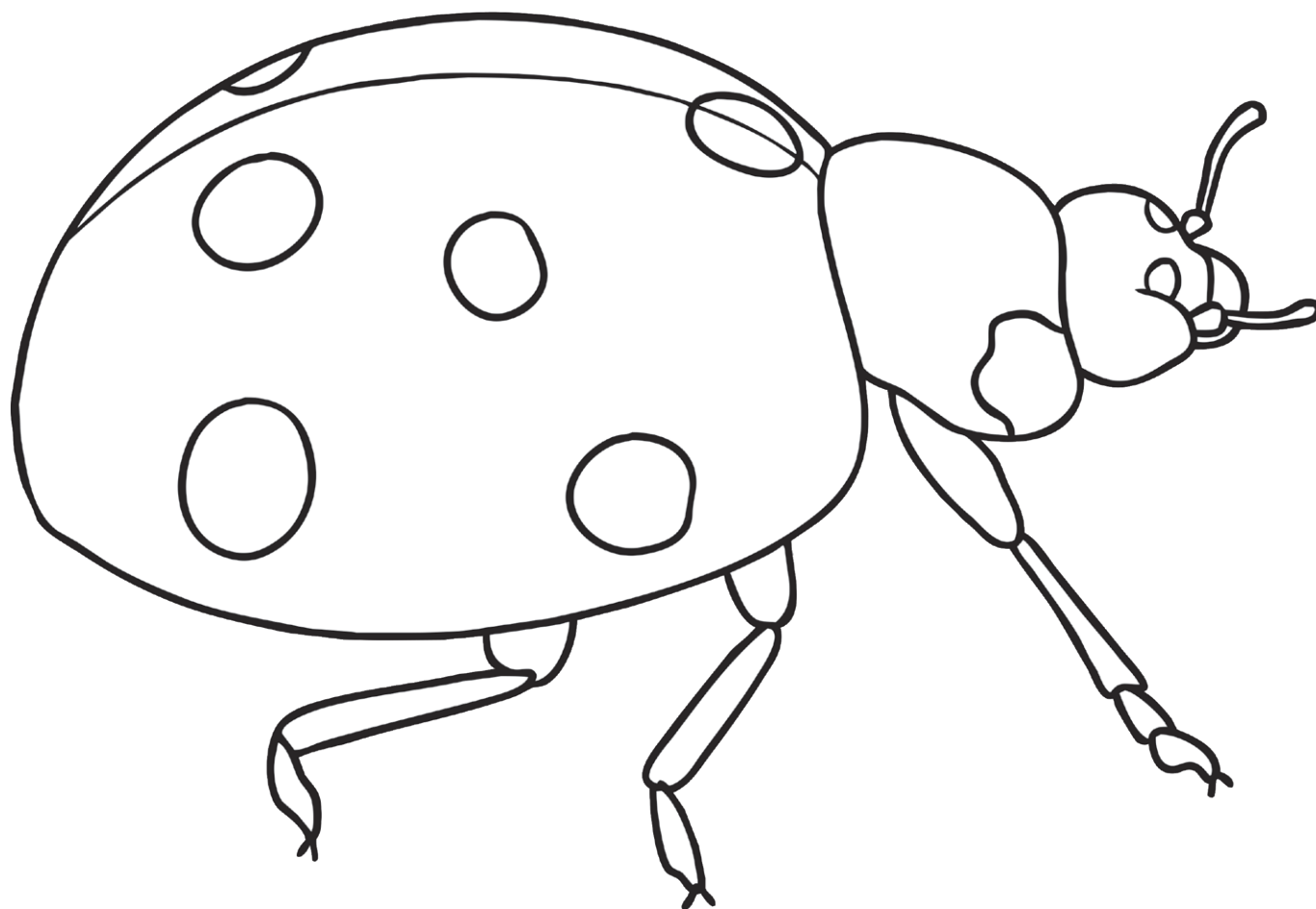


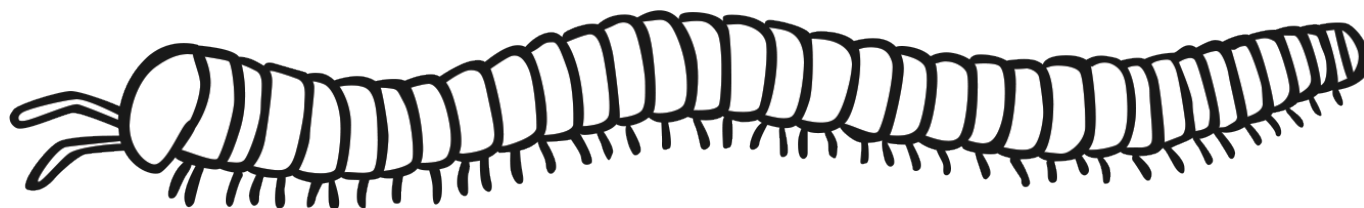


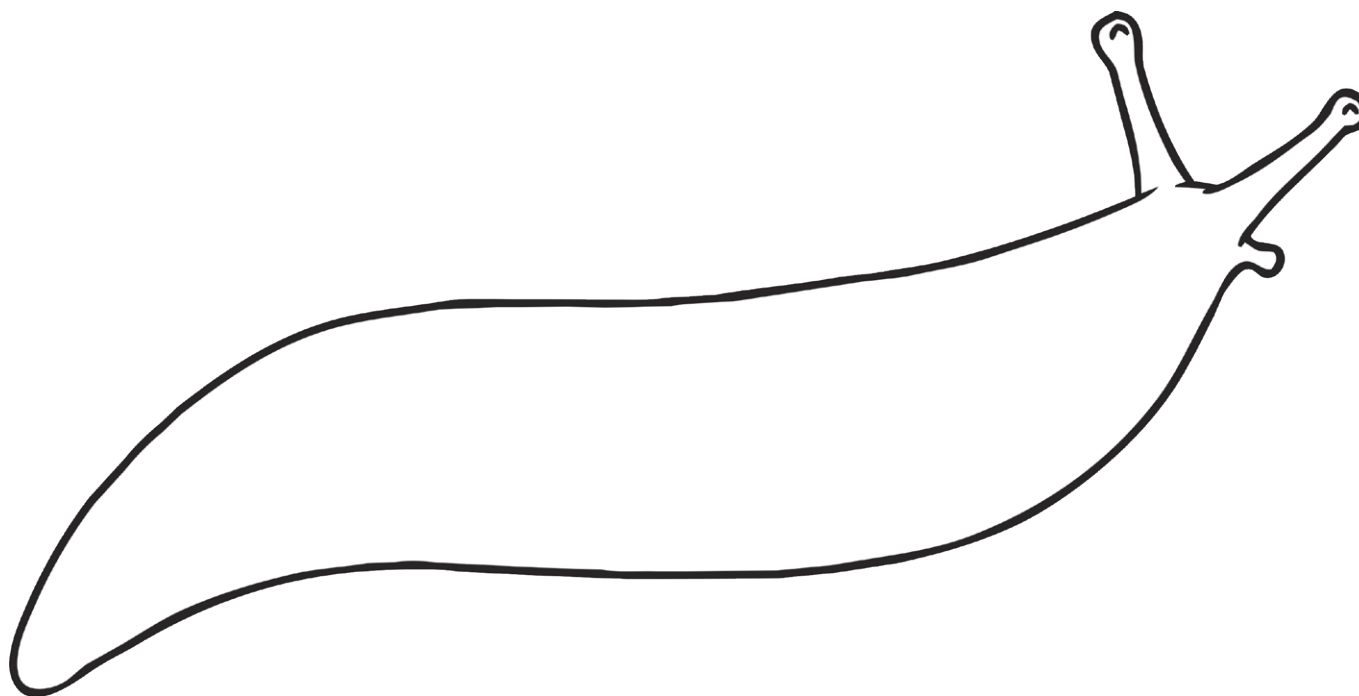


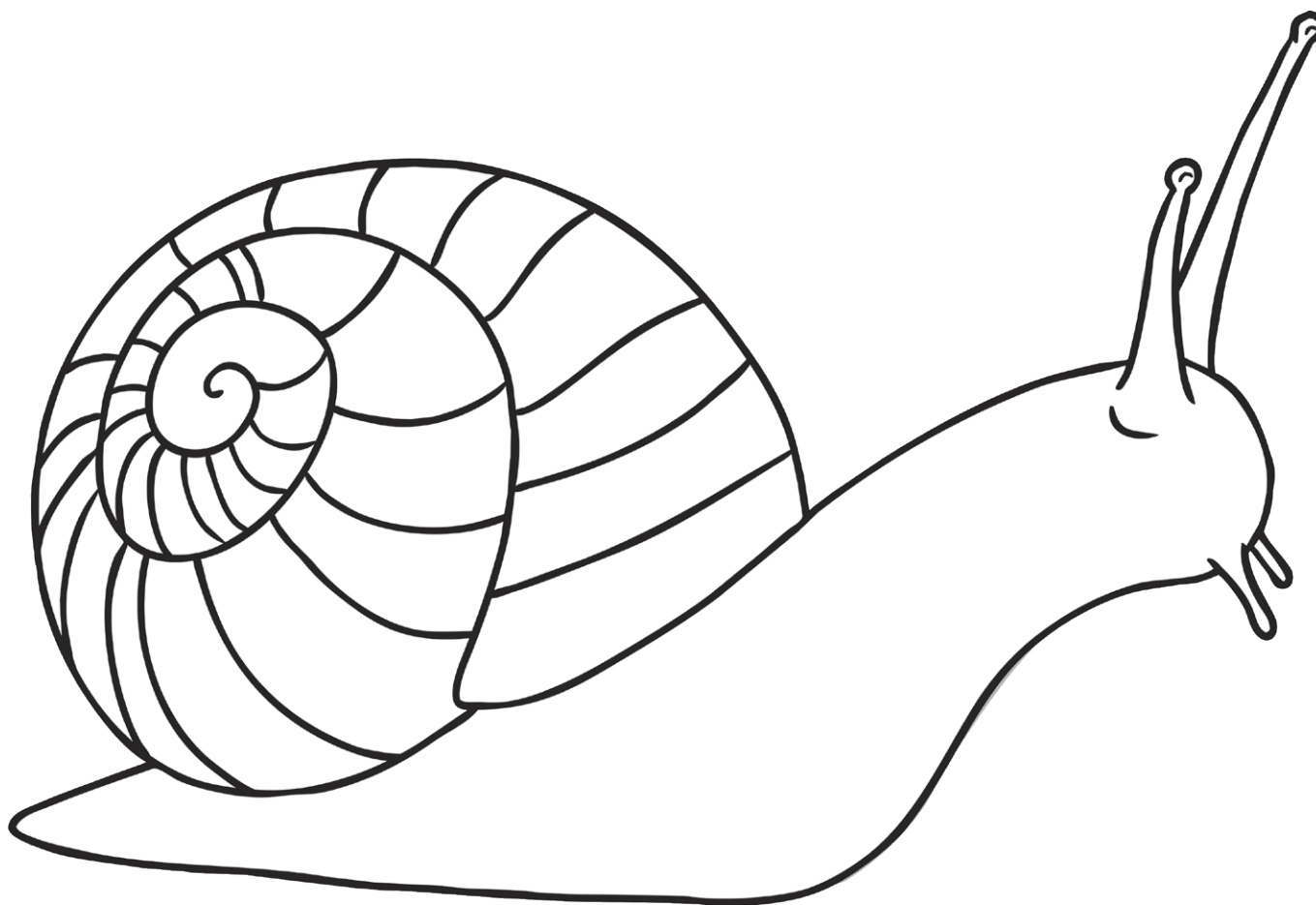


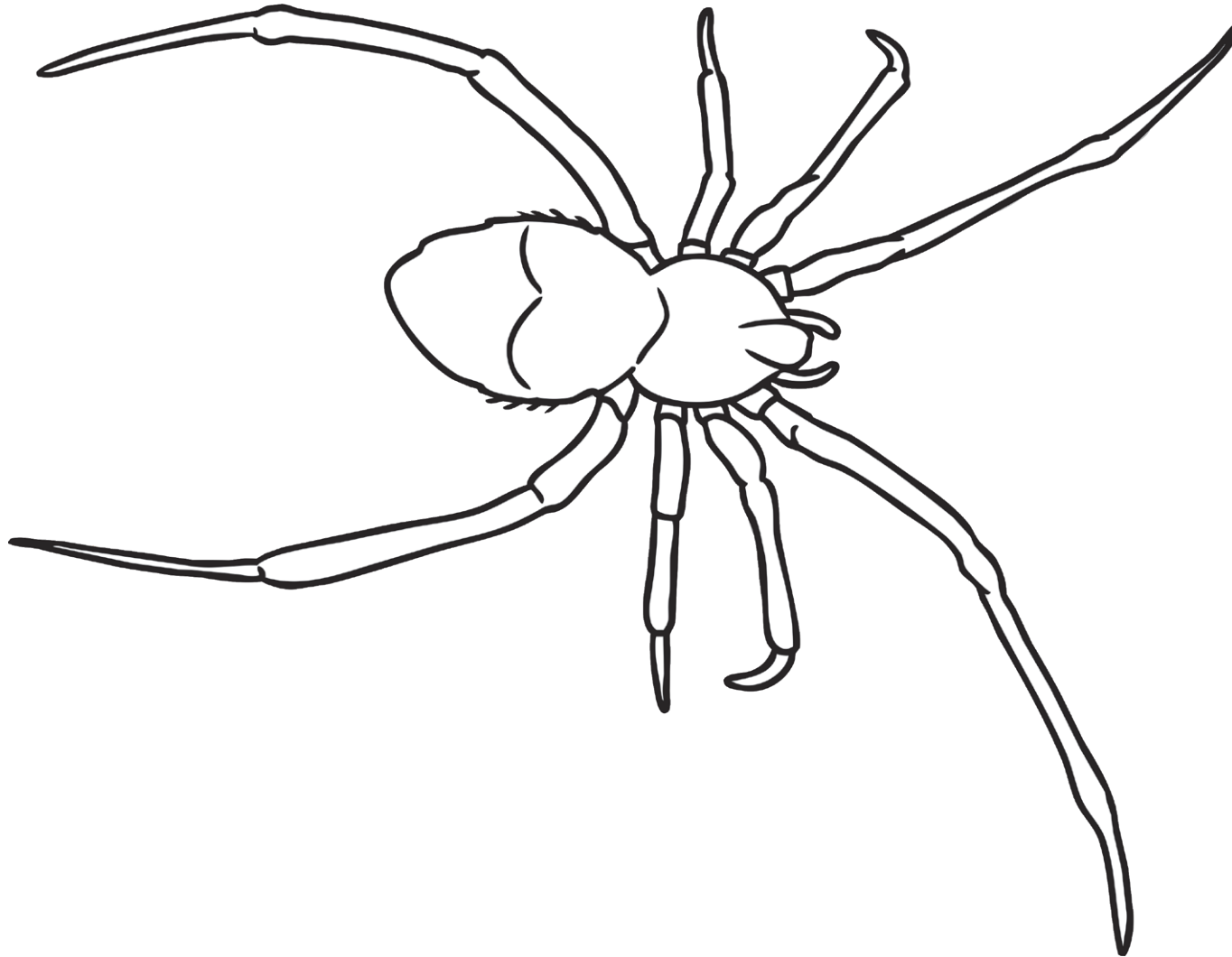


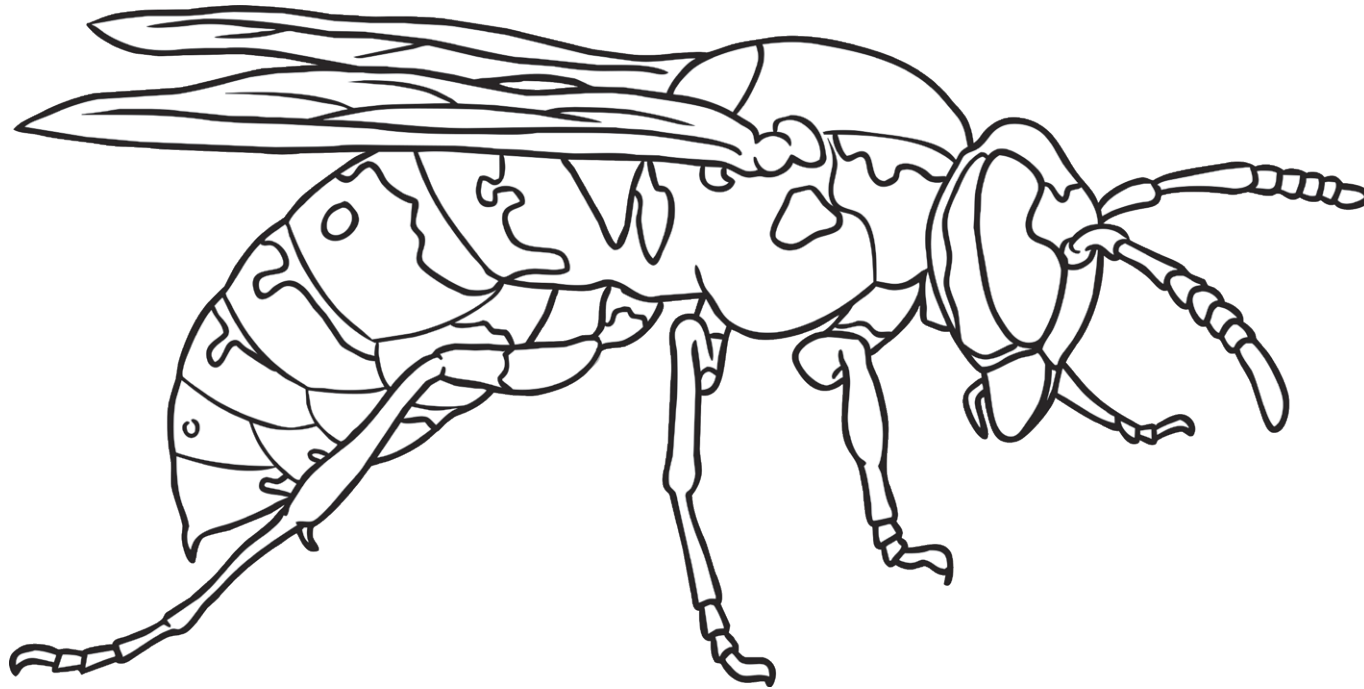


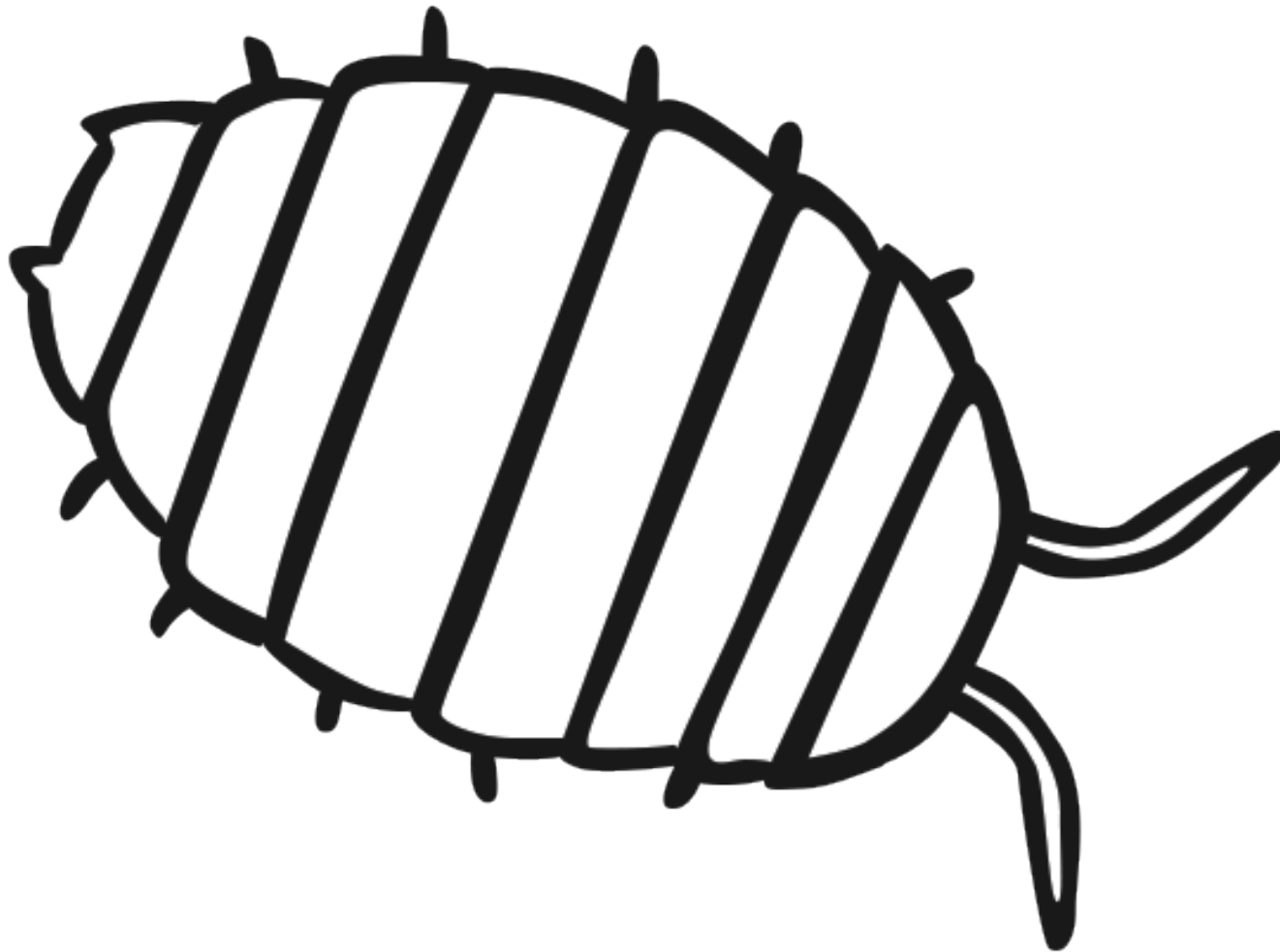


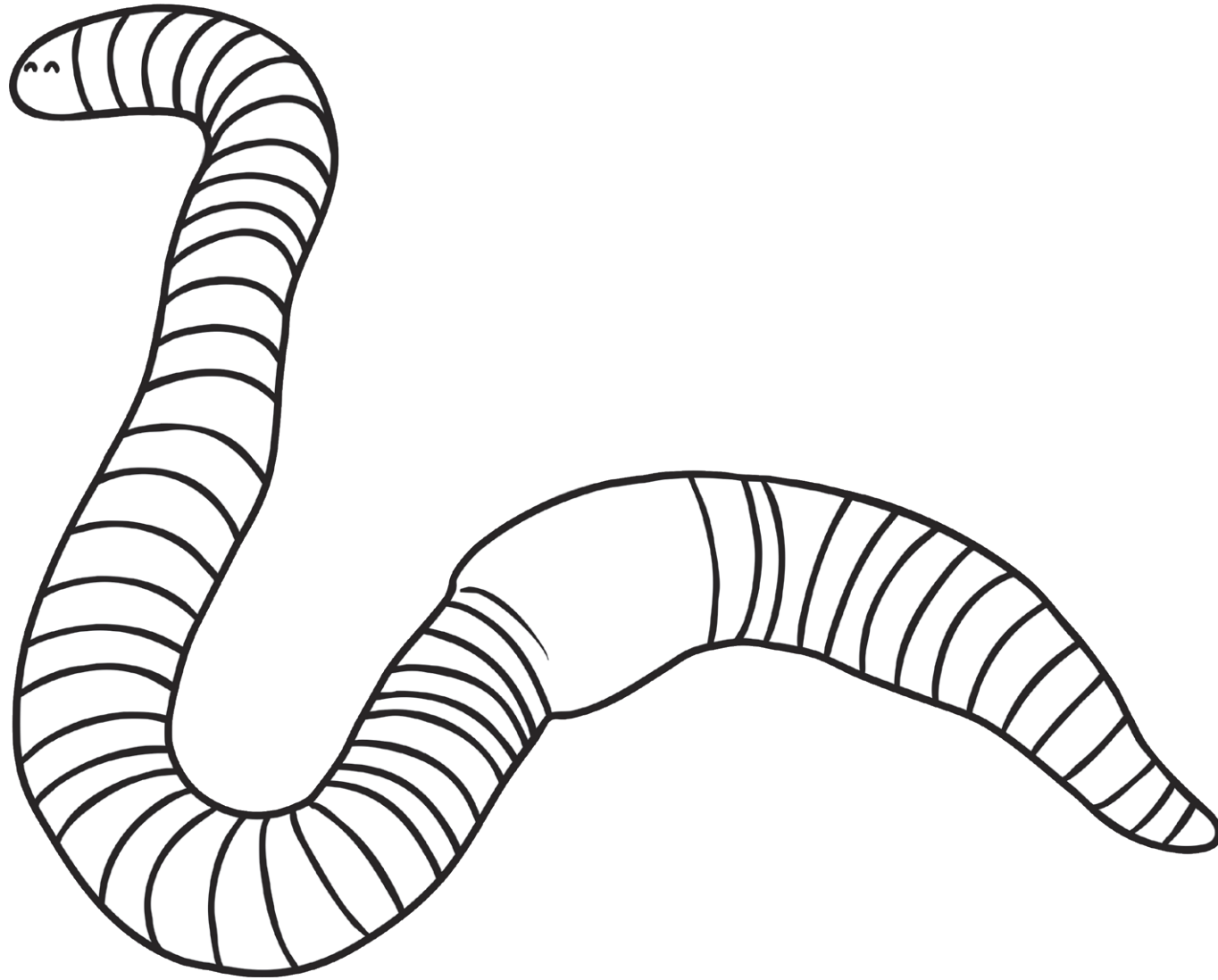






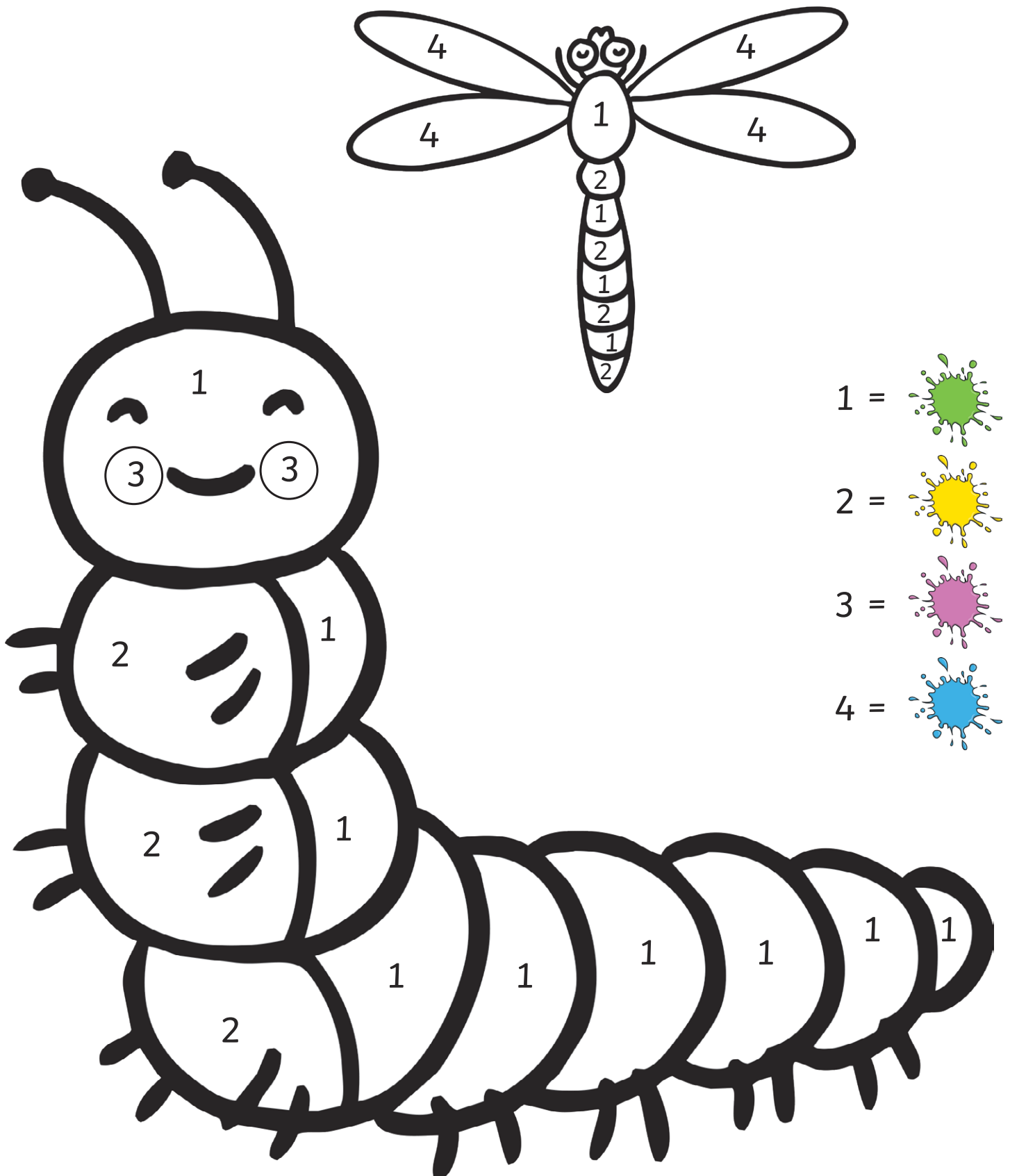






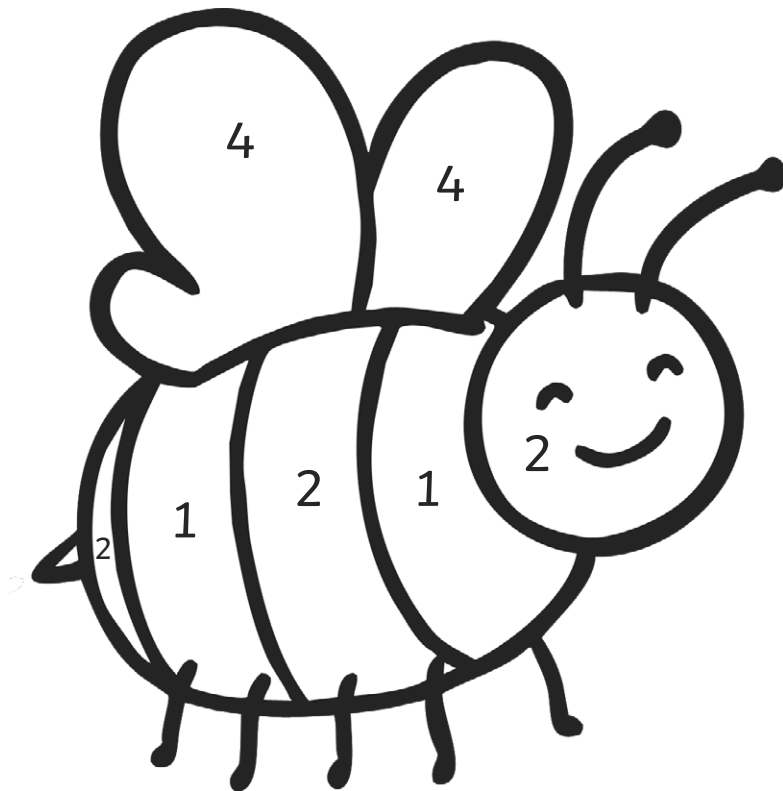
Minibeast Colour by Number






Match the colours to the numbers.

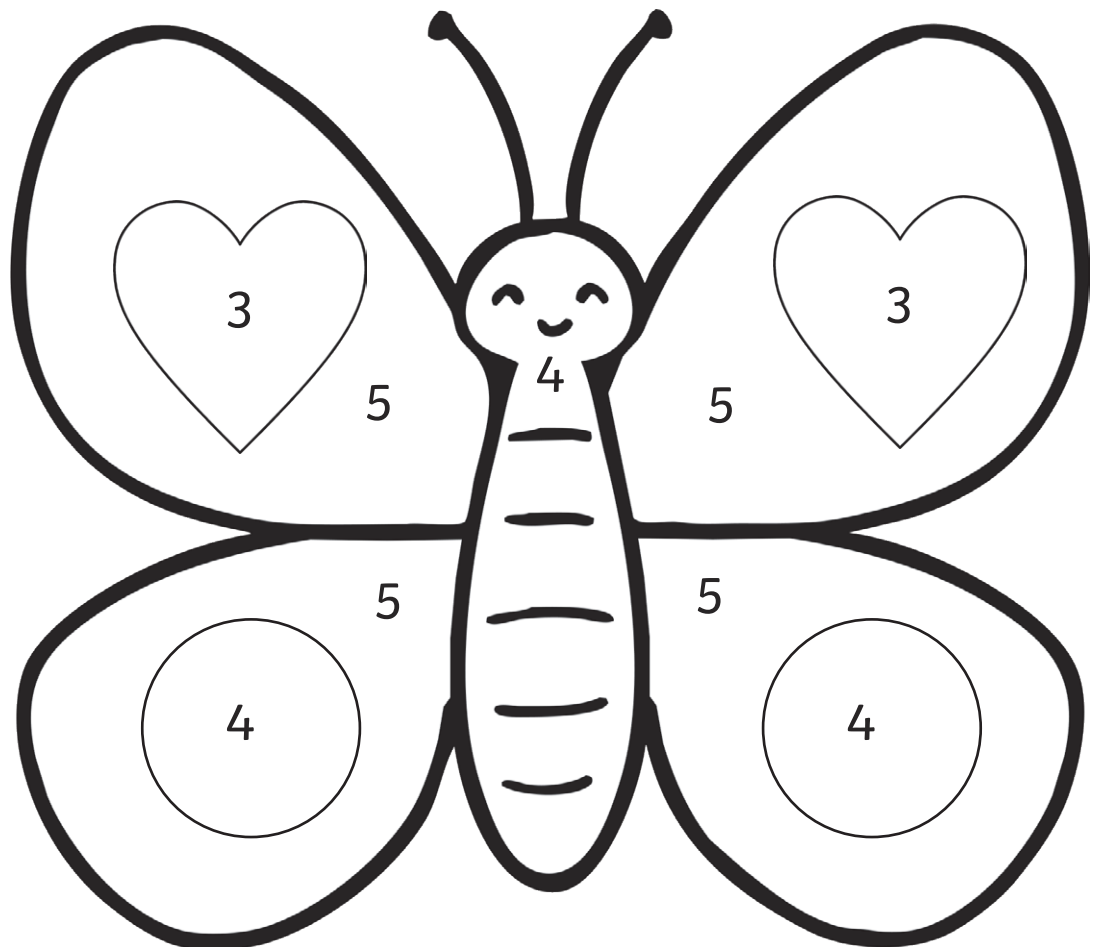


Minibeast Colour by Number

Match the colours to the numbers.







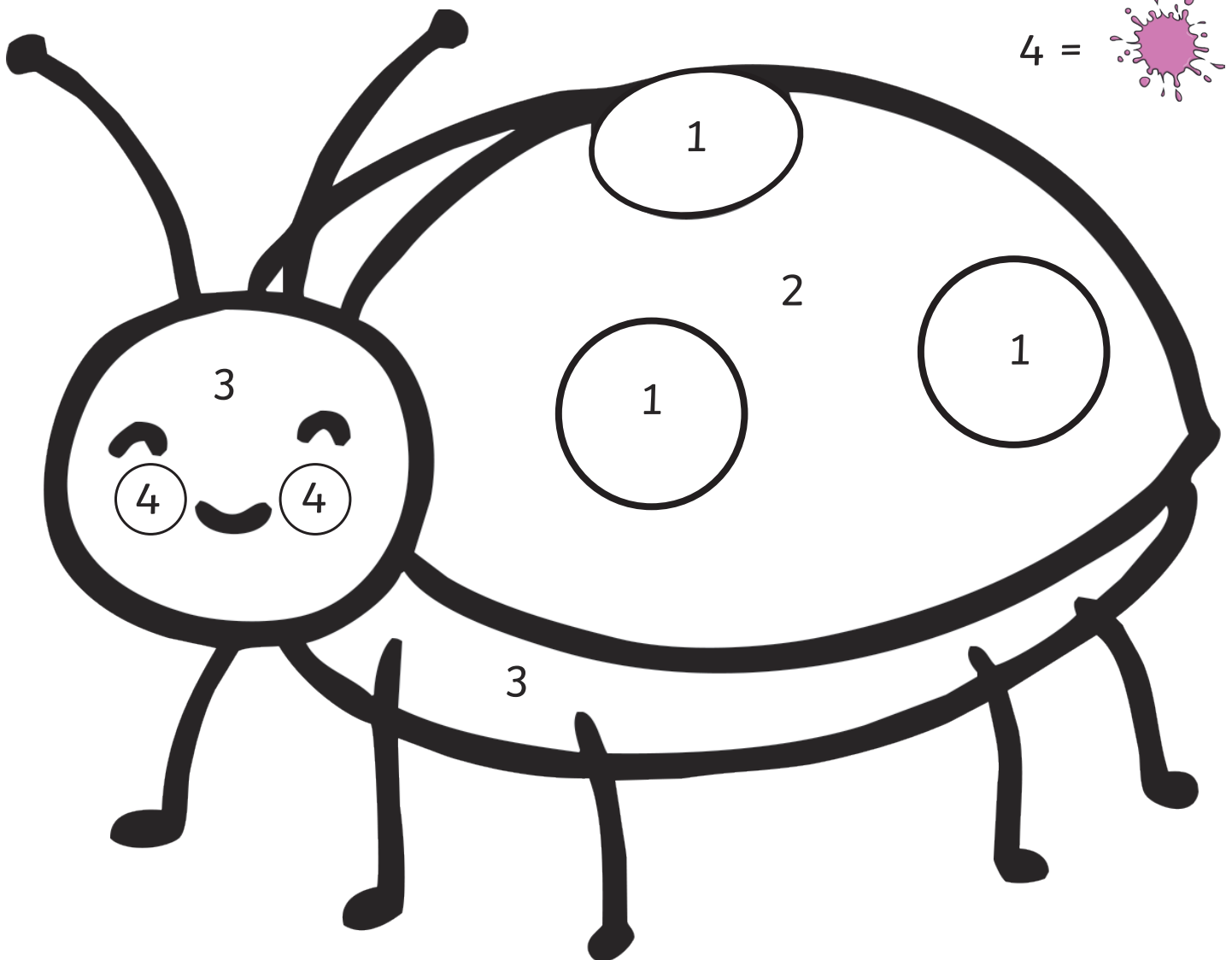
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- 2 = 
- 3 = 
- 4 = 
- 5 = 



Minibeast Colour by Number

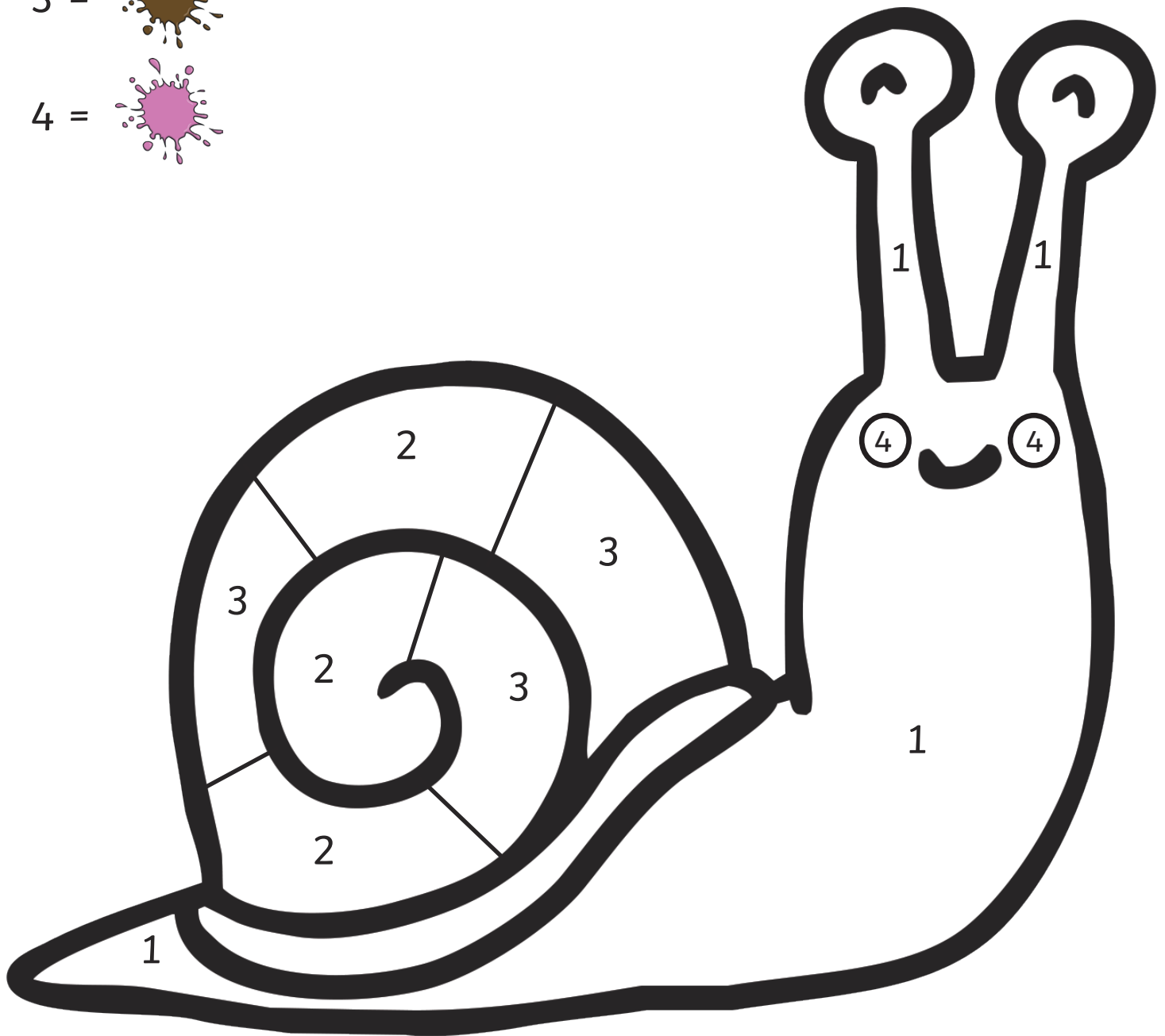
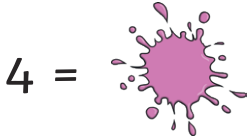
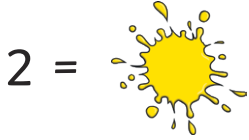
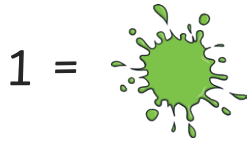
Match the colours to the numbers.

- 1 = 
- 2 = 
- 3 = 
- 4 = 

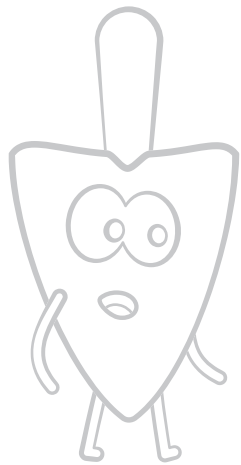


Minibeast Colour by Number

Match the colours to the numbers.



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Doug



Buddy



Oh no! Doug and Buddy dropped their vegetables! Can you colour them in?



Pepper



Carrot



Mushroom



Turnip

Unscramble the letters to reveal the word

Btteuryfl _____
 Pipmkun _____
 Hbser _____
 Pltan pto _____
 Sesde _____
 Hghoedge _____

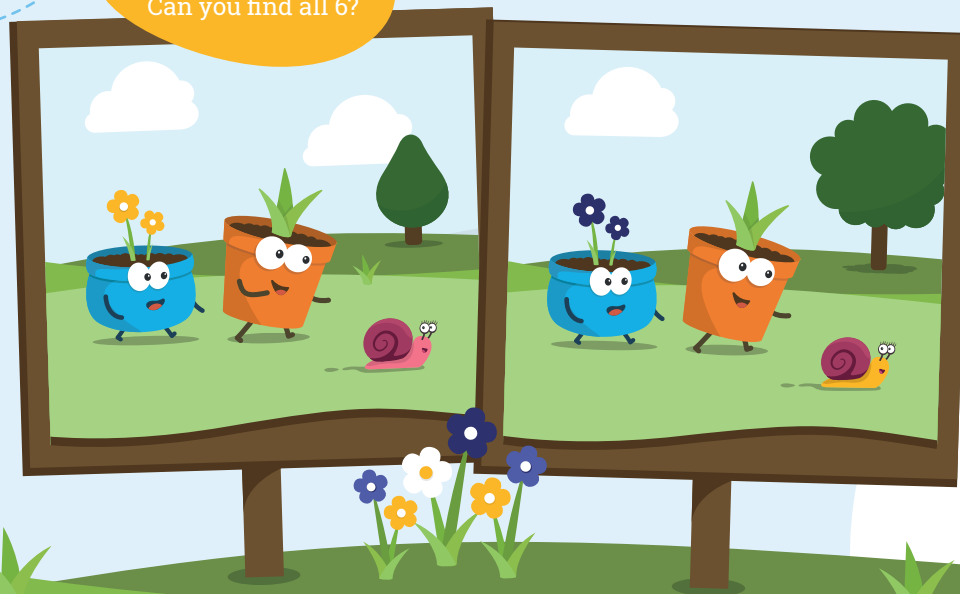


Bumble
 Spike
 Buddy
 Doug
 Polly
 Sammy
 Flower
 Allotment
 Strawberries
 Herbs
 Gardening
 Potatoes
 Carrots
 Cabbage
 Rhubarb
 Pear

C	T	I	O	E	A	U	R	A	B	Y	D	R	S
U	R	U	P	P	O	L	L	Y	D	S	E	O	A
R	S	L	O	T	I	G	L	D	E	L	S	B	O
H	A	A	T	F	T	R	U	O	H	S	P	R	S
U	M	E	A	R	G	B	O	O	T	E	I	K	B
B	M	D	T	U	R	O	S	O	L	M	K	B	E
A	Y	T	O	A	M	B	R	A	M	D	E	C	A
R	T	Y	E	A	R	R	A	E	P	M	S	N	O
B	N	P	S	E	A	B	U	M	B	L	E	K	T
S	D	U	H	C	G	A	R	D	E	N	I	N	G
F	L	O	W	E	R	C	A	B	B	A	G	E	R
G	S	T	R	A	W	B	E	R	R	I	E	S	E
R	S	P	S	Y	D	O	U	G	L	B	P	S	A
A	A	D	S	U	U	L	D	B	N	R	L	E	N



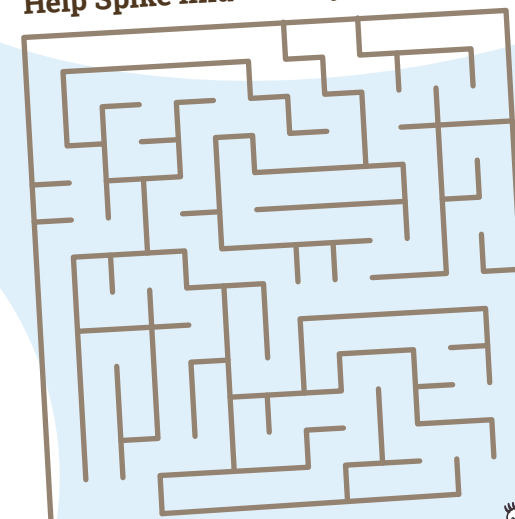
Spot the difference!
Can you find all 6?



Fill the pots with plants and flowers!



Help Spike find Sammy!



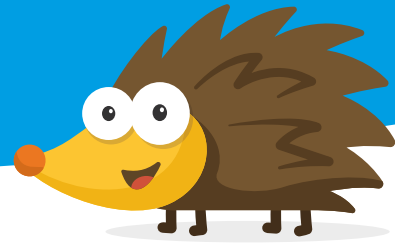
Spike



Sammy

Grow a pizza wheel

Grow your own pizza toppings



Here's what you'll need!

Shopping list for your local garden centre:

Seeds or very young plants for the pizza toppings you want to grow

Multi-purpose compost

Plant food

A spade or trowel

A watering can

Stones or bricks to mark out your pizza wheel

Instructions:

1. Make a circle on the ground where you want your pizza wheel to go. Use your stones or bricks. Or you could use a big container instead.
2. Dig up the ground in your circle really well and mix in your compost. Rake it over so it's level.
3. Give the soil a good stamp down to get rid of any air bubbles in it, and then rake it over again.
4. Divide your circle into four or five pizza slices using more of your stones or bricks.
5. Pick a pizza topping you want to grow in each of your pizza slices. Some good ones are basil, rocket, spinach, rainbow chard, tomatoes or peppers.
6. Sow the seeds or plant your very young plants in your pizza wheel and water them.
7. If it's cold, try sowing the seeds in a pot with some compost. Keep the pot indoors and water it until the plants start to grow. When the plants are about as big as your thumb try planting them out into your pizza wheel.
8. In a few weeks you should start to see them come up and you can then start putting your plants on your pizzas!



Visit your **local garden centre** to get started.
Show us your creation! Use **#NCGW** on social media.

www.childrensgardeningweek.co.uk

Heads gone wild

Grow yourself some crazy green hair



Here's what you'll need!

Shopping list for your local garden centre:

Some pots or containers

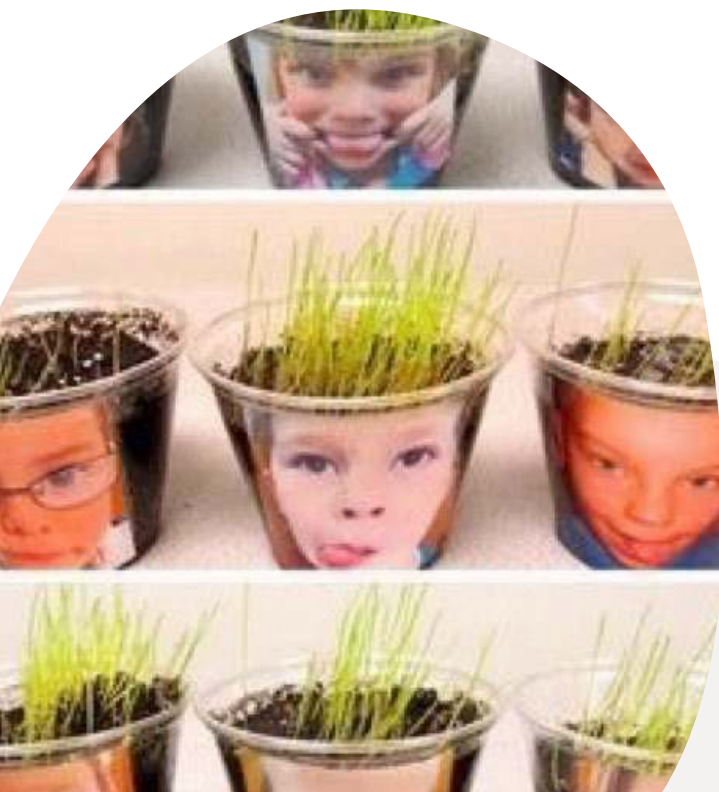
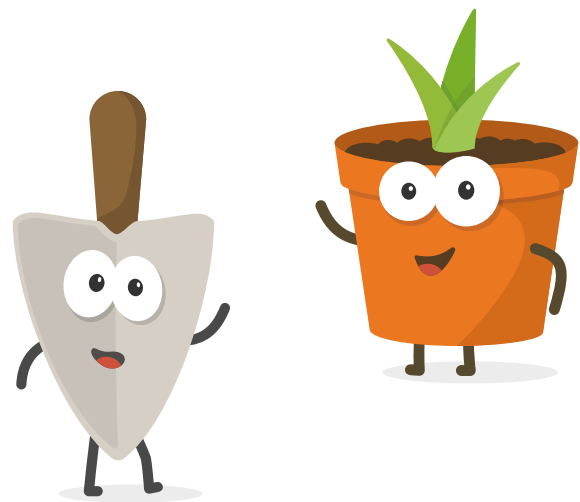
Some grass or cress seeds (or other plants like salad that you want to see grow out of your heads!)

Some multi-purpose compost

Stickers, glue, pens, or glitter to make faces on your pots

Instructions:

1. Draw or paint some faces onto your pot. Or glue a photo of you or your friend's face onto the pot. Make sure your faces don't have any hair on the top of them.
2. Fill your pots with the compost.
3. Put the seeds into compost.
4. Water the seeds. Be careful not to get water onto the faces on the pot!
5. Make sure the soil stays wet, and watch as crazy green hair grows out of your head. When it's long enough, try giving it a hair cut!



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Bamboo tipi

Grow a den made of bean plants



Here's what you'll need!

Shopping list for your local garden centre:

Some bamboo canes
Some garden string
Runner bean seeds or young plants
A trowel
Multipurpose compost
Watering can

Instructions:

1. Find a spot in the garden where you want to grow your tipi.
2. Mark out a circle (it can help to use sand). This is where you want the edge of your tipi to be.
3. Push the bamboo canes into the soil leaving about 10 to 20cm between each cane. Leave a 50 cm gap between two of the canes for the way in to your tipi.
4. Tie the canes together using the garden string at the top. You might need a tall grown up to help!
5. Near the bottom of each cane, dig a little planting hole and fill it with some compost.
6. Plant a runner bean seed or young plant in each of the planting holes. There are lots of types of bean so have fun choosing. If you are using seeds, use two in each planting hole in case one doesn't sprout.
7. When you're done, give them a good water. Runner beans like water so give them plenty as they grow.
8. Your beans will grow over your canes and make a tipi. You can use it as a den, and pick, cook and eat the beans that grow.



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Grow garden chairs

Natural furniture for a barbecue or garden party



Here's what you'll need!

Shopping list for your local garden centre:

Bags of topsoil
Some strips of turf
Trowel or spade
Garden shears

Instructions:

1. Make a pile of top soil like the one in the picture for each chair you want to grow. The lower bit of the pile is for sitting on. The higher bit of the pile is for resting your back against.
2. When the piles are the shaped how you want them, cover them with the strips of turf. You might need to cut the turf into shape with a trowel or spade to do this.
3. When the piles of soil are covered with turf, pin the turf in place with tent pegs or sticks so it doesn't fall off.
4. In a few weeks the turf will grow roots into the piles of soil and be stuck. When it has, you can take the tent pegs or sticks away. Your garden furniture is ready to use at a barbecue or garden party!
5. Over the summer you can use garden shears to keep the grass on your furniture short.



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Garden party for Greenfingers charity

Support this wonderful charity with your own garden party!



Here's what you'll need!

Shopping list for your local garden centre:

Seeds or young plants for the salad or herbs you're going to bring to the party

Some compost

Some containers or pots to grow your plants

Watering can

National Children's Gardening Week stickers

About Greenfingers

Established in 1999, Greenfingers Charity (Reg. charity no. 1076640) is dedicated to creating magical and inspiring outdoor spaces for life limited children, and their families, who spend time in hospices across the UK. To date the charity has created dozens of gardens but still has a waiting list of hospices that need their help. By supporting Greenfingers Charity during National Children's Gardening Week, you will be helping to bring the precious gift of a garden to more children and their families.

Instructions:

1. Agree what date your party will be on and where it will be. You could have it in National Children's Gardening Week, or later in the summer. Agree who's going to grow what for the party. Salads, and leafy vegetables like Swiss chard can be ready in time for National Children's Gardening Week. You could also grow some tasty herbs like basil, mint or lemon verbena.
2. About eight weeks before your party, get your plants, seeds, pots and compost from the garden centre. Fill your containers and pots with compost. Put your seeds or young plants in the pots and give them a good water.
3. Put your pots somewhere where they'll get some good sun and keep them watered. If you don't have a garden you can put them on a balcony, windowsill or doorstep.
4. On party day, bring your plants and have fun picking them. Eat the salads with a barbecue or pizza, or try chopping herbs into drinks or a fruit salad. Don't forget to give out National Children's Gardening Week stickers to everyone.
5. If you've done any of the other National Children's Gardening Week projects like growing your own garden chairs or growing a pizza wheel you can have some fun with these at your party too!
6. You can support Greenfingers charity by having a collection for them at your party; ask your mum or dad to donate the collection on their web site www.justgiving.com/greenfingers. Even if you can't have a collection, you can still support Greenfingers by asking your parents to 'like' their Facebook page www.facebook.com/Greenfingerscharity



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Write your name in salad

Enjoy a personal touch at tea time



Here's what you'll need!

Shopping list for your local garden centre:

A seed tray (or other pot/container)

Small bag of multi-purpose compost

Salad seeds (try rocket seeds and purple basil/lettuce seeds)

A watering can with a rose (sprinkler) in the spout

Instructions:

1. Fill your seed tray(s) or pot/container(s) with compost.
2. Lightly press down the compost so it's firm in the tray.
3. Mark out your name in the compost either using sand or by writing your name into it with a stick.
4. Sow the rocket seeds along the letters of your name in the compost.
5. Next, sow a border around the name using the purple basil or purple lettuce seeds. Leave about 5cm between the letters of your name and the border.
6. Sieve or sprinkle fine soil or compost over the seeds. Be gentle so you don't move the seeds.
7. Water your tray using the watering can. Be gentle and make sure the watering can has a rose (sprinkler) in the spout so you don't wash the seeds out of place.
8. Put the seed tray on your window sill or outside in your garden or balcony. Clip your name as it grows and enjoy eating it!



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Make a robot composter

Robots reign in the garden!



Here's what you'll need!

Shopping list for your local garden centre:

A compost bin

Things to decorate your robot (paint, glitter, plant pots and plants, half tennis balls, old CDs, bottles – use your imagination!)

A clear piece of perspex or a plastic greenhouse panel/pane



Instructions:

1. The compost bin will be the body of your robot composter. Decide where you want your robot to be in your garden and put it there.
2. Decorate the body of your robot. Go wild! Try sticking things to it to make it as funky as possible.
3. Make sure that you can still open the top of your robot composter. If you can't, then you won't be able to make any compost!
4. If you want to see the stuff you put into your robot turning into compost, you can cut a hole in the side of your composter. Cover the hole with a clear piece of perspex to make a window in the robot's body. A greenhouse pane or panel is ideal for this.
5. When you're done, take a photo of your robot and email it to ncgw@hta.org.uk saying who you are and the town you live in. We'd love to see it and maybe share it on our web site to the whole country.
6. To make compost in your robot, put a mix of live (grass clippings, leaves, weeds, fruit and veg waste) and dead (paper, cardboard, wood shavings or sawdust) into the robot. It will rot down and turn into compost to use in your garden.

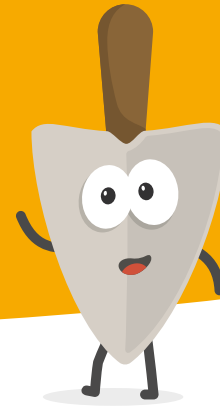


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Grow an edible hanging basket

Grow tasty, tumbling food for your family



Here's what you'll need!

Shopping list for your local garden centre:

A wire hanging basket

Sphagnum moss planter liner, or sisal

Multipurpose compost

Plant food or fertiliser

A hook or wall bracket and screws to hang your basket

Plants: choose from: tumbling cherry tomatoes, strawberry plants, chives, basil, or parsley, lettuce, and trailing nasturtiums

Instructions:

1. Line your basket with the sphagnum moss or sisal.
2. Fill the basket you've lined with the compost.
3. Put your plants into the compost in your basket. You can do this in the basket, and by poking holes through the sides of the basket and planting your plants through these holes. Make sure you take your plants out of any little pots or packaging they were sold in before you plant them in your basket.
4. Water your basket well and make sure the plants are firmly in place.
5. Hang the basket from your hook or wall bracket. Make sure you get an adult to put up the hook or wall bracket for you.
6. Check your basket every day. Make sure the compost stays wet and give it some plant food about once a week.
7. As your basket grows treat it like a pet – feed it and water it well and it'll give you lots of tasty food over the summer!



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The recycled garden

From old junk to an incredible garden display!



Here's what you'll need!

Shopping list for your local garden centre:

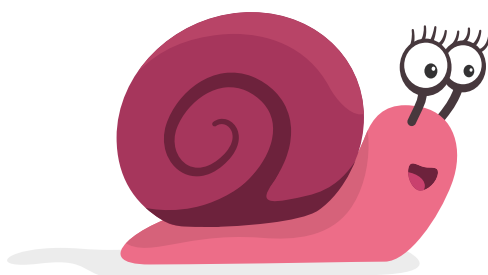
Multipurpose compost

Seeds or plants (choose flowering ones that say on the label, pot or pack that they are good for containers)

Plant food

Instructions:

1. Find some old junk around the home that's going to go to waste. It might be an old pair of wellies, some old furniture, or anything that you can put some compost into. Make sure you check with an adult that it's OK to use first though.
2. Make a few small holes in the bottom of the junk you want to grow your plants in. This is so that water can drain out of the bottom and your plants don't drown. Fill up your junk with compost.
3. Plant the seeds or plants into the compost and give it a good water. Feed them about once a week with the plant food.
4. Arrange all your junk into a funky display on your balcony or in your garden, and watch plants grow out of it!

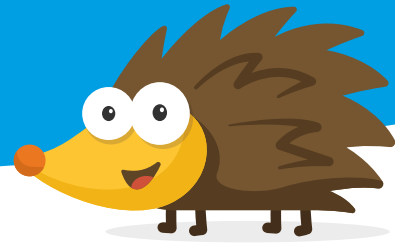


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Grow a vegetable picture

Grow edible plants into a work of art.



Here's what you'll need!

Shopping list for your local garden centre:

A mixture of big, medium and small edible plants with different coloured leaves, flowers or fruit

Multi-purpose compost

Horticultural sharp sand

Plant food

A spade or trowel

A watering can

Tip - Plants like lettuce, basil, rocket, swiss chard and salads can be good for background colours of your painting. Bigger plants like chillis, tomatoes, peppers and courgettes can be good for main parts of your painting.

Instructions:

1. Pick an area that gets good sunlight for your canvas in which to grow your picture.
2. Dig some compost into the area that makes up your canvas, then rake the soil so it's nice and fine.
3. Divide your canvas into sections using your sand. Go wild with the patterns you 'draw', or mark out a picture.
4. Plant different types of edible plant into the different sections of your canvas. Try using contrasting colours of leaves, fruit and flowers for the different sections. When the plants grow, they'll be the 'colouring in' of the sections of your picture.
5. Give the plants a good watering, and make sure they don't dry out.
6. Over a few weeks you should start to see your picture come to life. Better still, you'll be able to pick your picture and eat it!



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Pea shoot sandwich

Grow your own lunch for a picnic!



Here's what you'll need!

Shopping list for your local garden centre:

Some pots or containers
Some pea or micro-green seeds
Some multi-purpose compost

Instructions:

1. Put your compost into your container(s) and make sure it's spread evenly.
2. Sow the pea or micro-green seeds very thinly on your compost, covering all the soil.
3. Water the seeds and put them on a bright window sill.
4. Keep the compost damp over the next few days. After a few days your seeds will start to sprout.
5. When the shoots are about four centimetres tall, you can cut them for your sandwiches.
6. Once you've cut the shoots, put your container back on the window sill and keep it watered.
7. The shoots will come back three or four times, giving you lots more sandwiches or salads!



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The right trousers

Planted pants to grow in the garden



Here's what you'll need!

Shopping list for your local garden centre:

Some bamboo canes

A trowel

Multipurpose compost

Watering can

String

A selection of seeds or young plants - flowering or edible plants are all fine

You'll also need some old jeans or trousers – ask a grown up first!

Instructions:

1. Find a spot in the garden where you want to plant your trousers.
2. Tie the legs of the trousers into knots so that compost can't come out of the bottom of the trouser legs.
3. Push the bamboo canes into the belt hoops around the trouser waist, and tie them there with string. You'll need to tie in at least three or four canes for each pair of trousers.
4. Push the bamboo canes into the ground so your trousers are standing up.
5. Now fill your trousers with the compost to just an inch or two below the waist.
6. Give the trousers a good watering. If the compost settles and no longer comes close to the waist, top up the trousers with some more compost.
7. Now you can plant the waist of your trousers with your seeds or plants. If you pick some tumbling plants they'll trail down the legs.
8. Try cutting some openings into the trouser legs and putting seeds or plants into the holes for a fun ripped jeans look!



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Build a bug hotel

Re-use your waste to make a hotel for wildlife



Here's what you'll need!

Shopping list for your local garden centre:

Wooden pallets (or something else recycled to make layers for the different floors in your hotel)

To fill in the layers of your hotel:

- Bamboo canes
- Paving slabs
- Stones
- Sticks, twigs, branches and leaves, fir cones
- Broken non-plastic plant pots
- House bricks

For your hotel's green roof:

- Wooden strips for edging the roof about 3 centimetres wide
- Galvanised nails
- Weed control fabric or membrane
- Multipurpose compost
- Plants (turf, moss or succulent plants are great)

You may have lots of this lying around in the garden, so check what you can recycle before buying it

Instructions:

1. Pile up your pallets (or whatever you're using to make the floors of your hotel) on top of each other. Make sure there's space between each floor – you can use house bricks for creating space between the floors of your hotel if you need to.
2. As you pile up your layers get a grown up to make sure each layer of the hotel is stable.
3. Fill some of the gaps between your pallets with bamboo canes or twigs. Line up the canes or sticks so the ends face out of your hotel; that way your insect guests can crawl in easily.
4. Stuff the other spaces between the floors of your hotel with the different materials you have.
5. For your hotel's green roof, nail or fix some wood about three centimetres high all the way around the edge of the top of your hotel.
6. Next, line your roof with the weed control fabric or membrane. You should now be in a position to 'fill up' your roof with compost without any spilling out or falling through into your insect hotel.
7. Cover the fabric or membrane with a layer of multipurpose compost that comes nearly up to the top of the wood edging of your roof.
8. Plant the compost layer with your turf, moss or succulent plants. You've now got a green roof for your five star bug hotel!



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Grow a pallet garden

Re-use and recycle with this garden for a small space!



Here's what you'll need!

Shopping list for your local garden centre:

Some weed control fabric or membrane

Some multi-purpose compost

Scented garden herbs like oregano, marjoram, thyme or basil

Some bedding plants like petunia or lobelia (ideally pick trailing plants – you can usually see if it's trailing by looking at the plant labels)

Galvanised nails or tacks

Of course you'll also need a wooden pallet. If your garden centre doesn't have any, try asking local businesses if they have any spare that might be going to waste.

Instructions:

1. Lay your pallet flat on the ground with the gaps in the pallet you're going to grow your plants out of facing down to the floor.
2. Cover the back and sides of the pallet (e.g. the face that's now facing up, and the edges of your pallet) with a double thickness of weed control membrane or fabric, nailing or tacking the fabric into place. You should end up with the back and all sides of the pallet sealed with the fabric. For extra strength, you can re-inforce the fabric with chicken wire if you want to.
3. Turn your pallet over so the gaps you're going to plant in are now facing upwards. Fill the pallet up with compost by tipping the compost through the gaps.
4. Give the pallet a good watering; if you need to, top it up with compost.
5. Plant your plants into the gaps in the pallet. Make sure you leave some space between the plants as they'll grow to fill out the space. Try and mix up your herbs and flowers.
6. When you've finished planting, gently lean your pallet up against a wall. It will be heavy, so get a grown up to help.
7. Keep the pallet watered from the top so that it doesn't dry out, and you've got a wonderful pallet garden!



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Make a sunflower smile

Grow yourself happy with a smiley sunflower!



Here's what you'll need!

Shopping list for your local garden centre:

Pack of sunflower seeds
Small plant pots
Bamboo cane
Garden string
Multi-purpose compost

Instructions:

1. Fill your small pots with compost.
2. Plant a seed in each pot and give it a watering. Put your pot onto a window sill and water it once the seed sprouts so the compost stays damp.
3. As your sunflower grows, tie the stem of the sunflower loosely to the bamboo cane with your garden string to support your plants.
4. Once the frosty weather is over (usually mid-May), dig a hole in your garden for your sunflower. Ideally dig it next to a wall or fence that gets lots of sun.
5. Squeeze your sunflower and the compost it's growing in out of your pot, and plant it in the hole you've dug. Put a bamboo cane next to your sunflower, and give your sunflower a good watering.
6. As your sunflower grows, make sure you tie the stem to the bamboo cane loosely with garden string. Try tying it using a 'figure-of-eight' knot as this will reduce any rubbing on the stem.
7. When your sunflower appears, gently tease out the seed heads to make a fantastic sunny smiling face.



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Cascading strawberries

Strawberries from an old drainpipe



Here's what you'll need!

Shopping list for your local garden centre:

Multipurpose compost

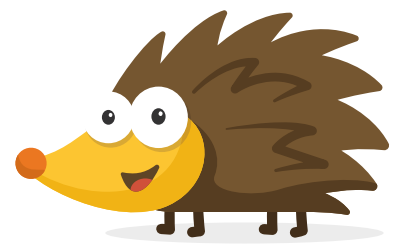
Strawberry plants

Liquid plant food

You'll also need some drain pipe length, but other tubes can be good too. Try the inner of a carpet roll or something similar can be good.

Instructions:

1. Take your old drainpipe (or any old tubing you have) and get a grown up to make some holes 3 or 4 centimetres wide all the way along it.
2. Decide whether you want your tube to be horizontal or vertical. Horizontal is easier to water, but vertical is very dramatic!
3. Fill your pipe with your compost, and put a strawberry plant into each of the holes in the pipe.
4. Water your tube to make sure the plants have enough to drink, and give them some of the liquid plant food every six weeks through summer. Keep an eye out for your strawberries going ripe – then just add cream!

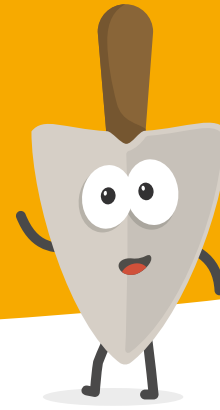


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Sensory path

Build a path for the senses



Here's what you'll need!

Shopping list for your local garden centre:

Horticultural sharp sand

Bricks, plywood or recycled wood for edging your path

Tarpaulin or similar membrane

Sensory fillers for your path, such as:

- Sand
- Gravel
- Creeping thyme
- Straw
- Bark
- Turf
- Pebbles
- Water (you'll need a rubber liner for this!)

Instructions:

1. Decide where you want your path to go, and mark the edges of the path out using your horticultural sand
2. Dig out your path to be about 6 centimetres deep. If you want, you can line your path with the tarpaulin or membrane, but if you do make sure you cut drainage holes into it
3. Mark the edging of your path using your bricks or wood
4. Divide the length of your path up into sections using your bricks, plywood or recycled wood
5. Next, fill each section of your path with something different. Try filling a section with compost and planting creeping thyme plants in it; this will smell lovely when it's walked on. Fill other sections with your gravel, bark, water, turf, or other materials
6. You've now got your sensory path! When children walk it in bare feet they get a great feel for the different materials and the world around them. It's surprisingly relaxing for grown ups too!



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Rock Painting Bugs

What bugs will you paint?



Here's what you'll need!

Rocks

Acrylic paint

Paint brushes

Gloss varnish (optional – to make them shiny!)

Googly eyes (optional)

Instructions:

1. Wash your rocks with water and let them dry. Think about what bugs/insects you would like to paint e.g. ladybird, bee, snail etc.
2. When the rocks are dry, start painting your bugs.
3. Let the paint dry and then paint a layer of gloss varnish on top before sticking on the googly eyes.
4. You can now place your bugs in the garden or on a windowsill!



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Water Wheel Investigation

Learn how energy can be harnessed by the flow of water over your own water wheel

12+

Craft & Design
Technology



An engaging STEM activity to introduce hydropower as a form of **renewable energy** and to introduce the concept of **forces** and **energy transfer**.

Watermills have been used through history and the kinetic energy of the water has been harnessed and/or transferred to grind corn, supply drinking water to villages, irrigate crops and power textile mills.

Modern hydropower uses falling water often retained by a dam to generate electricity.

As an extension you could attempt to harness the energy from your wheel attaching a string and a small weight to the shaft to see how much weight the mechanism can lift.

Equipment for 1 water wheel

2x sturdy paper plates
Ruler and pencil
Plastic tub
Length of dowel longer than the width of the tub
Scissors
Sticky tape
Recycled plastic cups, pots or paper cups
Permanent marker
Stapler
Jug or watering can
Water

To Make the Water Wheel

1. Measure and mark the centre of the two paper plates.
2. Perforate the plates with a pencil at the marks.
3. Push the dowel through the two plates.
4. Staple a minimum of three cups snugly between the two plates.
5. The cups should be evenly spaced and all facing the same direction.
6. Mark one of the cups prominently with a permanent marker.
7. Balance the wheel width-ways across the tub.

Investigation

Steadily pour the water from a jug into the top cup of the water wheel and watch it begin to rotate as the water flows. Count how many rotations the wheel makes using 1 litre of water. Use the marked cup to keep track of rotations. Experiment by changing the height and speed of the flow of water. What difference does a faster flow make?

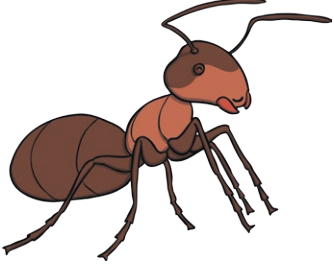

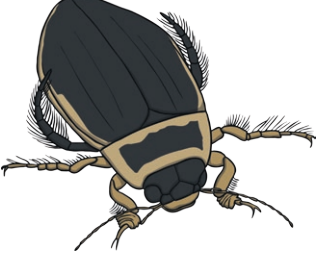




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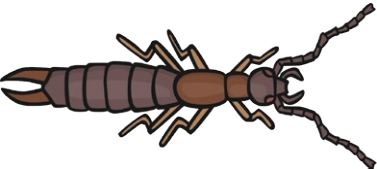
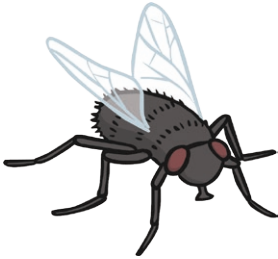

For more resources visit www.ltl.org.uk/free-resources

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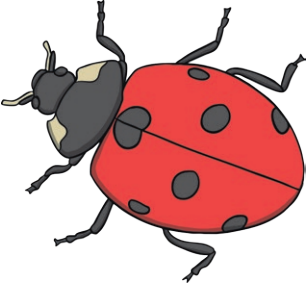


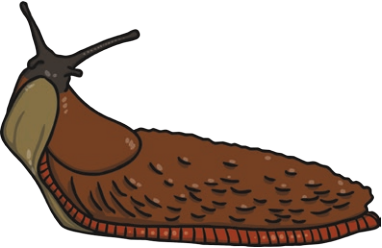
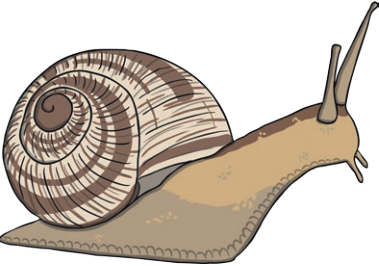
Minibeast Hunt

	Minibeast	Number Found
	ant	
	bee	
	beetle	
	butterfly	
	caterpillar	


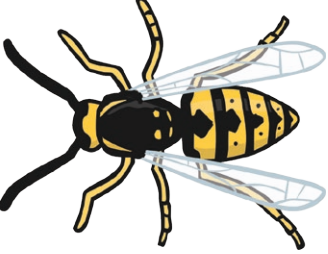

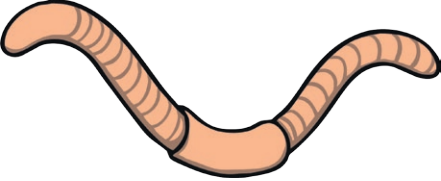
Minibeast Hunt

	Minibeast	Number Found
	crane	
	dragonfly	
	earwig	
	fly	
	grasshopper	

Minibeast Hunt

	Minibeast	Number Found
	ladybird	
	millipede	
	moth	
	slug	
	snail	

Minibeast Hunt

	Minibeast	Number Found
	spider	
	wasp	
	woodlouse	
	worm	

Minibeast Hunt

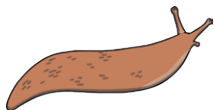
Tick the minibeasts that you have found!



spider

☐

woodlouse

☐

slug

☐

butterfly

☐

beetle

☐

wasp

☐

crane fly
(daddy-long-legs)

☐

ladybird

☐

earwig

☐

dragonfly

☐

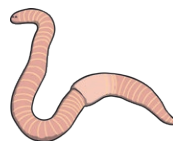
snail

☐

ant

☐

millipede

☐

worm

☐

fly

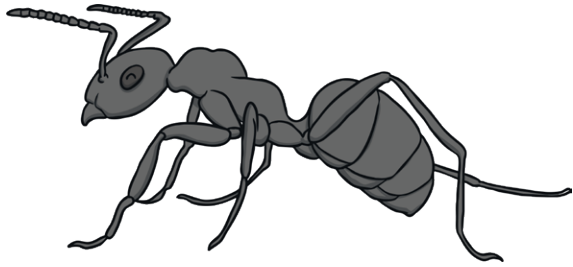
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caterpillar

☐

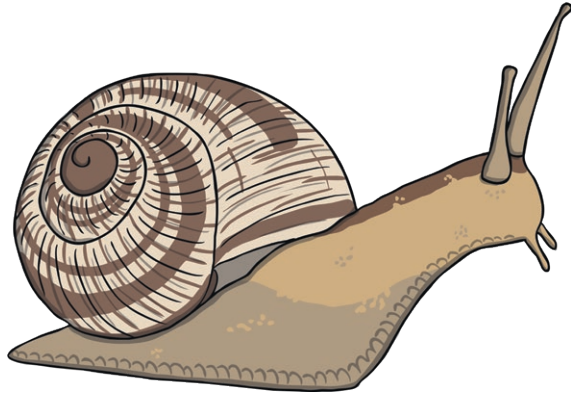
bee

☐



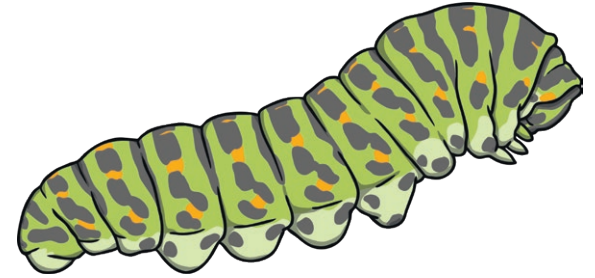
ant

twinkl.com



snail

twinkl.com



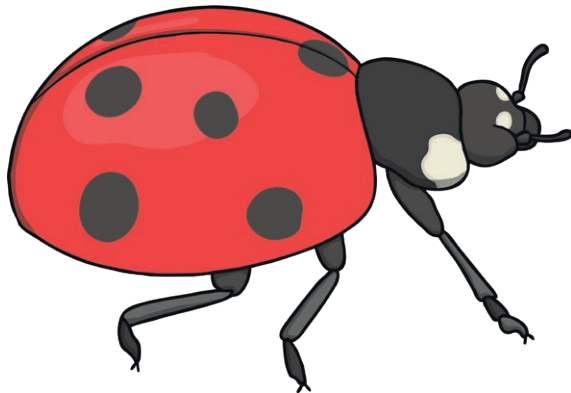
caterpillar

twinkl.com



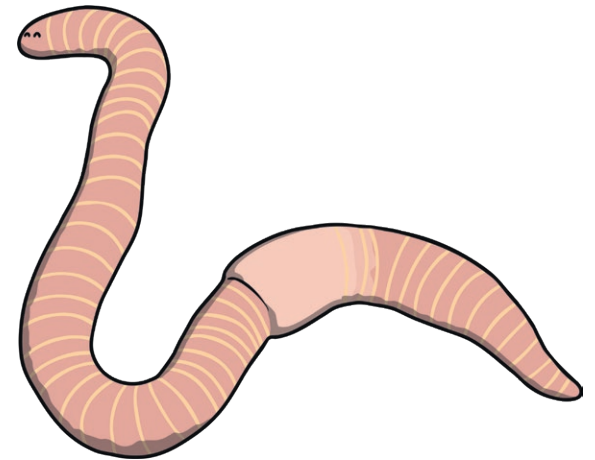
butterfly

twinkl.com



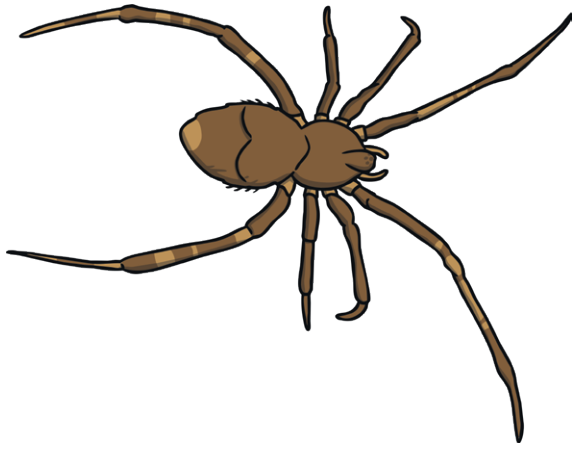
ladybird

twinkl.com



worm

twinkl.com



spider

twinkl.com

**I will turn
into something
with wings.**

twinkl.com

**I came out
of a chrysalis.**

twinkl.com



bee

twinkl.com

I have spots!

twinkl.com

**I have no
legs and am
wiggly.**

twinkl.com

I have 8 legs.

twinkl.com

**I am very busy
making honey!**

twinkl.com

**I leave a
slimy trail.**

twinkl.com

**I am very
strong and live
in a nest.**

twinkl.com

Minibeast

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

butterfly

earwig

bee

grasshopper

cricket

dragonfly

beetle

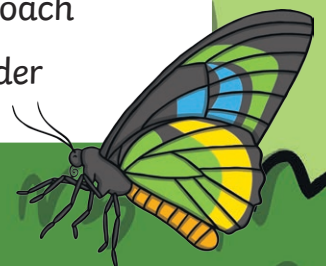
ant

wasp

moth

cockroach

spider



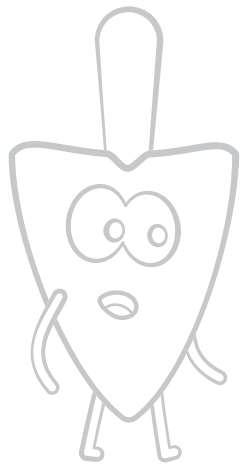
Minibeast Answers

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

butterfly
earwig
bee
grasshopper

cricket
dragonfly
beetle
ant

wasp
moth
cockroach
spider



Doug



Buddy



Oh no! Doug and Buddy dropped their vegetables! Can you colour them in?



Pepper



Carrot



Mushroom



Turnip

Unscramble the letters to reveal the word

Btteuryfl _____
 Pipmkun _____
 Hbser _____
 Pltan pto _____
 Sesde _____
 Hghoedge _____



Bumble
 Spike
 Buddy
 Doug
 Polly
 Sammy
 Flower
 Allotment
 Strawberries
 Herbs
 Gardening
 Potatoes
 Carrots
 Cabbage
 Rhubarb
 Pear

C	T	I	O	E	A	U	R	A	B	Y	D	R	S
U	R	U	P	P	O	L	L	Y	D	S	E	O	A
R	S	L	O	T	I	G	L	D	E	L	S	B	O
H	A	A	T	F	T	R	U	O	H	S	P	R	S
U	M	E	A	R	G	B	O	O	T	E	I	K	B
B	M	D	T	U	R	O	S	O	L	M	K	B	E
A	Y	T	O	A	M	B	R	A	M	D	E	C	A
R	T	Y	E	A	R	R	A	E	P	M	S	N	O
B	N	P	S	E	A	B	U	M	B	L	E	K	T
S	D	U	H	C	G	A	R	D	E	N	I	N	G
F	L	O	W	E	R	C	A	B	B	A	G	E	R
G	S	T	R	A	W	B	E	R	R	I	E	S	E
R	S	P	S	Y	D	O	U	G	L	B	P	S	A
A	A	D	S	U	U	L	D	B	N	R	L	E	N



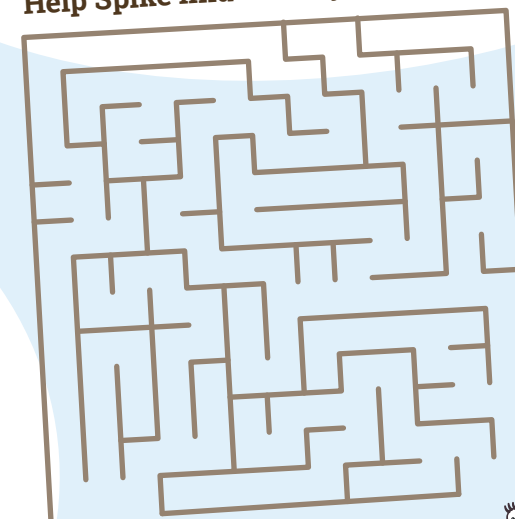
Spot the difference! Can you find all 6?



Fill the pots with plants and flowers!



Help Spike find Sammy!



Spike



Sammy