



# Welcome to OpenUpScience

from Cambridge Science Centre.

#### This issue is all about being Eco Champions.

We love the Earth, so we should try to be as nice to it as possible.

When we throw something away, it goes into the environment and can be harmful. Our planet is not only home to us humans, but also to many other animals and plants. Because of this, it's really important we take care of our environment and strive to be **Eco Champions!** 



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You might have seen these three arrows before. They represent the three R's; Reduce, Reuse and Recycle. These are all things we can do to help the Earth. Reduce the amount we use, reuse the things we have and recycle the things that we can't use. Find out how in this issue.



## **Rotting Jar Experiment**

Find out how different materials decompose in the environment. © Cambridge Science Centre 2012-2021

### What to do

- 1. Put 3cm of soil in each of the jam jars.
- 2. In one jam jar, place some food waste or finely chopped fruit.
- 3. In the other jam jar, place little bits of plastic.
- 4. Place the pieces of old fabric over the top of the jam jars and secure in place with an elastic band.
- 5. Leave the jars in a warm spot for at least 5 days and note the changes.

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#### What you'll need

- Two jam jars the same size
- Two pieces of old fabric
- Some soil
- Food waste or small chopped up bits of fruit
- Some small pieces of plastic like plastic bags
- Use less plastic Two elastic bands

#### What's happening

Plastic takes 450 years to break down so don't wait up!

Bacteria eat natural waste to decompose or biodegrade it, but bacteria can't eat most plastics! This means plastic stays in the environment for a long time and can cause harm.

Scientists have discovered a bacteria called Ideonella Sakaiensis that can 'eat' plastics. Scan the QR code to learn more!

## **T-Shirt To Tote**

The average person in the UK throws away £180 worth of clothes every year. This means there is lots of fabric going to landfill which isn't very good for our planet at all! Instead of throwing away a t-shirt, turn it into a re-usable bag.

Friendly

### What to do

- 1. Cut off the sleeves and the neck of the t-shirt as shown in image 1.
- 2. Take the sleeve scraps and cut out three strips of cloth around 1.5cm wide by cutting all around.
- 3. Attach a safety pin to the end of one of vour strips.
- 4. Take the hem of your t-shirt and cut three slits in it evenly apart, just large enough to fit a safety pin in, as shown in image 2.
- 5. Thread the safety pin through the slit in the hem and move it through the hem until you reach another slit. Pull so that the end of your strip sticks out, as shown in image three. Repeat this with the other two strips and hem slits.
- 6. Pull the ends of the strips together tight and tie a knot. You have a bag!

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#### What you'll need

- An old t-shirt
- Scissors
- A safety pin

Bring your





There are loads of little things that you can do to be nice to our planet. See how many you can tick off.

Drink from a reusable water bottle

Walk, cycle or skateboard to school

Recycle

Turn the lights off when you leave a room

Take a reuseable bag to the shops

Grow your own vegetables

Turn off the tap when brushing your teeth

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## What Goes Where?

META

ORGANIC

Can you sort the rubbish into the correct recycling bin?

# Plastic Bag Skipping Rope

What do you do with all of your left over plastic bags? Definitely don't throw them away! Reuse them to make a skipping rope with this activity.

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### Did you know?

Zero Waste

In 2014, 7.6 billion plastic bags were given to people in shops - that's around 140 bags per person in one year! Since then, the number of bags has gone down by 95% - nice one, Eco Champions!

### What you'll need

- 10-15 plastic bags
- Scissors
- A chair

### What to do

- Cut each plastic bag into a rectangle by cutting it down one edge and then cutting the bottom and handles off.
- 2. Take each rectangle and cut it into strips about 4cm wide.
- 3. Make one long strip by knotting 4 or 5 strips together.
- 4. Repeat this to make 12 long strips.
- 5. Take 6 of your long strips and knot them together at one end. Tape the knotted end to the top of the chair and separate the 6 strips into pairs. Plait the pairs and tie a knot at the bottom.
- 6. Repeat this with the other 6 strips.
- 7. Twist the two plaits together to make one rope and tie a knot at each end.
- 8. Wrap the tape around each knotted end to make the handles.

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Solutions at the back

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## **Colour By Numbers**

Solve the problems to find out which colour goes with which number.

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Did you know?

Recycled plastic bottles can be made into lots of things, including jumpers, insulation for ski jackets and sleeping bags, handbags and t-shirts!

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It takes about 10 plastic bottles to make enough plastic fibre for a new t-shirt.

I recycled 50 plastic bottles. How many t-shirts can I make?

**COLOUR = BLUE** ANSWER =

It takes about 63 plastic bottles to make enough plastic fibre for a new jumper.

I recycled 126 plastic bottles. How many jumpers can I make?

**COLOUR = GREEN** ANSWER =

It takes about 14 plastic bottles to make enough plastic fibre insulation for a new ski-jacket.

I recycled 56 plastic bottles. How many ski jackets can I make?

COLOUR = RED ANSWER =

It takes about 6 plastic bottles to make enough plastic fibre for a new handbag.

I recycled 18 plastic bottles. How many handbags can I make?

**COLOUR = BLACK** ANSWER =

It takes about 114 plastic bottles to make enough plastic fibre insulation for a new sleeping bag. I recycled 114 plastic bottles. How many sleeping bags can I make? ANSWER = **COLOUR = WHITE** 

## **Colour By Numbers**

Using the previous page, colour the squares in **A SCIENCE** the colour that matches with the number.

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### **Handmade Paper**

Paper is made of wood, so to make paper, people have to cut down trees - but this isn't good for our planet. Instead, recycle some old paper to make new paper.

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### **Puzzle solutions**

If you have any questions or want to send us a photo of your experiments, drop us an email at openupscience@cambridgesciencecentre.org

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## What you'll need 1 Tear up

# • Scrap and used

- paperA blender
- A sieve
- A towel
- A cloth
- A bowl
- A baking tray

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### What to do

- 1. Tear up the scrap paper into small pieces and place them into a bowl of warm water to soak for 30 mins.
- 2. Put the soaked paper into a blender and blend until it has formed a pulp.
- 3. Put the pulp into the sieve and press down to squeeze the water out. You can do this with your hands and with a towel to get as much water out as possible.
- 4. Lay the cloth over the baking tray.
- 5. Turn the pulp out onto the cloth. You can gently arrange the pulp so that it is an even thickness all over.
- Place the baking tray somewhere warm (ideally in the sun) to dry. After around 24 hours, your handmade paper will be ready!

#### What is happening?!

Pulp is made up of fibres, or threads, of material. Paper that you might get in a book is made by taking wood, chopping it up and turning it into pulp. When dry, this pulp binds together to make paper. What other ways can you reduce the amount of paper you use? This issue has been kindly supported by

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