



# SSC DIVE IN! SUSTAINABILITY





# WELCOME!

Hello, and welcome to “SSC Dive In!”. Packs of resources providing some seaside fun directly into family homes and classrooms.

This pack’s theme: **Sustainability**

We depend on the planet for food, water, energy, products and shelter. Unfortunately, in some circumstances resources are harvested too much or are harvested and used in damaging ways. The good news though is there are better options:

A few small, simple changes to our lifestyle can help avoid the processes that are bad for the planet and keep it healthy — we can become more **sustainable!**

Look inside for inspiration and tips.

## Inside this pack:

- **Discover: Sustainability**
- **Activity: Words starting with ‘re’**
- **Fact File: Plastic Pollution**
- **Children’s blog: Beach litter**
- **Puzzle: Marine litter crossword**
- **How to: Be more sustainable**
- **Ambassador: Lil Vischer—Longniddry plastic pick 100**
- **Activity: Lil’s Plastic Pick N Mix**
- **Craft: T-shirt Bag**
- **Craft: Recycled crayons**
- **Glossary & Solutions**

**We’d love to hear from you!** If you’ve had fun having a go at activities, or been inspired to protect the environment, let us know. Any comments or pictures can be sent to [marineengagement@seabird.org](mailto:marineengagement@seabird.org). More resources available on our [website](#).

**Enjoy using our packs and want to see more?** The Scottish Seabird Centre is a conservation and education charity. Every penny we raise helps us deliver our important education and conservation work. If you enjoy using our resources and would like to support our work, please consider making a donation to the our [JustGiving page](#). Thank you.

We hope you enjoy diving in to the pack!

**Scottish Seabird Centre Learning Team**







# DISCOVER SUSTAINABILITY

## WHAT IS SUSTAINABILITY?

To survive, people need to harvest food, water and resources from the environment. **Sustainability** means resources have time to renew and replenish so that they don't run out now or for future generations.

Sometimes resources are harvested **unsustainably** — meaning too much is taken or the way they are being taken harms the environment.

Fishing is a good example: Unsustainable methods catch too many fish at once, meaning there aren't enough left to breed and repopulate. Sustainable methods still catch fish but leave enough behind so their numbers can grow and ensure there are more fish in the future.

*Sustainability sounds like a big challenge for the world — Can I really make a difference? Where do I start?*



*Absolutely. The actions of one person can change the actions of others around them. Even a small change can make a big difference—see the handy tips in the rest of the pack for inspiration.*



## WHERE CAN I BE MORE SUSTAINABLE?



The food I choose



The shopping I buy



The energy I use

The way I travel



What I do with old things



*There are a variety of things you can do that can help you on your way to becoming more sustainable. Check out the rest of this pack for some ideas.*

## DO I HAVE TO DO EVERYTHING PERFECTLY?

Don't worry, you don't have to do all the things on the list, or do them perfectly. Every little step makes a difference. A good starting point, for example, is to try one thing on the list one week, then increase how often you do it and the number of things you try.

## WHAT ARE THE BENEFITS OF BEING SUSTAINABLE?

Being sustainable isn't just good for the environment—it's also good for our health, wellbeing and sometimes even the amount of money we have in our pockets!

*Remember, different people can be sustainable in different ways. Make being sustainable personal and achievable for you.*



# ACTIVITY



## WORDS STARTING WITH 'RE'

Before you read the rest of the pack, have a go at listing in the circle below any words you know that relate to minimising waste and being more sustainable beginning with 're'. An example is given below to get you started. The 're' prefix at the start of a word can often mean 'again' or 'back'.

**reduce**





# FACTFILE

## PLASTIC POLLUTION

### WHAT IS PLASTIC?

Plastic is a man-made material used for making products.

Most plastic is made by mixing oil with other chemicals. The first synthetic plastic was made in 1907, when a scientist named Leo Baekeland invented 'Bakelite'.

Just over 100 years later and there are now 50 different types of plastic used in every aspect of our daily lives.

When we think of items made of plastic, the most common things that come to mind are plastic bottles, carrier bags and food packaging, but plastic is also found in lots of other surprising places such as clothing, glitter, tea bags, bank notes, machines and even chewing gum!

The reason it's found everywhere is because it's strong, lightweight, easy to create, can be moulded into different shapes and lasts a very, very long time.



*The invention of plastic has changed the world.*



*Animals, like this gannet, can become entangled in plastic such as old fishing nets.*

### WHAT IS THE PROBLEM WITH PLASTIC?

Plastic isn't a "bad" material—without it we wouldn't have the modern lifestyle we have today. However, its strength and incredibly long lifespan causes a problem.

Plastic can cause problems for wildlife, including:

- It can become entangled around animals' bodies, inhibiting their movement and ability to feed.
- It can be ingested by animals, causing them to choke or lose their appetite.
- Plastics accumulate toxic chemicals on their surface, leading to a build up of chemicals in the bodies of animals over time, potentially poisoning them.

As more and more plastic is made, the more ends up in the environment, and the worse the plastic problem gets. Human plastic use at the moment is therefore **unsustainable**.

*Did you know? The word plastic has a Greek origin meaning "capable of being moulded or shaped".*





# FACTFILE

## PLASTIC POLLUTION

### WHAT HAPPENS TO PLASTIC IN THE OCEAN?

When plastic enters the ocean it floats on the top layer of water and gets transported by wind, waves and currents around the globe. Some plastic is brought ashore by tides and waves, littering beaches and causing harm to coastal animals.



Most of the plastic, however, remains in the ocean where it is exposed to light, saltwater, waves and wind. Over time, larger pieces break down into smaller and smaller pieces, eventually becoming **microplastic** (anything smaller than 5mm).

In some parts of the world, plastic accumulates so much that it forms a dense soup-like liquid at the surface of the sea. These garbage patches are described as “islands of rubbish” and occur where currents meet, shown by the arrows on the map below.



One of the largest known patches is called the Pacific Garbage Patch, shown by the orange arrows on the map. The patch is made up of plastic that has been transported across the Pacific Ocean. Scientists estimate that the patch is roughly twice the size of the state of Texas in the USA!





# BLOG



## PERSISTENT PLASTIC

How much do you think a packet of crisps cost back in the 1970s? The answer is – around 3p. You would pay twenty to thirty times that amount today!

The crisp packet shown below was found this year on an East Lothian beach, yet it is almost **50 years old**. While the cost of buying this type of snack has changed a lot, the crisp packet in the picture has altered surprisingly little over five decades. It's still intact and the printing on it can still be read. This packet, like many items made from plastic, is a survivor. It takes a very, very long time to break down. Because this packet was not properly disposed of, it has remained in the environment for many years, ending up on the beach.



We can only imagine the journey that this crisp packet has been on over the past 50 years. We cannot know where it was originally bought, eaten and discarded – or where it has been since. Perhaps it has spent some time buried in the sand dunes. Perhaps it floated around in the sea for a while.

Moved around by the wind and the tides, this piece of litter has at last been collected and taken out of the natural environment.

This small example of plastic pollution illustrates what a **durable** material plastic is. Plus, it shows that when something is thrown away, that there really is no 'away'. It can hang around for a very long time.







Had this item been left on the beach and washed out to sea, it would eventually have broken down into smaller and smaller pieces. In time, thousands of little bits of crisp packet could have been ingested by marine animals. The same is true for other plastic items - such as bottles, straws, cotton bud stems and plastic bags – all of which have been produced in huge quantities over the last few decades.



Many manufacturers are now taking steps to make more packaging **recyclable**, **compostable** or **biodegradable**. Today in the UK biodegradable crisp packets are available if you look for them. These are compostable and break down (or **decompose**) in as little as six months.

Marine litter is just one type of **pollution** that affects our seas. However, it is one that is highly visible and one that we can relate directly to our own lives. Litter of all forms can find its way into the nests of our seabirds, can be eaten by marine animals of all sizes and can become tangled around some creatures. You can take action for our seas in a number of ways – see our handy guide [here](#). A packet of crisps may only take minutes to eat but the packaging can survive for a lifetime. Please dispose of your litter carefully and think about ways that you could reduce the amount of waste that you generate.

**TOP TIP:** Check our **glossary** later in the pack to see what the words in **bold** mean.



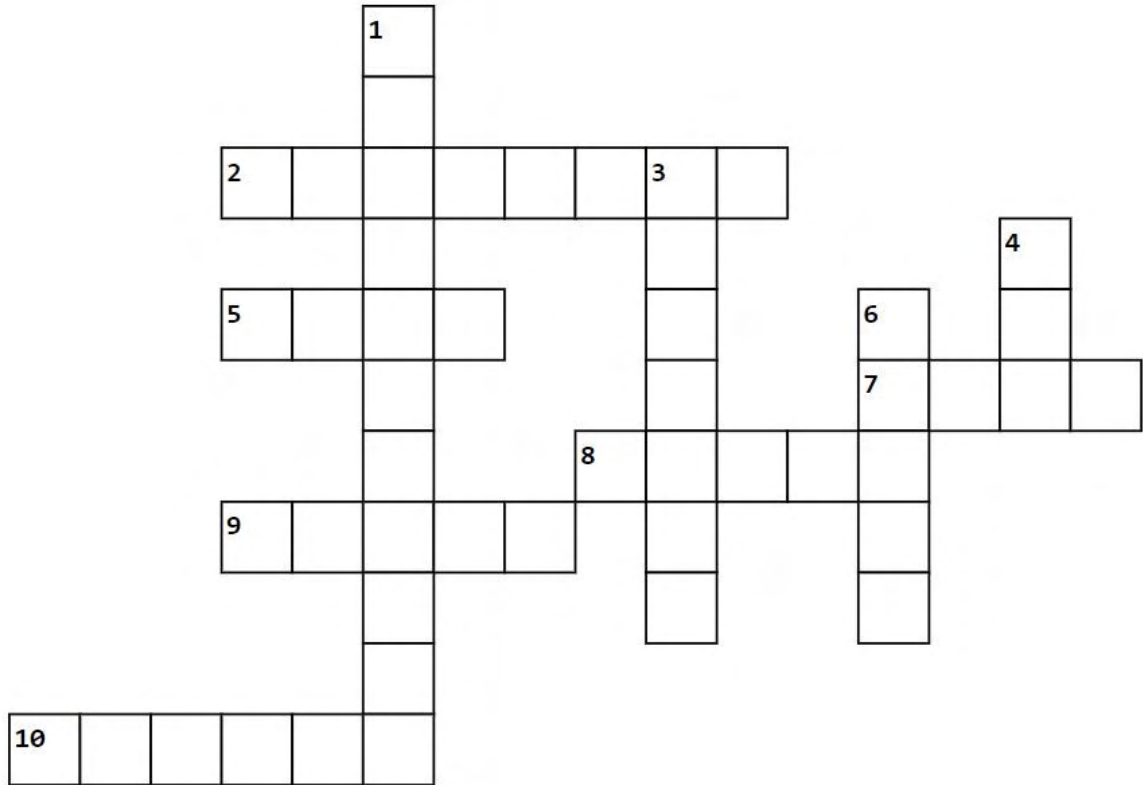


# PUZZLE



## MARINE LITTER PICTURE CROSSWORD

The ten numbered images below are the clues for our marine litter crossword. Unfortunately, all sorts of objects can be washed up on a beach and these are just some examples of items regularly found by those taking part in beach cleans.



1



2



3



4



5



6



7



8



9



10



You can find the answers on page 18.

# HOW TO..

## BE MORE SUSTAINABLE



**Buy local.** Where possible, buy food grown and products made in your country or as near to home as possible. This helps reduce how far your produce travels and reduces their **carbon foot print**. This also supports local businesses.



**Check for logos.** Check food labels for special **accreditations**— small logos, such as the [MSC's blue fish](#), showing the food has been caught, reared or grown sustainably. Another good logo to look out for is the [Soil Association](#) logo.



**Less leftovers.** Try using up any leftovers as any food that is thrown away breaks down and releases **greenhouse gases**, contributing to **climate change**. Preparing smaller portions, keeping an eye on sell-by dates and turning left overs into a new meal or compost are good places to start.



**Fix the problem.** If possible, mend things that break (renew or restore them) or turn them into something else. For example, sew-up any holes in clothing or turn it into a bag! (see page 13).



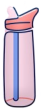
**Ease-up on engines.** Things with petrol/diesel engines produce greenhouse gases. Travelling under your own steam, such as walking and cycling, using public transport, car sharing, or choosing hybrid, hydrogen or electric models reduces the number of petrol/diesel engines on the roads. Flying less also helps.



**Second-hand is a helping hand.** Buying or inheriting second-hand clothes and items is a great way of reducing the amount we throw away and ending up in landfill.



**Pause on plastic.** When buying a plastic item, consider if there is an alternative material you can buy instead—for example, bamboo toothbrushes, or buying items that are in cans or glass instead of plastic.



**Reuse again and again.** Single-use plastics, such as drink bottles, make up the majority of litter and are an unsustainable use of plastic. Using reusable items such as refillable water bottles, mugs and bags, is a great way of reducing the amount of plastic you use.



**Recycle regularly.** If an item can't be reused, check if it can be recycled and put in the correct recycling bins wherever possible.



**Plant power.** Feeding the world uses a lot of energy and releases a huge amount of greenhouse gases, especially during the production of meat and dairy products. Growing your own vegetables and reducing the amount of meat and dairy in your diet helps reduce the impact.



**Save energy.** Turning off lights and electronic devices when you're not using them helps reduce the amount of electricity being produced and the greenhouse gases released in the process.



**Watch your water use.** There's only so much fresh water available on the planet so save as much as you can, for example by taking shorter showers or turning off the tap whilst you brush your teeth. You can also collect your own water in a rain butt for use in your garden and washing cars.







# AMBASSADOR

## LIL VISCHER

*"My name is Lil and I am an artist, amateur naturalist, sea swimmer and beach comber... basically, I love to be by (and in) the sea as much as possible! That is why, when I noticed lots of plastics washing up on the beach, I felt I should do something about it. So I decided I would go to one small stretch of beach near Longniddry to collect as much plastic as I could and take photographs of it all so we could all see what kind of things are ending up in our seas and endangering our local wildlife. And I didn't just go once... I went 100 times! Phew! That's a lot of plastic picking! I took just a little collection bag but was amazed how much I could fit in it and ended up collecting 26,513 pieces!! The photos below and in the 'Plastic Pick N Mix' activity are some of them..."*



**'Drowning in Plastic'**  
The ladle I found looked like a hand so I made this sad figure surrounded by all the horrible plastic I picked up'



**'Stop flinging rubbish in the sea!'**

I found the dog ball flinger and it made me think how we humans have been too quick to throw things away... especially plastic.

**'Just a drop in the ocean'**

A reminder that everything we do to help, even though it feels small, will all go towards cleaning up our seas.



See more of Lil's amazing art and follow her progress on her Instagram account: @lilbeachcomber





# ACTIVITY

## LIL'S PLASTIC PICK N MIX

Below are a selection of photos Lil has taken of plastic items she has found on the beach. Can you complete each of her challenges? Write your answers in the space next to the photos then check if they match the answers in the Solutions page.

1



HOW MANY FORKS AND SPOONS CAN YOU COUNT IN THIS PICTURE?

2

THIS PHOTO SHOWS ALL THE PIECES OF PLASTIC CUTLERY I HAVE PICKED UP SO FAR. HOW MANY DO YOU THINK THERE ARE?

Hint: There are too many to count—have a guess and see how close you can get to the total.









# CRAFT

## T-SHIRT BAG

Make your own bag by **repurposing** a T-shirt that you have outgrown. Find a grown-up to help you and remember that scissors are sharp!

### WHAT DO I NEED?

- An old clean T-shirt
- Scissors
- Bowl
- Fabric pen (optional)
- Ruler



1



Take your T-shirt and cut off the sleeves to make the handles of the bag. Make the cut a little longer than the sleeve, so that the handles can slip over your shoulder.

2



Before cutting out the neck of the T-shirt, draw round the edge of a bowl to ensure a neat curve. This will form the opening of your bag. Carefully cut round the curve.

3



Cut 4cm long slits, 2.5cm apart along the bottom hem of the T-shirt. Hold the front and back of the T-shirt together when you cut to make matching pairs of strips.

4



Making sure that the T-shirt is still neatly aligned, front to back, tie each pair of strips tightly together with a double knot.

**Sharp scissors are required to cut through fabric. Please always supervise children around scissors.**





**Now you are ready to use your new bag!**

**The base of the bag should be fairly strong but take care not to put anything too heavy in this bag if the material you used is quite lightweight.**

If you enjoyed making your T-shirt bag, try another one in a different colour!

You can also reuse the sleeves and neck of the T-shirt that you cut off for another recycling project. You can try an on-line search on 'scrap fabric projects'.

**TOP TIP:** When you're not using old clothes for craft projects, remember to donate them to a charity so they can be reused or find a nearby textile bank so they can be recycled.





# CRAFT

## RECYCLED CRAYONS

Got broken or worn down crayons? Don't throw them out! You can upcycle these into new funky-shaped crayons with this craft idea.



### WHAT DO I NEED?

- Crayon pieces
- Silicone ice trays or cupcake moulds
- Spoon
- Knife
- Chopping board
- Oven or microwave

1



Peel the paper wrappers off all of the crayons. Ask an adult to help you chop the crayons into 2cm chunks, using the knife and chopping board.

2



You can sort your pieces into different colours or keep them mixed for rainbow crayons.

3



Use your spoon to drop the crayon pieces into the ice cube tray, until each mould is full. Ask an adult to set your oven to around 100 degrees Celsius.

4



Bake your crayons for around 10-15 minutes, checking regularly (until melted). Ask an adult to carefully remove them when the wax is melted, and leave them to cool.

5



Once your crayons have completely cooled, they can be pushed out of their moulds and then they are ready to use!

6



You can now use your new crayons to create some super art!  
Why not make a poster about recycling or beach litter?





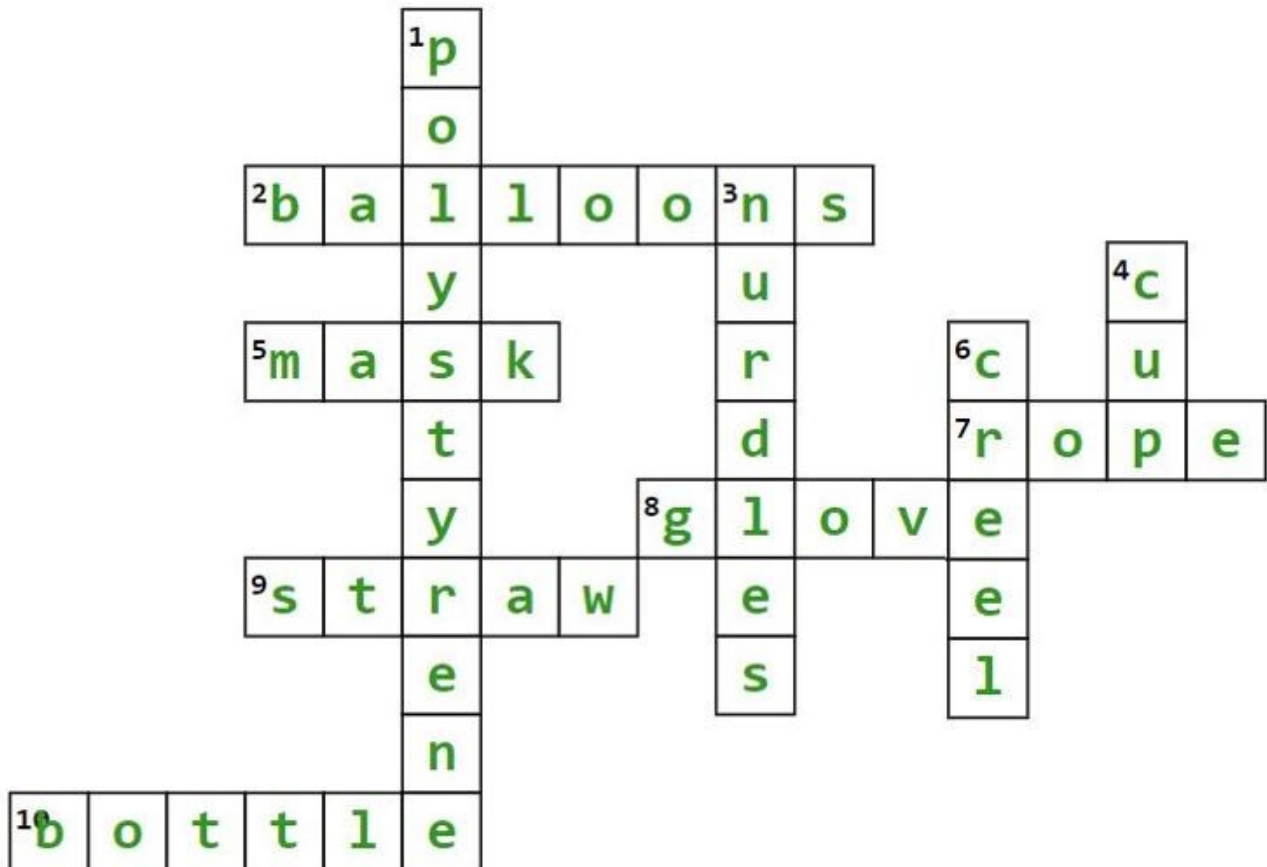
# GLOSSARY

<b>ACCREDITATION</b>	The process of being officially recognised as meeting a specified standard or particular status.
<b>BIODEGRADABLE</b>	Material capable of being broken down by bacteria or other living organisms (thereby avoiding pollution).
<b>CARBON FOOTPRINT</b>	A carbon footprint is the total amount of <b>greenhouse gases</b> (including carbon dioxide and methane) that are generated by our actions.
<b>CLIMATE CHANGE</b>	A change in the world's climate caused by changes to the atmosphere. Climate change is leading to more extreme temperatures and severe weather around the world.
<b>COMPOSTABLE</b>	Organic material able to break down completely into non-harmful components that can be used as fertiliser for growing plants.
<b>DECOMPOSE</b>	When a material or dead plant or animal breaks down naturally.
<b>DURABLE</b>	Hard-wearing, difficult to damage, able to withstand pressure.
<b>GREENHOUSE GASES</b>	Greenhouse gases are gases in the Earth's atmosphere that trap heat. They let sunlight pass through the atmosphere, but they prevent the heat that the sunlight brings from leaving the atmosphere. Examples are carbon dioxide and methane. Increasing greenhouse gas emissions have led to global warming and <b>climate change</b> .
<b>POLLUTION</b>	Something harmful that gets into the air, soil or a water source (such as the sea, a river or a pond).
<b>RECYCLABLE</b>	A waste object or substance that can be turned into something new.
<b>REPURPOSE</b>	To adapt something for use in a different way.
<b>SECOND-HAND</b>	Something that has been owned by someone else before you.
<b>SUSTAINABLE</b>	Use of resources in such a way that they will not run out or become too scarce.
<b>UNSUSTAINABLE</b>	The opposite of sustainable. The use of resources in a way that means they will run out or become too scarce.



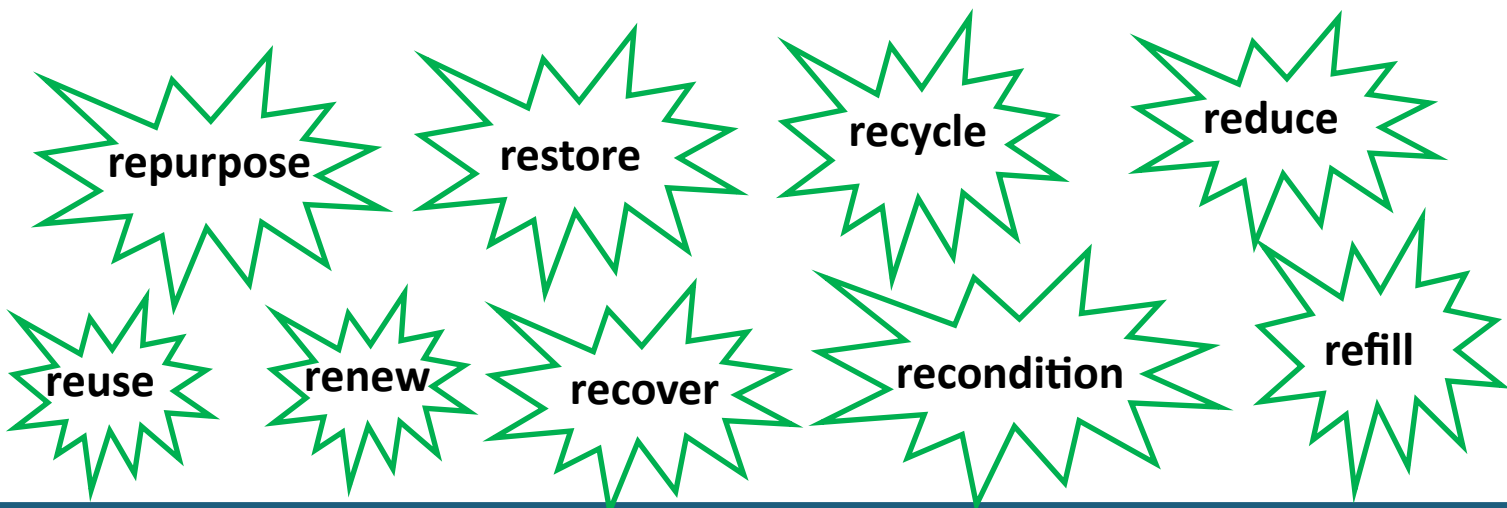
# SOLUTIONS

Here is the solution to the crossword. How did you get on?



How many words beginning with 're' did you think of that relate to waste and recycling?

Here are some of our ideas....







# SOLUTIONS

Here are the solutions to Lil's Plastic Pick N Mix activity. How did you get on?

1



22 Forks  
21 Spoons

2



713 pieces of cutlery

3

Medicine packet

Measuring tape

Party popper

Felt-tip pen lid

Cake candle holder

Flower pot

Paintbrush

Digital clock

Plant label

Paint roller

Part of a mobile phone

'Merry Christmas' label

Clothes hanger

Old camera film

Flower badge

Clothes peg

Bread bag tie

Part of a mobile phone

Cassette tape

Dental floss stick

Thermometer