

Roots & Shoots at Home

These activities will give your students a few different projects and actions that they can do at home with a little parental supervision. It will give them something positive to focus on and each activity can be linked to different parts of the curriculum.

They are designed to work as stand alone activities, or they can be worked through all together. You can ask your students to present their results in the form of written reports, images, artwork or even video to the rest of their class, which can be done in person or via video calls or email.

In this activity you and your students will:

- Create plant pots from recycled toilet rolls and grow plants up from seed. This can be extended into a science project by recording how they change over time.

- Design and create a useful item for their home using upcycled materials they can find there that would otherwise be thrown away.
- Share their creations with other group members to provide inspiration.

Objectives

To provide a range of simple activities that can be done at home or used for home-schooling, that are flexible enough to be used for different age groups and that can be linked to different parts of the curriculum if desired.

Activity 1 – Toilet roll plant pots

This mini-activity is all about upcycling empty toilet rolls into plant pots for growing seedlings. This is a great way to upcycle a 'waste' item, and when the time comes to plant out the seedlings, the whole pot can be placed in the ground as the cardboard roll will decompose in the soil – Optional curriculum links: Science, maths.

Growing plants from seeds is rewarding in so many ways. Gardening has been shown to have a positive effect on mental health and mood for people of all ages. This activity can also be used as a learning project for home-schooling, linking with science and maths by monitoring, observing and recording how the seeds grow. You can also use it as part of our 'Greening My Local Area' resource (bit.ly/jgi-greening)

What do I need to make it work?

For this activity, you'll need:

- Lots of empty toilet rolls!
- Some compost or soil.
- Seeds. Pea or tomato seeds are good choices.
- Scissors.
- A shallow tray or dish.
- Water.

What things will my students create?

- Home-made toilet roll plant pots.
- Seedlings that can be planted out to produce food.
- A chart, video or gallery of images that records the growth of the seedlings.

Step 1



The first step is to make the toilet roll plant pots.

Using the scissors (and adult supervision and help if required) make a series of cuts about 1cm long from one end of the roll along the length. Then fold in the tabs this creates to form the bottom of the 'pot'.

If you don't have many toilet rolls, you can cut bigger ones in half to give you more pots; just make sure you still have enough length to make the 1cm cuts to form the bottom.

Sit all the toilet roll pots on a shallow tray or dish. This will catch any excess water, and will make it easy to keep the soil in your pots damp.

Step 2



Next, you need to fill the pots with soil or compost and plant your seeds.

You can get bags of compost from garden centers and most big supermarkets, with many of them delivering straight to your door. They will also usually sell small bags if you don't want to buy too much. You can also get soil from your garden (if you have one) or even scoop a little from other potted plants you might have around the house.

Next, fill the toilet roll pots up leaving about 0.5cm space from the top.

Get your seeds, make a little hole in the soil about 1cm deep with either your finger or a pencil, and pop one seed in each hole. Cover back over with soil. You can get seeds online from garden centres, seed sellers and supermarkets, and again they'll often deliver them straight to your door.

We recommend pea or tomato seeds. This is because they are easy to grow, AND when they get big enough you'll be able to eat the tomatoes or peas they produce! It's a great way of getting extra vegetables which is important for staying healthy.

If you can't get seeds this way, you can harvest the seeds from fresh tomatoes. Just cut one open, pick out the seeds and let them dry a bit on some kitchen roll. Separate them out into individual seeds and hey presto, you've got seeds to plant!

Once the seeds are planted, give them a good but careful watering from the top, sprinkling it gently so you don't disturb the seeds. Then add more water to the tray or dish. The soil will soak the water up from the bottom, and you'll see that you've given them enough because the toilet roll pot will get damp.

Places to buy seeds online in the UK:

- ▶ Thompson Morgan seed producers: bit.ly/2Vtcp3x.
- ▶ Suttons seeds: bit.ly/2XUDVsl.
- ▶ Wilko: bit.ly/3eld8FF.
- ▶ Waitrose garden: bit.ly/2VuMKrf.

Step 3



Now that your seeds are planted, the next step is to look after them as they grow. You can also observe and record how they grow over time.

Put the seeds in a bright spot that's warm but not too hot. You might want to cover them loosely with some clear plastic to start with, which will be like having a mini greenhouse. Ensure they have enough water by checking that the cardboard of the toilet roll is damp all the way up to the top, and if they need more water, pour it into the tray the pots are sitting in.

If you want to record how your seeds are doing, then make up a chart or get a wall planner for the month you are in. There are loads you can download for free online and print out at home, or use as a template for drawing your own.

Mark down which day you planted your seed, then check on them every day. After about three days, you might start to spot a tiny green shoot beginning to poke out from the soil. Mark this down on your planner.

Every day, that shoot will get bigger and bigger. You can record how big it is on your planner by measuring it very carefully with a ruler. You can also record other things as it starts to grow, like:

- ▶ How many shoots have come up?
- ▶ Does it have any tiny branches forming, or tendrils?
- ▶ Does it have any leaves? If so, how many and when did they appear?
- ▶ When you've watered it.
- ▶ How sunny it is or how much light is reaching the seedlings.

You can also get creative with how you record the growth of your seedlings too! Why not;

- ▶ Sketch them.
- ▶ Take a photo.

You can even take a photo every day from the same position and turn it into an animated timelapse!

Helpful links

- ▶ BBC guide to gardening with children: bbc.in/3cLZ24p.
- ▶ Make a timelapse video: bit.ly/3awnd5l.
- ▶ Downloadable planner layouts by Scattered Squirrel: bit.ly/2VthlW7.
- ▶ Printables free kids monthly planner: bit.ly/3aziXlo.

Step 4



When the seedlings have got around 7cm to 10cm tall, it's time to plant them out into a bigger pot or into your garden.

All you need to do is make a hole just big enough to fit the toilet roll pot in, and pop the whole thing in. If you're planting it in a pot, make sure it's three or four times bigger than the toilet roll pot so the plant has room to grow.

If you're planting peas, you can put a few plants together in the same pot. If it's tomatoes, they'll need a bit more space.

Add a few twigs, sticks or bamboo canes to make a frame that the plants can grow up and around, that will keep them supported. Pop them in a sunny spot, and keep watering them. In a few weeks, you'll have some yummy food you've grown yourself!

Useful resources

- Royal Horticultural Society: How to grow tomatoes (for kids): bit.ly/3cDjm7O.
- National Garden Scheme: Gardening activities for children: bit.ly/3aC1c5b.

Extend the project

If you want to link this project with the science curriculum, or make it suitable for older students, you can consider the following:

Once the students have planted the seeds in the toilet roll pots, ask them to think of the different elements or 'variables' that could affect how well the plants might grow, such as water, sunlight, heat, etc. Then ask them to make a 'hypothesis'; for example, this could be "I think that bright sunshine will make the plants grow better" or "I think that adding too much water will stop them growing".

Ask them to think about how they could test these hypothesis, and/or work out how important each of these variables are to how a plant grows. For example, could they put plants in the same level of light and heat, but give some more water than the others, and others less? Could they put some plants in bright light and others in the shade? This is all about working out how to test one variable at a time, while keeping others the same, and making it a fair scientific experiment to test their hypothesis.

The recording and reporting for this extension is really important, as this will provide the evidence that will support (or not) their hypothesis. They should record all the information about their method (what they did) and their results (how the plants grew, how quickly, how big, etc). They can then say whether or not the evidence suggests their hypothesis was correct.

Useful resources

- Science Explorers: The scientific method for kids: bit.ly/2yDhk8S.
- National Institute of Environmental Health Sciences (NIEHS) USA: The scientific method for kids: bit.ly/2RZmEKQ.

Activity 2 – Upcycled craft and design project

This activity is all about getting crafty, upcycling items that might normally be thrown away into something that's useful around the house, and also beautiful to look at
– Optional curriculum subject links: Art, Craft and Design Technology.

Students can create something big, small, simple or complicated. We've provided a few simple ideas, but there is plenty of scope for older students to try and make something innovative and exciting.

What do I need to make it work?

For this activity, you'll need:

- ▶ Clean waste items that can be used for upcycling. For example, cardboard rolls, paper, empty boxes, tins or plastic bottles, etc.
- ▶ Glue (depending on age and availability, this could be a glue stick through to a glue gun or superglue).
- ▶ Scissors (or craft knife).
- ▶ Paint, colouring materials.

What things will my students create?

A decorative and useful item that can be used at home for a specific purpose which is made from items that might otherwise be wasted.

Step 1

There are two different ways you can start this project.

The first is to take a look at the waste material you have at home, and brainstorm what you could do with it. Do you have cardboard boxes? Lots of cardboard tubes? Empty tins or plastic bottles?

The second idea is to have a think about what would be a useful thing to have at home that would solve a problem you have. For example, if your pens and pencils are all over the place, would having somewhere to put them make things tidier? Do you like having flowers and plants in the house but don't have anywhere to put them? Are there some little models or toys you'd like to display but you don't have a shelf?

Ask your students to individually have a think about these methods, then come up with something they'd like to try and make. You may want to discuss with them how they plan to make it to ensure it's something they can do safely at home.

If they're stuck for ideas, we've got a few that work well, or you might decide to set two or three activities your students can pick between;

- ▶ A pen pot made using cardboard tubes, jars and cardboard.
- ▶ A vase for flowers made using plastic drinks bottles.
- ▶ An organiser for small items like beads or lego using glass jars and a small plank of wood.
- ▶ A plant pot using a plastic bottle.
- ▶ A simple display shelf for their desk using cardboard boxes and tubes.
- ▶ A bird feeder for your garden or balcony (see our activity here: bit.ly/jgi-bird-feeder).

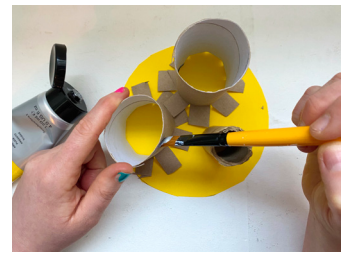
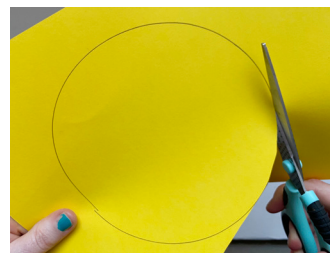
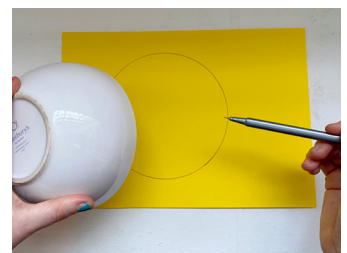
Step 2

Once they've decided what they are going to make, ask them to describe how they are going to do it, and start making!

Older students can come up with something more complex, and develop their own method which should be recorded as they go, including anything that did or didn't work.

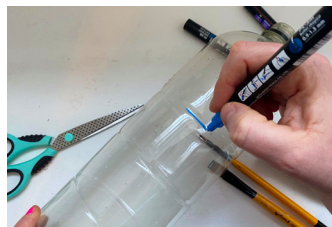
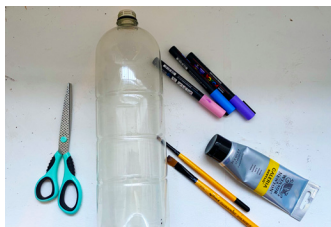
Younger students can follow one of the how-to guides below:

Pen pot



- ▶ Gather together 4 or 5 cardboard tubes. Toilet rolls are a good choice, or the roll that tinfoil comes in, or poster tubes.
- ▶ Cut them so that they are different lengths to suit different sizes of pen. The tallest one should be slightly shorter than the longest pen or pencil, the next one should be 1cm smaller than that, the next one 0.5cm shorter than that, then one or two that are smaller still for storing smaller items like rubbers and paperclips in.
- ▶ Get a thick piece of cardboard, or a few different thinner pieces, and trace a circle on it using a plate as a template. The circle needs to be big enough to allow all the cardboard tubes to stand on it. Then cut out the circle. If you need to, cut out a few circles and glue them together. This will be the base, and it needs to be strong.
- ▶ Using your scissors, make short cuts around the base of each tube, along the length. On the tallest tube this needs to be about 1cm long, less on the shorter tubes. You'll end up with a series of tabs on the bottom. Fold these out, pop glue on the underside of them, and stick them in place on your cardboard base. Do this with all of the tubes, getting them as close to each other as possible.
- ▶ Once all the tubes are in place, decorate your pen pot using paint, stickers, and you can even pop on things like bows, fabric or anything else you fancy. Once that's all dried, your pen pot is ready to use!

Plastic bottle vase



- ▶ Clean and dry a 1l or 0.75l empty plastic drink bottle.
- ▶ Measure $\frac{3}{4}$ up the length of the bottle from the base, and mark this spot in a few places around the outside of the bottle.
- ▶ Using scissors, a craft knife and with adult supervision and assistance, cut around the bottle at this point.
- ▶ Decorate your plastic bottle vase using things you have around the house. You can cut pictures out of magazines or newspapers and stick those on, use ribbons, make pompoms or even some fabric to make it look beautiful.
- ▶ Half-fill the vase with water and add your flowers, then pop it in a nice bright spot so everyone can enjoy it!

For even more ideas of what you can do with empty drink bottles, see our "My PET Project" resource here: bit.ly/jgi-pet-project.

Simple display shelf

- ▶ Get a piece of cardboard the size and shape you'd like your display to be. It can be small, big, round, square, wiggly - whatever you fancy! You can design it so that it sits on the surface of your desk or so that it hangs against the wall off a hook.
- ▶ Collect together cardboard tubes and small boxes. These are going to be your 'shelves'. Before you stick them down, check how you'd like them to fit together on your display; you might want to think

about things like how much space you'll need to fit certain items like toys or pencils.

- ▶ Once you've decided on how you'd like your shelves to look, it's time to stick them down! For boxes, simply glue the side that's going to stick to the cardboard display. For tubes, you may have to make a few cuts about 1cm long along the length from one end and use the tabs this makes to glue the shelves on.
- ▶ When all your shelves are in place, make two small holes near the top, at least 1cm from the end of the cardboard. This will be where you'll hang the shelves from.
- ▶ Decorate your shelves! Paint them each different colours, or all the same colour, add stickers, make it look great!
- ▶ Knot some string or ribbon through each of the holes, with enough length to ensure you can hang it off the hook you have in place.
- ▶ Fill it with your treasures!

Useful resources

- ▶ Molly Moo Crafts desk tidy: bit.ly/34VGzj5.
- ▶ Rubbish Please: Upcycling artists you should know about: bit.ly/2xGh3LL.

Step 3: Show, tell and celebrate

An important part of the process is sharing what your students have achieved with each other, so arrange a virtual show and tell where they can talk about what they've made, how they made it, why they decided to make it and how they've been using it.

If your students have made something more intricate, you could ask them to write a report on what they made and why.

You can also ask students to do some research into how household waste can be recycled or upcycled into other useful things, then have a discussion about what kinds of things can be made this way and why that might be good for the environment.

Celebrating what they've made is an important part of this process. Creativity is important, so taking some time to feel good about what they've made with their own two hands will have a positive impact on their mood, confidence and mental health.

Want to help improve this activity?

This activity is a living document! Help us by editing this activity to make it as good as possible, just use this short link (just type it into your web browser's address bar): bit.ly/2V7lHkp – full instructions are provided. Any edits that can make this resource easier to use in the classroom or more applicable to life in the UK are very welcome, so please follow the link and make your contribution!

Why not enter the Jane Goodall's Roots & Shoots Awards?

This resource was provided by Roots & Shoots UK, a not for profit charity run by the Jane Goodall Institute (UK). One of the aims of Roots & Shoots is to inspire young people to care for people, animals and the environment, and one of the ways that we like to do this is by running annual awards.

Every school that uploads a story about their activities to the Roots & Shoots website www.rootnsnshoots.org.uk

automatically wins a bronze award certificate to display at school, and the best stories win the chance for you and your children to meet Dr Jane Goodall herself along with a host of other prizes.

See www.rootnsnshoots.org.uk/awards for details about the awards and information on how to upload your 'mission update' story and win!

Keep up to date with Jane Goodall's Roots & Shoots UK

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