



Jane Goodall's
roots&shoots



REUSE & RECYCLE: MY PET PROJECT

Discarded empty plastic PET bottles like those used for bottled water are unsightly, cause problems for wildlife and can take hundreds of years to break down. Can they be put to good use? This activity looks at some of the great things that you can make from old PET bottles at home or at school and encourages you to raise money for charities such as 'Liter of Light', an organisation that converts old PET bottles into ceiling lights for disadvantaged people across the world.

IN THIS ACTIVITY YOU AND YOUR STUDENTS WILL:

- ▶ Learn about the environmental impact of discarded PET bottles.
- ▶ Learn about the Liter of Light project.
- ▶ Learn about some of the great things you can make using old PET bottles.
- ▶ Run a PET project – collect discarded bottles and make something fantastic!
- ▶ Optional: Sell your creations to raise money for a good cause such as Liter of Light.

OBJECTIVES

Carrying out this activity will help students see how many plastic PET bottles are discarded every day in the UK and the problems that these can cause for wildlife and the environment. They will learn how old PET bottles can be reused and recycled in a variety of ways, including ceiling lights. It will also stretch your students' creative talents as they make their own useful new items out of old bottles. But we do not just want talk, we want action! Start a business selling your PET creations to raise money for charity.

WHAT DO I NEED TO MAKE IT WORK?

For this activity you will need a variety of craft tools such as pens, craft knives, scissors, paint, etc. and a whole load of empty old PET bottles. Exactly what is required will depend on what you choose to make from the old bottles – see below.

WHAT THINGS WILL MY STUDENTS CREATE?

- ▶ Useful creations made from old PET bottles that can optionally be sold to raise money for charity.

THE PROBLEM WITH PET AND OTHER PLASTIC BOTTLES

Here is some useful background information that you can present to help your students develop their ideas on this subject.

- ▶ It's estimated that an average UAE resident uses up to 450 plastic water bottles a year, of which only a small percentage is recycled (goo.gl/YmDfy9). The majority of these are made from a substance known as PET, short for polyethylene terephthalate. A great example are the clear plastic bottles used to sell mineral water. Last year Bee'ah (www.mybeeah.ae) recovered 1,649 tonnes of discarded PET. Optional: estimate how much this weighs by collecting an assortment of 15 empty plastic bottles, weighing them and multiplying by a million. If an elephant weighs 5 tonnes (5000 kg), how many elephants is that?
- ▶ Plastic bottles disposed of in landfill or simply discarded can take over 400 years to break down. As they break down they can leach chemicals into the surrounding eco-system which can be dangerous to plants and animals (goo.gl/QDyhjH).
- ▶ Plastic discarded near the seaside or rivers can get carried out to sea and over time large islands of plastic waste form in the oceans. Many sea creatures and birds can get caught in these 'islands' or swallow parts of them, causing illness or death. (goo.gl/c2MUIH).
- ▶ Rubbish of all kinds, including plastic bottle waste, litters the beaches and land, creating dangers for wildlife and making an unpleasant environment for all

Optional: Why not do a combined survey/litter pick in a local park or on a local beach? See how many discarded plastic bottles you can spot!



"Sea with Garbage Dump" by Adam Jones, Ph.D.
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LITER OF LIGHT

Now the class has heard about some of the problems of discarded PET bottles let's hear about a great way to reuse them – Liter of Light.



Creative Commons images from Liter of Light project via instructables.com

Liter of Light (literoflight.org) is a project of the MyShelter Foundation. Started in the Philippines, the project aims to bring an eco-friendly bottle light to communities living without electricity. The bottle light consists of a an old, clear PET bottle filled with water and bleach, fitted into the ceiling of a room. The water/bleach mixture refracts light into the room – it's as simple as that! This is easiest to explain via the official video which you can find here: goo.gl/f3pyr4

More recently the Liter of Light team have come up with an upgraded version of the light that incorporates a solar panel and a small LED light source, allowing the 'bulb' to provide light during the night time as well: goo.gl/vd0eyt. This has proved particularly useful in the aftermath of Typhoon Haiyan in November 2013: goo.gl/RMiMV3

The whole project is 'open source', meaning that they publish the plans for their 'bulbs' on the internet. Here is how to make and fit the original bulb: goo.gl/F7qfwj (video) and here's some downloadable instructions on how to make a solar bulb: literoflight.org/downloads/lightbox-manual.zip (zip file download).

Liter of Light can be found here: <http://literoflight.org>

MY PET PROJECT

Hopefully the students have been inspired by the work of Liter of Light. There are lots of other ways that old PET bottles can be reused. In this section we introduce some PET projects that you can make with your Roots & Shoots group to use at home or to sell to raise funds for charity.

There are lots of things that can be made from old PET bottles. Here, we present links to a few possible projects that could be suitable for use with your students to create a 'sellable' product (you can find plenty more online).

► **Bird feeders.** These are a very popular project for old PET bottles. Here is a simple bird feeder: goo.gl/JJw7ow and here is a truly deluxe version which shows you just what you can do with a bit of decoration: goo.gl/Z6fTMb

► **Gardening equipment.** Another popular use is equipment for gardening. Here's a very simple tip for making a mini watering can that could be nicely decorated: goo.gl/DnOYoE. You could also make and decorate 'sub-irrigated planters' (posh plant pots!) goo.gl/MrlfBe or drip irrigators: goo.gl/ThUJAe (make sure you test them first before decorating, getting the size of the holes correct can be quite tricky! There are tips in the comments on the page). If you and your students fancy taking on a bigger project then why not make a whole window hanging hydroponic garden (goo.gl/TfDvGF) or even a greenhouse like Startforth Morrit Memorial School in the UK (goo.gl/kOqM2x)



► **Desk organisers.** These are a great, simple thing to make and can be decorated in all sorts of ways. Here is an example with a 'how to' guide: goo.gl/EBPwDC

► **Jewellery.** Believe it or not, you can turn old PET bottles into all manner of nice jewellery that would be perfect to sell to raise money.

► **Bracelets from PET bottles:**

This video shows you how! goo.gl/UjQT5S

► **Flowers for brooches, necklaces and more:** goo.gl/KHcU35

► **Beads for bracelets and necklaces:** goo.gl/kCUKtb

► **Solar bulbs.** For those feeling more adventurous why not have a try at making the Liter of Light solar bulb: literoflight.org/downloads/lightbox-manual.zip (zip file download).

► **Even more.** If that's not enough to get you started you can find lots more online. instructables.com is a great place to look – try searching for 'soda bottle' or 'PET bottle' for all manner of ideas, including this remarkable Tiffany style lamp: goo.gl/EnqAbg



Image by Cassandra Dido,), CC-BY-SA-3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>) via instructables.com

OPTIONAL: START A BUSINESS AND RAISE MONEY FOR CHARITY

Instead of just taking them home to enjoy we would like to encourage you to make a number of recycled PET items to sell to raise money for the charity of your choice (you might want to consider Liter of Light). You could concentrate on making a whole lot of just one project such as decorated bird feeders (this way you can develop a production line), a set of related items (such as gardening equipment or jewellery) or a whole range – whichever works best for you. Whatever you make we'd love to hear all about it – see below for details on how to share your products with us and maybe even win an award for your school!

TELL US HOW YOU GOT ON!

When your work is finished, we'd love to see what you did! If you already have an account you can upload a story with images to Roots & Shoots UAE (www.rootsnshoots.ae) and write a story or create an online gallery on the website. If you don't already have an account then just send us an email to MrH@rootsnshoots.ae and we can set you up!

KEEP UP TO DATE WITH JANE GOODALL'S ROOTS & SHOOTS UAE

As well as the website at www.rootsnshoots.ae you can also find us on Facebook at <https://www.facebook.com/RootsnShoots.ae> or on Twitter as [@JaneGoodallUAE](https://twitter.com/JaneGoodallUAE)

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