

A pile of candy

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*Teacher guide*

The Great Big Litter Hunt

# Introduction

The Great Big Litter Hunt is a science activity suitable for KS2 and KS3 students that gets them learning about the issues surrounding plastic pollution by doing a hunt for plastic waste outside in the school grounds or local community.

They will also learn about how plastic waste dropped on the ground is contributing to the wider problem of microplastics and hear from Professor Richard Thompson, OBE, who was the first scientist to use the term ‘microplastics’.

The activity is ideal to get students outside and exploring their local environment on May 18th 2023 - Outdoor Classroom Day - a global movement to inspire and celebrate outdoor learning and play.

It’s part of CONNECT

In the race towards exams, it can be easy to forget the other goals of science education: scientific literacy and STEM careers. You can work towards these missing goals with help from CONNECT. It’s an EC-funded project that provides resources that show students how science affects their world with the help of science experts and encourages students to talk about science with their family.

# Lesson plan

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| Stage/purpose | **Running notes** |
| **CARE: Introduce the problem of plastic waste** | Use The **Great Big Litter Hunt teaching presentation**. Introduce the problem (3). Clicking the button will take you to a video featuring world-leading marine biologist Richard Thompson OBE where he talks about how his research into plastic pollution started.  Introduce microplastics (4). In this video, Richard talks about the possible ways we can solve the problem.  One reason why we have plastic pollution in the ocean is because of littering on the land. Set the outdoors learning task (5) – to do a survey of plastic litter to see how bad the problem is locally. |
| **KNOW: More about plastics** | Discuss why there is so much plastic litter. One reason is that many plastic items are designed to be used and then thrown away (6).  Microplastics are very small (7). Use the slide to discuss just how small this is. (optional for KS2). Discuss why surveying how many microplastics there are in the environment is very difficult: they cannot easily be seen and some are too small to even be detected by the methods scientists currently use. |
| **DO: Carry out the survey** | Students now work in small groups to carry out the litter hunt (8) Give each group the equipment they will need (see materials required below) plus a copy of the **student sheet** attached to a clipboard for them to record their results on. You can survey the school field, a local park or beach. This part can also be done outside of school with students working with family members.  Each group should collect rubbish and place it into their bag. For each item they pick up, they should work out if it is made of plastic or not. For each plastic item, they will record the details on the sheet (what it is, if it is designed to be single use and its size). |
| **DO: Collate results** | Back in the classroom ask students to wash their hands. They then share their results and collate them onto a copy of the student sheet to show class results. Ask students some of their thoughts on plastic waste.  Question them: questions: Where did you find the most rubbish? Why do think this is? How can we reduce the amount of rubbish? Approximately how much of the rubbish you found was plastic? Which was the most common type of plastic rubbish? How much was single use? What was the range of sizes? Did you find any microplastics (less than 5 mm in size) – why/why not? What should we do with the rubbish we found? (it can go into school bins or sorted for recycling) Why is it important to not litter? How can we encourage people not to litter?  Share your results with us on the Padlet (see weblinks below). Please include the class results, photos of the smallest and largest pieces of plastic waste you collected and some of the student thoughts about plastic pollution and why people should care.  Also, ask students to complete a questionnaire to find out their views of science in their lives and world (see weblinks). |
| **Optional extras to do at school** | * The class could draw bar charts to show the frequency of the different items they found (KS2) and histograms for their sizes (KS3). * Students can try and find microplastics in a soil or sand sample. Sieve to remove larger pieces and use a magnifying glass, or a microscope, to view a sample. Microplastics will appear as bright colours. There is a high chance that students won’t see microplastics. This is an opportunity to discuss why – there is not enough plastic waste here to form them, plastic has not been here long enough to break down into small enough pieces. An alternative is to add fine glitter to the sample yourself and treat this as an exercise in showing students how scientists study microplastics. * Students can create a campaign to be used at school to encourage people not to litter. They can create posters, talk in an assembly or create a short video to share on social media. |
| **Optional extras to do with family** | * If you are on a beach, you can easily look for microplastics called nurdles. These are small, raw plastic pellets which are melted down and used to make almost all plastic products. Put sand through a sieve and see if there are any nurdles present. * Microplastic fibres are shed from clothes when we move and can enter the air. This can easily be shown by rubbing a fleece or a school jumper above a mobile phone screen or a sheet of black card. Students will see that the screen soon gets covered in tiny plastic fibres. * Find out more about microplastics as a family. There are other videos on the CONNECT YouTube channel with scientists talking about microplastics and their work. |

## Weblinks

Meet Richard Thompson, OBE. Marine scientist and microplastics expert.

[https://www.youtube.com/watch?v=VbTFJfN0HHA](https://emea01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DVbTFJfN0HHA&data=05%7C01%7C%7C08b40cce05ca419657e408db4c2f3c68%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C638187537986694785%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=6jccNf2uIS2dKUkZM8XfLlDc3Wt5LTIQoJulHzzrLXU%3D&reserved=0)

Professor Thompson talks about possible solutions to plastic pollution

<https://www.youtube.com/watch?v=7COWiXLl9lQ>

Padlet to upload results

<https://padlet.com/younggemma123/the-great-big-litter-hunt-jo8fg1b14fql8srs>

Student questionnaire

<https://openeducation.eu.qualtrics.com/jfe/form/SV_e8nFT0CpqqUAzHw>

## Materials required

For litter picking each group of 3-5 students will need:

* Copy of the student sheet
* Clipboard
* Litter picker
* Gloves (recommended)
* Bin bag
* Hoop (for bin bag)

For the optional microplastics activity:

Pairs will need:

* Sample of soil or sand
* Sieve
* Microscope and slide or magnifying glass
* Fine glitter (optional)

*All health and safety requirements are the responsibility of the school. Before carrying out this activity the school must complete their own risk assessment.*

