ECO-HEROES ASSEMBLE!

HI! I'M SETSUKO FROM THE GEOSQUAD, AND I NEED YOUR HELP! I KNOW YOU'VE BEEN LOOKING AT THE GET KIDS INTO SURVEY FORESTRY EXPLORATION POSTER. FORESTRY IS ALL ABOUT CREATING, MANAGING, USING, CONSERVING, AND REPAIRING FORESTS.

HOWEVER, IN SOME PARTS OF THE WORLD, FORESTS AREN'T BEING CARED FOR AT ALL. INSTEAD, THEY ARE BEING DESTROYED AT AN ALARMING RATE. BUT I'VE GOT A PLAN -- A WAY YOU CAN HELP! ARE YOU READY TO BE AN ECO-HERO!?

TASK 1:

DAMAGING DEFORESTATION

(LITERACY LINKS - RETRIEVE, RECORD AND PRESENT INFORMATION FROM NON-FICTION / GEOGRAPHY OBJECTIVES - PHYSICAL GEOGRAPHY)

To understand the scale and severity of unchecked deforestation around the world, use your online research skills to answer the following questions:

- What percentage of the world's land area is covered in forests?
- Which gas, harmful to humans, is absorbed by plants?
- What percentage of our animal species live in rainforests?
- What can you find out about the speed at which forests are being destroyed?
- If our habits don't change, how much longer do scientists think forests will exist?

Once you have found the answers to these questions, see if you can discover more about the importance of forests.

Have a look for information about groups of people who live in forests, how forest areas absorb rainfall and help protect against landslides, and how ingredients for medicines are sourced from forest areas. Put all that information together, and you'll see why the forests of the world need our protection!

TASK 2:

WHAT TREES NEED, AND WHY WE NEED TREES!

(GEOGRAPHY OBJECTIVES - PHYSICAL GEOGRAPHY / SCIENCE OBJECTIVES - PLANTS, LIVING THINGS AND THEIR HABITATS)

Grab your notebook, because you're going to need a guide to plants to be an effective eco-hero! Firstly, you'll need to know about the needs of plants. For the first page of your guide, draw a diagram of a simple plant and label its parts with their names and functions (the jobs they do to help the plant grow). If you can, try to compare each part to something with which you are already familiar. For example, when you label the roots, you could write that they 'grip beneath the ground to hold the plant in place, like a ship's anchor', and they 'absorb water and nutrients from the soil, like a straw.'

On the next page of your guide, make a list of all the most important things a plant needs to grow well: water, light, a suitable temperature, air and time. Give a reason why you think these elements are important for growth below each item. On the third page in your eco-guide, draw a diagram of the relationship between humans, plants, oxygen and carbon dioxide. Can you figure out which living thing produces which gas? If you can work this cycle out, you'll soon realise why plants are so important to us!

TASK 3:

WHO'S HELPING?

(GEOGRAPHY OBJECTIVES - HUMAN AND PHYSICAL GEOGRAPHY)

Fortunately, there are many organisations who work to raise awareness, stop large-scale deforestation and plant new trees to replace the ones that have been pulled down. One of the biggest is #TeamTrees, who have raised enough money to plant over twenty million trees! Many companies are trying to become **carbon neutral** and make sure they have **sustainable** practices in the production of the things they make. Find and add the definitions of **CARBON NEUTRAL** and **SUSTAINABLE** to your eco-guide.

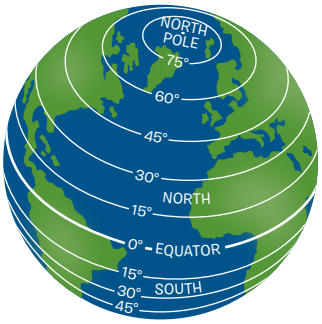
TASK 4:

MAP OUT YOUR MISSION

(GEOGRAPHY OBJECTIVES - LOCATIONAL KNOWLEDGE / GEOGRAPHICAL KNOWLEDGE AND FIELDWORK)

An important part of the job of a surveyor is making, using and improving maps. Surveyors collect geospatial information that helps to form land boundaries, map different kinds of terrain, and feeds into the types of digital maps that people use to find their way around, whether on their phone navigation apps or their car sat nav.

An important part of reading these maps is knowing how **coordinates** work. In GPS (Global Positioning System) satellite mapping, every location in the world is given a specific set of coordinates - a code that relates to its exact position on Earth. The numbers come from the lines of **longitude** and **latitude**.

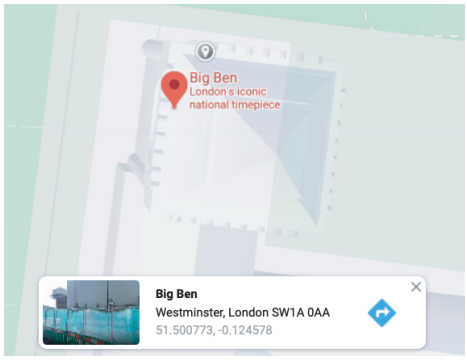


Lines of **latitude** are lines which run across the globe horizontally.
The longest line is called the **Equator**, which runs around the centre of the globe.
Its coordinate number is '0'.

As the lines head north, they increase by degrees, all the way up to the North Pole, which has a coordinate number of +90°. The lines heading south also change by degrees, all the way down to -90° at the South Pole.

The lines of **longitude** stretch vertically from pole to pole. The main line is called the **Prime Meridian** - it passes through eight countries, cutting through Greenwich in London. It increases in degrees to the east, up to +90°, and to the west, to -90°.

Of course, there are plenty of locations between these lines of longitude and latitude, so each gap is split up further into **decimal degrees** - the longer the number is, the more specific the location. For example, on Google Maps, the GPS DD (Decimal Degrees) coordinates for Big Ben look like this:



The coordinates for Big Ben are 51.500722, -0.124611. That means Big Ben is just over 51.5° north of the Equator, and not too far west of the Prime Meridian.

Here are some other GPS coordinates - see if you can copy them into a GPS mapping app and find out which famous monuments they mark!

41.890205, 12.492324

48.858355, 2.294538

40.689227, -74.044452

-22.952035, -43.210334

Finally, use the mapping app to find the exact coordinates of **your** garden - you'll need them for the final task!

TASK 5:

MAKE THE WORLD A GREENER PLACE

(GEOGRAPHY OBJECTIVES - GEOGRAPHICAL KNOWLEDGE AND FIELDWORK / SCIENCE OBJECTIVES - PLANTS, LIVING THINGS AND THEIR HABITATS)

Using the notes you made about what plants need to grow well, select the most ideal plot in your garden and plant some seeds, a bulb, an offshoot or a pot plant. Using your map app, zoom in as close as you can on the spot where you've planted and copy down the GPS DD coordinates onto a piece of paper. Tape this to a stick and pop it in the soil to mark the position of your plant. Note down the coordinates of your first plant in your notebook, too. Now you'll never lose track of where you planted! You can repeat this in other spots - perhaps in relatives' gardens, or school gardening areas (with permission of course!). Soon you'll have a log of coordinates that will allow you to track your efforts to put a little more green back into the world!