

Lesson Plan (class 2 - 3)

Lesson Title: Offsetting Your Carbon Footprint

General theme: NATURE-BASED SOLUTIONS. Mitigate climate change. Biodiversity.

Specific topic: Offsetting Your Carbon Footprint

Objectives:

- Work out their carbon footprint using measurement, calculations and a graph
- Measure how much carbon is stored in trees
- Explain the important role of trees in storing carbon
- Consider how to make changes to reduce their carbon footprint

Materials Needed:

- Information note - Carbon
- Clipboards
- Pencils
- Tape measures
- Calculators
- Tree ID sheets, apps or books

Outline of the lesson:

Ask your learners to calculate their carbon footprint and how many trees would be required to offset their footprint.

Step 1

- Use the table below to calculate your carbon emissions for one year.
- Follow the example to complete the rest of the table to calculate your carbon emissions for one year.

Runs for 24 hours a day 500 TOTAL carbon emissions for 1 day g Convert grams (g) to kilograms (kg) by dividing by 1000 kg x 365 days for TOTAL carbon emissions or carbon footprint for 1 year kg

Activity	Carbon Emitted per activity (g)	How many times on an average day?	Carbon emissions per day (g)
EXAMPLE Television per hour	25	3	$25 \times 3 = 75$
Television per hour			
Lights for 1 room per hour	9		
Computer / laptop per hour	20		
Radio per hour	10		
Games Console (eg Xbox360) per hour	28		

Hairdryer for 10 minutes	29		
Car journey for 1 mile	120		
Electric Oven for 15 minutes	65		
Making 2 slices of toast	0,2		
Using a microwave for 1 minute	2,5		
1 cycle of dishwasher	220		
Washing machine at 40 degrees	Based on 1 pile of washing per wk		118
Tumble drier	Based on 1 use per wk		74
Running a fridge freezer	Runs for 24 hours a day		500

TOTAL carbon emissions for 1 day	g
Convert grams (g) to kilograms (kg) by dividing by 1000	kg
x 365 days for TOTAL carbon emissions or carbon footprint for 1 year	kg

Step 2

- Once you know your carbon emissions for the year, use the graph provided to estimate the size of tree it would take to store that amount of carbon.
- Find your total carbon stored in kilograms along the 'x' axis and draw a straight line up to the green line. Read across to the 'y' axis to find the circumference of the tree you are going to look for.
- Measure different trees at chest height (1.3 meters off the ground) until you find one with a similar circumference.

Circumference of tree that equates to my annual carbon emission (cm):

Step 3

- Work out how long it has taken for your chosen tree to absorb your annual carbon emission i.e. the age of the tree.
- Different types of trees have different growing rates; conifer trees grow faster than broadleaf trees. Is your tree a conifer or a broadleaf?

Broadleaf or Conifer?

To calculate the age of a tree, divide the circumference (cm) by the growth rate (cm/yr)

- Divide by 3 for a conifer tree
- Divide by 2 for a broadleaf tree.

Years old :

Assessment:

Conclusion - You now know your annual carbon emissions can be absorbed by a tree that is years of age. Imagine how many trees will be needed to absorb your carbon emissions over your lifetime.

What can you do to reduce your carbon footprint?

I will reduce my carbon footprint by: