

S4S Week 7-15th March 2020

Competition

Deadline Friday 28th February 2020

TRASH 'Take Responsibility and Show How'

TRASH Resources Contents

- Carbon Footprint
- Water footprint
- Home energy
- One tonne travel
- Food
- Waste and consumption
- Air Quality



545 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Footprint



Carbon Footprint - calculation

Resources

- WWF website Carbon footprint calculator
 <u>https://footprint.wwf.org.uk</u>
- Carbon footprint slides <u>http://www.s4s.org.uk/wp-content/uploads/CarbonFootprintSlides.pdf</u>

Calculating your Carbon Footprint

1 Ask if anyone knows what a carbon footprint is. Discuss the answers and use the slide to explain what a carbon footprint is.

2 Using the WWF website Carbon footprint calculator <u>https://footprint.wwf.org.uk</u> and a volunteer from the group, answer the questions in the calculator. Ask others in the group if their answers would be different.

3 Discuss the results. What do the percentages in the graph mean? What does the total footprint mean? How does it compare to the UK average and world average? Which area would you tackle first, e.g. if travel is the largest percentage, what could be done?

4 Extension option – complete the calculator and decide what actions to take to reduce your footprint.



545 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Footprint

Competition Evidence

Carbon Footprint – calculation

1 Using the WWF website Carbon footprint calculator <u>https://footprint.wwf.org.uk</u> (or similar) calculate your carbon footprint. Keep a copy of the results. Look at the suggestions for your footprint.

2 Consider the following questions:

- How does my footprint compare with the average global footprint?
- How does my footprint compare with an average uk footprint?
- Which of the four sections is the biggest?
- What could I do to reduce my footprint?
- What actions could I take in each of the areas?

3 Decide what actions you would like to take to reduce your footprint. Set yourself targets for the next month, 3 months, 6 months etc.

4 Measure your footprint again after your chosen time period. Keep a copy of your results.

5 Look at the S4S 2020 competition. Decide what would be the best way to demonstrate how you have Taken Responsibility and Show How. Would you like to write your story? Could you make a poster? Would a slide show be the best way to show your footprint reduction? Be as creative as you like!



s4s 2020 Competition TRASH

(Take Responsibility and Show How)



Activity

Water Footprint

Resources

Data from <u>www.waterfootprint.org</u>

What is the water footprint?

1 Choose a number of objects. Include a variety such as a burger, an egg, cheese, apple, a cotton shirt, milk, paper. Collect the objects themselves, photographs or drawings of them.

2 Explain that a water footprint is the total amount of fresh water used to make a product. Show the group a litre of water so they can visualise it. Explain / demonstrate what 1m³ water looks like

3 In small groups ask participants to think about one of the items and what water will have gone into its production. Then ask them to estimate how much water they think would have been needed to produce each of them OR put them in order low to high. Tell them what the actual water footprint of the objects is.

4 Discuss why this is important. Where were some of these things produced? What would be the impact of climate change on water stress in some of those areas?

5 Share some key facts:

- The average water footprint in Britain is 1245 m³/per person/per year
- 70% of this falls outside Britain
- We are using other people's water when we buy things that are imported

By 2050 5 billion people are expected to suffer from water stress

Check national water footprints per person www.waterfootprintassessmenttool.org/nationalexplorer/

Water Footprint Data

www.waterfootprint.org

	Litres of
	water
One apple	125
One slice of bread	50
A pizza margherita	1259
250ml cow's milk	255
250ml soya milk	75
One egg	200
100g portion of beef	1540
80g portion of broccoli	20
30g portion of cheese	30
100g portion chicken	430
25g chocolate	45
50g portion nuts	540
150g beef burger	2350
150g soya burger	158
One sheet of A4 paper	10
Cotton t shirt	2700



545 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Footprint

Competition Evidence

Water Footprint

1 Using the calculator at <u>www.waterfootprint.org</u> calculate an aspect of your water footprint. Think of ways you could reduce your water footprint, for example through what you choose to eat.

2 Consider the following questions:

- How does my footprint compare with the average global footprint?
- How does my footprint compare with an average UK footprint?
- What could I do to reduce my footprint?
- What actions could I choose to take?

3 Decide what actions you would like to take to reduce your footprint. Set yourself targets for the next month, 3 months, 6 months etc.

4 Measure your footprint again after your chosen time period. Keep a copy of your results.

5 Look at the S4S 2020 competition. Decide what would be the best way to demonstrate how you have Taken Responsibility and Show How. Would you like to write your story? Could you make a poster? Would a slide show be the best way to show your footprint reduction? Be as creative as you like!



s4s 2020 Competition TRASH

(Take Responsibility and Show How)



www.s4s.org.uk

Activity

Home Energy

Resources

• Home choices sheet <u>http://www.s4s.org.uk/wp-</u> <u>content/uploads/HomeChoicesSheet.pdf</u>

Home choices

1 In small groups ask participants to consider the Home Choices sheet and decide which of these actions they would choose to improve the energy efficiency of a home. Will they do things now, in the future or never? E.g. you either choose double or triple glazing but not both. You would not choose a condensing boiler and an air source heat pump. Ask them to justify their choices.

2 Compare some of their answers and approaches, e.g. they should do all of the no cost actions now, then low cost, high impact items.

3 Ask them to think about the following questions:

- What could you do in your home from the list?
- Find out your fuel bills (gas, electricity, oil, wood). How do these compare with the average? How could you reduce them?
- Get a Smart meter and see how much electricity different appliances use. How could you reduce your use?
- Who supplies your energy? Are they a 'green' supplier (100% renewable energy)?
- How could energy use be reduced? (think about heating and electricity use)
- What improvements could be made to the 'fabric' of the building (e.g. external walls, windows etc)?



545 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Energy

Competition Evidence

Home Energy

1 Review how energy is currently used, for example at home or in your school. You could work with another organisation or building to help them to improve.

2 Ask some of the following questions.

- Find out about the fuel bills (gas, electricity, oil, wood). How do these compare with the average? How could they be reduced?
- Get a Smart meter and see how much electricity different appliances use. How could this use be reduced?
- Who supplies the energy? Are they a 'green' supplier (100% renewable energy)?
- In what other ways could energy use be reduced? (e.g. think about heating and electricity use, and what people could do more of or less of)
- What improvements could be made to the 'fabric' of the building (e.g. walls, windows etc?

3 Decide what actions you would like to take. Set some targets for the next month, 3 months, 6 months etc.

4 Take measurements before and again after your chosen time period. Keep a copy of your results.

5 Look at the S4S 2020 competition. Decide what would be the best way to demonstrate how you have Taken Responsibility and Show How. Would you like to write your story? Could you make a poster? Would a slide show be the best way to show your footprint reduction? Be as creative as you like!





(Take Responsibility and Show How)



Activity

One Tonne Travel

Resources

- Images for card sort exercise <u>http://www.s4s.org.uk/wp-</u> <u>content/uploads/OneTonneTraveIImageCards.pdf</u>
- Slides 'Travel how many tonnes?' <u>http://www.s4s.org.uk/wp-</u> <u>content/uploads/OneTonneTravel–</u> <u>HowManyTonnesSlides.pdf</u>
- Travel diary template
- https://www.carbonfootprint.com/calculator.aspx

Card Sort

1 Discuss what causes the Greenhouse Gas Emissions from travel. Answers should include fuel used by cars, planes, boats. Answers may include low/no emissions from walking, cycling, scooting.

2 Give sets of the 6 images to groups and ask them to sort from high to low. Ask one group to demonstrate their sorting in a line. Ask other groups how their sort compared.

3 Use the slides to show the actual high to low. Discuss any differences in the group's answers and the actual.

4 Show the slide of emissions from different sorts of transport. Discuss these figures.

5 Using the slide – show what travel can be achieved if limited to 'One tonne travel'

Travel Diary

1 Travel Diary – complete a travel diary for the last week. Use the carbon footprint calculator at <u>https://www.carbonfootprint.com/calculator.aspx</u> to work out the tonnes of CO₂e

2 Extension option - to complete a travel diary for a month and see what could be reduced.

Travel Diary

Date	Journey and distance	Mode (e.g. bus, train, car, plane. Motorbike, bike, walk	Tonnes CO ₂ e	What could I have done differently?



s4s 2020 Competition TRASH

(Take Responsibility and Show How)

Competition Evidence

One Tonne Travel

1 Review the impact of your travel. Complete a Travel Diary for a chosen time period. Use the carbon footprint calculator at

 $\label{eq:https://www.carbonfootprint.com/calculator.aspx} to work out the tonnes of CO_2e$

2 Look at how you could reduce the environmental impact of your travel.

3 Decide what actions you would like to take to reduce your footprint. Set yourself targets for the next month, 3 months, 6 months etc.

4 Measure your footprint again after your chosen time period. Keep a copy of your results.

5 Look at the S4S 2020 competition. Decide what would be the best way to demonstrate how you have Taken Responsibility and Show How. Would you like to write your story? Could you make a poster? Would a slide show be the best way to show your footprint reduction? Be as creative as you like!





s4s 2020 Competition TRASH

(Take Responsibility and Show How)



Activity

Food Cards

Resources

• S4S Food Cards (download <u>www.s4s.org.uk/food-cards/</u> or contact <u>info@S4S.org.uk</u> to purchase them)

Playing Food Cards

1 Divide the group into 4 teams. Deal the cards into 4 sets and give one to each team.

2 Play trumps with the cards using the carbon footprint or water footprint values. The team with the lowest number wins the cards. Play until one team is knocked out when they have no cards left. Deal the cards again to play another game.

3 Ask, 'What have you noticed about the footprints of different types of food?'

(If you have more than one set of cards several small groups can play)

In small groups discuss what they could do to reduce their food carbon footprint.

Food Line up

1 Give each person in the group a card.

2 Ask them to line up in order of the value of the carbon footprint of the food on their card.

3 Starting at the highest value ask each person to read out their food and its carbon footprint.

4 Stop after the first few and ask, 'What do you notice about the types of food with the highest footprints?'

5 Continue and ask again at different points, 'What do you notice about the types of food?'

6 Compare the nutritional aspects of some foods, e.g. protein of meat and lentils; footprints of cows' milk and soya milk.

In small groups discuss what they could do to reduce their food carbon footprint.



s4s 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Food

Activity

Food Diary

Resources

- Slides with food diary instructions
- <u>http://www.s4s.org.uk/wp-</u> content/uploads/FoodDiaryFourComponentsSlides.pdf
- Food Diary categories
- Food diary template

Activity

1 Using the slides, explain the contribution of the four aspects (Production, Processing, Packaging, Transport) to the carbon footprint of food. Explain the A-E categories of each aspect.

2 Go through an example of how to complete the food diary.

3 Working in pairs complete the food diary for the previous day's food.

4 Ask for a volunteer to go through their food diary to share with the whole group.

In small groups discuss what they could do to reduce their food carbon footprint.

Food Diary

Production – (farming)

A seasonal fruit and vegetables, nuts and pulses
B grains, pasta, bread and vegetable oils
C out of season fruit and vegetables
D pork, chicken, eggs, fish, milk
E beef, lamb, cheese, butter

Processing

A items that have not been processed at all
B food that has been processed very simply (pulses, grains, fresh meat, tinned fruit and vegetables)
C items with 1–5 ingredients
D items with more than 5 ingredients
E anything frozen

Packaging

A food sold loose or with no packaging at all

B lightweight paper, card or plastic

- C heavier paper, card or plastic
- **D** steel cans and glass
- E aluminium packaging of any kind

Transport

A anything home-grown or produced within 30 miles which you had delivered or walked or cycled to collect

B anything else produced within 30 miles

C items produced in the UK

D food from overseas delivered by truck or boat

E items that came by air

Food Diary

Food item	Production	Processing	Packaging	Transport
Frozen peas	С	E	В	С
Kiwi fruit from New Zealand	С	A	В	E
Locally grown potatoes	А	A	A	A



s45 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Food

Competition Evidence

Food Diary

1 Review the impact of your food consumption. Complete a Food Diary for a chosen time period. Use the Food Diary categories or the carbon footprint calculator at <u>https://www.carbonfootprint.com/calculator.aspx</u> to work out the tonnes of CO₂e

2 Look at how you could reduce the environmental impact of your food consumption.

3 Decide what actions you would like to take to reduce your footprint. Set yourself targets for the next month, 3 months, 6 months etc.

4 Measure your footprint again after your chosen time period. Keep a copy of your results.

5 Look at the S4S 2020 competition. Decide what would be the best way to demonstrate how you have Taken Responsibility and Show How. Would you like to write your story? Could you make a poster? Would a slide show be the best way to show your footprint reduction? Be as creative as you like!



s4s 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Waste

Activity

Waste Hierarchy - 7 Rs

Resources

- Slides for waste 7Rs activity <u>http://www.s4s.org.uk/wp-content/uploads/WasteDisposalLandfillOr7RsSlides.pdf</u>
- Images of waste http://www.s4s.org.uk/wp-content/uploads/Wastelmages.pdf
- 7Rs worksheet

7 Rs card sort

1 Discuss the 7 Rs using the slides. Emphasise that other actions can be chosen before recycling and the aim is to avoid sending waste to landfill.

2 Small group activity. Give each group a worksheet with the 7Rs listed with their definition and a set of images to sort into what they think is the appropriate R. The images could be replaced with actual examples, e.g. sock with a hole, broken phone, plastic bag, apple core, item of clothing,

3 Compare answers across the groups. Some items could be in more than one category. Discuss which is preferable.

4 In groups discuss what actions they could take to reduce sending waste to landfill.

Waste Hierarchy – 7Rs Worksheet

7 Rs	Definition	Examples
Refuse	Say no to things you do not need	
Reduce	Cut down on what you use	
Reuse	Use something more than once – or offer it to someone else	
Repair	Mend something that is broken rather than throw it away	
Repurpose	Turn an item into something else which is useful	
Rot	Organic matter that can decompose in a process called composting	
Recycle	To process materials so that they can be remade or reused into something useful	



545 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Waste

Activity

Waste – The Story of Bottled Water

Resources

- The Story of Bottled Water
- https://www.youtube.com/watch?v=Se12y9hSOM0&t=5s
- Worksheet questions

Activity

1 Show the film 'The Story of Bottled Water' – 8 minutes.

2 Small group activity. Complete the questions on the worksheet based on the film.

3 Discuss and share the answers to the questions. What did they already know? What was new to them? What surprised them?

In groups discuss what they could do to reduce their consumption in general.

The Story of Bottled Water

After watching the film – discuss the following questions.

• Where do you get your drinking water from – from the tap or bottled water?

• Is tap water safe?

• Is bottled water better for you than tap water?

• What is 'manufactured demand'?

• What is the environmental impact of bottled water?



545 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Waste

Competition Evidence

Waste Management

1 Review the impact of your waste (this could be at home, school or elsewhere). Measure your waste to landfill and your recycling.

2 Look at how you could reduce the amount of waste you send to landfill and / or the amount you recycle. Think about the 7Rs.You could focus on food waste, or buying clothes, what you spend on sweets and snacks, or how you could repair or repurpose more. Where could you buy second hand rather than new?

3 Decide what actions you would like to take to reduce your waste. Set yourself targets for the next month, 3 months, 6 months etc.

4 Measure your waste again after your chosen time period. Keep a copy of your results.

5 Look at the S4S 2020 competition. Decide what would be the best way to demonstrate how you have Taken Responsibility and Show How. Would you like to write your story? Could you make a poster? Would a slide show be the best way to show your footprint reduction? Be as creative as you like!





(Take Responsibility and Show How)



Activity

Air Quality

Resources

- Slides Air Quality True or False?
- Air Quality Factsheet <u>http://www.s4s.org.uk/wp-</u> <u>content/uploads/AirQualityFactsheet.pdf</u>

Quick Quiz (based on the Friends of the Earth 'Clean Air' schools pack)

1 Give out the quick quiz statements to small groups and ask them to agree on their answers as True or False.

OR

Label two sides of the room True and False. Read out the statement and ask participants to go to one side of the room that represents their answer.

2 Discuss each statement and the correct answer. What are the implications? Explain that the Air Quality information relates to pollution from transport. There are other air pollutants and other non-transport sources, e.g. wood burning, industry, agriculture.

	Statement	True or False?
1	You can always see air pollution	False. A lot of air pollution is invisible
2	Diesel vehicles are often the most polluting vehicles on the road	True
3	The surface area for gases to diffuse through in human lungs is roughly the same size as a tennis court	True
4	You can always smell air pollution	False. A lot of air pollution is odourless
5	Walking on the inside of the pavement and away from the road can help you breathe in fewer car fumes	True
6	It's always better to be inside a car to protect you from air pollution	False. Cars can trap pollution.



s4s 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Air Quality

Activity

Air Quality – definitions

Resources

- Air Quality words and definitions
- Air Quality Factsheet <u>http://www.s4s.org.uk/wp-</u> <u>content/uploads/AirQualityFactsheet.pdf</u>

Card Match Activity (based on the Friends of the Earth 'Clean Air' schools pack)

1 Create two sets of cards – one with the words and another with the definitions. In groups ask participants to match the definition to the word.

OR **Bingo Activity** (based on the Friends of the Earth 'Clean Air' schools pack)

1 Participants fold a sheet into a 4x4 grid to give 16 squares. Ask them to write one word/phrase from the list into each square so that each person has the words in different orders. Give them the chance to ask what the terms mean if they are not familiar with them.

2 Read out a definition (not the word) from the list. The first person to get a row (across, down or diagonal) wins. Explain that the Air Quality information relates to pollution from transport. There are other air pollutants and other nontransport sources, e.g. wood burning, industry, agriculture.

Words	Definitions
Petrol	a fossil fuel when burned causes air pollution
Nitrogen Dioxide	a harmful pollutant in the air
Immune System	helps your body fight off infections, and can be affected by air pollution
Asthma	a condition which affects some people, making it harder for them to breathe
The Great Smog	happened in 1952 and caused the early deaths of around 8,000 to 12,000 people
Cars	there are about 25 million of these on the roads in Britain
Lungs	a part of your body which helps you to breathe
Particulates	tiny particles of dust, soot, and liquid in the air, which are too small to see
Pollutants	particulates and nitrogen oxides are both examples of these
Exhaust	the part of the car which ejects dirty waste
Atmosphere	another name for the air around you
Air quality	a measure of how clean or dirty the air in a particular area is.
Diesel	a fossil fuel which is heavily polluting when burned.
Breathe	what we all do every few seconds
Acid rain	damages trees and plants; nitrogen oxides contribute to it
Contaminated	how air which contains pollutants could be described



S4S 2020 Competition

(Take Responsibility and Show How)

Air Quality



www.s4s.org.uk

Activity

Air Quality - Large Space Simulation (indoors or outdoors)

Resources

- String, cones or chalk to mark the areas
- Air Quality Factsheet http://www.s4s.org.uk/wpcontent/uploads/AirQualityFactsheet.pdf

Simulation (based on the Friends of the Earth 'Clean Air' schools pack)

1. Mark an area with chalk or cones which is approximately 2m x 2m square to represent the lungs.

2. Choose six pupils and have them stand in a circle, a metre or so away from each other, a few metres away from the lung area. This represents the rest of the body.

3. Divide the rest of the class into two groups - oxygen molecules and particulates. Remind them that "particulates" means tiny particles of dust, soot, and liquid in the air, which are too small to see

5. Demonstrate the activity: to simulate breathing clean air, have each oxygen molecule in turn run through the 'lung' area, weave their way around the 'body', passing in front and behind of each classmate in turn, run back through the lung area and return to the start area to tag the next runner. Time how long it takes the entire team to complete this route once.

6. To simulate breathing polluted air, pair each oxygen molecule up with a particulate of air pollution. The pairs should run together to the lung area, where the particulate should stay, while the oxygen molecule completes the route and returns to the start area alone, to tag the next pair. As the activity progresses, and more 'particulates' are left in the lung area, it will become more affected, and harder for the oxygen to pass through. Time how long it takes for team of oxygen and particulates to complete this route once. Compare the times.

7. Ask participants to write about what they did, or draw a labelled diagram showing parts of the simulation and what they represent.





(Take Responsibility and Show How)



Activity

Air Quality – Transport Challenges

Resources Challenges list (see below)

Challenges Activity

1. In small groups, review the challenges activity and decide which of these could be done.

2. Either

- plan individual actions

plan a campaign of actions from the list (or other ideas!).
 How could others be inspired by your actions? Prepare
 materials for your campaign – leaflets, an assembly, posters
 etc.

Air Quality Challenges

Switch travelling by car to walking, cycling or using public transport

Car drivers can be exposed to twice as much air pollution as pedestrians and nine times more than a cyclist. So as well as cutting down the amount of pollution, reduce your exposure to air pollution and get some exercise.

Use a car less

Cut down on car journeys by car-sharing or lift-sharing. Do you need to travel at all?

Discover the side streets

Using quieter streets when you're on a bike or on foot can lower your exposure to air pollution by 20%.

Avoid strenuous activity when pollution is high

There are about 10 to 20 high pollution days a year when it's better to avoid working out too hard if you have a heart or lung condition. For most people, most of the time, it is healthier to exercise than not.

Switch the engine off when stationary

By turning off your car engine whenever you're not moving – and it's safe to do so – you'll help to make the air cleaner for you, other drivers and pedestrians. This is especially relevant outside schools and colleges.

Inspire others

Encourage others to take the actions above to improve the air we breathe.

www.s4s.org.uk

s4s 2020 Competition TRASH

(Take Responsibility and Show How)

www.s4s.org.uk

Air Quality

Competition Evidence

Air Quality – Transport Challenges

1 Review the Challenges Activity and select some activities you want to try.

2 Try to measure the effect before action, e.g. how many journeys, how many cars bring students every day, how many people cycle, how many cars keep their engines runnng whilst waiting

3 Decide what actions you would like to take. Set yourself targets for the next month, 3 months, 6 months etc.

4 Measure the effect of your action again after your chosen time period. Keep a copy of your results.

5 Look at the S4S 2020 competition. Decide what would be the best way to demonstrate how you have Taken Responsibility and Show How. Would you like to write your story? Could you make a poster? Would a slide show be the best way to show your footprint reduction? Be as creative as you like!