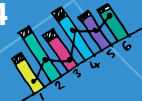
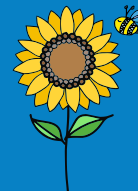




SCHEME OF WORK

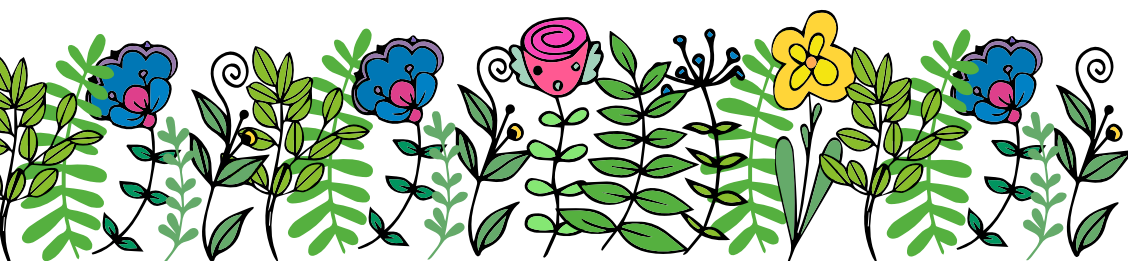




STATWARS® is an annual challenge that has been developed by Primary Engineer Programmes.

For full terms and conditions of the STATWARS® Climate Change Challenge please visit www.statwarscompetition.com for the current guidance.

All URLs are correct at the time of writing; however, they will need to be checked ahead of use with pupils.





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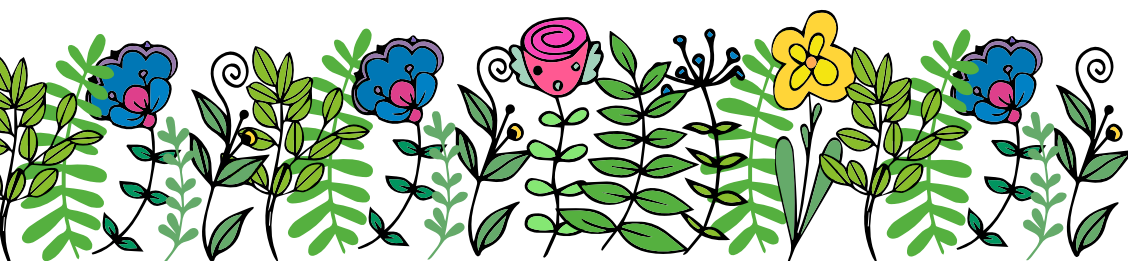
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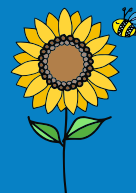
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STATWARS®: Climate Change Challenge

When we collect, analyse and contextualise data and information, we gain insight, understanding and the ability to make a difference.

The **STATWARS®: Climate Change Challenge** vision is to empower and educate pupils to tackle climate change, by providing a project that delivers meaningful and engaging mathematics, numeracy and data literacy to pupils.

We believe the data we collect can inform meaningful research and decision making, with its careful application revolutionising our understanding of how to manage the Climate Change Challenge ahead of us! We need young people to be a part of that journey...

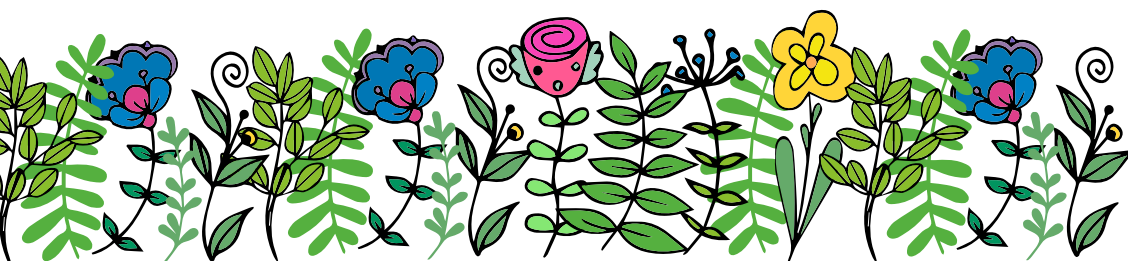
How does STATWARS®: Climate Change Challenge work?

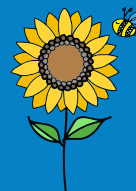
The STATWARS: Climate Change Challenge asks pupils to use big and small datasets to identify 3 changes they can personally commit to in their daily lives that will lower their individual carbon footprints. Pupils work in small teams, using their data skills to communicate their commitment to these changes, in the form of a manifesto.

The Challenge asks pupils to:

- Design and create a data driven infographic, which provides key information for how they came to their decision,
- Design and create a campaign poster which shares the 3 pledges in their manifesto. This is a creative element where pupils can explore ways of drawing attention to their ideas for change and encourage others to join them on their journey,
- Write a short statement (250 words primary, 500 words secondary) highlighting their actions on the back of their own research. This statement will form the premise of their presentation to the class. The winning presentation can be filmed if the teacher wishes,
- Compose a letter to their local MP, highlighting the key issues they have researched, aiming to persuade them to help join the fight against climate change.

The beauty of this project is pupils are given the task of enacting legitimate change to their own actions, whilst encouraging the wider community with a data driven argument to follow their lead!





STATWARS[®]: Climate Change Challenge

You can see some examples below of what outputs might look like:

- Example 1 – <https://vimeo.com/420606009>
- Example 2 – <https://vimeo.com/420606045>
- Example 3 – <https://vimeo.com/420606085>
- Example 4 – <https://vimeo.com/420606116>

The challenge's structure encourages pupils to apply mathematics not just creatively, but logically, to research, collect, analyse and present data, whilst drawing on their own personal experiences to support their climate change manifesto. The nature of the project encourages and develops meta-skills related to teamwork, leadership, curiosity, empathy, critical thinking and resilience, as teams are asked to consider indeterminate problems and develop data driven hypotheses. Teachers are provided with classroom resources and lesson plans, including curriculum links to support the delivery of this 8-10-week project. Throughout the project, we will be updating our YouTube playlist with interviews and video clips to support pupils learning. You can find the playlist here: https://youtube.com/playlist?list=PLNhn2SS_DRHl5wt6xDcMyCwLVd0e3tChk

The Awards

There are **4 aspects of the project that can be given an award as part of the STATWARS[®] challenge are:**

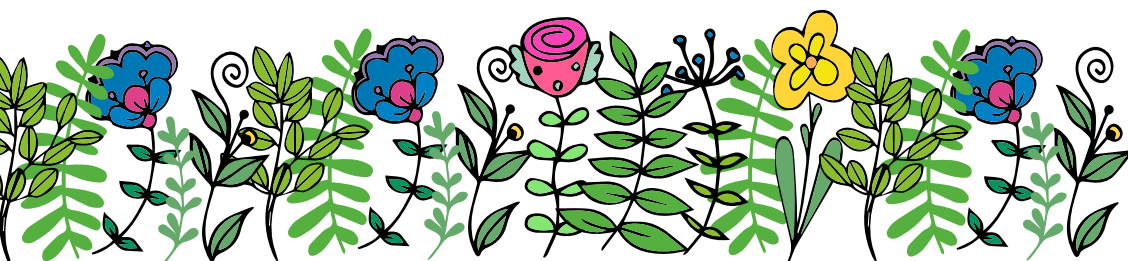
- **Best Data Analysis**
- **Best Communication**
- **Most Creative Presentation**
- **Overall Best Project (based on the 4 requested outcomes of the project: infographic poster, campaign poster, manifesto pitch and letter)**

Celebration events and prizes are to be announced at a future date.

Additionally, **all teams that you register** through the website will receive a named STATWARRIOR Certificate. Further information is provided on your STATWARS website dashboard.

So, get involved and help your pupils make a difference to the world we live in!

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Lesson 1: What is Climate Change?

Target age: 9+

Recommended Teaching hours: 1-2

Curriculum Links:

Social Studies: People, Place and Environment:

- I can describe the physical processes of a natural disaster and discuss its impact on people and the landscape. (SOC 2-07b)
- I can discuss the environmental impact of human activity and suggest ways in which we can live in a more environmentally-responsible way. (SOC 2-08a)
- I can identify the possible consequences of an environmental issue and make informed suggestions about ways to manage the impact. (SOC 3-08a)
- I can investigate the relationship between climate and weather and be able to understand the causes of weather patterns within a selected climate zone. (SOC 3-12a)

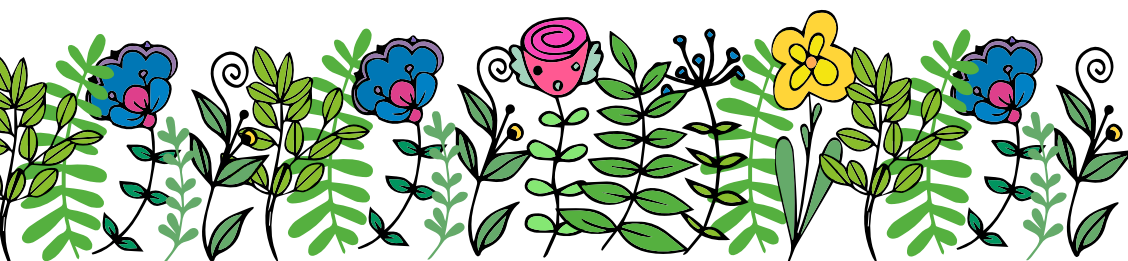
Lesson objectives:

- Understand the difference between weather and climate.
- Explain some of the causes of climate change, particularly those that involve the combustion of fossil fuels.
- Suggest some ways that the effects of climate change can be addressed.

The aim of this lesson is to give pupils a background understanding of what climate change is and how their contributions, no matter how big or how small, I can help in the fight against the effects of climate change.

Keywords: Climate change, data, CO₂ (carbon dioxide), carbon footprint, emissions, global warming.

Resources: Lesson PowerPoint, Laptops/iPads, colouring pencils, paper.





Lesson 1: What is Climate Change?

Target age: 9+

Recommended Teaching hours: 1-2

Time (minutes)	Activities
10	<p>Introduction: What is Climate Change? Lead a discussion with the pupils about what they understand about what climate change is and some of the causes. Secondary pupils may know a little more already about this topic. Display pupils' feedback centrally. Watch the video embedded in the PowerPoint presentation or found here: https://yppte.org.uk/videos/climate-change - pausing after approx. 3 mins in. Allow pupils to record some of the facts on whiteboards/notepads as they watch for quick recall for discussion. On the next slide, there is an informative video from American science broadcaster Bill Nye, detailing some of the effects of climate change. This might be a more appropriate video for secondary pupils but can be used for either phase.</p>
10	<p>Discussion Points: (PowerPoint slide 5)</p> <ul style="list-style-type: none"> • What is the difference between weather and climate? (Weather is what we observe day to day and climate is weather patterns over a sustained period – months, years, decades etc.) • How has the climate changed over the last 100 years and what has contributed to this change? (Slides 6 and 7) (From around 1880, the world's average climate has increased steadily year on year until 40 years ago when we saw the beginning of a surge in temperature that if it continues at the rate we are seeing, it will have caused an overall increase of 1.5 degrees centigrade.) A summary of NOAA's National Centers for Environmental Information can be found here - https://www.ncei.noaa.gov/news/global-climate-202112 • What effect is climate change having on the world? (Slide 8) (Increases in global temperatures are causing more extreme weather patterns around the world, leading to hotter temperatures, wildfires in very dry areas, drought in some areas, flooding in others, and melting ice caps causing sea levels to rise.) Slide 8 shows an infographic of the effects of climate change – The central point being the main drivers that are affecting the issues, the 2nd circle representing the immediate effects on the climate systems that these are causing and then lastly the outer ring represents the impacts that these issues have on us and all living things on the planet. • What are CO2 Emissions and how do they contribute to climate change? (Information from the two videos) (Carbon dioxide is one of the gases that is emitted when fossil fuels (coal, natural gas and oil) are burned. Natural gas is burned to heat our homes, petroleum and other substances are taken from oil and are burned in our cars as fuel and all three are used to power generators to create electricity. When fossil fuels are burned, we get smoke which is a combination of different gases and soot (carbon). One such gas is carbon dioxide (CO₂) – a greenhouse gas – called such because it has the same effect as a greenhouse gas, which is reflecting the light and heat on itself, again and again, causing that area to constantly heat up. Most of the extremes of the sun's rays are deflected by the Earth's atmosphere and those that do get through, along with the heat and light, are usually reflected back into space by the Earth's surface. Normally carbon dioxide is absorbed by plants, but now the amount of carbon dioxide in the atmosphere outweighs how much plants can re-absorb. This build-up of carbon dioxide causes a thick 'blanket' to form that instead of allowing the heat and light to escape back into space, reflects it back onto the surface of the Earth, warming that area repeatedly. This is happening all over the world. You can help pupils visualise this by discussing (possibly demonstrating) the effects of adding extra layers of blankets/coats in winter and this helps keep you warm. <p>Slides 9 – 14 detail some jaw-dropping facts about climate change, and for reference, can be used as part of the pupils' infographics if they choose to do so.</p>



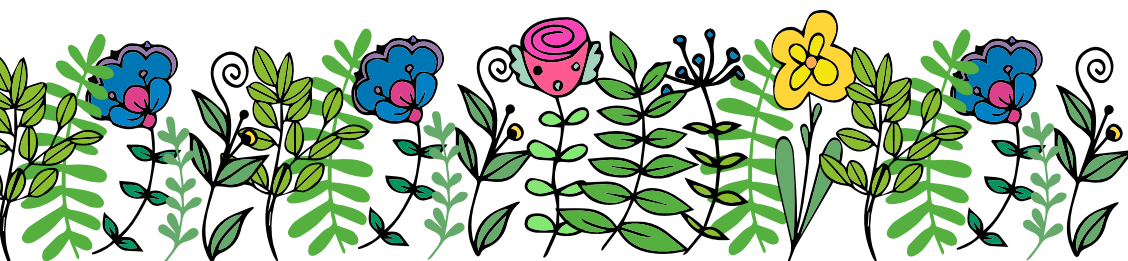


Lesson 1: What is Climate Change?

Target age: 9+

Recommended Teaching hours: 1-2

30	<p>Case Studies:</p> <p>In their group's pupils will investigate some of the events that have occurred over the last ten years that are hard evidence cases for the threat of climate change and present their findings in one of a number of ways – e.g., a short report, an explainer presentation by hand or through multimedia, etc. Each group could research a different effect or event (depending on age, ability and time). Some examples are below:</p> <ul style="list-style-type: none"> • Storms – Hurricane Harvey (2017), Hurricane Michael (2018), Storm Desmond (2015), Storm Ciara (2020) • Flooding – Storm Ciara, and Storm Dennis both in February 2020 in the UK, the extreme floods in Europe in 2021. • Extreme drought – Horn of Africa drought in 2011, the current drought in Southern Africa. <p>The YPTE website is a useful place to find some of this information, particularly from here: https://yppte.org.uk/factsheets/climate-change/global-wetting-more-like#section and for secondary pupils, here: Conservation Education 29 - Climate Change Update Resources on Environmental Issues and Sustainability Young People's Trust For the Environment (yppte.org.uk)</p>
10	<p>If pupils refine their searches, they will be able to find the information easier and quicker, rather than having to sift through general climate change information. If you feel that your pupils would benefit from multiple lessons about the effects of climate 10 change, then feel free to continue these studies over a series of lessons alongside the STATWARS: Climate Change lessons. A good understanding and grounding in the fundamentals of climate change and why it is a critical issue will really allow the pupils to get the most out of the project, meaning greater impact and legacy moving forward into the future.</p>
	<p>Change Update Resources on Environmental Issues and Sustainability Young People's Trust For the Environment (yppte.org.uk)</p> <p>Student feedback:</p> <p>Allow groups to feedback their research in the form of their presentations. Did they expect to see so many issues? Note it is not just the severity of these events, but how frequent they are. In such a small period, we have seen unprecedented levels of natural disasters across the whole planet.</p> <p>Recap:</p> <p>Assess pupils' learning through questioning, asking them to explain to each other the causes and effects of climate change. Revisit the video found at https://yppte.org.uk/videos/climate-change and watch to the end, as it will detail some of the content from the next lesson where we talk about lowering our own carbon footprints.</p>





Lesson 2: Understanding the Problem and Your Own Carbon Footprint

Target age: 9+

Recommended Teaching hours: 1-2

Curriculum Links:

Numeracy and Mathematics – Information Handling:

- Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading. **(MNU 2-20a)**
- I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. **(MNU 2-20b)**
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology.
(MTH 2-21a / MTH 3-21a)
- I can work collaboratively, making appropriate use of technology, to source information presented in a range of ways, interpret what it conveys and discuss whether I believe the information to be robust, vague or misleading.
(MNU 3-20a)

Technologies – Digital Literacy

- I can extend and enhance my knowledge of digital technologies to collect, analyse ideas, relevant information and organise these in an appropriate way. **(TCH 2-01a)**

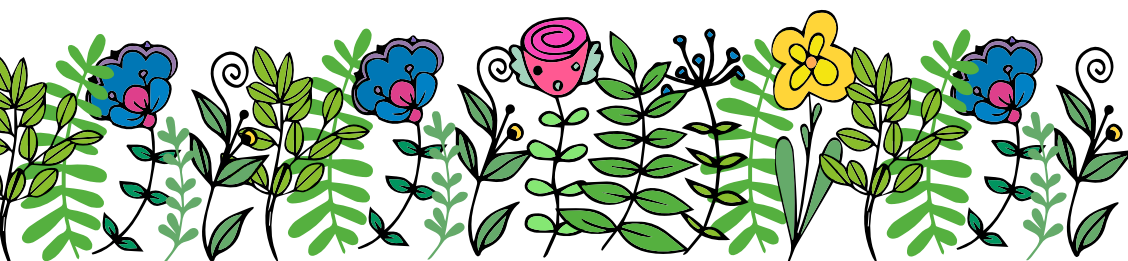
Lesson objectives:

- Pupils consider the importance of making changes to their everyday habits and lifestyles.
- Discuss ways in which those changes could help fight climate change.
- Understand the different types of data we can collect.

The aim of this lesson is for pupils to understand what a 'carbon footprint' is, the different types of data that we can collect and how to collect and record raw data in ways that are easy to understand.

Keywords: Climate change, data, CO₂ (carbon dioxide), carbon footprint, environment, habits, lifestyle.

Resources: Microsoft Excel and digital device if completing audit electronically, pens, paper, whiteboards, Carbon Footprint Audit spreadsheet, Data Types handout, Carbon Footprint Survey.





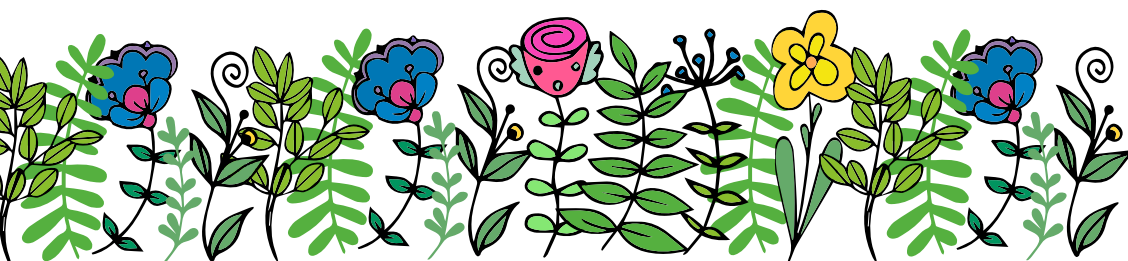
Lesson 2: Understanding the Problem and Your Own Carbon Footprint

Target age: 9+

Recommended Teaching hours: 1-2

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
5	Introduction: Ask the pupils to recap their learning by recounting some of the information learned in the previous lesson. Can they name some of the facts that they learned about the effects of climate change, including from their own research?
5	How do you contribute to climate change? Introduce the challenge (Slide 3). Slide 4-5 Watch the short video that explains what a carbon footprint is and some suggestions on how we can reduce it. Discuss with pupils their carbon footprint and the data they may want to collect and understand; for example, where does the energy to power their home come from? Ask pupils to consider areas of transport, home energy consumption and food consumption when gathering data. Can they think of any other data they could collect in addition to these suggestions?
10	Data Types: Slides 6-8 detail the different types of data – quantitative and qualitative. For primary pupils, you don't necessarily have to go into as much detail, but it is worth knowing how we decide to represent different data. Chat through the slides and check pupils' understanding. You can use the Data Types doc attached to the lesson plan to support this task if needed to help them further understand quantitative and qualitative data. The idea here is to draw out the importance of data in order to answer the project question. A useful website for some basic background information on data types can be found here - https://www.geeksforgeeks.org/explain-different-types-of-data-in-statistics/
25	Carbon Footprint Audit: Slide 9 – What data do think we should collect? Think about the different categories mentioned in the video that have an effect on your carbon footprint. Set pupils a quick challenge to think of as many different categories and ways of collecting data as they can. Some key pointers would be – energy consumption, travel, the food they eat, how often they recycle, etc
	Slides 10-13 Once pupils have a greater understanding of the importance of data in tackling climate change, with your help they will begin to complete the Carbon Footprint Audit worksheet, which can be found within the resources as a word document. Work through the PowerPoint slides showing pupils exactly how to fill in each of the sections, completing them as you go along. You can either have them write on printed versions or complete the editable Word Document (a separate file for each pupil). Multiple copies of each sheet may be needed, depending on how many items the pupils enter.
10	Carrying out a Survey - the Independent Questions tab allows pupils to collect ad hoc information from friends and family that may support their investigation. Work through the Carbon Footprint Survey together (attached to the lesson plan below), using a 'hands up/hands down' strategy of gathering quick data. This can be replicated throughout schools – each class/form teacher could carry out this survey with their pupils through the following week and hand it back to you, presenting you with a large set of categorical data ready for you to use next week. Pupils can also take the survey home to interview their family members too.





Lesson 2: Understanding the Problem and Your Own Carbon Footprint

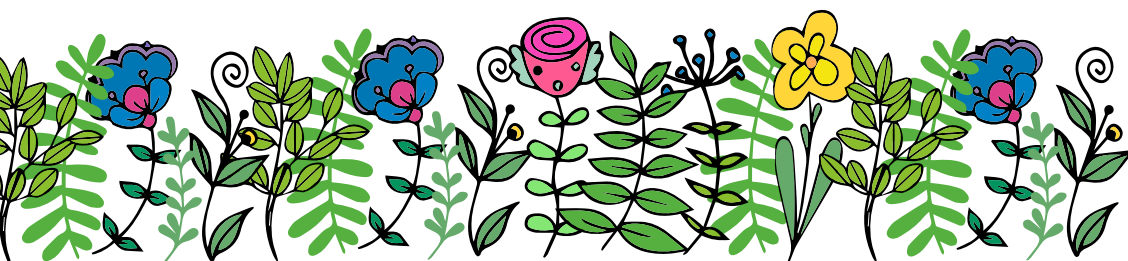
Target age: 9+

Recommended Teaching hours: 1-2

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
5	Recap investigation task. You may ask pupils to complete the audit and survey independently each night at home or each day in school.

Homework (or in allotted class time): Complete your own personal Carbon Footprint Audit and collect additional information from friends and family. Start thinking about what the information is beginning to tell you about your own and others' carbon footprint?





Lesson 2: Understanding the Problem and Your Own Carbon Footprint

Data Types

Name:

Key terms:

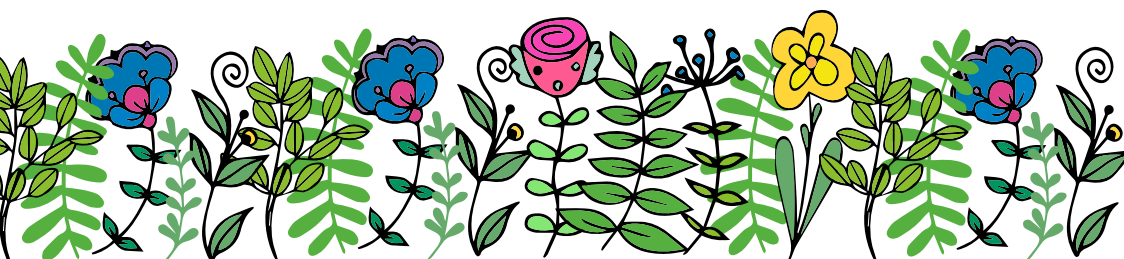
Data - Raw facts and figures, little bits that have the potential to provide information

Quantitative Data: numerical; measurements, values

Qualitative Data: not numerical; text, images, opinion

The following data items related to films need to be put into the correct box. Put each item in either the quantitative (numbers/measurements/values) or qualitative (not numerical/text/images/opinions) box.

34,000kg	I take baths instead of showers	90%	I recycle a lot
90% of people thought it was good	The household uses solar panels for power	98% of people agree	5/10
Sea levels will rise if temperatures continue to increase	The person was thirteen years old	23	It is important to fight climate change





Lesson 2: Understanding the Problem and Your Own Carbon Footprint

Data Types

Quantitative (numbers / measurements / values)

Challenge: Can you add in some of your own -

Quantitative (not numerical / text / images / opinions)

Challenge: Can you add in some of your own -

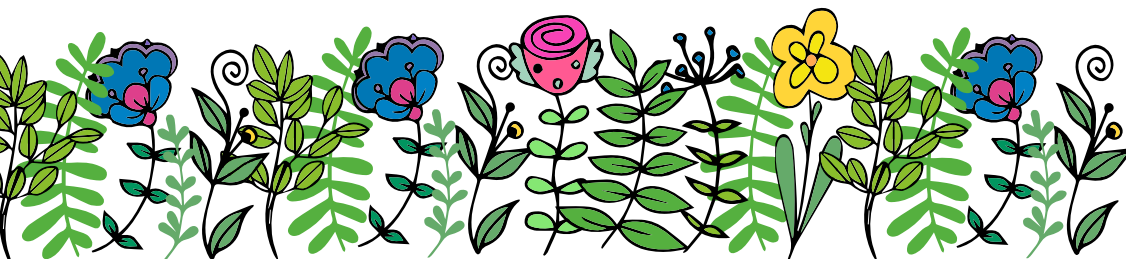




Lesson 2: Understanding the Problem and Your Own Carbon Footprint

Carbon Footprint Survey Questions:

1. Do you know what climate change is?
2. Are you worried by climate change?
3. Do you think climate change will harm you personally?
4. Do you think recent flooding in the UK is because of unnatural climate change?
5. Do you think climate change is mostly due to humans or natural causes?
6. Do you think the government is doing enough to address climate change?
7. Do you think people are doing enough to fight climate change?
8. Do you leave your phone charger switched on when your phone isn't being charged?
9. Do you put the heating on when you are cold instead of an extra layer of clothing?
10. Do you walk instead of getting a lift somewhere?
11. Do you think of the environment when you buy things that are wrapped in plastic?
12. When you finish drinking out of a plastic water bottle, do you recycle it?
13. Do you use reusable metal straws instead of plastic straws?
14. Do you switch your TV off when you leave the room?
15. Do you turn the light off when you leave a room?
16. Have you ever tried riding a bike or walking to school instead of getting a lift?
17. Do you recycle paper that you do not need anymore?
18. Do you use reusable shopping bags?
19. Do you power down your devices after you have finished with them?
20. Do you donate your old clothes?
21. Do you put the heating on when you are cold instead of an extra layer of clothing?
22. What food do you eat that is not grown in this country?





Lesson 3: Calculating your Carbon Footprint

Target age: 9+

Recommended Teaching hours: 1-2

Curriculum Links:

Numeracy and Mathematics – Information Handling:

- Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading. **(MNU 2-20a)**
- I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. **(MNU 2-20b)**
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. **(MTH 2-21a / MTH 3-21a)**
- I can work collaboratively, making appropriate use of technology, to source information presented in a range of ways, interpret what it conveys and discuss whether I believe the information to be robust, vague or misleading. **(MNU 3-20a)**

Technologies – Digital Literacy

- I can extend and enhance my knowledge of digital technologies to collect, analyse ideas, relevant information and organise these in an appropriate way. **(TCH 2-01a)**

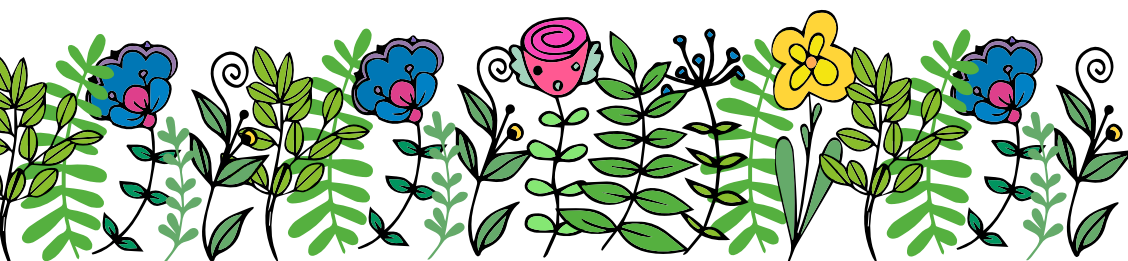
Lesson objectives:

- Identify their own impact on climate change.
- Decide on suitable data to support their project.
- Collect and store data effectively to help understand their impact on climate change.

This lesson asks pupils to use their collected data to begin to understand their own carbon footprint. They will use that data to determine what they think they should/could change about their habits/lifestyle and as a basis for their group investigations in the following lessons. They can supplement their research using the provided information or using their own independent research.

Keywords: Carbon footprint, data collection, analyse, filter, kilowatt hours, consumption, emissions.

Resources: Completed carbon footprint audits, Carbon footprint calculator spreadsheets for energy consumption, travel and food, survey replies.





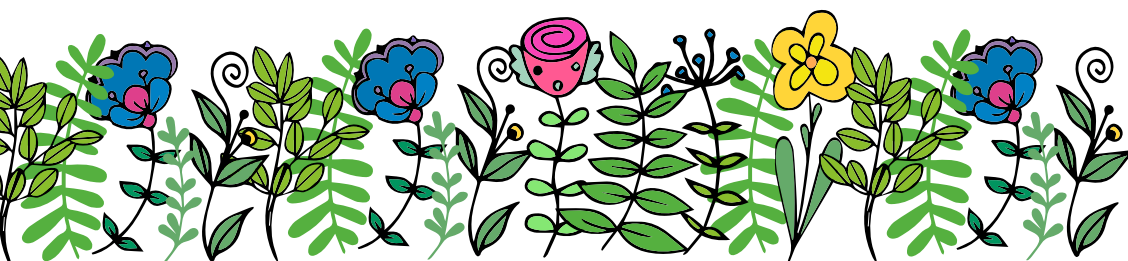
Lesson 3: Calculating your Carbon Footprint

Target age: 9+

Recommended Teaching hours: 1-2

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
20	<p>Slides 1-2 – Introduce the lesson and objectives.</p> <p>Understanding Your Own Carbon Footprint: Slides 3-9:</p> <p>Pupils will look at their own collected data, particularly the totals columns at the end of each row of each of the audits. They will use these totals when filling out each carbon footprint calculator – i.e., one for household energy, one for food consumption and one for transport.</p> <p>Open the example dataset and the household energy carbon footprint calculator and show pupils how to add their own data to it. Work through the PowerPoint slides showing how to enter the data that they have collected over to the calculator. Remember to advise pupils if their data was zero then they can leave a cell empty and only input data where necessary.</p> <p>Remember, pupils should only enter data into the green cells on the spreadsheet. The blue cells use formulas to calculate CO2 emissions.</p> <p>Once you have demonstrated how to fill in the household energy spreadsheet, briefly visit the others in turn – transport and food, detailing the tasks are very similar in nature and once pupils have understood the task, allow them to fill in their own.</p> <p>Pupils may need to work out where to input data, using multiple categories from one item they have entered on their carbon audit sheet. Some items may also have generalized names. For example, a ham sandwich might be made up of one portion of pork, two slices of bread and one portion of butter or condiment.</p>
25	<p>Pupils will now look at their own data they have collected and enter the data into the digital versions of each of the carbon footprint calculators, i.e., household energy, food and transport, alongside discussion of any other data gathered. Allow pupils time to consider their own carbon footprint and open this discussion to the class to compare results. Again, pupils might have ideas about what they could do to reduce their footprint and begin to focus in on the areas that matter most to them. You can use the Additional Information Links document provided to help them understand the impact of CO2 emissions on the environment. At this stage, some basic sorting and filtering of the spreadsheet will allow pupils to understand which items are contributing most to their carbon footprint, but this is optional. Timing allowed for this will vary from class to class.</p>





Lesson 3: Calculating your Carbon Footprint

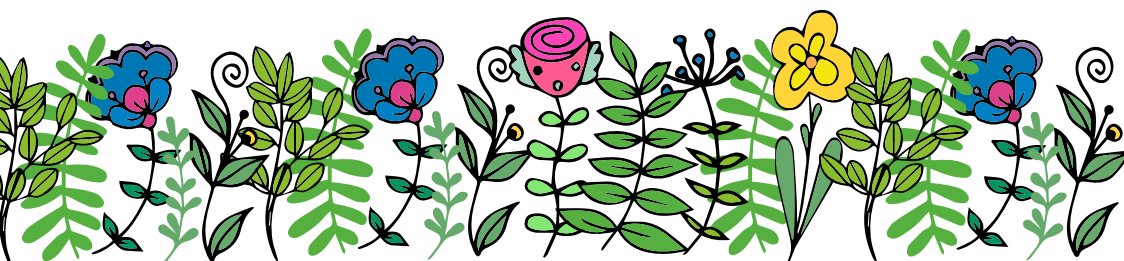
Target age: 9+

Recommended Teaching hours: 1-2

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
10	When completed, allocate pupils into groups of 3 based on similar data, areas of interest or ability etc. The choice is yours. Ask pupils to decide on group names and share out equal responsibilities for dissecting the data so that each pupil is analysing at least one set of data and drawing conclusions. Depending on the group sizes, will depend on how this is organised – it could be each member of the group looks at a separate set of data, alternatively, all members could work on the same data at once and take turns with their roles etc. Once each pupil knows their roles and responsibilities, we are then ready to begin analysing the data in the following lesson.
5	Ask pupils to ensure all their data is stored and saved correctly for use next lesson, using appropriate file names and if required, in suitable folders (physical or electrical).

Homework: This is a real opportunity for pupils to continue their independent research and this should be encouraged (under supervision if required) at home or in school. The aim here is to broaden the data that pupils have at their disposal to analyse and present in the forthcoming lessons.





Lesson 4: Representing Data

Target age: 9+

Recommended Teaching hours: 1-2

Curriculum Links:

Numeracy and Mathematics – Information Handling:

- Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading. **(MNU 2-20a)**
- I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. **(MNU 2-20b)**
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. **(MTH 2-21a / MTH 3-21a)**
- I can work collaboratively, making appropriate use of technology, to source information presented in a range of ways, interpret what it conveys and discuss whether I believe the information to be robust, vague or misleading. **(MNU 3-20a)**

Technologies – Digital Literacy

- I can extend and enhance my knowledge of digital technologies to collect, analyse ideas, relevant information and organise these in an appropriate way. **(TCH 2-01a)**

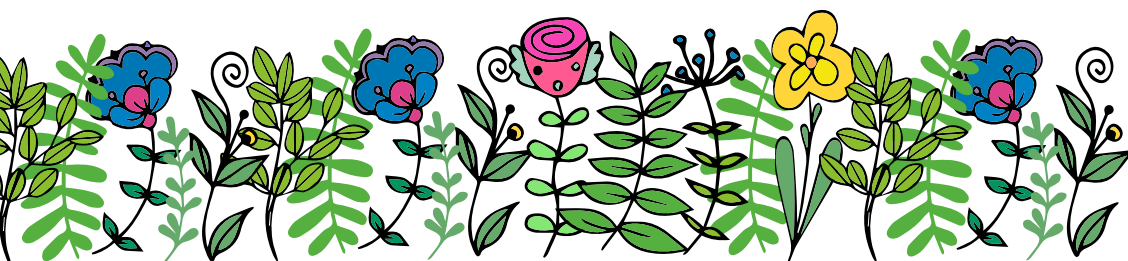
Lesson objectives:

- Understand the importance of clean data.
- Calculate the mean values of data for members of their group.
- Clean up and organise data so that is easy to read.

The objective of this lesson is for pupils to ensure any data collected is sorted and stored effectively, so that they can continue to analyse/understand the data, make choices, predictions and illustrate their data visually. By the end of this lesson, they should be able to begin to decide what 3 things they want to change as a group and have data that supports their reasoning for those changes.

Keywords: Graph, chart, field, column, row, carbon, KiloWatt-hours output, emissions.

Suggested software/Resources: Completed carbon footprint audits, Carbon footprint calculator spreadsheets for household energy consumption, travel and food.





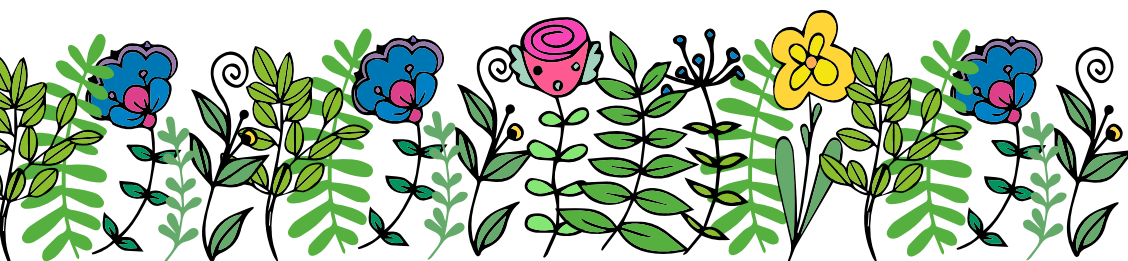
Lesson 4: Preparing Data & Descriptive Analysis

Target age: 9+

Recommended Teaching hours: 1-2

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
10	<p>Slides 1-2 – Introduce the lesson and objectives.</p> <p>Understanding Your Own Carbon Footprint: Slides 3-9:</p> <p>Using additional data: Slides 3 Taking all the surveys from the interviews conducted with different classes and from home, with the help of the class, analyse the responses to the questions asked. You can do this as part of a running tally throughout the next 2-3 weeks as the data comes in. This will be used to gauge opinions outside the classroom and help form the basis of the groups' manifestos. In-depth analysis and representation of this data can be used in future infographics and campaign posters.</p>
20	<p>Data preparation: Slides 4-9</p> <p>Pupils organise themselves back into their working groups. Some time now needs to be spent putting all the group members' data together into the final spreadsheet. The teacher can demonstrate this with a sample group's data if they wish to.</p> <p>Data is entered on one spreadsheet at a time, with one person entering the data, another reading out their scores and the third person checking that the data entered is correct. See the lesson PowerPoint for a step-by-step guide to this. This is a data input exercise and may take some time, depending on the experience of the pupils in question.</p>
25	<p>Tidy Data: Slides 10-11</p> <p>The focus of this part of the lesson is to ensure that data is tidy, and any additional information is stored appropriately so that it can be presented and communicated effectively. Tidy data is discrete data that is presented uniformly the same way consistently throughout a dataset. A dataset is a collection of values, either numbers or strings (text) and these are arranged in rows and columns. Rows contain the observations and columns contain the variables (or fields). Every value belongs to an observation (row) and a variable (column). Each variable will contain all the measurements for every member of the dataset. An observation contains all values measured on the same member. When data is structured like this it is referred to as "Tidy data". Tidy data is easier to analyse.</p> <p>Show examples of the dataset on the PowerPoint slides where data is messy to begin with and work through the slides showing pupils how to 'tidy' this data up, i.e., all fields are numeric, set to 2 decimal places and in consistent units of measure, etc. Tidy data must compare like for like, so any mismatches in data will potentially 'go missing'.</p> <p>Now allow all groups to spend the next 10 minutes or so 'tidying' their data so that all the information in the datasets is displayed accurately.</p>
5	<p>Pupils should now begin to see the main factors that they have identified that contribute most to their carbon footprints and begin to formulate a plan of action to help lower these. Lead a short class discussion on this to conclude the lesson. Was it the same for all groups? What differences and similarities were there?</p>





Lesson 5: Presenting Data

Target age: 9+

Recommended Teaching hours: 1-2

Curriculum Links:

Numeracy and Mathematics – Information Handling:

- Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading. **(MNU 2-20a)**
- I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. **(MNU 2-20b)**
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology.

(MTH 2-21a / MTH 3-21a)

- I can work collaboratively, making appropriate use of technology, to source information presented in a range of ways, interpret what it conveys and discuss whether I believe the information to be robust, vague or misleading.

(MNU 3-20a)

- When analysing information or collecting data of my own, I can use my understanding of how bias may arise and how sample size can affect precision, to ensure that the data allows for fair conclusions to be drawn.

(MTH 3-20b)

- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology.

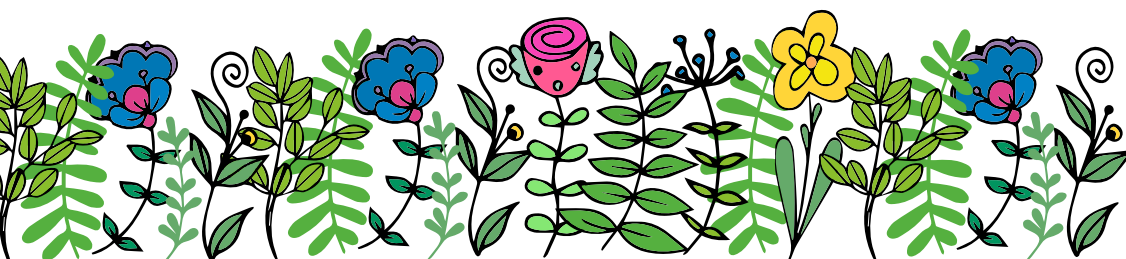
(MTH 2-21a / MTH 3-21a)

Technologies – Digital Literacy

- I can extend and enhance my knowledge of digital technologies to collect, analyse ideas, relevant information and organise these in an appropriate way. **(TCH 2-01a)**

Technological Developments in Society and Business:

- I can analyse how lifestyles can impact on the environment and Earth's resources and can make suggestions about how to live in a more sustainable way. **(TCH 2-06a)**
- I can make suggestions as to how individuals and organisations may use technologies to support sustainability and reduce the impact on our environment. **(TCH 2-07a)**





Lesson 5: Presenting Data

Target age: 9+

Recommended Teaching hours: 1-2

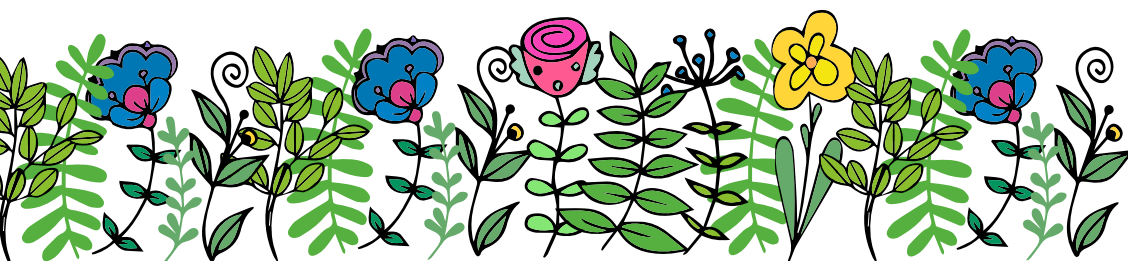
Lesson objectives:

- Identify their own impact on climate change.
- Display data effectively through graphs, charts and other visuals.
- Collect and store data effectively to help understand their impact on climate change.

In this lesson, pupils will begin to represent some of their most important data in graphs and charts. They will further analyse their data to determine what they think they should/could change about their habits/lifestyle and as a basis for their group investigations.

Keywords: Carbon footprint, data collection, analyse, filter, KiloWatt-hours consumption, emissions, pie chart, bar chart, cross tabulation.

Suggested software/Resources: Carbon footprint calculator spreadsheets for energy consumption, travel and food, laptops/PCs, pens/paper.





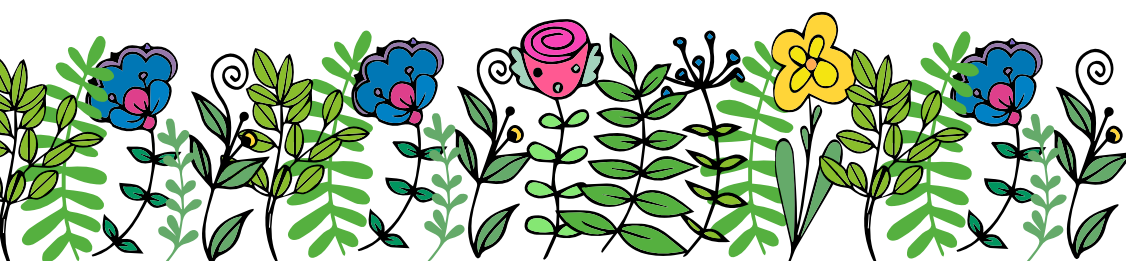
Lesson 5: Presenting Data

Target age: 9+

Recommended Teaching hours: 1-2

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
25	<p>Share the Objectives of the lesson (Slides 1-2)</p> <p>Presentation of data (Slides 3-14): As with all these lessons, this element can be tailored to the age, experience and ability of your pupils. The aim is to ensure data is displayed correctly either in table format or graphically, so that it can be displayed on infographics and posters. Analysis of existing data patterns and telling its story is called Descriptive Analysis. The data collected could be displayed in different ways and will be an important part of the pupils' infographic posters. You can decide which methods are suitable or allow your pupils to decide, based on their ability level, skills, knowledge and understanding. Note: Any graphs produced can be handmade or made using a computer, as long as the data is represented accurately.</p> <p>Show the class different ways to display the data by working through the examples on the PowerPoint. This task can be done electronically, but hand drawn representations are acceptable also. If you choose to represent the data electronically in Microsoft Excel.</p> <p>Pie Charts - Pie charts are good for comparisons of items as a representation of the whole amount. Histograms or bar charts show the numbers of members of each category. This approach could be used to display the specific value of the top 3 food items. Cross-tabulation (for higher ability/secondary pupils to consider) – this is when two variables are compared against each other, allowing initial insights into patterns in the data.</p>
25+	<p>Allow pupils time to visualise any data collected and begin to tell their own data story. All work should be saved appropriately for use next lesson. If they wish to represent the data using hand-drawn charts, you may need to allow more time to complete this task. Ensure that pupils select the appropriate types of graphs – be aware that no line graphs should be selected, even if the option to create one is suggested by Excel, as the data is not continuous in this instance.</p>
10+	<p>Now let's turn to the survey data that has been coming in in the last couple of weeks. (This should be a running tally that has been consistently updated as surveys have been returned). What does this data now tell us? Can we represent some of this data graphically? Which would you choose? Why? Do any answers jump out at you? Do they agree/disagree with some of your own data? Groups will choose 2-3 of the answers to the survey to represent graphically in their infographic and campaign posters.</p> <p>Pupils save all their work in their respective folders ready for the next lesson.</p>





Lesson 6: Further Research

Target age: 9+

Recommended Teaching hours: 1-2

Curriculum Links:

Social Studies: People, Place and Environment:

- I can describe the physical processes of a natural disaster and discuss its impact on people and the landscape. (SOC 2-07b)
- I can discuss the environmental impact of human activity and suggest ways in which we can live in a more environmentally-responsible way. (SOC 2-08a)
- I can identify the possible consequences of an environmental issue and make informed suggestions about ways to manage the impact. (SOC 3-08a)
- I can investigate the relationship between climate and weather and be able to understand the causes of weather patterns within a selected climate zone. (SOC 3-12a)

Technologies – Digital Literacy

- I can use digital technologies to search, access and retrieve information and am aware that not all of this information will be credible. (TCH 2-02)
- Having used digital technologies to search, access and retrieve information I can justify my selection in terms of validity, reliability and have an awareness of plagiarism. (TCH 3-02a)

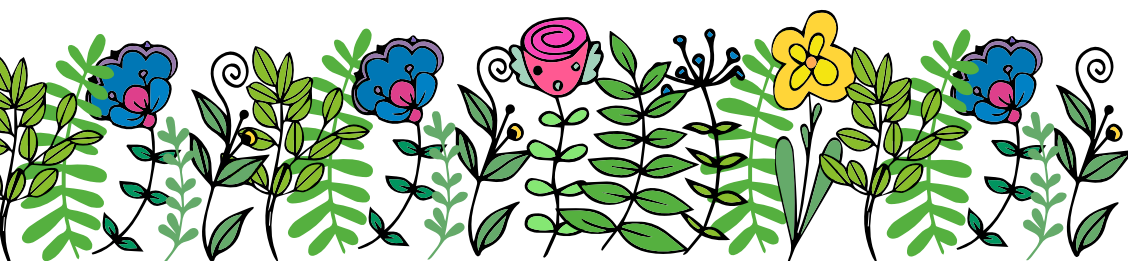
Lesson objectives:

- Carry out additional research to support their findings.
- Decide on suitable data to support their project.
- Decide on the 3 areas they will personally change and create their Climate Change Manifesto.

The objective of this lesson is for pupils to carry out additional research into their findings from their own carbon footprint study. They will investigate the reasons why these items/behaviours contribute so highly to their carbon footprints. By the end of this lesson, they should be able to decide what 3 things they want to change as a group and have data and information that supports their reasoning for those changes.

Keywords: Data, manifesto, pledge, campaign, reasoning.

Suggested software/Resources: Digital devices – laptops/tablets (and access to the internet).





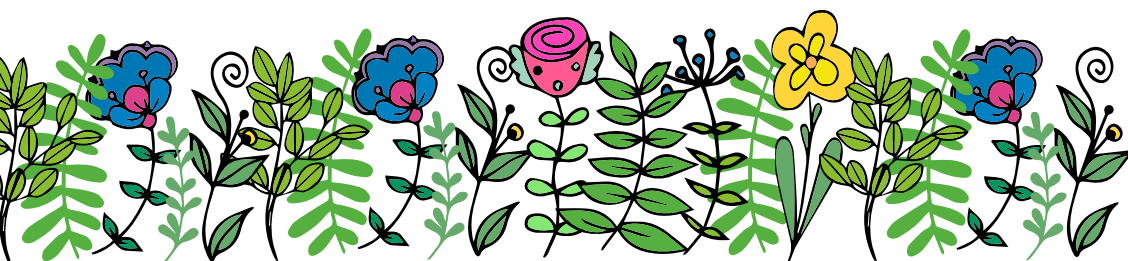
Lesson 6: Further Research

Target age: 9+

Recommended Teaching hours: 1-2

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
10	<p>Introduce the objectives (slides 1-2) Reliability of data (slide 3)</p> <p>It is important to help pupils understand that they will only be presenting a selection of data in some instances, which leaves the data subject to bias & reliability. Extra care must be taken to ensure that the data represented isn't tainted with any preferential bias.</p> <p>The following can also lead to poor quality results: Accuracy/validity: The data measures what it is intended to measure and does so with a known level of uncertainty where the measurements are numerical in nature – Do numbers tell the whole story?</p> <p>Timeliness: The data is measured and collected consistently (with the same instrument or question) over time, is it up to date? – Can we rely on data that is only based on a short period of time? E.g., Weather data Completeness: The data contains the maximum amount of information that could be available – Does the data contain all the information needed to know how much CO₂ would be produced?</p> <p>Integrity: The data does not contain bias or has been manipulated in any way – Using pupils' own dataset should not be an issue (so long as this accurate of course), but what if the pupils search for data on the internet? How can we guarantee that this is reliable? Discuss reliable/unreliable sources with the pupils.</p>
10	<p>Analysis of their own data (slide 4): Pupils will take some time to look at their own data and graphical information that they have compiled over the last few weeks and analyse what the data is telling them. Some key questions for analysis could include:</p> <ul style="list-style-type: none"> • Which device/appliances are being used most often in our groups? How much carbon are they creating? • Which devices/appliances create the most carbon? Is there a way of lowering their usage so we lower the carbon output? • Which foods create the most carbon? Why do we think this is the case? Is it the way they are farmed or processed or both? • How often do we use non-essential appliances? Are there alternatives? • Is recycling frequent enough? Do the products we buy contain recyclable packaging? • What are the best ways to use less water in the day? Are we wasting water unnecessarily? • How are we travelling to and from places? Are we using a car when we could walk or cycle?





Lesson 6: Further Research

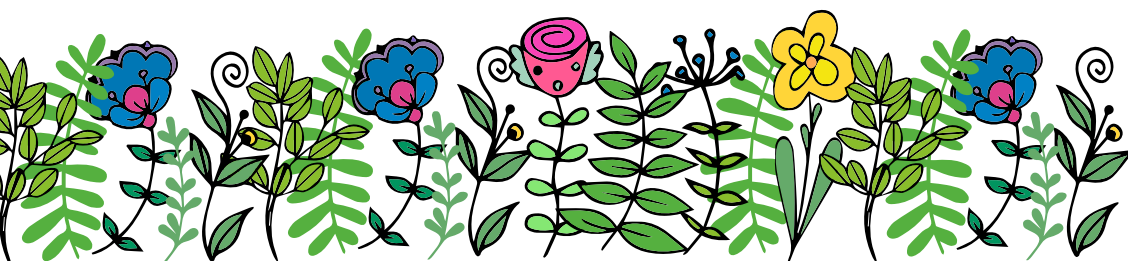
Target age: 9+

Recommended Teaching hours: 1-2

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
30	<p>Further research (slides 5-6): Groups should now decide on key areas to research, based on their initial data, for example, what is highlighted as a high contributor to their carbon footprint. Groups may decide to choose one from each group member's list. The aim is to begin to develop their collection of data and understanding of why these areas are high contributors. Some useful sources can be found on the Additional Information Links Doc if you wish to point pupils to some of those suggestions. Alternatively, pupils can use simple internet searches to find the information for themselves. It will also be important to help pupils understand that they will only be gathering a selection of data in some instances, which leaves the data subject to bias & reliability. Ask pupils to consider these issues in their research and answers.</p> <p>Searching for Data on the Internet: Within their groups, pupils can also search for information such as the CO2 impact on marine life, wildlife, fauna, biodiversity, weather patterns and other areas they see fit. Any data and information collected in the above tasks should be stored using the Sources Table, so it can be easily extracted and analysed in the next lesson. This can be printed and placed on each group working area.</p> <p>Ask pupils to ensure all their data is stored and saved correctly for use next lesson, using appropriate file names and if required, in suitable folders.</p>
10	<p>Deciding on a Campaign: Slides 7-8 Show the video. Having gathered, analysed, described and researched their data, groups are now able to state the 3 things they are going to personally change to help fight climate change: for example, growing their own vegetables or walking to school. Show pupils the points they should try and cover. The manifesto should not be onerous and can simply be 3 clear bullet points highlighting the need for change, now that they have data to support these decisions, 10 but they can be creative. This manifesto will form the basis of their campaign. Ask pupils to consider their manifesto and whether they have enough data to justify their decisions, for example, if their choice was simply to stop eating a certain item entirely, this might not be a healthy choice, so they should look for alternative ways to source that product. Walking may not be safe alone, so why not set up a walking group with children and parents, etc. Challenge pupils to consider more novel ways to change their habits and lifestyle through independent research.</p>

Homework: Pupils are encouraged to research their chosen issues and to think about possible solutions to them. Pupils can also research what an infographic is, where they see them each day (the news, adverts etc) and bring some examples to class if possible.



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Lesson 7: Predictive Analysis and Infographics

Target age: 9+

Recommended Teaching hours: 1 (Infographic design will be continued for at least another hour after this lesson and will run concurrently with the next lesson(s))

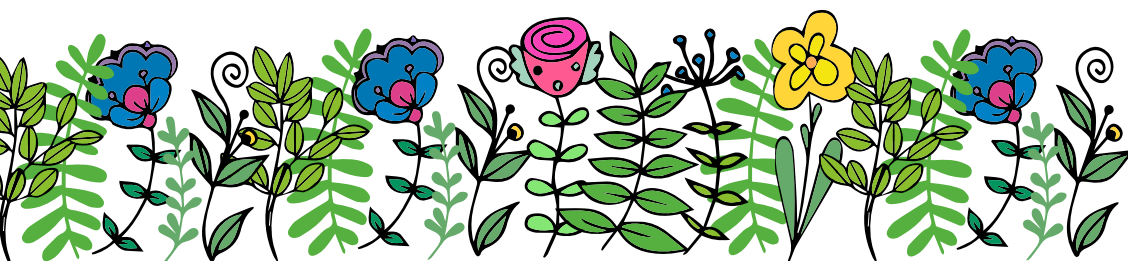
Curriculum Links:

Numeracy and Mathematics – Information Handling:

- Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading. (MNU 2-20a)
- I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. (MNU 2-20b)
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. (MTH 2-21a / MTH 3-21a)
- I can work collaboratively, making appropriate use of technology, to source information presented in a range of ways, interpret what it conveys and discuss whether I believe the information to be robust, vague or misleading. (MNU 3-20a)
- When analysing information or collecting data of my own, I can use my understanding of how bias may arise and how sample size can affect precision, to ensure that the data allows for fair conclusions to be drawn. (MTH 3-20b)
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. (MTH 2-21a / MTH 3-21a)

Technologies – Digital Literacy

- I can extend and enhance my knowledge of digital technologies to collect, analyse ideas, relevant information and organise these in an appropriate way. (TCH 2-01a)
- I can explore and use the features of a range of digital technologies, integrated software and online resources to determine the most appropriate to solve problems. (TCH 3-01a)





Lesson 7: Predictive Analysis and Infographics

Target age: 9+

Recommended Teaching hours: 1 (Infographic design will be continued for at least another hour after this lesson and will run concurrently with the next lesson(s))

Lesson objectives:

- Make predictions using data.
- Present data effectively in terms of Carbon Footprint and Climate Change.
- Explain the reasons behind a climate change manifesto, through infographics.

Groups will develop their data analysis, begin to make predictions and continue to visualise their data. They will be shown what infographics look like and begin to discuss their use. They will use their data to create an infographic that showcases the 3 choices for change highlighted in their manifesto.

Keywords: predict, infographic, potential, review

Suggested software/Resources: Excel or suitable graphics software, Canva, PowerPoint, graph paper, A2 size paper, equipment for making hand drawn infographics.





Lesson 7: Predictive Analysis and Infographics

Target age: 9+

Recommended Teaching hours: 1 (Infographic design will be continued for at least another hour after this lesson and will run concurrently with the next lesson(s))

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
10	<p>Slides 1-4 – Introduce the lesson and objectives. Explain to pupils the importance of predictive analysis and what this means for the project. Predictive analysis looks at what might be, either if the data remained consistent, or changed. It focuses on forecasting and hypothesising what will happen, to allow decisions and actions to be made that would then affect future outcomes. A good example of this can be found at https://visme.co/blog/climate-change-facts/</p> <p>How might the pupils display their data in such a way that it has maximum impact?</p>
5	<p>Infographics: Slides 5-9 – Show the pupils the wide range of example infographics and ask them to discuss the purpose, content and layout for their own.</p>
20	<p>Predictive Analysis and Graphing Visualisations are often the best way to communicate data. They show straight away whether data are grouped together, spread out, have high or low values or are clustered together in the centre. They can highlight outliers and explain findings. Be clear to pupils that different graphs and charts serve different purposes. Pie charts are good at showing relative proportions, however, so are bar charts, and the labels and colours for bar charts make them look cleaner.</p> <p>Pie charts show the relative proportions but are difficult to compare directly side by side. In both the simple bar chart shown on the presentation and a horizontal stacked bar chart, it is much easier to see the change in relative proportions. Like the pie chart, the stacked bar chart helps to see the numbers in relation to the whole. However, the bar chart also has an annotation, so the message it is aiming to convey is clear to the reader. The use of bold and muted colours also helps to bring out the key message. When visualising data, it is very important to get into the mind of the viewer. Make sure the message that is portrayed is clear and unambiguous. Help the viewer to extract the message with colours and text. The correct chart allows a comparison against changes that are being suggested in their manifesto.</p> <p>Use the presentation to help pupils understand how their own changes could be displayed in an infographic. What are the best ways of presenting the data? Which graphical data are they going to include?</p> <p>Slide 10 shows some ready-made examples that you can discuss with the pupils. What are the common themes? What do they like about the designs? What do they dislike? What ideas can they take from these and use?</p> <p>Slides 11-12: (This is particularly aimed at secondary pupils, but primary pupils can attempt this if they wish to)– Can they take some of their data for the week and extrapolate that for a month, then for a year or even 5 years using some multiplication of values and plotting on a new graph/chart? This would, of course, assume that pupils know how to extrapolate data already. They could extrapolate their data for no change and show that the CO₂ goes up and up. They can then create a new extrapolation to show the effects of halving their intake, for example, and then line them up side by side.</p>





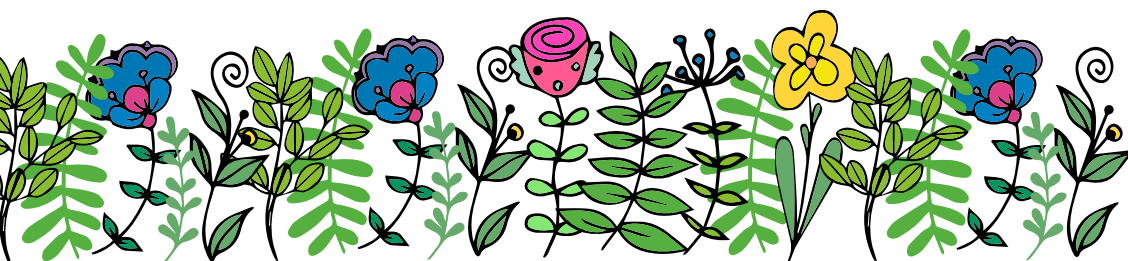
Lesson 7: Predictive Analysis and Infographics

Target age: 9+

Recommended Teaching hours: 1 (Infographic design will be continued for at least another hour after this lesson and will run concurrently with the next lesson(s))

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
	<p>A video of how to do this through Microsoft Excel can be found here: Climate Change Predicting using your data - Food on Vimeo</p> <p>There are plenty of other ways to represent predictive analysis on a wider scale, for example: Can they multiply the reductions to show if everyone in their class or the UK did the same? Is this now a much greater impact? What might that look like locally, nationally and globally? For example, which countries are most affected and how do these reductions benefit them? Depending on their age ranges and abilities, this might be something that you might want them to spend a bit of time thinking about and preparing.</p> <p>Please note, tasks for this lesson (noted on the next page) can be completed alongside each other in subsequent lessons so be aware that timings for this lesson are simply a guide. Tasks should be distributed amongst the group members (i.e., one/two members complete the infographic at the same time as other member(s) create the campaign poster, etc. This ensures that every pupil is involved and that no time is wasted.</p>
20+ (class time allotted in the next lesson(s) to complete)	<p>Creating Your Infographic: Slides 13-17 Using data/graphs/charts from previous lessons, pupils create their own infographic, using their chosen method for delivery (Canva, PowerPoint, Hand Drawn etc.). You can show them the options or make the decision for them. Depending on the choice, teacher demonstrations may be required.</p> <p>If needed a tutorial for using Canva can be found here: https://www.canva.com/learn/tutorials/</p>





Lesson 7: Predictive Analysis and Infographics

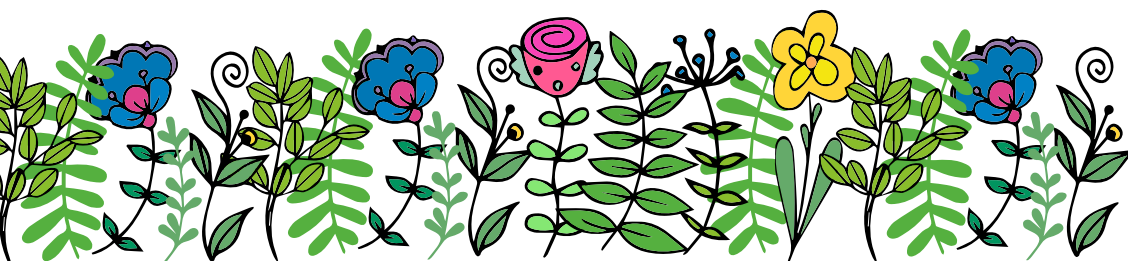
Target age: 9+

Recommended Teaching hours: 1 (Infographic design will be continued for at least another hour after this lesson and will run concurrently with the next lesson(s))

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
5+ (into the next lesson)	<p>Reviewing Your work: Slide 18 Pupils should consider the question “How does the data answer the original problem?” here and make any necessary changes before their infographic is completed.</p> <p>How does the data answer the original problem statement? E.g., Does it present a convincing argument for making change, with supporting data? Is the data presented in a way that makes it easy to understand/interpret?</p> <p>How does the data help defend against any objections? E.g., Does it help rationalise the solution, by suggesting why that choice is the most suitable?</p> <p>What are the conclusions, and does it have any limitations? E.g., What led you to this point? Can we categorically say that these changes would be successful? Are there potentially other solutions? Does your solution support what you originally thought?</p> <p>Further possible questions that might be considered are:</p> <p>What could be done differently next time?</p> <p>What additional data would have been helpful?</p> <p>What should happen next? One major aim of this project is to ensure pupils commit to these changes, so they should look to discuss how they will maintain those changes</p> <p>Where else could this type of analysis of data be useful?</p>

Homework: Groups should be confident their infographic is complete. If any additional work is needed then this can be completed independently outside class time, or at home. For the next lesson, ask them to look at campaign posters and slogans and be ready to discuss their purpose.





Lesson 8: Creating Your Campaign

Target age: 9+

Recommended Teaching hours: 1 (allotted time for completion of tasks will be 2-3 hours depending on age/ability of the class)

Curriculum Links:

Numeracy and Mathematics – Information Handling:

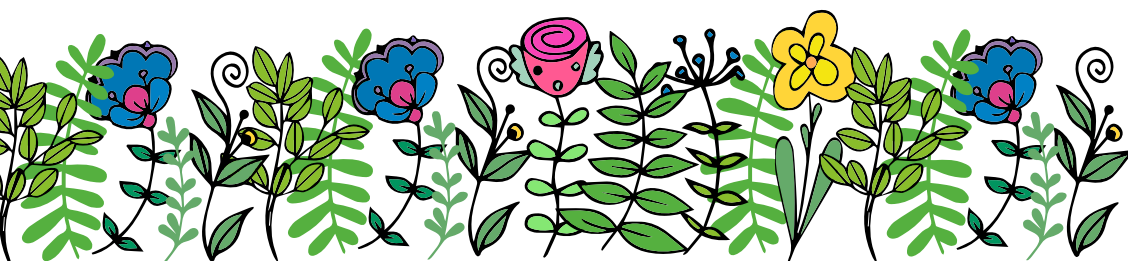
- Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading. **(MNU 2-20a)**
- I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. **(MNU 2-20b)**
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. **(MTH 2-21a / MTH 3-21a)**
- I can work collaboratively, making appropriate use of technology, to source information presented in a range of ways, interpret what it conveys and discuss whether I believe the information to be robust, vague or misleading. **(MNU 3-20a)**
- When analysing information or collecting data of my own, I can use my understanding of how bias may arise and how sample size can affect precision, to ensure that the data allows for fair conclusions to be drawn. **(MTH 3-20b)**
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. **(MTH 2-21a / MTH 3-21a)**

Technologies – Digital Literacy

- I can extend and enhance my knowledge of digital technologies to collect, analyse ideas, relevant information and organise these in an appropriate way. **(TCH 2-01a)**
- I can explore and use the features of a range of digital technologies, integrated software and online resources to determine the most appropriate to solve problems. **(TCH 3-01a)**

Literacy and English:

- The pupils will be given an opportunity to put into practice many of the skills covered in the National Curriculum for English – reading, writing and speaking and listening. To list all the skills potentially covered here would be fairly extensive, but the same level of expectation of Upper Key Stage Two/ Key Stage Three writing and composition and presentation would be expected. Coverage of writing formally including the presentation of factual information and elements of persuasion would be deemed essential for this session.





Lesson 8: Creating Your Campaign

Target age: 9+

Recommended Teaching hours: 1 (allotted time for completion of tasks will be 2-3 hours depending on age/ability of the class)

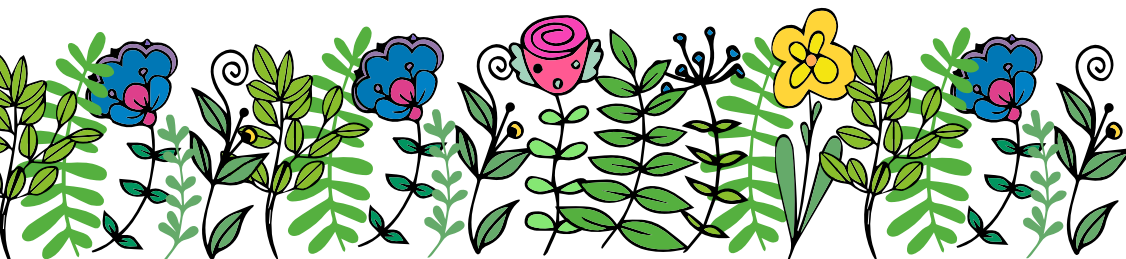
Lesson objectives:

- Design and create your campaign (poster, statement, letter and verbal presentation)

This lesson tasks pupils with creating a campaign that supports their manifesto. They will create a campaign poster, as well as write a written statement that they will use in their verbal presentation to their class. Pupils will explore the purpose of campaign posters for this project and use that information to decide on their own style, layout, and content. The verbal presentation can take the form of a speech, an audio narration, news style broadcast, etc. There is no prescribed way of producing this outcome, and creativity is encouraged.

Keywords: attention, emotion, interest, incentive, appeal, informative, colour scheme, style, layout, content, formats.

Suggested software/Resources: Creative software, office suite, Canva, equipment to create handmade posters such as paper, pens, pencils





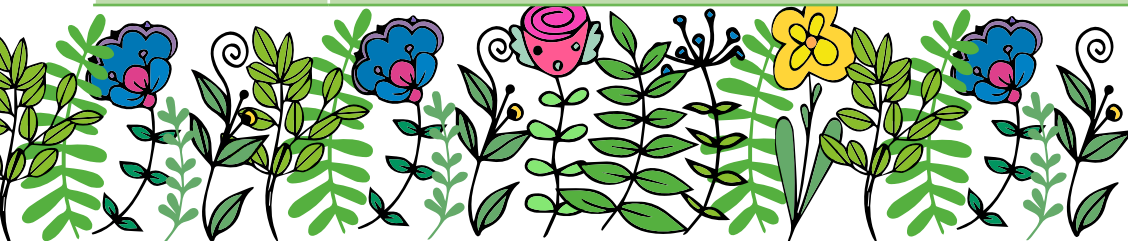
Lesson 8: Creating Your Campaign

Target age: 9+

Recommended Teaching hours: 1 (allotted time for completion of tasks will be 2-3 hours depending on age/ability of the class)

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
5	<p>Slides 1-3</p> <p>Discuss with the pupils the aims of this lesson and the tasks for the remainder of the project:</p> <ul style="list-style-type: none"> • Complete the infographic poster, • Design and create a campaign poster, • Write a campaign statement that can be used as part of a verbal presentation to the rest of the class, • Write a letter to a local MP, lobbying them to join the fight against climate change. <p>Group members should now decide which person continues with work on the infographic poster whilst the other members share out these next two-three tasks. To make the most of the available class time, it might now be a good idea to continue work on the infographic poster at this stage of the lesson to ensure it is completed.</p>
20	<p>Look first at effective campaign posters using the examples shown in the lesson PowerPoint. What are some key features of these posters? Look closely at their message, content, colour scheme, layout etc. There are many styles to adopt for these posters and no one style is correct. The aim here is to be creative, whether the poster is digital or handmade. The choice of software used (if digital) can be left to the pupils to decide or chosen by you.</p> <p>Next, turn to the campaign statement. Using all the research and data analysis carried out over the last few weeks, pupils now must write a statement, around 250-500 words in length that outlines their campaign. They must include information about the three commitments they are making in their manifesto and the reasons why. They must draw upon the research they have carried out in the last few weeks, particularly what the data has shown them. They can use their predictive analysis to show the effects of no change, as well as the impact that they could have when they carry out their change for a year, 5 years etc. They must also draw upon their extra research for these changes and the effects that they will have on the planet. They may use data gathered from their surveys to highlight the behaviours of others and how their actions aim to inspire others to make the necessary changes to their lifestyles to lower their carbon footprints too.</p> <p>The written statement will help pupils gather their thoughts and ideas for when they present all of their work and findings to the rest of their class. It will also form the basis of the letter that they will send to their local MP. Further development of this written statement in subsequent lessons will be needed to transform it into an appropriate letter to send to their MP. This can be developed further in subsequent English lessons.</p> <p>Some key pointers for constructing the letter would include:</p> <ul style="list-style-type: none"> • Persuasive techniques • Factual information • A confident 'voice' that informs, but does not offend • Suggestions on reform (e.g. 'I realise that I spend a lot of my spare time playing video games which I enjoy, but this may be in part because I do not feel as there are opportunities to be as active as I would like. Maybe if there were sports and recreational facilities available, I would spend less time playing video games and more time being active....') Include suggestions for each of the key areas of food, energy and transport.





Lesson 8: Creating Your Campaign

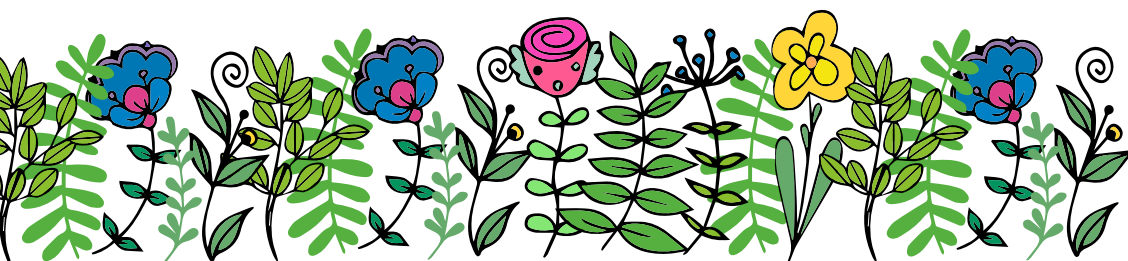
Target age: 9+

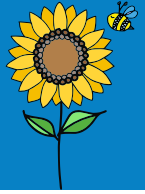
Recommended Teaching hours: 1 (allotted time for completion of tasks will be 2-3 hours depending on age/ability of the class)

Lesson Structure: (Based on 1 hour lesson)

Time (minutes)	Activities
30+	<p>Time is now given to the pupils to complete all four elements of their project.</p> <ul style="list-style-type: none"> • Infographic • Campaign poster • Written statement • Letter to MP. <p>The poster can be hand drawn or done digitally. Canva can be used again and if you search 'climate change' within the website, you can find some good templates to use there.</p>
5	<p>Reviewing work. Pupils check over their work. Make sure everything is saved in the correct folders or stored somewhere safe if on paper. Have they included everything that they needed to? If incomplete, are there plans in place to complete their work as soon as convenient?</p>
30+	<p>Carrying out the verbal presentations to the rest of the class: How the teacher arranges this element is entirely their decision. The oral presentation is not seen by Primary Engineer and will not be graded by us. There is a grading sheet supplied to you as a teacher if you wish to use it to help you decide on your final entrants to the challenge, but this is completely optional.</p> <p>Each group will be given a maximum of 5 minutes to present their findings. They can read out their statement and/or narrate over a presentation of their infographic/campaign poster. The more visual their presentations are, the better, especially if they utilise their infographics and posters. This makes it far more interactive and engaging to watch. It would be fantastic to see the pupils referring to their graphical data and translating that into a call to action to their fellow classmates.</p> <p>As this is now the end of the project, all the hard work from the pupils must now be celebrated. The amount and work that they have all put into what could be an extremely powerful learning experience cannot go unrecognised. We encourage each school to find the best ways of celebrating the work done by all the pupils. If you wish to hold your own celebration and recognition events for this, then please go ahead, as it is important to recognise the efforts of all the pupils that took part in the project.</p> <p>Please check https://www.statwarscompetition.com/ for further details regarding the submission of your top-rated class group. We ask that you choose just one group (we know it's difficult) to represent your class at judging. We ask that you submit the top group's Infographic poster, campaign poster and letter to the MP and video presentation. Our service delivery team will</p>

Homework: Now that the challenge is over, go home and act on your manifesto! Can you influence any of your friends and family? Ask pupils to keep a journal of their changes over the next 6 months, so you can revisit them and see if they maintained their commitment to changing the world! We will be back in touch to see how they are doing.





Judging and Submitting Entries

All pitches should be saved and ready to be uploaded to the STATWARS: Climate Change Challenge webpage:
<https://www.statwarscompetition.com/resource-area/upload-your-entry-climate-change/>.

Details for submission will be shared with you by our service delivery team.

Before you do this, you will need to decide who your top group is.

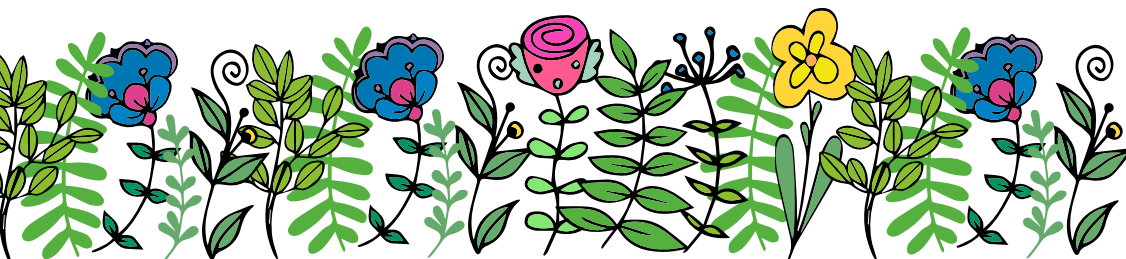
Remember, there are **4 possible awards** to be won as part of the STATWARS competition:

- **Best Data Analysis**
- **Best Communication**
- **Most Creative Presentation**
- **Overall Winner (based on the 4 requested outcomes of the project; infographic poster, manifesto pledge, campaign poster, letter to an MP)**

The top group from your class should be chosen by your class, with teacher guidance based on the above categories. The top group will represent the whole class if they receive an award.

The chosen top group should be the best in the class as a whole across all categories, not just one.

Additionally, **all teams that you register** through the website will receive a named STATWARRIOR Certificate. Further information is provided on your STATWARS website dashboard.





STATWARS Links to Careers Education Standard (3 – 18)

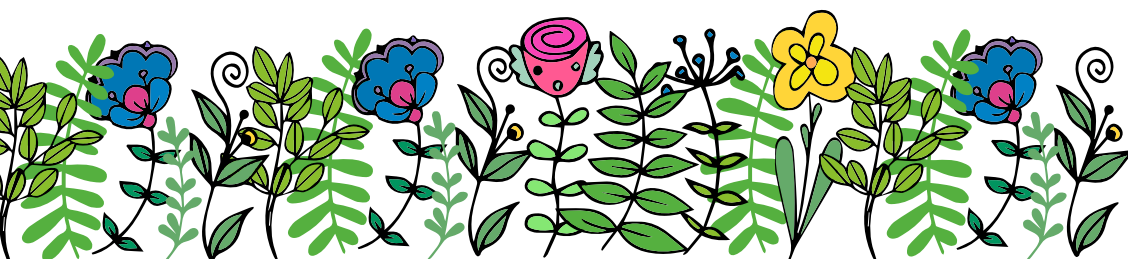
These statements taken from the [DWY Careers Education Standard \(3 – 18\)](#) document can be used as a basis for dialogue with children and young people to agree what success could look like. Those that we believe can be achieved through completion of STATWARS are shown in bold below.

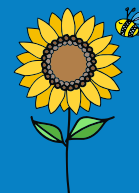
By end of Second Level: to the end of P7, but earlier or later for some.

- **I can discuss the relevance of skills to the wider world and make connections between skills and the world of work.**
- I can explain to others my ambitions/what I would like to do and look for ways to achieve them/that.
- **I can recognise the skills I have and need for work.**
- I can apply my skills to get more information about jobs/careers.
- **I can use online tools available to me.**
- I own and can manage my profile and can use it to help me discuss my interests, strengths and skills with my parents/carers and others.
- I can identify people in my network who help me broaden my horizons.
- I believe I can maximise my potential in any type of work.
- **I can identify different types of enterprise opportunities and engage in them.**

By end of Broad General Education (BGE): S1 to S3, but earlier for some.

- **I can demonstrate and apply the skills I have learnt across the curriculum in relation to the world of work.**
- **I can identify my interests, strengths and skills and use them to make informed choices.**
- I can manage my profile, share it appropriately and justify my choice of evidence.
- I can choose a blend of subjects, courses and experiences to enable my career pathways.
- I can extend and use my networks to find and apply for opportunities that match my interests, strengths and skills.
- **I can access advice and support to help me make informed choices about further learning and opportunities.**
- **I can demonstrate diverse thinking when exploring learning opportunities and pathways.**
- **I can understand and consistently demonstrate the behaviours an employer looks for in a good employee.**
- I can evaluate risks when developing a business idea and explore different methods of setting up and sustaining an enterprise.
- I can investigate and assess ethical issues in business and trade decisions.

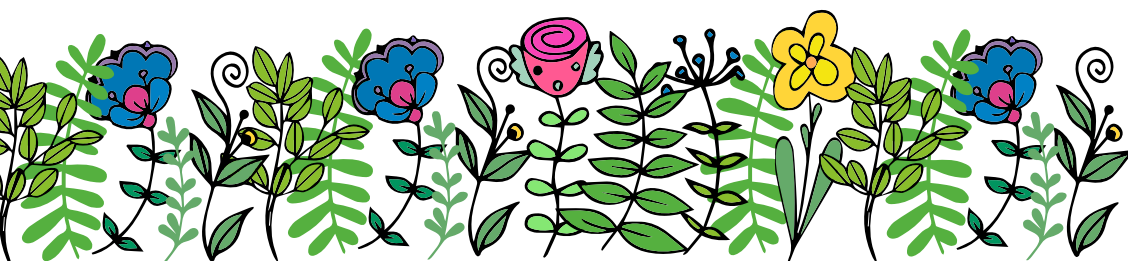


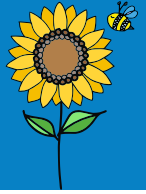


STATWARS Links to Careers Education Standard (3 – 18)

Senior Phase: S4 to S6, and college or other means of study.

- I can identify the skills I have learnt across the curriculum, how these relate to the world of work and can apply these appropriately during work placements and other work-related learning.
- I can confidently access and interpret the information I need to make well informed choices about my learning options, pathways and how these relate to possible future careers.
- I can work towards achieving qualifications which support me to achieve my future career aspirations.
- I can share, evaluate and evidence my skills for learning, life and work to help me make successful future choices and changes.
- I can draw appropriately on evidence from my skills profile to help me complete application forms, create CVs and when practising interview techniques.
- I can describe all aspects of typical recruitment and selection processes and how to best prepare for and manage these.
- I can consistently demonstrate the skills, attributes and behaviours needed to sustain and progress my career.
- I can identify and access support networks that will help me into a positive and sustained destination beyond school.
- I can assess the opportunities and challenges that entrepreneurship/self-employment can provide as a career option including financial and legal aspects.
- I can describe the rights and responsibilities placed on employers and employees and how these relate to creating a positive, productive and sustainable work environment.





Links to Skills Development

Skills 4.0

Skills 4.0 is a skills model to drive Scotland's future. A focus on skills and human capital gives us a strong foundation from which to build a sustainable and inclusive Scottish economy. You can view more information at https://www.skillsdevelopmentscotland.co.uk/media/44684/skills-40_a-skills-model.pdf

Below is a summary of **Skills 4.0** that can be developed through the STATWARS project:

Skills 4.0 Opportunities

Self-management - Manage the now:

- **Focusing:**

- o Sorting - The ability to sort information into categories and to understand the relationship between information
- o Filtering - The ability to filter out non-essential information and focus on the essential problem at hand

- **Integrity:**

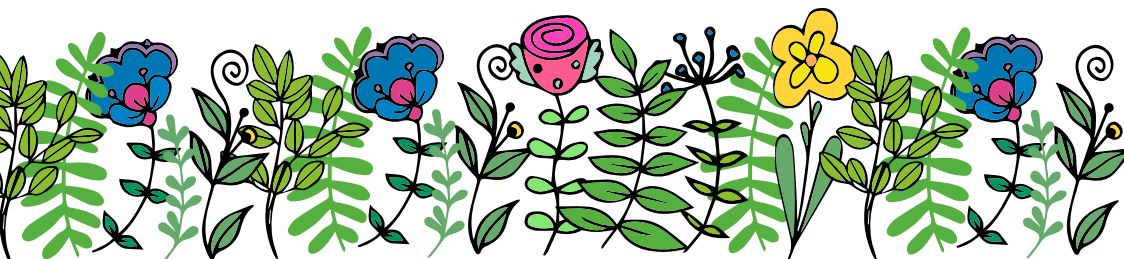
- o Ethics - Being aware of and acting upon personal values and principles

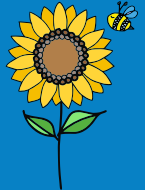
- **Adapting:**

- o Openness - Being open to new ideas and approaches - having a growth mindset
- o Critical reflection - The ability to critically reflect on new knowledge and experiences in order to gain a deeper understanding, embed and extend learning
- o Adaptability - Flexibility when handling the unexpected, adapting to circumstances as the arise
- o Self-learning - The ability to self-educate without the guidance of others
- o Resilience - Ability to respond positively and constructively to constantly evolving challenges and complexities

- **Initiative:**

- o Courage - The ability to manage and overcome fear in order to take action
- o Independent thinking - The ability to think for one's self and trust one's own judgement
- o Decision making - The act of making a considered choice after appropriately using intuition and careful thought
- o Self-belief - A feeling of trust in one's abilities, qualities and judgement
- o Self-motivation - The ability to act without influence or encouragement from others
- o Responsibility - The ability to follow through on commitments, be proactive and take responsibility





Links to Skills Development

Skills 4.0

Skills 4.0 Opportunities

Social intelligence - Connect with the world:

• Communicating:

- o Receiving information - Understanding and mentally processing verbal or written communication
- o Listening - The ability to actively understand information provided by the speaker, and display interest in the topic discussed
- o Giving information - Giving written or verbal communication in a way that can be best understood by those receiving the communication
- o Storytelling - The ability to tell stories that persuade, motivate and/or inspire as well as bringing the sharing of knowledge to life through examples and illustrations

• Feeling:

- o Empathy - The ability to take the perspective of others in order to understand their feelings and motivations
- o Social conscience - A sense of responsibility and concern for wider societies

• Collaborating:

- o Teamworking and collaboration - Working with others toward shared goals. Creating group synergy in pursuing collective goals
- o Social perceptiveness - Being aware of others' reactions and understanding why they react as they do

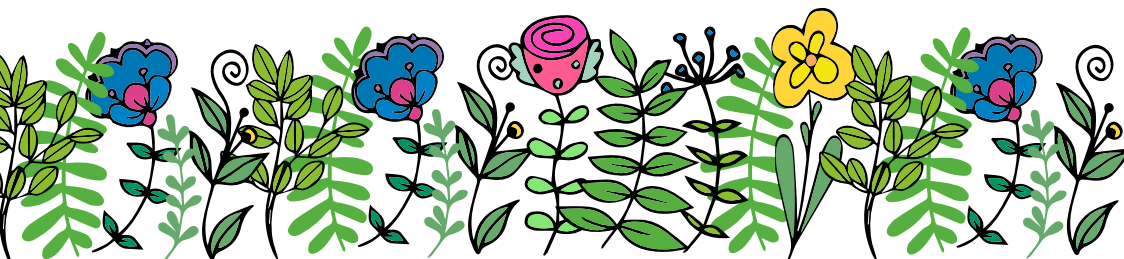
• Leading:

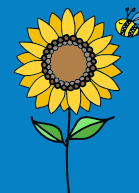
- o Inspiring others - The ability to energise and create a sense of direction, purpose, excitement and momentum
- o Influencing - Working to gain the agreement of others to a particular course of action
- o Motivating others - Encouraging others to achieve goals, accomplish tasks, and complete objectives
- o Change catalyst - Having the ability to ignite change

Innovation - Create our own change:

• Curiosity:

- o Observation - The ability to notice behaviour or information and register it as being significant
- o Questioning - The ability to ask questions in order to increase understanding about a subject or experience
- o Information sourcing - The ability to filter resources and information to find information relevant to an issue or topic
- o Problem recognition - The acknowledgement and definition of a problem





Links to Skills Development

Skills 4.0

Skills 4.0 Opportunities

Innovation - Create our own change:

• Creativity:

- o Idea generation - Proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based
- o Visualising - Translating information and thought into accessible expressions, readable and recognisable images

• Sense making:

- o Pattern recognition - The process of classifying information into objects or classes based on key features
- o Holistic thinking - The ability to see the big picture and understand subtle nuances of complex situations
- o Synthesis - The process of organising, manipulating, pruning and filtering gathered data into cohesive structures for information building
- o Opportunity recognition - The ability to identify areas of opportunity for innovation
- o Analysis - A systematic examination and evaluation of data or information, by breaking it into its component parts to uncover their interrelationships

• Critical thinking:

- o Deconstruction - Breaking down a complex problem or system into smaller, more manageable parts before developing a new way of addressing the problem
- o Logical thinking - The ability to identify, analyse and evaluate situations, ideas and information in order to formulate responses to problems
- o Judgement - The act or process of forming an opinion after careful thought
- o Computational thinking - The ability to translate vast amounts of data into abstract concepts and to understand data-based reasoning

Digital intelligence - skills for the near future:

- o A confidence in using and exploiting technology

All URLs are correct at the time of writing; however, they will need to be checked ahead of use with pupils.

<https://www.skillsdevelopmentscotland.co.uk/media/43306/scotlands-digital-technologies-summary-report.pdf>

<https://education.gov.scot/parentzone/Documents/TechnologiesImpactReport.pdf>

