



# Lesson 6: How is Climate Change Linked to Air Pollution?

This lesson is designed to last 1 hour and will explore what students know about the connections between air pollution and climate change.

As a result of participating in this session, students will be able to:

- **REMEMBER** what climate change is.
- **UNDERSTAND** what causes climate change.
- **EXPLAIN** the effects of climate change on our planet.

### Curriculum Links

#### Key-Stage 3 Geography

- Understand, through the use of detailed place-based exemplars at a variety of scales, the key processes in:
  - Physical geography relating to geological timescales and plate tectonics; rocks, weathering and soils; weather and climate, including the change in climate from the Ice Age to the present; and glaciation, hydrology and coasts.
  - Human geography relating to population and urbanisation; international development; economic activity in the primary, secondary, tertiary and quaternary sectors; and the use of natural resources.
- Understand how human and physical processes interact to influence and change landscapes, environments and the climate; and how human activity relies on the effective functioning of natural systems.

#### Geographical Skills and Fieldwork

- Use Geographical Information Systems (GIS) to view, analyse and interpret places and data.
- Use fieldwork in contrasting locations to collect, analyse and draw conclusions from geographical data, using multiple sources of increasingly complex information.

#### Key-Stage 3 Science

- The impact of exercise, asthma and smoking on the human gas exchange system
- How organisms affect, and are affected by, their environment, including the accumulation of toxic materials.
- The production of carbon dioxide by human activity and the impact on climate.

#### Lesson Resources:

- [Air Pollution 101 | National Geographic - YouTube](#)



Thank you for incorporating our resources into your teaching. Your feedback is valuable to us as we strive to improve and enhance our materials. We kindly ask that you take a few moments to complete the online feedback questionnaire. Your insights and suggestions will help us better support you and your students in the future.

<p>10 mins</p>	<p><b>Starter Task:</b> Thinking back to Lesson 4, ask the students to think about how air pollution contributes to the greenhouse effect. Ask them to list three ways in which air pollution contributes to this.</p> <p>Take feedback and draw out key points about ways in which air pollution not only causes health problems but also contributes to climate change.</p> <p>Answers could include:</p> <ul style="list-style-type: none"> <li>• <b>Transport</b> – cars, buses, trains, lorries, ships and planes (unless electric and charged with renewable energy).</li> <li>• <b>Generating energy</b> – a lot of power generation for electricity and the vast majority of home heating is still done by burning fossil fuels, such as gas.</li> <li>• <b>Food production</b> – livestock reared for meat and dairy products emit methane, and agricultural soils emit gases like nitrous oxide, which is made from nitrogen in the soil through the use of fertilisers.</li> <li>• <b>Deforestation</b> – because trees store carbon as they grow, cutting down or burning down trees releases carbon into the atmosphere.</li> <li>• <b>Plastic and waste</b> – plastics are made from fossil fuels, releasing emissions through their production.</li> <li>• <b>Powering industry</b> - industrial emissions come from producing things like cement, iron, steel, electronics, plastics and clothing. All countries are now largely dependent on fossil fuels to build and sustain their economies.</li> </ul>												
<p>20 mins</p>	<p><b>Main Task 1:</b> Using the live data for the Air Quality Sensors and maps showing the locations of the sensors*, ask students to THINK, PAIR and SHARE ideas to:</p> <ul style="list-style-type: none"> <li>• Identify patterns in the data (revisiting ideas from Lesson 3)</li> <li>• Suggest the sources of this pollution (drawing on ideas from the Starter Task)</li> <li>• Explain why certain areas have worse data than others.</li> </ul>												
<p>20 mins</p>	<p><b>Main Task 2:</b> Explain to students that they are now going to explore in more detail the link between air quality and climate change. Show students the video 'Air Pollution 101' and say that whilst this is running, they will need to complete entries on this table:</p> <table border="1" data-bbox="373 1496 1430 1697"> <thead> <tr> <th>Type of human made air pollution:</th> <th>State one cause of this type of pollution</th> <th>State one effect of this type of pollution</th> </tr> </thead> <tbody> <tr> <td>1:</td> <td></td> <td></td> </tr> <tr> <td>2:</td> <td></td> <td></td> </tr> <tr> <td>3:</td> <td></td> <td></td> </tr> </tbody> </table> <p>This may well involve pausing the video at points or showing it more than once. Take feedback on the key points.</p>	Type of human made air pollution:	State one cause of this type of pollution	State one effect of this type of pollution	1:			2:			3:		
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<p>10 mins</p>	<p><b>Plenary:</b> Ask students to create a two sentence tweet which highlights one of the effects of air pollution with a change which would help to address this. Encourage students to think about both changes in personal behaviour and also what governments and large organisations should do.</p>												

\*Please note that the following resources are pilot resources, and some elements of them, such as the Air Quality Interactive Map, are still under development. Although they may not be fully available at the moment, they are being actively worked on and will be released for further piloting soon.

