

## KS3/4 – Air pollutants and their impact - where does pollution come from?

### National Curriculum links

**KS3 Science:** the production of carbon dioxide by human activity and the impact on climate

**KS4 AQA Chemistry:** 4.9.2.2 Human activities which contribute to an increase in greenhouse gases in the atmosphere, 4.9.2.4 - The carbon footprint and its reduction

**KS4 OCR Chemistry:** Organic chemistry C6.3d, e

**KS4 Edexcel:** Earth and atmosphere science 8.24, 8.25

### Lesson Aim

To understand there are many air pollutants, which have multiple sources and the impacts they have locally, nationally and internationally.

### Lesson objectives

Pupils will:

- To name air pollutants and their sources
- To describe how to improve air quality locally
- To convince others to improve air quality

### Key vocabulary

Air quality, air pollution, human-made, natural, exhaust, fossil fuel, transport, diesel, pollutants, campaign, anti-idling, carbon dioxide, nitrogen dioxide, ozone, sulphur dioxide, ammonia, VOCs, and particulates

### Resources required

PowerPoint, factsheets, summary table to complete

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### Differentiation / expectations

Most pupils will	Some pupils will
Name some pollutants and their sources	Recall all pollutants, sources and impact
Describe ways of reducing air pollutants	Rank the impact of pollutants and prioritise ways of reducing pollutants in the atmosphere

### Introduction

Students will learn about where the major air pollutants come from, allowing them to research the sources. They will then discuss the best ways to improve air quality in Leicester and prioritise the best methods.

### Group / Class activity

Timings	Activities	Notes / resources
2 minutes	<b>Slides 1-2</b> Introduction to session and learning objectives	
5-10 minutes	<b>Slides 3-4</b> Where do pollutants come from? Discuss the biggest pollutants in a city such as Leicester.	

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15-20 minutes	Activity: students use information cards to research different pollutants, completing the summary sheet	
10 minutes	<p><b>Slides 6-7: How can we improve air quality?</b></p> <p>Discuss ways of improving air quality</p> <p>Activity: Students select their top 3 ways of improving air quality and justify their reasons. Students to share their ideas as a class and see if there is agreement on the best way to go forward</p>	
15 minutes	<p><b>Slide 8</b></p> <p>Students to choose one way that their school can improve air quality, decide what they want to change, select key messages and start production of their plan/poster</p>	<p>Plain paper</p> <p>Felt tips/pencil crayons</p>

### Extensions

Activities	Notes / resources
<p><b>Slide 9</b></p> <p><b>Students are posed a solution:</b></p> <ul style="list-style-type: none"> <li>One of the biggest pollution problems is traffic in cities. Imagine if every car that came into Leicester city had to pay £5.</li> </ul>	

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| <ul style="list-style-type: none"><li>• What would you spend this money on?</li><li>• Explain your strategy</li><li>• What would be the benefits and problems of your plan?</li></ul> |  |
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