



TEACHING RESOURCES AND LESSON PLANS

Overview

This pack includes lesson ideas and resources for Key Stage 2 and air monitoring equipment. It will help children to understand the key concepts relating to air pollution and how it is monitored and show how they can use their influence to help effect change for cleaner air. The pack links to both Science and English in the 2015 National Curriculum. It can be used for a part or whole lessons or to support a longer series of lessons. This can also be used as a additional lesson to the original.

Recap

Why is air pollution important?

There is a large body of evidence on the health impacts of air pollution. The European Commission estimates that it caused 420,000 people to die prematurely in the EU in 2010. Of particular concern are particulate matter (PM) – a type of fine dust (ie soot (PM10 and PM2.5), ground level ozone (O3) and nitrogen dioxide (NO2).

The latest study from the World Health Organisation (WHO - reference 1) links long-term exposure with cardiovascular and respiratory deaths, as well as increased sickness, such as childhood respiratory diseases. According to the EEA , more than 80 % of the EU's urban population is exposed to PM levels above the 2005 WHO Air Quality Guidelines, depriving citizens of more than eight months of life on average – with life expectancy reduced by up to two years in the most polluted areas.

References:

1. WHO review of evidence on health aspects of air pollution – carried out at the European Commission's request.
2. EEA Report No 4/2012, 'Air quality in Europe – 2012 report' <http://www.eea.europa.eu/publications/air-quality-in-europe-2012>



Included in lesson pack;

- Data Worksheets A & B
- Air Pollution PowerPoint
- Letter and poster templates
- Key work bingo templates

Lesson Plan

Please email or call Debbie Bowen for a copy of the PowerPoint Presentation (details below)

| Lesson 1 | | Resources |
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| <p>Learning Objectives:</p> <p>To understand the key concepts relating to air pollution.</p> <p>Success Criteria:</p> <ul style="list-style-type: none"> • I can say what the main causes are. • I can say how we could monitor air pollution. | <p>Starter:</p> <p>Display slide: 'How does the air get polluted?' Ask children to work in pairs to come up with ways that the air could get polluted.</p> <p>Main teaching:</p> <p>Display slide and show video: 'How does our air get polluted?' play the video - Air Pollution for Kids - to recap air pollution and its sources.</p> <p>Display slide: 'What causes pollution?' Introduce children to the names of the main harmful pollutants and their sources.</p> <p>Display slide: 'How could we measure the pollution in the air?' - working in groups - give student A3 paper and pens and get them to write down their ideas.</p> | <p>Air Pollution presentation, internet and equipment to play video.</p> <p>A3 paper and pens</p> |



Lesson Plan (continued)

| Lesson 1 | | Resources |
|----------|--|--|
| | <p>Experiment - Capturing gas in a balloon without using your own breath - https://learning-resources.sciencemuseum.org.uk/wp-content/uploads/2017/09/Kitchen-science.pdf</p> <p>Display slide: 'Where would be the best place to monitor air pollution at school?' - class discussion - take student out when placing the tube - take a picture of the site chosen (don't forget to remove the white cap and keep this for later).</p> <p>Display slide: 'What is the air pollution levels in Birmingham?', 4 locations - ask the student where they think there will be the highest and lowest levels of air pollution? Complete worksheets (standard) worksheet A, (more challenging) worksheet B.</p> <p>Plenary Display slide: 'Key Word Bingo', give out bingo worksheets, get the student to select a further 5 words for their sheet from the powerpoint. Randomly select words from the list and get the students to cross them off on their sheet, once all six are crossed off, the student needs to shout 'BINGO'.</p> <p>Extra activities - included in the pack is a letter and poster template - activities include a written or poster campaign to help reduce air pollution.</p> | <p>Experiment equipment enough for a class - small, spoons, vinegar, baking soda, water, balloons, small bottles, funnels</p> <p>Air monitoring equipment (tube and clip) and camera</p> <p>Data Worksheets A & B</p> <p>Bingo worksheets</p> <p>Letter and poster templates</p> |

DO NOT FORGET SEND A PICTURE OF YOUR TUBE AND IT'S LOCATION TO DEBBIE!!!