

Key Stage 1 (Year 2) SCIENCE

Lesson 4: "Health impacts of air pollution"

Length of Lesson: 1.5 hours

National Curriculum in England, for teaching from September 2015

Curriculum Topic: Animals including humans

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/425601/PRIMARY_national_curriculum.pdf Pages: 152 - 153

CURRICULUM

Animals, including humans.

Statutory requirements: find out about and describe the basic needs of animals, including humans, for survival: water, food, air.

- *Air is a one of the basic needs*

CURRICULUM

Animals, including humans.

Statutory requirements: describe the importance of human exercise, the right and different types of food, hygiene.

- *Healthy living: breathing polluted vs clean air for good health*

LESSON PLAN

As a follow up from lesson 3, ask the students about their understanding of air, and whether they know what is in air, even if we cannot see anything. The answer here is dust, and is applicable tell them that there is also pollution in the air in cities. Ask the class whether they can think of objects and activities that cause the outside air to be polluted (cars, buses, factories, heating homes, burning waste).

Tell the class that even though you cannot see what is in the air, sometimes we can feel that the air is bad.

Class discussion

Inform the class that polluted air can be a health risk; causing asthma and making people feel poorly. Ask the class whether anyone has felt their eyes water when they are outside in a very busy area with lots of traffic, or their throat feel scratchy. Another way to see whether there is pollution in the air is by blowing your nose, and seeing if there is any black bits. Once the types of health risk have been detailed, students can start their class activity.

Class activity!

Get each pupil to place a few drops of ink at the bottom centre of their page. Now ask them to take a deep breath and blow the ink across the page. The resulting pattern will resemble the branches within a human lung.

Compare the drawings with the diagram/picture of a lung. Get pupils to imagine the air outside and inside and the pollutants that we inhale as travelling down the tubes of the lung, just like their ink travelled in tubes across the page. You can also link this activity to the effects of smoking.

NB: There is an additional class activity available, using the AirSensa Data. Please see 'Additional Activity' provided for further information.

NB: If your school has an AirSensa, teachers may be able to take part in the 'Additional Activity' using the AirSensa Data. Please see 'Additional Activity' provided for further information on this.

LESSON OBJECTIVES

- Students will be introduced to 'air pollution'.
- Students will learn about some sources of air pollution.
- Students will learn that breathing air is necessary for life and that clean air is good for healthy living.
- Students will understand that breathing air pollution can affect our health, especially our lungs.

LESSON REQUIREMENTS:

- Ink
- A straw
- A3 sheets of thick paper for each pupil

Additional Activity

In this activity, teachers can use AirSensa data to compare the amount of dust on the paper plates (inside) to the amount of dust measured in the ambient air, around the outside of the school. In this case, the school will need to have an AirSensa attached to their building.

Accessing the AirSensa data

To access the AirSensa data please add in the school specific log-in code, that is shared with the head teacher or head of faculty. If you (the teacher) have not yet received access to the log-in code and data it may be good to get in touch with them.

Once you have typed in the log-in code you will a dashboard page which contains graphs of key air pollutants as well as dust, with their level of each against a time gradient. Teachers can alter the time average by adding in the time-frame of the dust measurements in the task bar at the top of the page. The data can also be downloaded.

What to do with the Dust Data:

Teachers can make simple graphs of the various air pollutants present in the air. Students will not need to understand what these pollutants are, but it may be helpful for them to see when there is more and when there is less pollution recorded outside.

With this data, teachers can express to students when it is healthier to be outside and when it is not.