Deliver Change

# Key Stage 1 (Year 2)
# SCIENCE

## **Lesson 3:** "The Pollution Catchers"

Length of Lesson: 30 minutes
(+ 45 minutes when collecting and analysing the data the following week or two)

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

Start the lesson by writing on the board, or asking the class **'What is air made of?'**

Next, explain that the air is made of many different gases, but despite this, we cannot see them. Sometimes we can feel the air moving, and we call that wind. But we still cannot see the wind; we can just see what it does! There are ways that we can see what is in the air, if we are a little patient and clever about how we look for it!

**Activity**: In this activity we are going to see what little bits of the air we can catch! In this exercise, students will learn that air consists of many things, even though we can't actually see it. This exercise is important for understanding why clean air is essential for good health, and through this exercise, pupils will see that air consists of very small solids, which are known at this stage as **dust**.

**Aim**: Before the class, prepare the activity by collecting paper plates (one for each student). These plates are called the Pollution Catchers. Use a meter of string per plate and glue one end of the string to the middle of the plate before the class. In class, ask the students to smear the side of the paper plate with string with Vaseline. In this case the vaseline side faces up, so that the plate can be hung up and hover in the air. If possible, let the students dictate where they would like their plate to be hung. Don't forget to tell the class to write their name at the bottom part of the plate (side without vaseline).

Return to the plates in one or two weeks time and ask the class whether they can see any dust. If so, it has been trapped and removed from the air. Explain to the class that dust is everywhere, but that it can be more prominent in some places.

When plates are re-visited and children can see what has collected on their Vaseline lined plates, hold a class discussion and ask the class:

- What can we see on the pollution catchers?
- Where did this come from?
- What might have caused it to get into the air?
- What does this mean for us when we breathe in the air?

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 learn that we need clean air to be healthy.
- Students will understand that dust is not clean, but it is so small that we cannot see it directly. It accumulates over time on the plates.
- Students will learn that it is best to live in places where there is not so much dust.

## LESSON REQUIREMENTS:

- Paper plates (1 per student)
- Hole puncher
- String
- Vaseline

**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:**
With the dust data collected, whether in graph format or simple numbers, see if the class can see whether there is a regular pattern of dust, for instance in the morning and evening, or over the course of the week/2 week period.