

# The Air We Breathe

## You need

- ★ a candle
- ★ a mirror or smooth ceramic mug
- ★ a hand lens or microscope
- ★ string
- ★ a map of the school
- ★ cardboard
- ★ cling film
- ★ petroleum jelly
- ★ classmates

## Activity One

1. Light a candle and carefully hold a mirror or a smooth ceramic mug over it for a few seconds. What do you notice?

2.

- Every day, we breathe an average of 11 000 litres of air. If this air contains pollutants, chemicals can get into our bodies and poison us or give us asthma.
- Health officials predict that 1 100 people will die each year in New Zealand from illnesses relating to air pollution, with 58 percent of these due to motor vehicle emissions.
- Auckland has one of the highest rates of asthma in the world. In Auckland, about 8 percent of all adults and 13 percent of all children are asthmatic. (Of course, not all cases of asthma are caused by pollution.)

Use the information in the box above to answer these questions:

- a. How much air do we typically inhale in an hour?
- b. Out of 1 100 New Zealand deaths from illness related to air pollution, how many may be due to pollution from vehicles?
- c. In an Auckland school of 450 students, how many students are likely to have asthma?

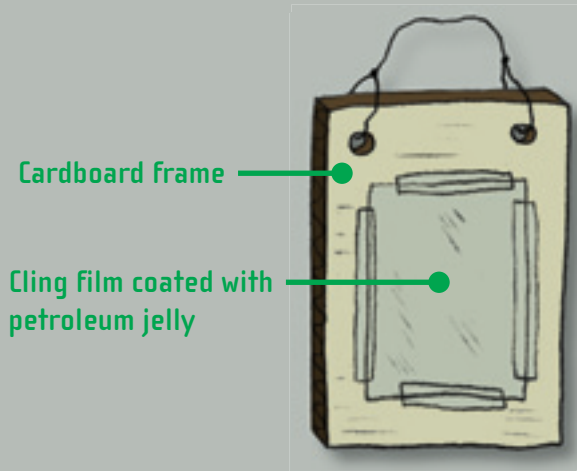
*You can't always see the pollution in the air – but it's there!*



## Activity Two

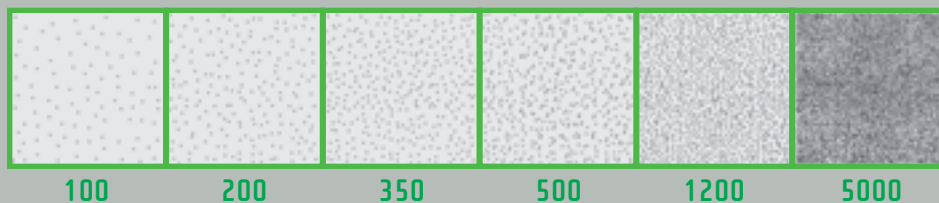
Jessica decides to test air pollution in her school. She makes some particle collectors by attaching cling film to cardboard and coating the cling film evenly with petroleum jelly.

### Air Pollution Collector



Where should I hang my other particle collectors? How long will it take to get useful results?

1. a. In a group, discuss which parts of your school are likely to have more air pollution than others.  
b. What do you think causes this pollution?
2. i. Make some particle collectors.  
ii. Select suitable sites for your collectors. Mark them on a school map.  
iii. Predict which site has the most pollution.  
iv. Hang your collectors at the marked sites, labelling each with the location and date.
3. a. After a week, retrieve your collectors.  
b. Compare the dirtiest part of each collector with the chart below. For each collector, record the estimated particle count on your map.



- b. Did you correctly predict which sites had the most air pollution?
- c. Has your experiment changed your thinking about air pollution? Explain.

**Focus** Making and testing predictions