



## Air Quality and Noise Audit Guidelines

Undertaking an air quality audit is a useful way of identifying any air quality issues in and around your school and local community, and looking for opportunities to improve.

Doing this as a classroom activity also allows students to find out more about local air quality issues and be actively involved in the decision-making of real solutions to improve the quality of air in and around the school and local community.

Information collected from the audit can be used to further investigate a particular air quality issue. Your school is also encouraged to use the audit information to develop an action plan to improve air quality in and around your school.

### Transport

Emissions from motor vehicles are the largest single source of air pollution in South Australia, responsible for about 70% of urban air pollution. Vehicle emissions release dangerous pollutants (such as lead, carbon monoxide, nitrogen oxides and particulate matter) into the air which can affect human health, and damage vegetation and buildings. Vehicle emissions also contribute greenhouse gases leading to climate change.

Vehicle emissions can be reduced by:

- using sustainable transport when possible (public transport, cycling, walking, car-pooling)
- using efficient driving habits
- maintaining vehicles.

### Guiding questions

- 1) Is the school located near busy roads?
- 2) If so, what are the types and amount of traffic? Refer to Activity 6.6 in the AirWatch Primary School Workbook.
- 3) Is there traffic congestion around the school in the morning and/or afternoons?
- 4) If so, what impact does this have?
- 5) Are there public transport stops/stations within walking distance to the school? If so, you may wish to mark these on a map of the local area.
- 6) How many students and staff regularly catch a bus, train or tram to school?
- 7) How many students and staff regularly cycle to school?
- 8) How many bicycle parks are there at the school?
- 9) How many students and staff regularly walk to school?
- 10) How many students and staff get to school by a car?



## Wood smoke

One major source of particle pollution during winter is the slow combustion wood heater. Wood heaters have been identified as producing as much particle pollution in winter as vehicles, creating haze and impacting negatively on human health.

Wood smoke consists of very fine particles of carbon and also grit, ash and soot which tend to be larger in size. The larger particles settle to the ground or are washed out of the air by rain and can dirty buildings, plants and clothes when they fall.

At the same time, smaller particles remain in the air for some time and are more dangerous to health because they can be inhaled deep into the lungs making conditions such as bronchitis and asthma worse.

The number of particles in the air produced by wood heaters can be reduced by:

- burning only dry and seasoned wood
- keeping air vents open for 20 minutes after lighting the fire
- keeping the fire live and bright, but letting it go out at night
- regularly checking to ensure no smoke rises from chimney 20 minutes after lighting
- keeping the flue or chimney clean.

Schools can play a part in helping to reduce wood smoke pollution by raising awareness in their local community of the efficient use of wood heaters.

### *Guiding questions*

- 1) What type of heating is used most in your local area, particularly during the winter months? Refer to Activity 5.5 in AirWatch Primary School Workbook.
- 2) Of those households that use wood heating, how many use dry and seasoned wood?
- 3) Of those households that use wood heating, where do they get their wood from, ie local wood yard, the roadside, their own property?
- 4) What is the general awareness like in your local area of how to efficiently use a wood heater?



## Indoor air quality

Indoor air quality is an issue of increasing concern. Sources of indoor air pollution include:

- ambient (or outside) air entering a building through ventilation or gaps/cracks, leading to possible exposure to vehicle and wood smoke emissions, dust and pollen
- unflued gas appliances and appliances such as clothes dryers producing moisture which can lead to dust mites and moulds
- moisture produced by water leaks and activities such as showering, cooking and washing dishes which can lead to dust mites and moulds
- products such as paints and coatings, floor and floor coverings, soft furnishings, art and craft supplies, cleaning agents and personal care products (eg deodorants).

Exposure to indoor pollutants can pose a health risk and cause problems such as headaches, fatigue, coughing, sneezing, dizziness, and eye, nose, throat and skin irritation.

Some ways that indoor air quality can be improved include:

- ensuring there is adequate air flow in and out of buildings
- using natural cleaning products and air fresheners where possible
- ensuring gas appliances are flued
- regularly dusting and cleaning surfaces and floor coverings
- ensuring there is no mould build-up in any inside area
- choosing natural floorings and furnishings as opposed to treated materials
- choosing bio- and water-based paints and finishes.

### *Guiding questions*

- 1) Are there any unflued gas appliances in the school building/s (ie cook tops)?
- 2) Is there good air flow in the school building/s through windows, doors, wall vents and ducts?
- 3) Is there any visible mould build-up in the school building/s?
- 4) Is the use of non-toxic and environmentally friendly products encouraged in the school?
- 5) Are all surfaces and floor coverings kept free of dust?
- 6) Are there any odours coming from newly painted rooms or newly laid floor coverings?



## Noise

Noise can be generated from a wide range of sources—domestic noise (eg music, revving of vehicles, hammering), industry and machinery. Noise in and around a classroom can include music, air conditioners, machinery such as lawnmowers and classroom noise (affecting other classrooms).

Noise generation in schools can be reduced by:

- incorporating noise barriers into the outdoor landscape design
- positioning noise-producing activities (eg music rooms and technology workshops) in suitable locations so as to minimise impacts on neighbours and other classrooms, and fitting these rooms with appropriate sound-absorbing materials
- attaching rubber strips to classroom doors to prevent banging
- using cork bulletin boards on classroom walls or hanging interesting tapestries or fabrics on walls
- closing windows and doors facing the average wind direction.

### *Guiding questions*

- 1) Are there any noticeable and/or annoying noises coming into school buildings from outside (eg overhead planes, noise from other classrooms, machinery, air conditioners)?

## Odours

The main effect of environmental odour is nuisance, which can lead to feelings of nausea and headaches. Odours in and around a school can be caused by a variety of things, for example, food scraps or photocopier fumes.

The management of odour depends on its source. Measures will most likely involve firstly *reducing* the severity of the actual odour source and then *removing* or *moving* the odour source hence *minimising* the impact of the odour.

### *Guiding questions*

- 1) Are there any odours coming from nearby businesses or households?
- 2) Are there any odours coming from inside or outside school buildings, eg does the photocopier let off fumes or odours?



## Dust and pollen

Airborne dust and pollen can reduce air quality and have adverse effects on health, particularly for those who already having breathing related problems. Dust in and around the school may be caused for example, by dirt surfaces with little or no vegetation, or by unsealed roads near the school, and can settle on surfaces inside school buildings. At certain times of the year (typically spring), most grasses and many trees and plants produce pollen, of which may be in and around the school. However, the effects of dust and pollen can be reduced in and around the school by:

- not keeping wind pollinating plants in the classroom or playground areas
- not mowing sports fields and grassy areas during school hours
- giving the option of indoor PE and activities on days with a high pollen count
- not leaving windows open during thunderstorms when large quantities of pollen are released into the air
- planting non-wind pollinating plants around the school to trap dust and pollen.

### *Guiding questions*

- 1) Are there any plants on the school grounds that produce seasonal pollen?
- 2) Is there any dust produced by dry patches in play areas around the school?
- 3) Do dust and pollen impact on the air quality inside school buildings?
- 4) If so, what impact do they have?