

# Wind farms

## Related outcomes

- M 3.1 (a): A student selects from a range of units and measuring devices to measure accurately and record in practical situations.
- WM 3.2: A student selects and uses appropriate problem solving strategies to complete investigations.
- VA 14: A student appreciates how mathematics is used in a range of aspects of society.
- VA 17: A student appreciates aspects of the historical development of mathematics.

## Possible indicators

- A student can:
- mark out a hectare on the school oval
  - recognise and describe a hectare in terms of a familiar block of land.

## Syllabus links

Measurement      Area 9

## Teaching activity

1. Students list various energy sources, such as fossil fuels, gas, water, nuclear reaction, the tides, heat generated within the earth, solid wastes, and the sun.
2. As a class, discuss the effects on the environment in using these energy sources, as well as their advantages and disadvantages.
3. Introduce the concept of wind as an energy source. For example, in the past, people used windmills to harness energy. The energy from the wind turned the blades on the windmill, which then pumped water to irrigate crops. Today, wind farms are being explored as an energy source, where the windmills are used to generate electricity.
4. Have students discuss the question: *What are the possible benefits and disadvantages associated with the use of wind as an energy source?* Point out that two disadvantages with wind farms are that they require a large area of land and they can make a lot of noise.
5. Students investigate how many hectares of land must be devoted to wind farms to generate a substantial amount of electricity.
6. Students suggest areas which might be one hectare in size.
7. Allow students to explore possible areas which constitute one hectare of land, e.g. measure with a trundle wheel a square 100 m by 100 m, and place objects such as witches' hats or rubbish bins to indicate the corners. This will assist in developing students' concept of a hectare.
8. Students then suggest another area which is approximately the same size as a hectare.

## Language

hectare, wind farm, area, energy, metres

## Equipment

trundle wheels