



Turbine Windmill Investigation

The range of ideas that pupils are likely to suggest as changes to the turbine includes:

- The type of material used to make the turbine
- The size of the turbine
- The number of blades on the turbine
- The thickness of material used
- The curve of the turbine blades

Practical tips

This investigation asks pupils to consider changes to the turbine windmill rather than any changes to the strength of wind turning it. Pupils may find it easier to come up with a range of ideas if they are first asked to think about ways in which more of the force from the moving air could be used to turn the turbine. In this investigation because the air is moving, air resistance provides the force to turn the turbine not slow it down.

A range of materials will be needed for constructing the turbines; various thicknesses of paper and card and sheets of acetate are suitable. To ensure a fair test a steady 'wind' is needed to turn the turbine, an office fan or fan heater set to cold would be useful when testing the turbines. Pupils are asked to record the rank order of how fast each turbine turns, marking one blade with a coloured spot will help with this estimating.

National Curriculum links

This investigation links to Attainment target Sc4, Physical Processes. At KS2:

- Pupils should be taught about friction including air resistance as a force that slows moving objects and may prevent objects from starting to move.
- That when objects are pushed or pulled an opposing push or pull can be felt.
- How to identify the direction in which forces act.