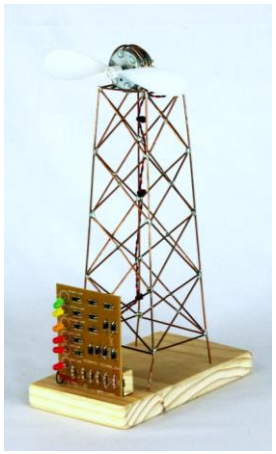
STEAM: WIND GENERATOR

Sustainable energy has become a focus of local areas and governments and all around the world. There are many types of renewable energy resources such as wind and solar energy. Making students aware of sustainability empowers them to think in a global manner.

Scorpio has developed various projects designed to cover this topic. You may have already tried the wind-up torch, THE Single LED torch or our extensive range of solar vehicles.

The newest Scorpio kit in the sustainability range is the **WIND GENERATOR**. The printed circuit board is connected to the generator. The graduated LED display lights provide a visual demonstration of how increased revs (Revolutions per minute) correlates to increased power output.



THE FUNDAMENTALS:

A windmill or wind generator works at its most efficient when facing directly into the wind.

DESIGN BRIEF

- To design and construct a **WIND GENERATOR** structure to incorporate the components supplied.
- Assemble, test the circuit board and connect it to the Generator to observe the output under varying wind conditions.

INVESTIGATION

This unit of work provides opportunities to investigate the following:

- Electrical generation and conversion
- Storage of energy
- Commercial Wind Generators
- Pros and cons of wind generation
- Wind turbine versus windmill
- Beaufort Wind Scale
- Structures – determine whether the Wind Generator will have a traditional or newer style construction.
- How traditional windmills were most commonly used

LEARNING OPPORTUNITIES

- Electronic component recognition
- Electronic conventions
- Soldering skills
- Testing electrical circuits

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- Troubleshooting
- Taking and recording results
- Using a Multimeter to test / read Amps and Volts
- Evaluation of completed project
- Use scientific apparatus such as an Anemometer and Tachometer

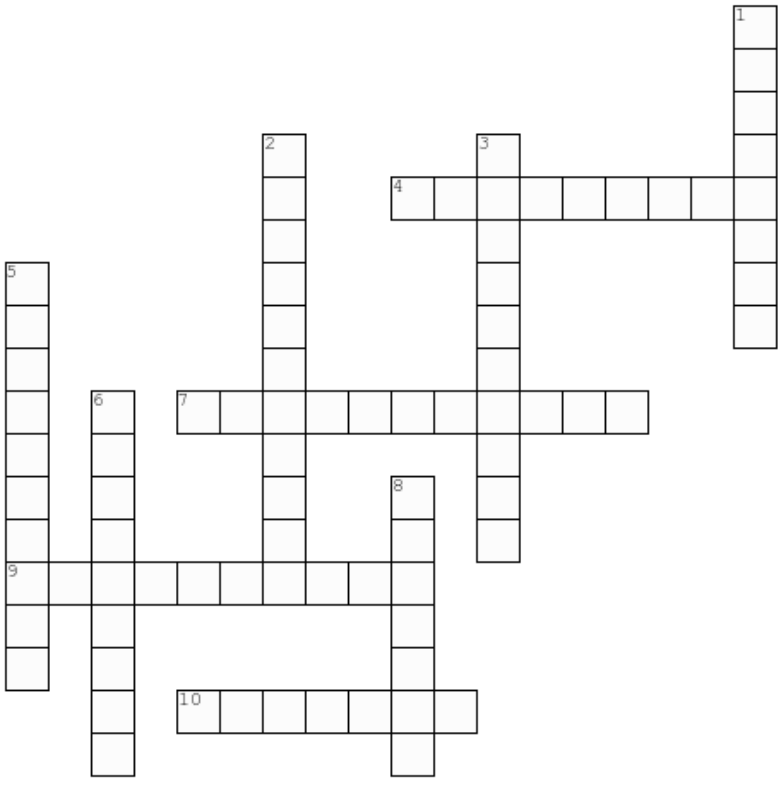
WIND GENERATOR (Code:WINDGEN)	
1-19 $7.70	20+ $7.50

GLOSSARY OF TERMS:

Alternate energy	Revolutions per minute (Revs)
Anemometer	Structure
Current	Sustainable energy
Efficiency	Tachometer
Electrical energy	Turbine
Electrical generation	Voltage
Electricity	Wind energy
Energy	Wind farm
Kinetic energy	Wind turbine
Multimeter	Windmill

Wind Generator

Complete the crossword below



Created with TheTeachersCorner.net Crossword Puzzle Generator

Across

4. A group of wind turbines
7. Renewable energy produced by moving air
9. Measures revolutions per minute
10. Engine turned by fast moving liquid

Down

1. Converts wind energy with vanes or sails
2. Able to be maintained at a certain level
3. Wind speed meter
5. Measures voltage, current, and resistance
6. Consists of parts connected together
8. A flow of electric charge

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