

# Wind

Date:

Name:

Class:



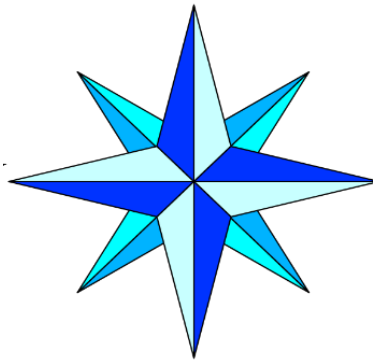
**Task 1** – Look at the compass below. Label the **cardinal points**: North **N**, South **S**, East **E** and West **W**.

Now see if you can label the **intercardinal points** midway between each cardinal point: northeast **NE**, southeast **SE**, southwest **SW**, and northwest **NW**.

**TIP:**

When labelling intercardinal points, North **N** or South **S** always comes first!  
For example:

**NW** or **SE**



**Task 2** - Match the **descriptions on the post-its** with the relevant turbine parts below.

The first one has been done as an example.

This **streamlines** the turbine making it more **aerodynamic** and also **protects** the rotor hub  
 These need to be **deep** and wide enough to **anchor** the turbine in high winds  
 These can be **pitched** (or **feathered** in high winds) depending on wind speed  
 This **converts** rotational mechanical energy into **electricity**  
 This **houses** all the working parts and **protects** them from the weather  
 This **measures** the **wind speed**  
 This **turns** the **nacelle** so that the rotor hub is **facing into the wind**

Concrete foundations	The yaw system	Nosecone	Rotor blades	Anemometer	Nacelle	Generator
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## Task 3 – The turbine challenge!

In your teams, design and make a **horizontal wind turbine** to create the power to **lift a paper cup** off the floor. The turbine will be powered by 'wind' from a fan/hairdryer.

- Use as many or as few of the materials provided
- Choose the number and pitch (angle) of your rotor blades
- Rig up your cup and use the wind source provided to test your design

**You can attach your turbine to a desk.**

You will be given a paper cup to lift and you can use the following materials:

String ~ plasticine ~ cardboard toilet rolls ~ cardboard ~ tape ~ pencils ~ wooden dowel

**Design your wind turbine in the space below**