Name: _____ Date: _____

Electricity Worksheet 1a

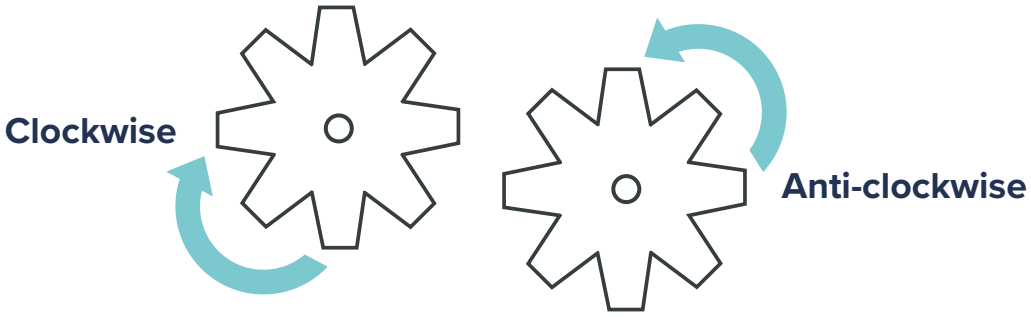
Turbines and Gears

The blades of a wind turbine rotate when they are moved by the wind. The slow rotation of the turbine blades can be transformed into a fast rotation needed for a generator.

This can be done using gears.

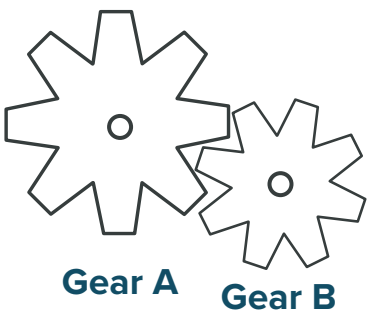
Use the Gears Instruction Slides to create your own cardboard gears.

1. (a) Connect any 2 gears. As you rotate one of them clockwise, which direction does the other rotate?



1. (b) Add a third gear, and watch the direction that it rotates. If there were 75 gears in a line, with the first gear rotating anti-clockwise, in which direction would the last gear rotate?

2. To measure the speed of a rotating object, we can use 'rotations per minute'. Work with your group to carry out the following investigation into the speed of each gear.
Place Gear A and Gear B on a sheet like so.



- Someone will count 60 seconds with a stopwatch or timer.
- Another person will spin Gear A, and count how many rotations Gear A completes.
- And someone else will count how many rotations Gear B completes.

How many rotations did Gear A complete in a minute?

How many rotations did Gear B complete in a minute?

3. Try this again with Gear A and Gear C.

How many rotations did Gear A complete in a minute?

How many rotations did gear C complete in a minute?

4. And finally with Gear A and Gear D.

How many rotations did Gear A complete in a minute?

How many rotations did gear D complete in a minute?

5. When connected to Gear A, which gear was able to make the most rotations per minute?