

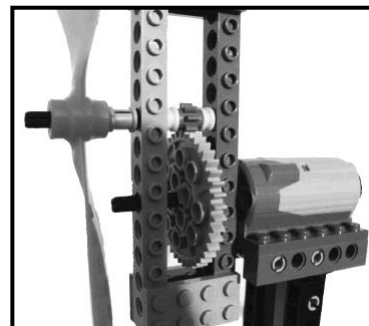
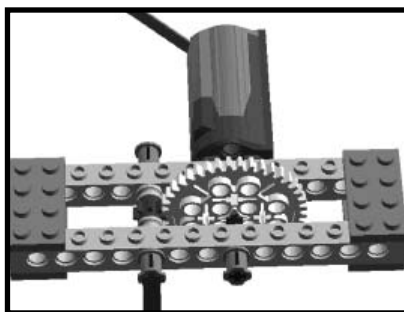
**Windmills:** Windmills harness wind power to produce electricity. Inside a windmill, you will also find a generator. Wind energy is used to spin the blades on the windmill, and in turn, it spins the generator.



By now you should already know how to engineer a hand cranking generator. The design of the windmill is similar, but instead of using a crank to turn the generator, we use the blades. The blades of the windmill are designed a special way so that when the wind hits them, they will spin.

## Engineering a Windmill

To engineer a windmill, we will use gears to make it easier to spin the generator, so we use a big gear on the generator paired with a small gear.



This is how the blades are connected.

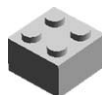


Windmills can be engineered many different ways and it is up to you to come up with your own design. Here is one example.

### *Tips on Engineering a Windmill*



Make sure your windmill is high enough so the blades do not hit the ground.



Make sure the moving parts are not on too tight. This will make it difficult for the blade to spin.



Make your project sturdy! If your windmill will fall over just by touching it, then it probably will not work.



Make sure the blades are faced in the right direction. The blades have a slight curve to them. The side that feels like its curving inward should be facing the wind.