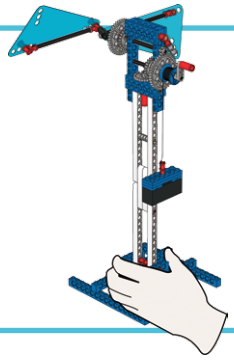
Windmill

Name(s):

How can you use a windmill and a rope to lift a heavy load?
Let's find out!



Build the Windmill

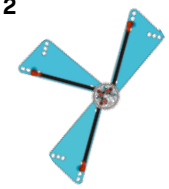
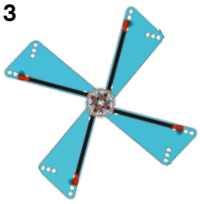
(All of book 8A and book 8B to page 12, step 17.)

- Make sure it turns smoothly
- If it feels stiff to turn, loosen the axle bushings and make sure all other elements fit tightly together

What difference does the number of sails make?

- Predict and test how fast each design will lift the treasure chest (weight brick). Use some sort of timing device
- Use the same wind speed each time

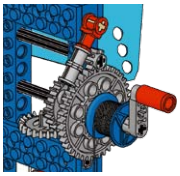
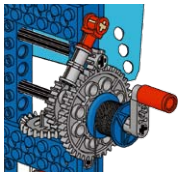
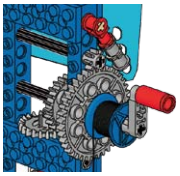
Slow Fast Medium

1 	2 	3 
My prediction	**My prediction**	**My prediction**
Actual speed	**Actual speed**	**Actual speed**

What difference does the ratchet make?

Predict and test what will happen to the treasure chest with each position of the ratchet with or without wind.

Lift Stopped Fall

1: Wind 	2: No wind 	3: No wind 
My prediction	**My prediction**	**My prediction**
What happened?	**What happened?**	**What happened?**

In a Spin

Build the wind-up top model page 14, step 1 and the three different spinning tops on pages 14, 15 and 16.

- Use the energy from a falling weight brick to power these spinning tops
- How long will each top spin for?

Also try:

- Coloured spirals on card spinners
- Gears as spinners
- Inventing your own Spinning Game and making a scoring system

		
My prediction	**My prediction**	**My prediction**
Actual spin time	**Actual spin time**	**Actual spin time**

My Magnificent Mill

Draw and label your design for capturing and using wind energy. Explain how the three best parts work.