

WORKSHEETS

PUPIL FILE WORKSHEET 3:

THE DISCOVERY

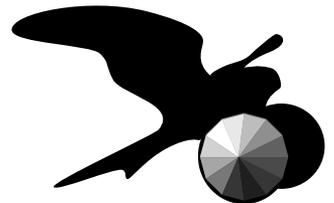
Story part 1: The last postcard

Assignment 1: Landscape beautification

Story part 2: The discovery

Assignment 2: Make them turn

Assignment 3: Hoisting stones



ADVENTURE PACK

THE INVENTORS

AND THE WHEEL OF THE SUN



First listen to the story of the last postcard.



Simon and Aisha arrive in a beautiful landscape with an old windmill and a number of new, modern wind turbines. Windmills have existed for centuries. But some people still think that wind turbines spoil the natural scenery. Whereas others think they look great! Of course it all depends where the wind turbine is...

What you need (per pupil)

- | | |
|-----------------------------------------|------------------------------------|
| <input type="checkbox"/> Paint | <input type="checkbox"/> Pencils |
| <input type="checkbox"/> Old magazines | <input type="checkbox"/> Scissors |
| <input type="checkbox"/> Napkins | <input type="checkbox"/> Glue |
| <input type="checkbox"/> Wrapping paper | <input type="checkbox"/> Paper |
| <input type="checkbox"/> Newspapers | <input type="checkbox"/> Cardboard |
| <input type="checkbox"/> Felt-tip pens | |

Assignment

Invent and build a windmill or wind turbine for a special place. Or one that goes well with your school. What about a windmill or turbine whose sails look like the leaves of a tree? Or a windmill for your favourite sports club... Or a beautiful work of art...

Questions

Prezenti, Salti and Korodi are modern wind turbines that generate clean energy. Can you think of any disadvantages of modern windmills or turbines?

Some people think windmills or turbines are ugly. They call it destruction of the landscape. How would you feel if a windmill or turbine was built next to the school? And what should it look like?

Now listen to the story about the discovery.

ASSIGNMENT 2: MAKE THEM TURN

This assignment will be carried out in pairs.

Uncle George lives in an old windmill. Prezenti, Salti and Korodi are modern wind turbines with three sails that are also called rotor blades.

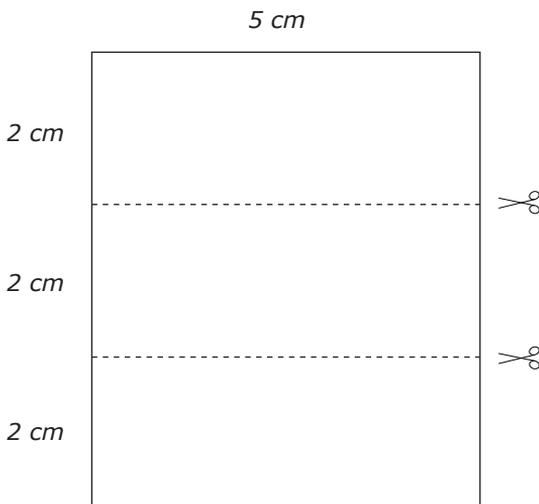
Now you are going to examine the rotor blades.

What you need (per pair of pupils)

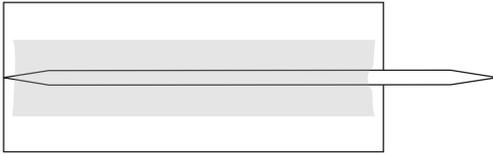
- Wooden skewer
- Straw
- Cork
- 3 cocktail sticks
- Piece of cardboard
- Ruler and pencil
- Scissors
- Sellotape

Assignment

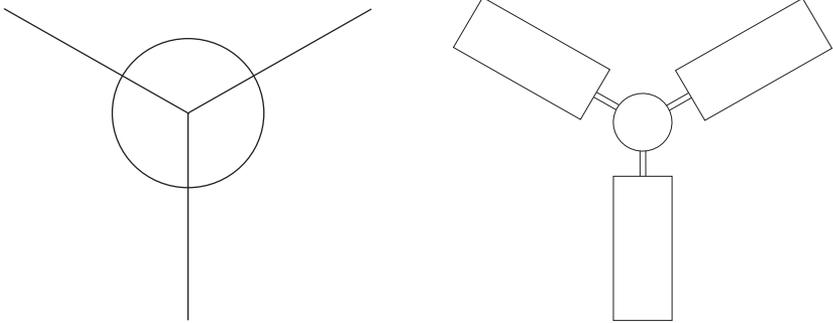
1. Cut three pieces of cardboard of 2 x 5 cm.



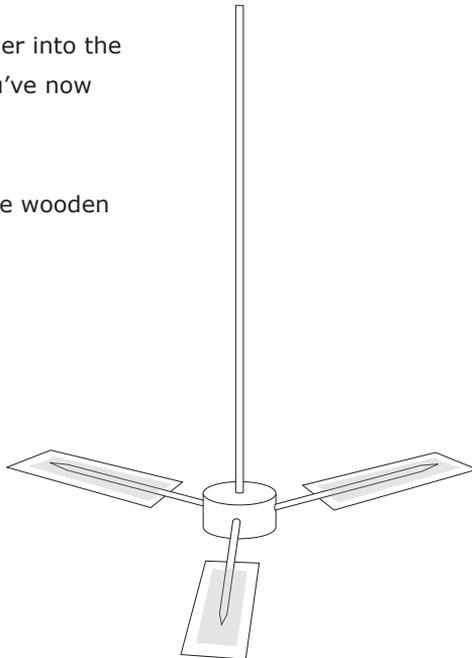
2. Stick the pieces of cardboard to the 3 cocktail sticks with sellotape. Align the top of the stick with the top of the cardboard. Make sure that all three are the same.



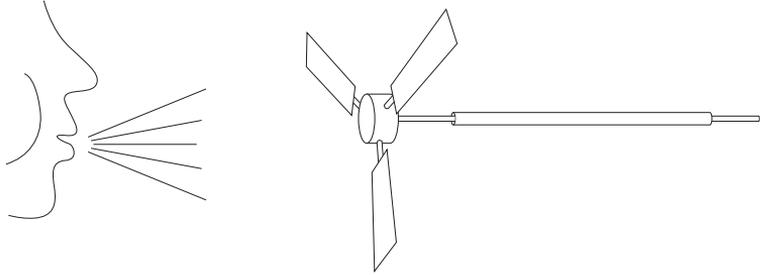
3. Stick the 3 blades into the cork as shown in the drawing.



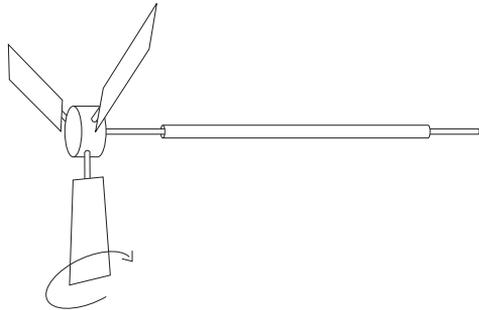
4. Stick the wooden skewer into the middle of the cork. You've now made a propeller.
5. Slide the straw over the wooden skewer.



6. Hold the propeller by the straw about 15 cm away from your face and blow on the propeller.



7. Why is the propeller not turning?
8. Turn each of the 3 blades 90 degrees in the same direction (see the picture). Now blow again.



Questions

Why does the propeller now turn?

What direction does the propeller turn in?

Can you think of a way to get the propeller to turn the other way?

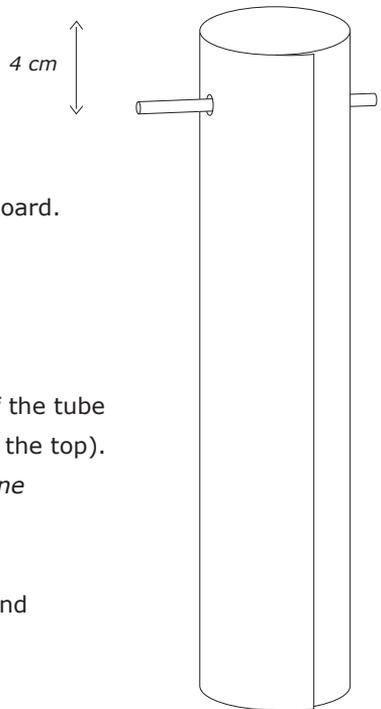
The old windmills were used to pump water away or grind corn. They were also used as hoisting equipment. To hoist the sacks of ground grain to the loft of the mill. Today you are going to hoist stones.

What you need (per pair of pupils)

- The propeller from the first part
- Piece of thin cardboard of 50 x 25 cm for the tube
- Piece of sturdy cardboard of 17 x 17 cm for the foot
- Sellotape
- Nail
- Plastic bags containing different numbers of stones
- Piece of thread or string
- Hairdryer
- Scissors
- Ruler

Assignment

1. Make a tube with the large piece of cardboard. First roll it up tightly and stick sellotape around it in various places. Leave 8 cm free at the bottom.
2. Use the nail to make 2 holes in the top of the tube so that the straw fits through (4 cm from the top). *Please note! The holes must be aligned one behind the other.*
3. Make 5 cuts 5 cm long at the other end and fold them over to make feet.
4. Stick the tub to the small piece of cardboard so that it is standing up.

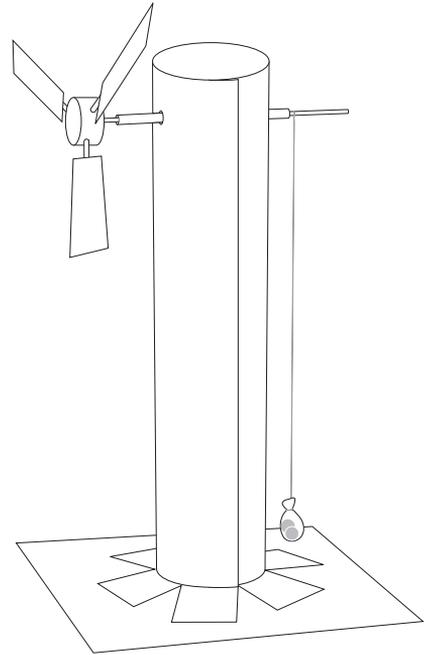


5. Stick the propeller with the straw through the tube, see the picture.

TIP

The straw must stick out at least 5 cm at the front, otherwise the rotor blades will catch on the tower.

6. Tie the string firmly to the wooden skewer at the back of the straw.
Please note! The knot must be firm and just not touching the straw.
Attach the bag with one stone to the bottom of the string.



7. One person blows against the sails with the hairdryer and the other measures how high the stone was hoisted up.
8. Repeat this with the different bags of stones and measure the different hoisting heights.

Questions

How high did the bag with 1 stone go?

How high did the bag with 2 stones go?

How high did the bag with 3 stones go?

Did you manage to hoist more stones?

If so, how many cm?

What you need

- Hairdryer
- Materials for the rotor blades

Assignments

1. Design 2, 3 or 4 new rotor blades that you think will be the best to hoist the bags of stones with. Your teacher will tell you which materials you are allowed to use.
You have 20 minutes' time.

2. Attach the rotor blades to the propeller. Attach the bag of stones.

3. Now use a hairdryer. Always hold the hairdryer at the same distance.

Questions

How many stones could you hoist?

Who hoisted the most stones?

What did their rotor blades look like?

Why do you think that those rotor blades were able to hoist the most stones?
