To teachers We have prepared worksheets to accompany the experiments in the instructions, which you can copy and use in your teaching.

SCIENCE TEACHING MATERIALS

Wind and Rubber Mechanisms (Type DXII) WORKSHEET

Name	Year	Class

Mechanism of the wind

Introduction

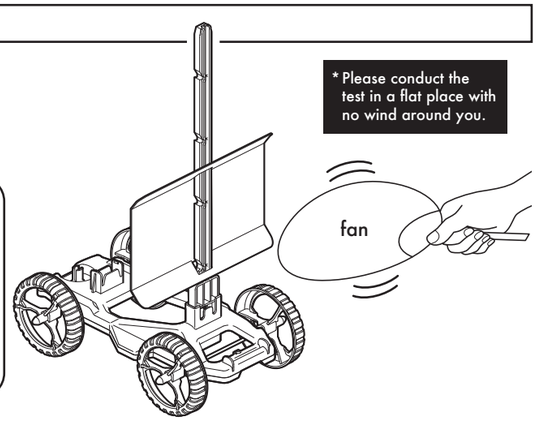
Let's make the wind car move

☆ Write about your observation when you make the wind car move.

<Example>

I was able to make the wind car move when the wind hit it.

The way it moves seems to change depending on how strong the wind is.

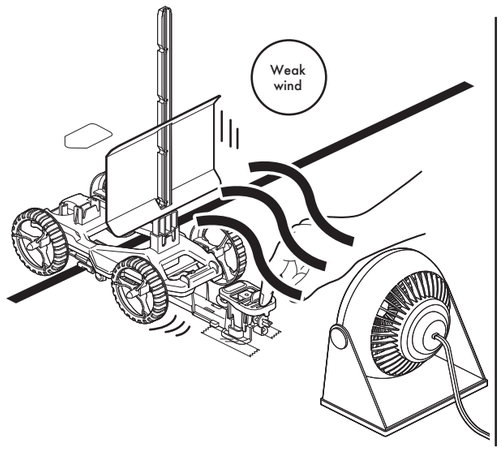


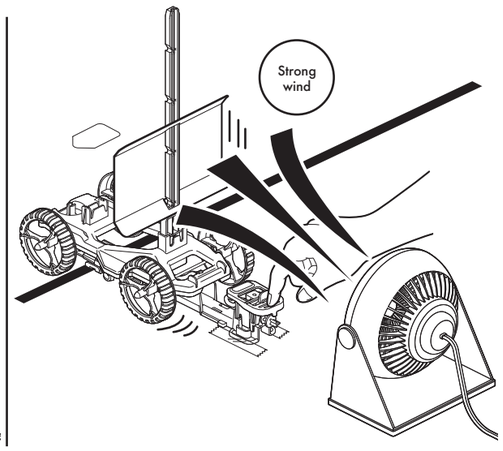
* Please conduct the test in a flat place with no wind around you.

Experiment 1

Strength of wind and movement of car

• Let's see if there is any difference in the speed of the wind when the wind is light and when it is strong.





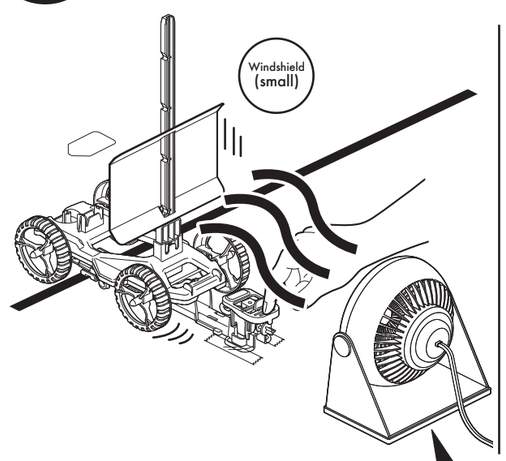
☆ Let's summarize the strength of the wind and how the car moves in the table below.

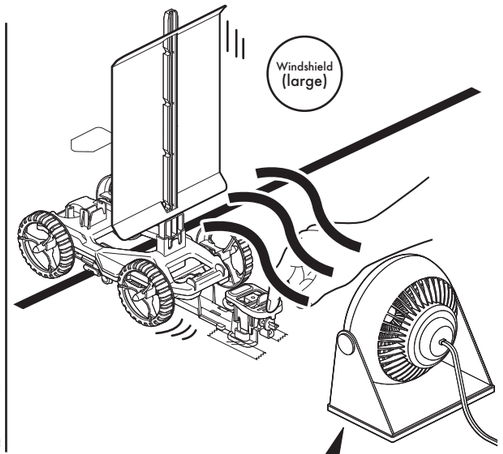
		When the wind is weak		When the wind is strong	
Distance	1st time	Enter the measured distance in each column m	cm	m	cm
	2nd time	m	cm	m	cm
	3rd time	m	cm	m	cm
Summary	<Example> The stronger the wind, the longer the distance the wind car can move.				

Let's do it!

The size of the windshield and how it affects the movement of the car

• Find out if there is a difference in distance the vehicle can run depending on the size of the windshield.





The strength of the wind from the air blower should be the same.

☆ The table below summarizes the size of the windshield and how the car moves.

		Windshield (small)		Windshield (large)	
Distance	1st time	Enter the measured distance in each column m	cm	m	cm
	2nd time	m	cm	m	cm
	3rd time	m	cm	m	cm
Summary	<Example> The greater the wind force, the longer the distance the wind car can move.				

☆ Write the words in ( ) about the wind and the distance between the two objects.

• When the wind is weak, the distance between the objects becomes (short), and the distance between the objects becomes (far) when the wind is strong.

• The (smaller) the area exposed to the wind, the shorter the distance traveled; the (larger) the area exposed to the wind, the longer the distance traveled.

☆ Discuss and summarise how you can use the wind to move the objects.

<Example>

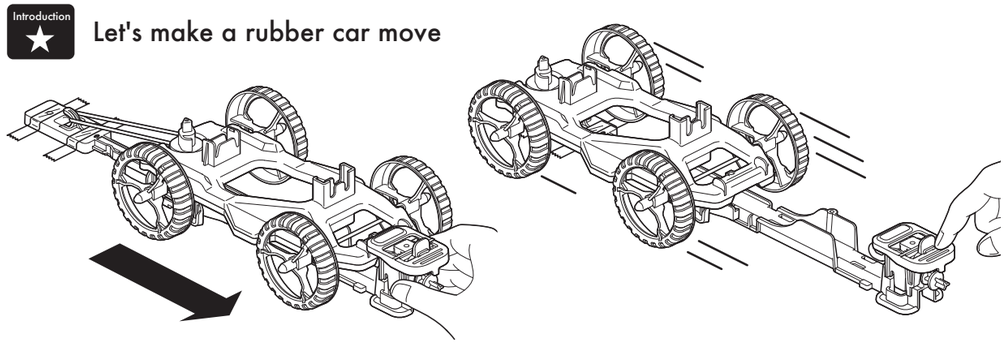
The stronger the wind, the more objects you can move, and the bigger the wind area,

the more objects you can move.

Mechanism of rubber band

Introduction ★

Let's make a rubber car move



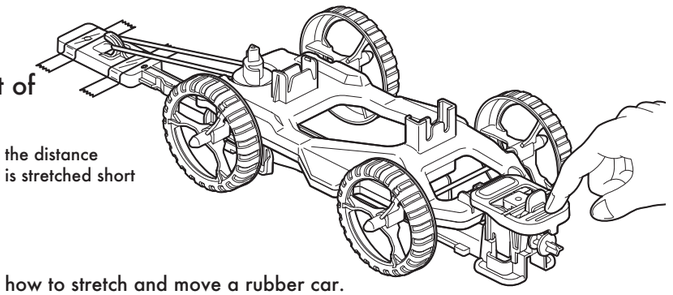
☆ Let's move the rubber car and write down our observation!

<Example>

I was able to make the rubber car move by the force of the rubber band returning to its original state. It seems that the way it moves can be changed by changing the force of the rubber.

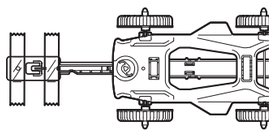
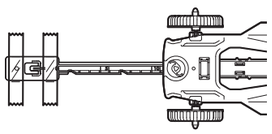
Experiment 2

Stretching of rubber band and movement of the car



- Let's find out if there is a difference in the distance the car travels when the rubber band is stretched short and when it is stretched long.

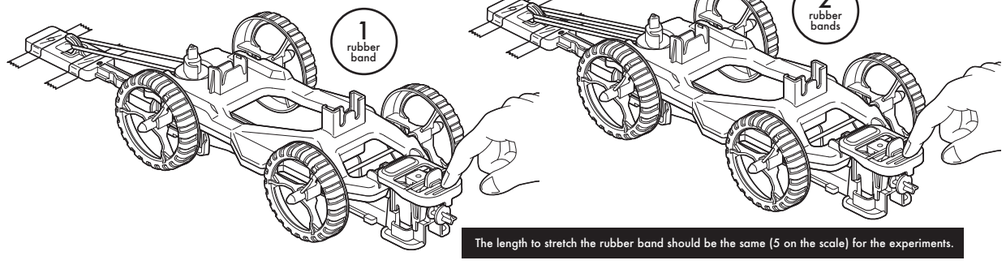
☆ Let's summarise in the table below how to stretch and move a rubber car.

		 When stretched to 5	 When stretched to 10	 When stretched to 15
Distance	1st time	Enter the measured distance in each column m cm	m cm	m cm
	2nd time	m cm	m cm	m cm
	3rd time	m cm	m cm	m cm
Summary	<Example> The longer the rubber band is stretched, the stronger the force that tries to return it to its original shape, so the further the rubber car can travel.			

Experiment 3

Number of rubber band and how the car moves

- Use two small rubber bands to see if there is a difference in the distance you run compared to one rubber band.



The length to stretch the rubber band should be the same (5 on the scale) for the experiments.

☆ Let's summarize how the number of rubber bands and the way the car moves in the table below.

		When there is only 1 rubber band	When there are 2 rubber bands
Distance	1st time	Enter the measured distance in each column m cm	m cm
	2nd time	m cm	m cm
	3rd time	m cm	m cm
Summary	<Example> The more rubbers band you have, the stronger the force to return to the original state, so the farther you can make the rubber car move.		

☆ From experiment 2 and 3, write the words in ( ) about the distance between the rubber bands and the car's movement.

- When the rubber is stretched to a (shorter) length, the distance travelled by the object is shorter; when the rubber is stretched to a (longer) length, the distance travelled by the object is longer.
- As the number of rubbers band increases, the distance the object moves becomes (longer).

☆ Let's discuss and summarize how to use the strength of the rubber band to make something move.

<Example>

The stronger the force of the rubber band , the more things can be moved, and the force of the rubber band can be made stronger by stretching it longer or increasing the number of pieces.

Let's do it!

Let's run a propeller car

☆ Write about your impressions of driving a propeller car and spinning a top.

Each student should write down his/her thoughts.