



navigation guidebook

Do you know how to find your way around? Do you know how to read a map and compass? Are you curious about navigation? Then come along! Let's do the experiments in this kit together to learn all about it!

In this guidebook, you will see a lot of things that you already recognize. The pictures will guide us in doing our experiments and projects. And whenever you see a Try It box, you will see more ideas for other exciting experiments.

Inside the kit, you will also find a colored Knowledge Wheel. You can quiz yourself with it to see if you remember the things that you discovered while doing your experiments.

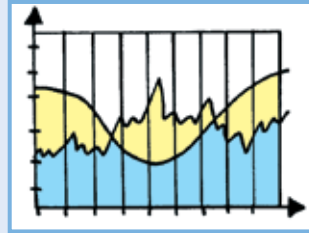
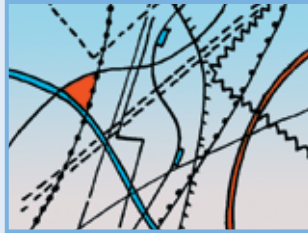
And now, let's begin!



**little
labs™**



Experiment 1: What does a map show you?



Or do you have other ideas?

You will need:



Little Labs map



Answer:

Look at the Little Labs map. Compare it to what you see in the picture above. The map shows an overview of the park, as if you were looking down on it from above. Everything is simpler and smaller on the map. Many things are represented by symbols, or small pictures that represent larger things.

The symbols on the map are explained on the back page of this manual. This is called a legend or a key. A legend is a list of symbols and their meanings. The legend will come in handy again.



try it

Look at other maps you have at home or school!



Experiment 6: How does a compass work?



Or do you have other ideas?

Use it to find out!

Compass housing from cardboard sheet

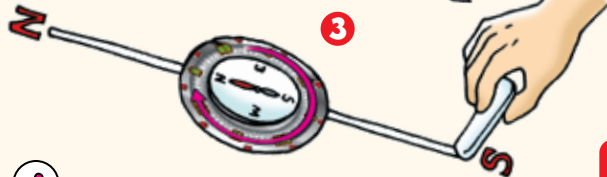
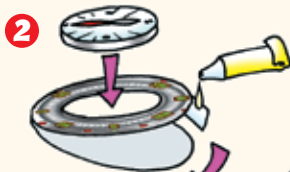


+



Chalk

Glue



- N** – North —> **Never**
- E** – East —> **East**
- S** – South —> **Sour**
- W** – West —> **Watermelons**

This phrase will help you remember the directions: The letters go clockwise around the compass.



Answer:

The compass can tell you the four directions: north, east, south, and west. When sitting still and flat on a surface, the red compass needle always points north. You can rotate the housing so that the red needle points to the letter N for north. Now you can figure out the other directions too.



try it

You can align a map with a compass. Maps are almost always oriented with north at the top. Turn the map so that the north on the map aligns with the northern direction as indicated by the compass.

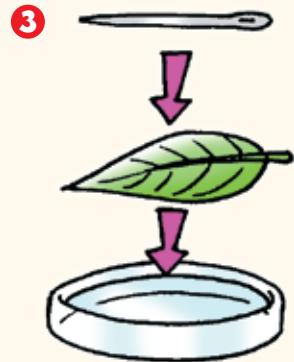
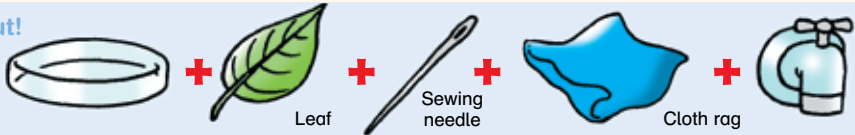


Experiment 7: Can you build your own compass?



Or do you have other ideas?

Use it to find out!



Answer:

When you vigorously rub the needle with the cloth, the needle becomes slightly magnetized. It can be used as a compass needle. Placing the needle on a flat leaf allows the needle to float on the surface of the water, and thus turn freely. The needle will slowly turn and align itself in a north-south direction. You can check if it is correct with the real compass.