



FWA CLASSROOM RESOURCES

MIDDLE YEARS

Navigation Skills

GRADE 5-8

LESSON DESCRIPTION

Direction finding is as important now as it has been in the past. Long ago, people found ways to read the landscape to help them navigate. Using Earth's magnetic poles, the sun, and by observing natural features, these activities will give students a new perspective on finding their way.

LESSON

The activities below can be completed with regular household materials. The electromagnetism version of the compass activity involves some more specialized materials and safety preparations.

Make your own Compass

You'll need:

- A needle or metal paper clip
- A small floating surface (small leaf, grass blade, wax paper)
- A strong fridge magnet
- A non-metallic bowl of water

Instructions:

1. To magnetize the needle, stroke it in one direction along the magnet, 50 times.
2. Lay the floating surface in the bowl of water.
3. Take the bowl of water outside, away from any large metal objects.
4. Lay the needle on the floating surface.
5. The needle should spin until it is oriented North-South.

SUGGESTED CURRICULUM LINKS

Social Studies Skills: 5-, 6-, 7-, 8-S-208

Science: Electricity - 6-3-12

How do you say “**compass**” in Cree?



Otihtahikan (oh-teh-tah-ee-ghan)

Electromagnetism: A needle or paper clip could be transformed into an electromagnet by charging the needle with a battery, creating a magnetic field.

In addition, you'll need:

- C or D battery
- Metal wire
- Strip of paper to insulate the needle.

Instructions:

1. Wrap the needle with a strip of paper and then wrap the wire around the needle.
2. Hold each end of the wire to 1) the positive and 2) the negative poles of the battery at the same time. Hold for short 4 second intervals, repeat 15 times.
3. Unwrap (be careful, the needle may be hot) and place the needle in the bowl of water, and watch for the magnetic response.

For more detail:

<https://www.energizer.ca/science-center/how-to-make-a-magnetic-compass>



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Finding direction without using a compass

Stick and Shadow Method:

This method relies on clear skies, for use of the sun.

1. Drive a stick into the ground and place a small rock where the tip of the stick's shadow ends.
2. Wait approximately one hour and again mark where the tip of the stick's shadow ends.
3. Draw a straight line between the two rocks. This line will show you east-west.
4. Another line drawn perpendicular to this line and aiming away from the stick will indicate north - south.

Watch and Sun Method:

This method requires a watch with hands, not a digital watch.

Hold the watch level and point the hour hand in the direction of the sun. True south will now be the direction halfway between the hour hand and 12 o'clock.

Note: To determine true south during daylight savings time (March - November), you must use the halfway point between the hour hand and 1 o'clock.

Wind Direction:

In Manitoba, the prevailing winds blow from the west-northwest direction.

Visit a local park to observe that more branches are found on the east-southeast side of the trees. If there are fallen trees, many of them will also have fallen over towards the east-southeast – as they are pushed over by winds.

Be sure to observe many trees, not just one or two. This will keep your estimate more accurate.