

# Magnetic Field mapping

**Stuff:** 2 bar magnets, compass, paper (~90 cm x 60 cm), masking tape (as needed)

## What to do

Draw a line down the center of paper to make two halves.

### Part A:

Place magnet in center of one half. Trace around the magnet and label the north and south poles.

Place compass next to the south pole as shown in **Fig 2**.

Draw a dot on the paper next to the compass where the needle is pointing, as shown in **Fig 3**.

Now move the compass so that the other end of the compass needle points to the dot you just drew. **Fig 3**

Draw another dot where the compass needle is pointing now. **Fig 3**

Continue this process until the compass returns to the magnet or leaves the paper (it should not return to the start point)

**Have your work approved at this point.**

Repeat the procedure for the other three locations (2,3,4) next to the magnet.

**Have your work approved at this point.**

Figure 1

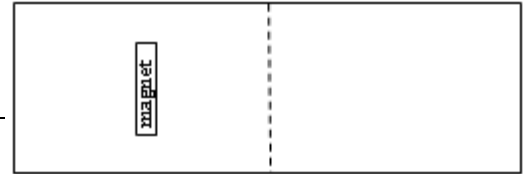


Figure 2

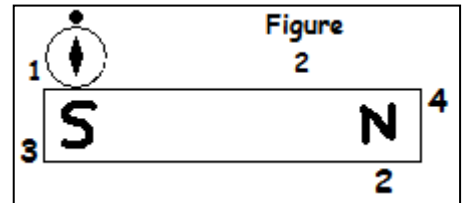


Figure 3

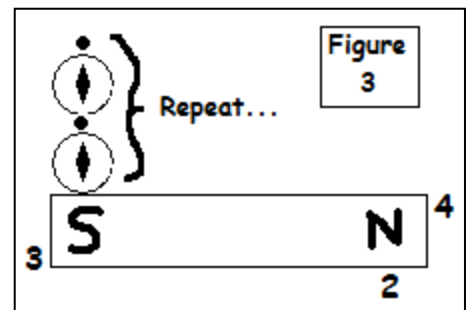


Figure 4

### Part B:

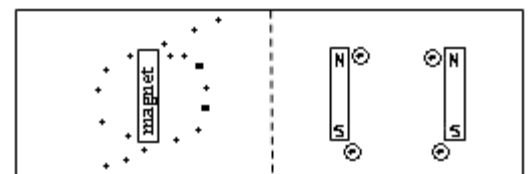
Place two magnets about 12 cm apart on the other half of the paper as shown on the right side of **Figure 4**.

Trace the magnets on the paper and label the poles.

Tape the magnets down. Follow the procedure above to map the field lines.

Use the compass locations indicated in **Figure 4**.

**Have your work approved at this point.**



### Questions: Answer on the big paper

1. Where do you think the magnetic force field is the strongest? Describe how the field lines on your diagrams support your answer.
2. Do opposite magnetic poles attract or repel? Describe how the field lines on your paper support your answer.