

1. Using the first compass as an indicator, label the poles of the magnet and fill in the other compasses.

2. A. Label the N and S sides of the magnetic field (B).
B. Fill in the compasses.

3. What is the direction of B (magnetic field) in these situations?

A) $\times \times$
 $\times \times$
into

B) $\uparrow \uparrow \uparrow$
UP

C) $\bullet \bullet$
 $\bullet \bullet$
out

4. What happens to two compasses that are put together?

Side-by-side

On top of each other

5. A) Draw the direction of B between the magnets.
B) Which way will the compass turn?

6. A) Draw the magnetic field lines around the magnets.
B) Fill in the compasses.

7. A) Draw the direction of B between the magnets.
B) Which way will the compass turn?

Handwritten: *towards South*

8. Positive current is hooked up to side 2 (goes in 2).
A) Which side is north?
B) Fill in the compasses.

9. A) Draw the direction the compasses would point due to the current carrying wire.

Handwritten: *B xxx Into page* and *B out of page*

10. Positive current is hooked up to side 2 (goes in 2).
A) Which side of the solenoid is north?
B) Fill in the compasses.

11. A) Which direction is B on the right side of the wire?
B) Which direction is B on the left side?
C) Using the right-hand-rule, determine the direction the current must be flowing in the wire.

Handwritten: *B is in*

12. A) If the diagram shows a wire with current coming out of the page, draw B around the wire.
B) Is B clockwise or counterclockwise?

Handwritten: *counterclockwise*

13. A) Is the current in the wire moving clockwise or counterclockwise?
B) Which direction is the magnetic field pointing inside the loop?