

## TSOKOS READING ACTIVITY

### Section 5-4

1. Essential Idea: The effect scientists call magnetism arises when one charge moves in the vicinity of another moving charge.
2. Nature Of Science: Models and visualization: Magnetic field lines provide a powerful visualization of a magnetic field. Historically, the field lines helped scientists and engineers to understand a link that begins with the influence of one moving charge on another and leads onto relativity.
3. International-Mindedness: The investigation of magnetism is one of the oldest studies by man and was used extensively by voyagers in the Mediterranean and beyond thousands of years ago.
4. Theory Of Knowledge:
  - a. Field patterns provide a visualization of a complex phenomenon, essential to an understanding of this topic.
  - b. Why might it be useful to regard knowledge in a similar way, using the metaphor of knowledge as a map – a simplified representation of reality?
5. Understandings:
  - a. Magnetic fields
  - b. Magnetic force
6. Applications And Skills:
  - a. Determining the direction of force on a charge moving in a magnetic field
  - b. Determining the direction of force on a current-carrying conductor in a magnetic field
  - c. Sketching and interpreting magnetic field patterns
  - d. Determining the direction of the magnetic field based on current direction
  - e. Solving problems involving magnetic forces, fields, current and charges
7. Guidance: Magnetic field patterns will be restricted to long straight conductors, solenoids, and bar magnets
8. Data Booklet Reference:
  - a.  $F = qvB\sin\theta$
  - b.  $F = BIL\sin\theta$
9. Utilization:
  - a. Only comparatively recently has the magnetic compass been superseded by different technologies after hundreds of years of our dependence on it
  - b. Modern medical scanners rely heavily on the strong, uniform magnetic fields produced by devices that utilize superconductors

- c. Particle accelerators such as the Large Hadron Collider at CERN rely on a variety of precise magnets for aligning the particle beams
10. Aims:
- a. Aims 2 and 9: visualizations frequently provide us with insights into the action of magnetic fields; however, the visualizations themselves have their own limitations
  - b. Aim 7: computer-based simulations enable the visualization of electromagnetic fields in three-dimensional space
11. Read section 5-4, pg. 232-241, in your textbook. You decide what topics are important and what you need to take notes on.
12. Use the Cornell Notes system to take notes on the lesson material. You have the following options:
- a. You can print multiple copies of one of the forms on the following pages of this document and handwrite your notes.
  - b. You can use the MS Word form supplied below and type your notes.
    - i. You can then print your work and submit a hardcopy, or
    - ii. You can upload your work to FOCUS. If you choose this option, you must use a filename in the format, "LastnameFirstinitialPerXAsgmtName". For example, "SmithKPer4ReadActT9-3.doc"
  - c. You can take notes on notebook paper using the Cornell Notes format and submit the hardcopy.
13. When using this form, remember the Five R's of Notetaking:
- a. **Record** – the most important or emphasized information
  - b. **Reduce** – and synthesize information wherever possible, making it as concise as you can
  - c. **Recite** – read your notes out loud
  - d. **Reflect** – and consider how this information is connected to your personal experiences and what you already know
  - e. **Review** – look over your notes more than once
14. Answers may be typed or neatly printed. Drawings may be freehand, but try to make use of the 'Shapes' or 'Insert Clipart' functions of MS Word.
15. *A reading assignment may contain drawings that would be useful in your notes. If you have scanning capability, you should practice scanning pictures and inserting them into documents. As you prepare for college, you should consider investing in a desktop printer-scanner-copier. Just remember that for formal reports you have to cite any images that you insert into your document. You don't have to cite scanned images for this exercise unless you use a source other than the textbook.*

**CORNELL NOTES** and the 5 R's

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Name:
Date:
Topic:

Questions/Key Points	Notes

**SUMMARY:**

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Name \_\_\_\_\_

Date \_\_\_\_\_

# CORNELL NOTES

**Topic** \_\_\_\_\_

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Questions/key points

Notes

Summary