

Magnetic Mining

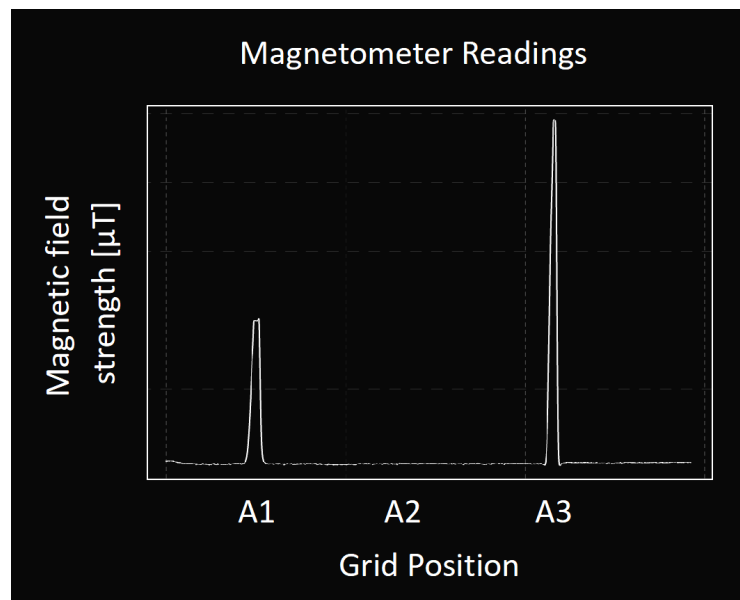
Student quiz

Name: _____

Date: _____

Directions: Respond to each question below, as directed.

1. In your own words, explain below why a ship would trigger a magnetic mine.
2. You are searching for hidden mines (magnets) in another group's box using the magnetometer in your sensor app. You get following readings when moving your magnetometer along the grid paper. What does this graph tell you about where and which magnets (single or double) are hidden at what grid position? [Select all answers that apply]



- a. There is a magnet (mine) hidden at each position: A1, A2, and A3
- b. There are only magnets (mines) hidden at position A1 and A3
- c. There is a double magnet hidden at position A3 and a single magnet at position A1
- d. The magnet at position A3 has the opposite polarity of the magnet at position A1

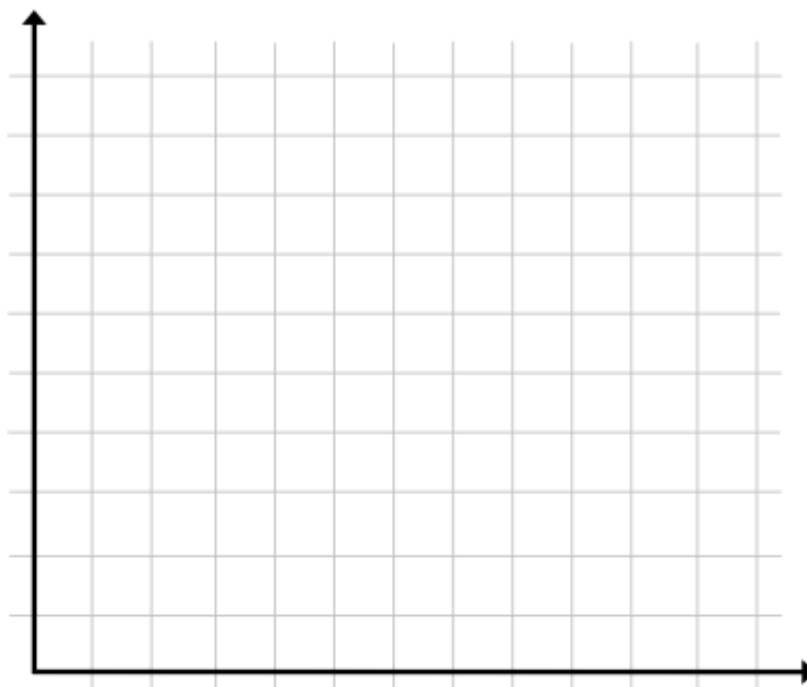
Magnetic Mining—Page 2

Name: _____

Student quiz

Directions: Complete the graph below, as described, and write your explanation below it.

3. What graph would the magnetometer within your sensor app record when moving a magnet close to the magnetometer and then removing it again? Draft your graph in the graph template below and explain your reasoning. Please also label the graph axes.



Magnetic Mining—Page 3

Name: _____

Student quiz

Directions: Choose the best answer(s) for each question below, as directed.

4. Which factors affect the readings of your magnetometer? [Select all answers that apply]
 - a. The strength of a magnet, for example, measuring a single versus a double magnet
 - b. Earth's magnetic field
 - c. The distance of a magnet to the magnetometer
 - d. All of the above

5. Two magnetic fields of the same strength and with the opposite polarity... [Select all answers that apply]
 - a. ...result in a magnetic field double the strength
 - b. ...cannot interact with each other
 - c. ...cancel each other out
 - d. ...none of the above