**Seafloor Magnetism**

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**Materials**

* 30+ bar magnets
* 6 meter sticks
* 2 compasses
* Two large pieces of cloth
* Background Reading sheet
* Lesson worksheet

**Pre-Class Set Up**

Before class arrange on a flat space three of the meter sticks and anchor them to the table using tape or another type of temprary adhesive. Arrange the magnets so their north and south poles alternate in a pattern that is symmetric across the intended mid-ocean ridge. (See Figure 1.) For introductory students it is easiest to let the south pole of the magnets represent normal polarity and the north poles of the magnets represent reversed polarity. Doing so allows the more prominent North arrow on a compass point to north for normal polarity stripes and to the south for reversed polarity stripes. Once the magnets are in place, cover them with a non-metallic material to simulate the ocean water. A blue sheet or bed spread works well for this purpose. To simulate differences between the two locations, arrange the magnets for Location #2 farther apart to represent the higher spreading rates of the East Pacific Rise. For introductory courses, the magnets do not need to be placed precisely to duplicate actual sea floor patternsm, but they could be arramnged that way for more advanced students (such as a geology major’s course).

Meter Stick #1

Meter Stick #2

Meter Stick #3

Ridge Axis

N

S

N

S

N

S

N

S

N

S

N

S

N

S

N

S

N

S

N

S

N

S

N

S

N

S

N

S

N

S

**Figure 1 –** Arrangement of magnets around a central axis. Note that the polarity of the magnets are reversed from actual seafloor polarities so that the more prominent north arrow of the compass will point north in those locations.

**During Class**

Students work in pairs to collect the magnetism data by sliding the compass along the meter stick and recording the orientatin of the north arrow at regular intervals (typically every 10 cm). They should also note the locations of places where the polarities are exactly north, south, east, or west.

Once the magnetism data have been collected, stduents graph their results and identify areas of normal and reveresed polarity and transfer this informatin to the seafloor profile for each location. Sttudents also use the data to calculate the spreading rate for each ridge.