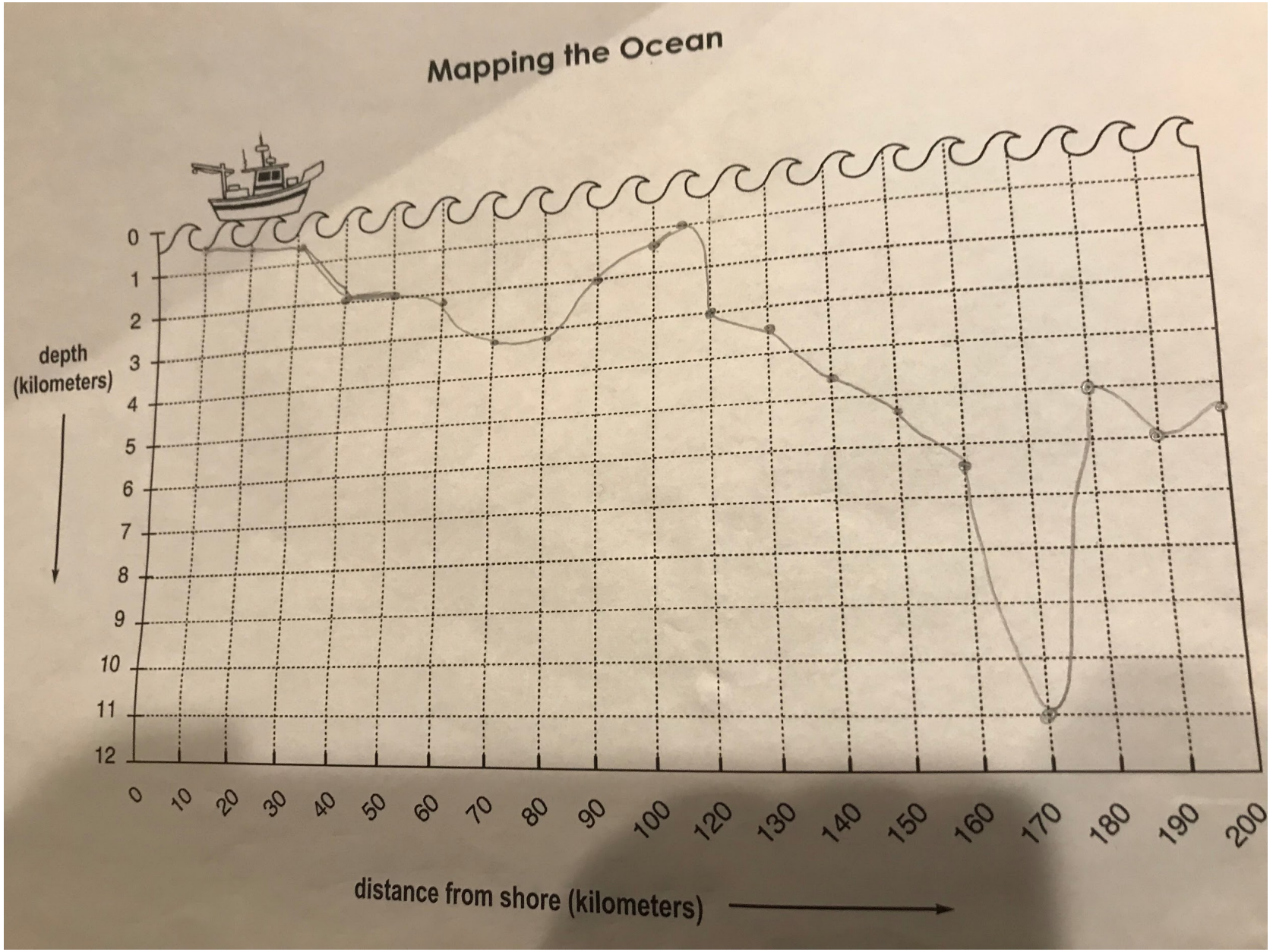
Mapping the Ocean
depth (kilometers)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
10
20
30
40
50
60
70
80
90
100
120
130
140
150
160
170
180
190
200
distance from shore (kilometers)

Name Fortune Terzi

Mapping the Ocean
data sheet

FORMULA FOR MEASURING OCEAN DEPTH

$D = V \times \frac{1}{2} T$

D = depth (in meters)
T = time (in seconds)
V = speed of sound in water = 1,507 meters per second

distance from shore (km)	time (sec)	depth (m)	depth (km)
10	0.13	100 m	0.1 km
20	0.27	200 m	0.2 km
30	0.53	400 m	0.4 km
40	2.65	2000 m	2.0 km
50	2.65	2000 m	2.0 km
60	2.92	2200 m	2.2 km
70	4.25	3200 m	3.2 km
80	4.25	3200 m	3.2 km
90	2.65	2000 m	2.0 km
100	1.86	1400 m	1.4 km
110	1.33	1000 m	1.0 km
120	3.98	3000 m	3.0 km
130	4.51	3400 m	3.4 km
140	6.10	4600 m	4.6 km
150	6.90	5200 m	5.2 km
160	8.49	6400 m	6.4 km
170	14.60	11000 m	11.0 km
180	6.64	5000 m	5.0 km
190	7.96	6000 m	6.0 km
200	7.43	5600 m	5.6 km

Fortune Terzi
Lessons from the Ocean
Dr. Meghan Marrero
Ocean Mini Lab - Content Option 4

Ocean Mini Lab - Mapping the Ocean

Mapping the Ocean Mini Lab is a lesson that incorporates math and graphing to represent how the depth of the ocean floor can be mapped using sound. This lab is originally created by SeaWorld. I chose this lab because it is a great way to combine graphing and math into my sea floor spreading lessons. I often teach the students about how scientists use sonar to map the bottom of the ocean floor and how it led to the current theory of Plate Tectonics. When doing this activity, it is clear that the ocean become a little more shallow between 90 - 115 kilometers from the shore. The depth of the ocean increases significantly at approximately 170 km from the shore. I thought this activity was simple enough for my 6th grade students. Once they get the hang of using the formula and the calculator they can compute the data. A limitation of this lab is that they don't tell you where this data is from. I would have liked to know if it was taken from a specific location. That would allow the students to make a real connection with the data. I would also have to check with the math teacher prior to completing this lab to see if students already learned how to complete this formula. Graphing is also another component to this lab that is important for students to practice. Overall, this was a quick lab to include in my lessons about Harry Hess and Sea- Floor Spreading. (I may look for different data that uses the Mid Atlantic Ridge depths to show where the ocean is shallow and where it is deepest.)

Name Fortune Terry

Mapping the Ocean
data sheet

FORMULA FOR MEASURING OCEAN DEPTH

$D = V \times \frac{1}{2} T$

D = depth (in meters)
T = time (in seconds)
V = speed of sound in water = 1,507 meters per second

distance from shore (km)	time (sec)	depth (m)	depth (km)
10	0.13	100 m	0.1 km
20	0.27	200 m	0.2 km
30	0.53	400 m	0.4 km
40	2.65	2000 m	2.0 km
50	2.65	2000 m	2.0 km
60	2.92	2200 m	2.2 km
70	4.25	3200 m	3.2 km
80	4.25	3200 m	3.2 km
90	2.65	2000 m	2.0 km
100	1.86	1400 m	1.4 km
110	1.33	1000 m	1.0 km
120	3.98	3000 m	3.0 km
130	4.51	3400 m	3.4 km
140	6.10	4600 m	4.6 km
150	6.90	5200 m	5.2 km
160	8.49	6400 m	6.4 km
170	14.60	11000 m	11.0 km
180	6.64	5000 m	5.0 km
190	7.96	6000 m	6.0 km
200	7.43	5600 m	5.6 km