

Plausibility of Models Explaining Increase in Moderate Earthquakes

Name: _____ Date: _____ Teacher: _____ Period: _____

Please work on this individually.

Read the following information carefully.

Humans create *models* to help explain things.

Below are two models. These provide different explanations for the increase in moderate magnitude earthquakes in the Midwest U.S.

Model A: The increase in moderate magnitude earthquakes in the Midwest is caused by fracking for fossil fuels.

A person who supports this model makes the following argument:

Hydraulic fracturing (fracking) is used to drill for fossil fuels. Fracking injects water into the ground at high pressure. This water reduces friction between parts of Earth's crust, resulting in an increased risk for earthquakes near fracking wells.

Model B: The increase in moderate magnitude earthquakes in the Midwest is caused by normal tectonic plate motion.

A person who supports this model makes the following argument:

Earthquakes occur because of motions in Earth's crust. Normal tectonic movement of Earth's crust has caused earthquakes throughout Earth's history and injecting high pressure water into the ground does not provide enough force to move Earth's crust.

Plausibility is a judgment we make about the potential truthfulness of one model compared to another. The judgment may be tentative (not certain). You do not have to be committed to that decision.

Circle the plausibility of each model. [Make two circles, one for each model.]

		Greatly implausible (or even impossible)									Highly plausible
Model A	1	2	3	4	5	6	7	8	9	10	
Model B	1	2	3	4	5	6	7	8	9	10	