

Plausibility of Models Explaining Increases in Extreme Weather Events

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

Please work on this individually and read the following information carefully.

Humans create *models* to help explain things.

Below are three models. These provide different explanations for increases in extreme weather events over the last 50 years. These events include intense hurricanes, heavier rainfall and flooding, dangerous wildfires, and heat waves.

Model A: The number and strength of extreme weather events vary naturally. Human activities release carbon in the atmosphere. Yet, plants and oceans absorb any carbon increases.

A person who supports this model makes the following argument:

Although human activities have increased carbon in the atmosphere, plants and oceans eventually absorb this carbon. So, human activities are not causing changes in extreme weather events and current increases must be part of a natural cycle.

Model B: Increases in extreme weather events are linked to climate change. Current climate change is mainly caused by human activities, such as fossil fuel use.

A person who supports this model makes the following argument:

Human activities are increasing the amount of carbon in the atmosphere and changing Earth's climate. Increases in extreme weather events must then be linked to current climate change and human activities that cause this change.

Model C: Over time, increases and decreases in extreme weather events are mainly caused by changes in Earth's orbit around the Sun.

A person who supports this model makes the following argument:

The number and strength of extreme weather events varies over time. The amount of sunlight received by Earth also varies over time. Because energy from sunlight is a major contributor to Earth's climate and weather, changes in extreme weather are a result of orbital variations.

Plausibility is a judgment we make about the potential truthfulness of one explanatory 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 three 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
Model C	1	2	3	4	5	6	7	8	9	10