Geologic Field Notebook

Name _____

Geologic Time and Processes that Form the Earth's Crust

Draw and describe your team's layered model. Show the layers from the side.

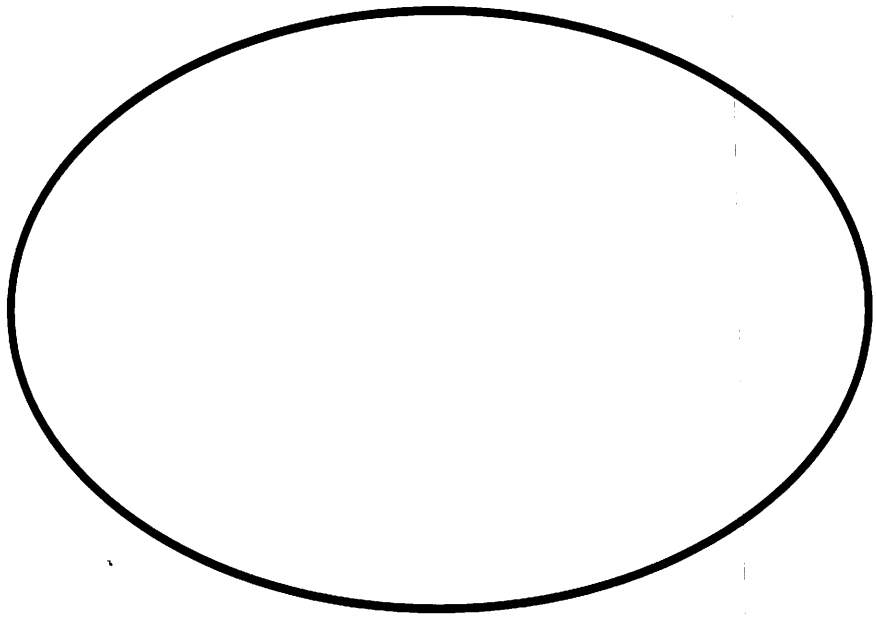
Three-minute Model

Five-minute Model

Seven-minute Model

Geologic Time and Processes that Form the Earth's Crust

Clay pancakes should be *about* this size.



Field Work in California

Fault Simulator Data Sheet

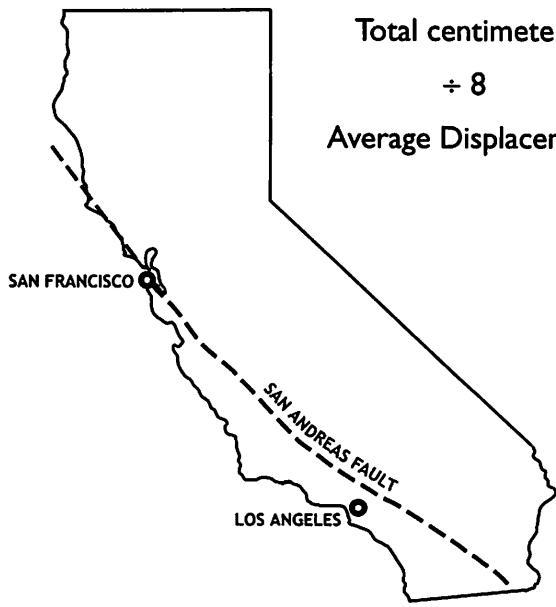
My team's simulator number_____

Simulator number	Number of centimeters displaced
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____

Total centimeters _____

÷ 8

Average Displacement _____

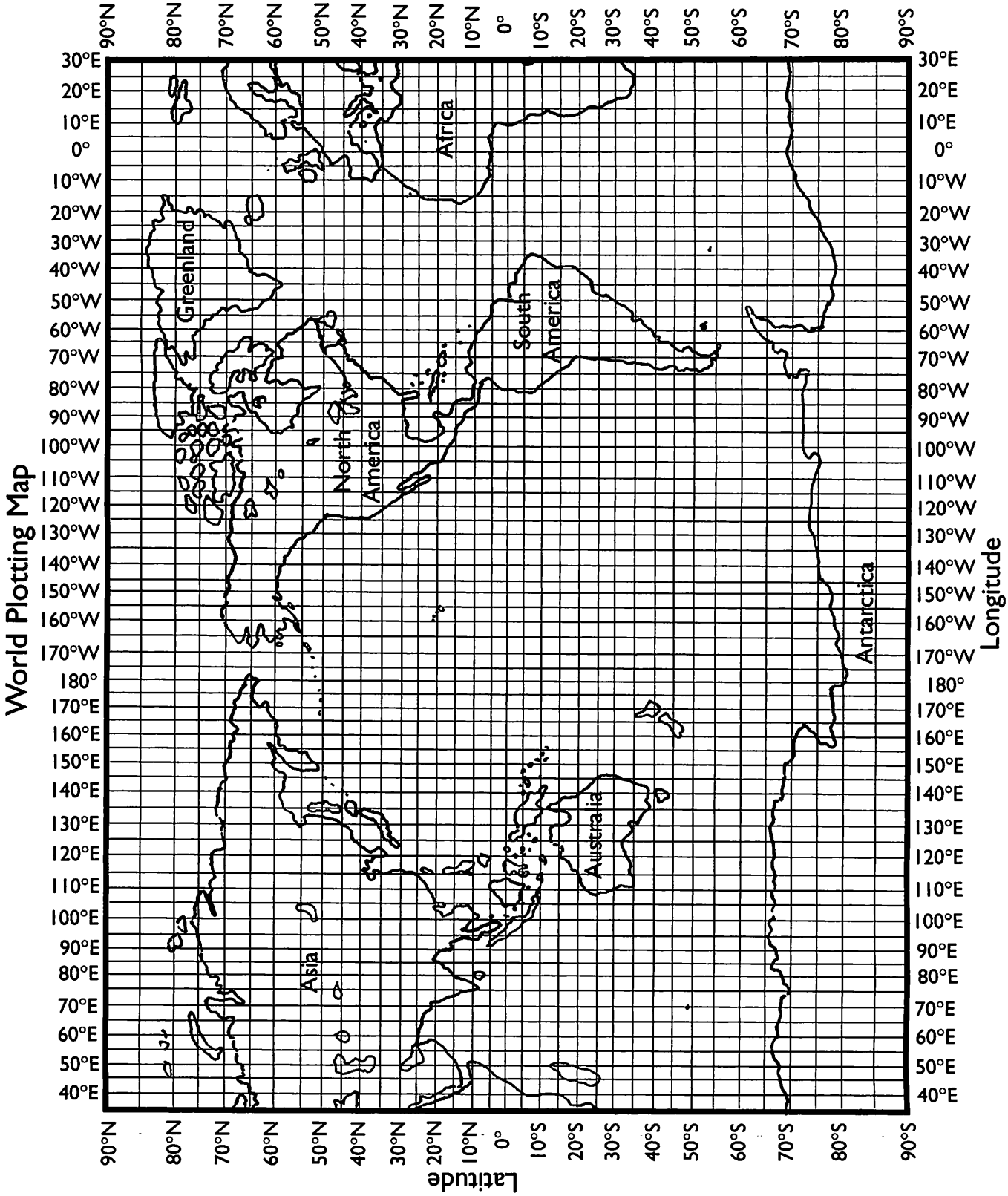


Field Work in California

List of Major Earthquakes

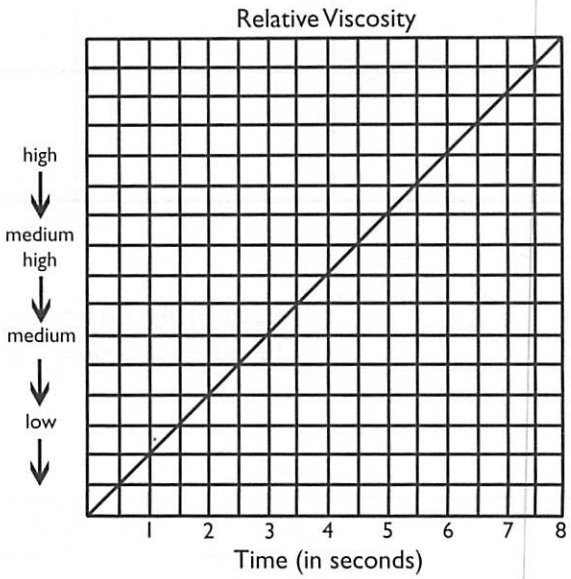
Date	Latitude	Longitude	Magnitude
1/28/99	53°N	169°W	6.1
3/25/99	37°N	140°E	4.1
3/31/99	5°N	83°W	6.1
4/3/99	17°S	73°W	6.2
4/13/99	21°S	176°W	6.4
8/17/99	41°N	30°E	7.4
9/17/99	44°N	127°W	3.8

Field Work in California • World Plotting Map



Investigating Viscosity and Volcanic Rocks

Viscosity Bottle	Marble's Travel Time in Seconds	Relative Viscosity
#1		
#2		
#3		



Rock Name	Light/Dark	Silica Content	Relative Viscosity	Similar to which bottle?

Field Work in Hawaii

Three Eruptions of a Shield Volcano

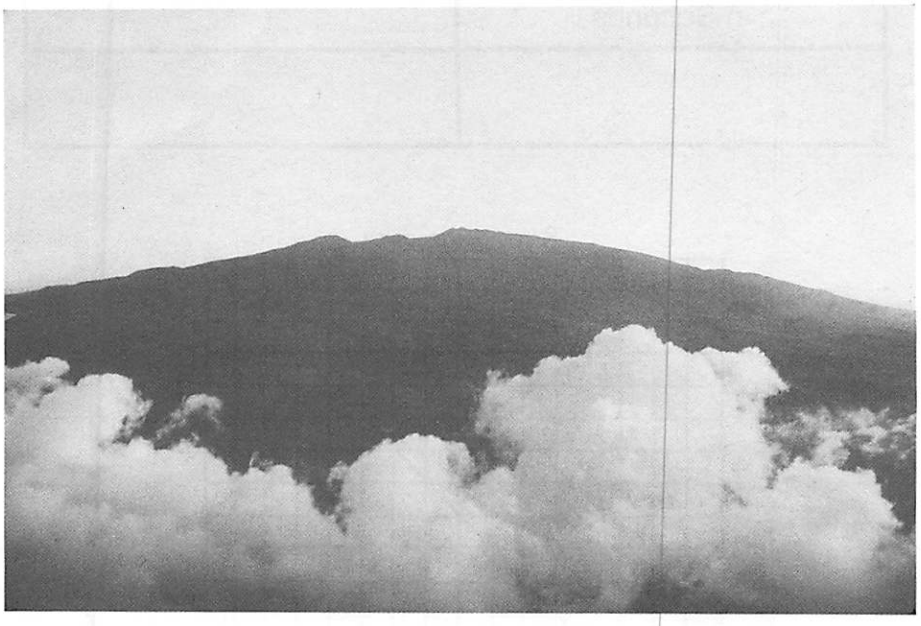
Magma Batch	Lava Flow Distance (cm)	Lava Flow Travel Time (seconds)	Lava Flow Velocity (cm per second)
#1			
#2			
#3			

$$\text{Lava Flow Velocity} = \frac{\text{Lava Flow Distance}}{\text{Lava Flow Travel Time}}$$

Notes: _____

Field Work in Hawaii

Mauna Loa

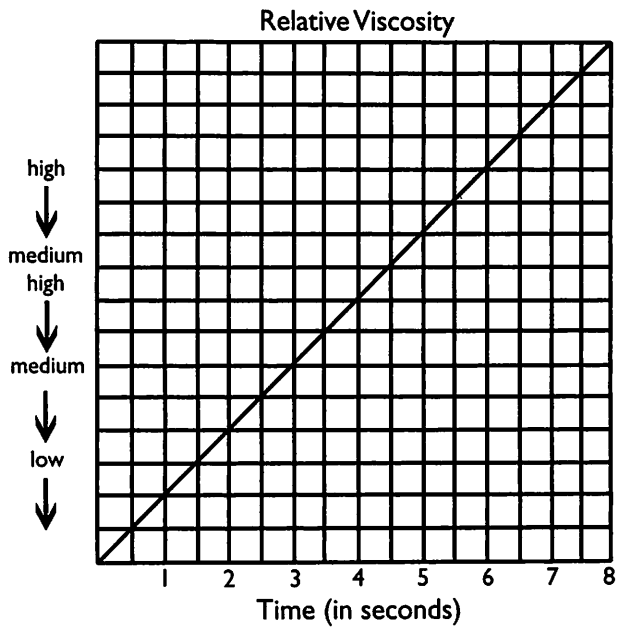


Shield Volcanoes

	Latitude	Longitude
Piton de la Fournaise	22°S	55°E
Pico	38°N	28°W
Mauna Loa	20°N	156°W
Kituro	1°S	29°E
Surtsey	63°N	21°W
Matthew Island	22°S	171°W

Field Work in Japan

Marble's Travel Time in Seconds	Relative Viscosity

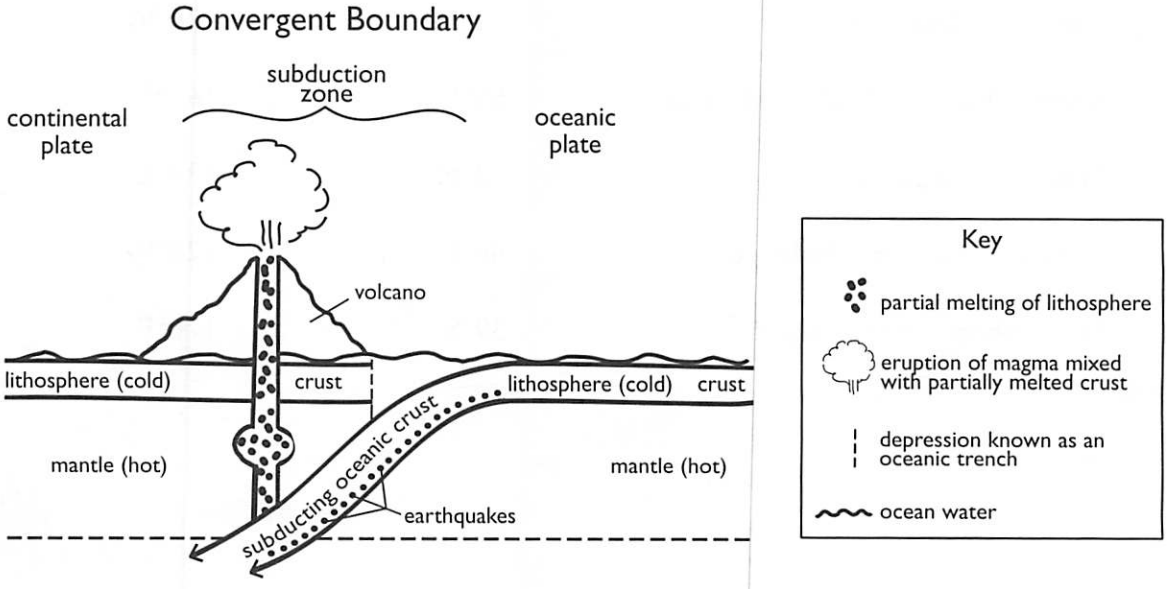


Notes: _____

Field Work in Japan

Strato Volcanoes

Mount Fuji



Field Work in Japan

Mount St. Helens

Strato Volcanoes

	Latitude	Longitude
Cotopaxi, Ecuador	1°S	78°W
Kronotsky, Kamchatka Peninsula	55°N	161°E
Mayon, Philippines	13°N	124°E
Mount St. Helens, Washington	46°N	122°W
Ngauruhoe, New Zealand	39°S	176°E

Field Work in Nepal

The Himalayan Range

Location	Date	Elevation (meters)	Elevation change (centimeters) since 1990
Mount Everest	1990	8,850.00	0
Mount Everest	1991	8,850.01	1
Mount Everest	1992	8,850.02	2
Mount Everest	1993	8,850.03	3
Mount Everest	1994	8,850.04	4
Mount Everest	1995	8,850.05	5

Field Work in Nepal

Stratigraphy Data Sheet

1. Study your team's model of strata of a Himalayan mountain. The scale of the height of the sections and strata is 1 cm on section = 100 m on mountain. Please answer the following questions in meters.

a. What is the elevation above sea level at the base of the mountain?

_____ meters

What is the elevation at the peak?

_____ meters

b. What is the highest elevation where continental crust is found?

_____ meters

c. What are the lowest and highest elevations where layers containing fragments of ancient volcanic rock are found?

lowest_____ meters highest_____ meters

d. What are the lowest and highest elevations where layers with fragments of ancient oceanic crust are found?

lowest_____ meters highest_____ meters

e. What are the lowest and highest elevations where layers with fossil remains of ocean animals are found?

lowest_____ meters highest_____ meters

2. What discoveries can you make by studying these layers?

_____

_____

_____

3. How do you think layers of ocean fossils could be located at such high elevations?

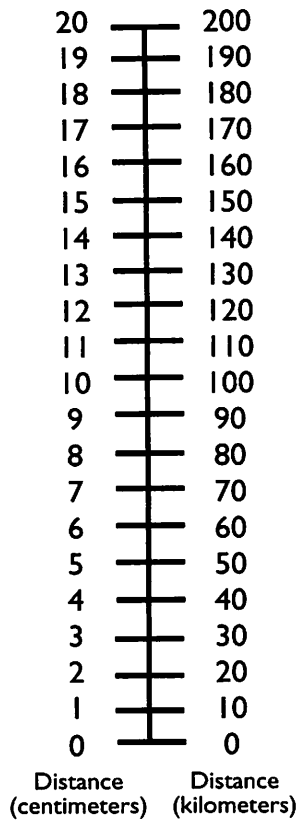
_____

_____

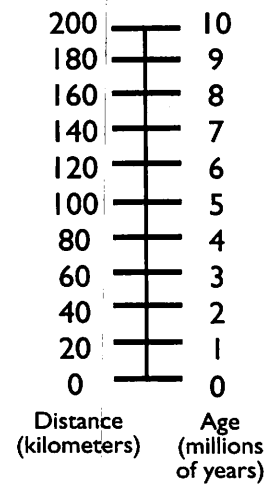
_____

Field Work in Iceland

Scale A

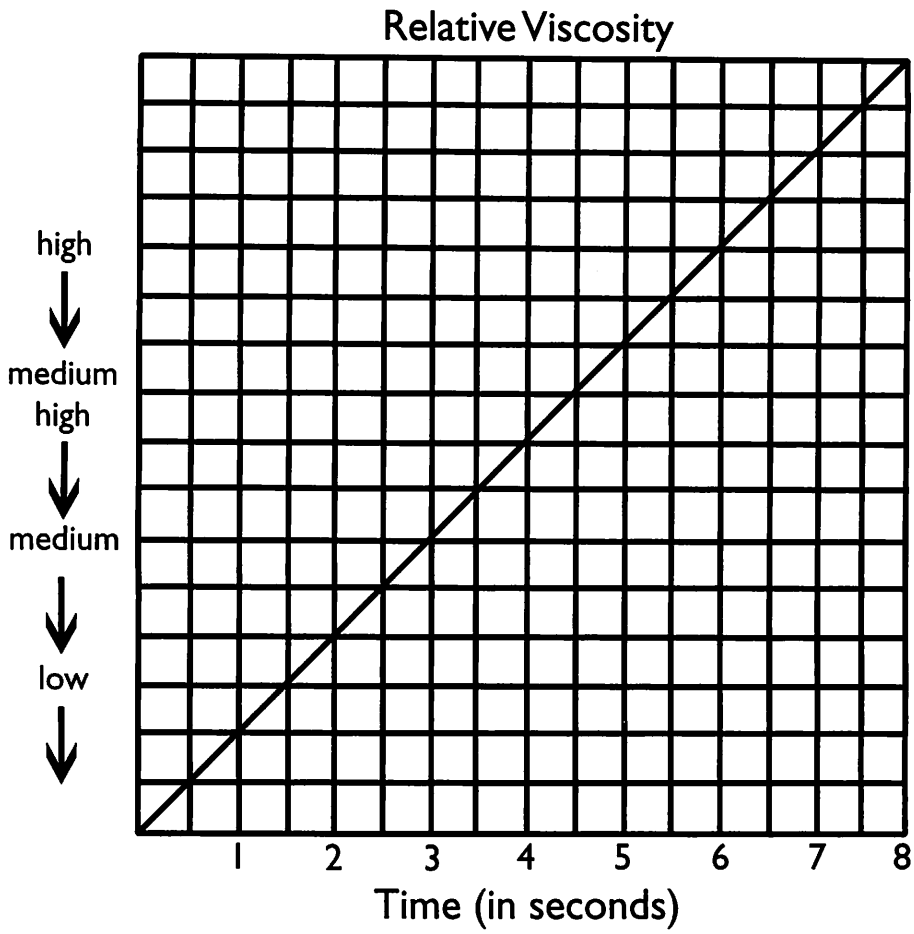


Scale B



Section	Distance from center of model (centimeters)	Distance from Ridge Crest (kilometers)	Age (millions of years)
A			
B			
C			
D			
E			
F			

Field Work in Iceland



Marble's Travel Time in Seconds	Relative Viscosity

Evaluating the Theory of Plate Tectonics

Field Study Review Sheet

Field Study Location: _____

In the coming scientific convention, your team will be the experts on this field study. Use your geologic field notebook to review.

1. What observations, experiments, and measurements did you do during this field study?

2. What did you discover?

3. How do your discoveries relate to tectonic plates?

Evaluating the Theory of Plate Tectonics

My Ideas About Plate Tectonics