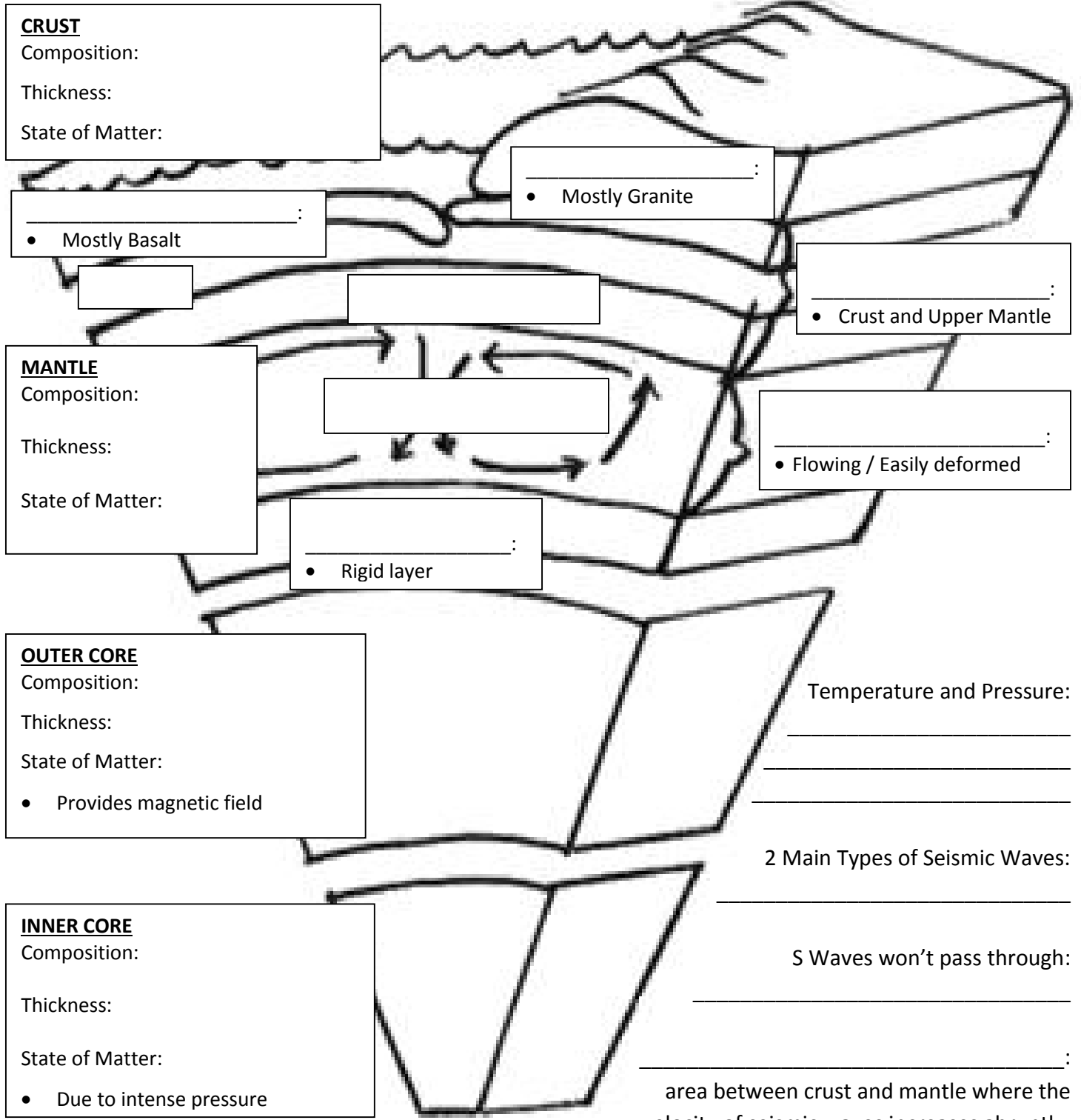


Layers of the Earth

Date: _____

SWABT: Identify and describe the layers of the Earth and their characteristics



Neither the sun's heat nor winter cold penetrates the Earth below: _____

Below 20m, the temperature increases 1° every 40m.

Continental Drift Theory and Plate Tectonics Theory

Date:

SWBAT: List evidence for continental drift and plate tectonics theories.

Continental Drift Theory

- Started with the observation of the similarities _____ of the west coast of Africa and the east coast of South America (_____).
- This led to the suggestion is that these two continents were once _____ that had broken and moved apart.

_____ : German scientist. Proposed the most famous version of the continental drift theory, but he could not explain why or how the continents drifted apart.

- His three evidences included:

1.

2.

3.

Pangaea

- The last “ _____ ” (250 mya) all of the continents hooked together.
- It took over 200 million years for the continents to move to their present locations.

Plate Tectonics Theory (1965)

- Study of the theory that the earth’s crust is _____ (solid pieces) that move _____
- Approximately 12 major plates
- Larger plates include _____
- Evidences include:

1. _____ :
The same kind of animal and plant fossils were found on different continents.

2. _____ :

- Seafloor moves away from ridge (crack in crust)
- Hot _____ comes up through crack and cools to form _____.
- Scientists took core samples and found that the youngest rock is near the spreading center and the oldest rock is the farthest away.

3. _____ :

- As hot magma cools it becomes solid rock and iron-bearing minerals become fixed and magnetized towards magnetic north
- Scientists discovered that some rocks have reverse magnetism.
- The pattern of magnetism on either side of the spreading center is: _____

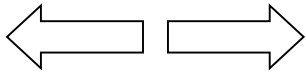

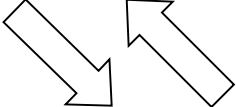
What do the two theories have in common?

Name: _____

Plate Boundaries

Date: _____

SWBAT: Identify and describe the different types of plate boundaries and where they occur.

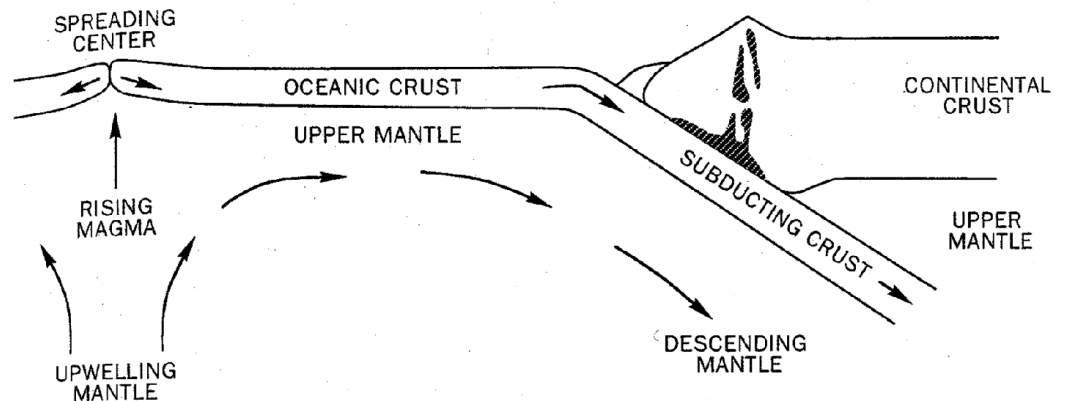
Type of Plate Boundary	Sketch	Description	Features Formed	Examples
Divergent				
Convergent		Continental-Oceanic		
		Continental-Continental		
		Oceanic-Oceanic		
Transform				

Ridge Push:

Gravity Pull (Slab-Pull):

Convection Currents: cycle of hot material rising, cool material sinking.

- This slow cyclic movement causes the plates to move like groceries on a conveyor belt.

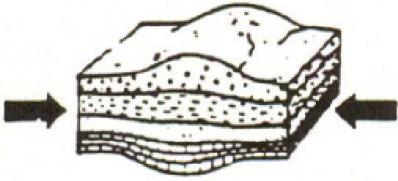
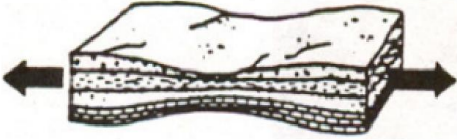



Name: _____

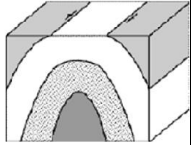
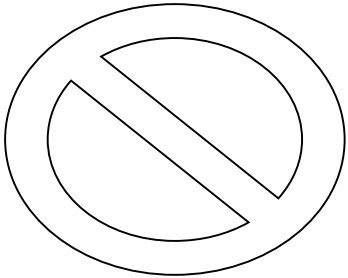
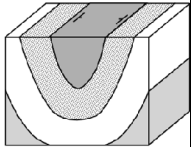
Deformation of the Earth's Crust

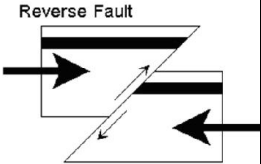
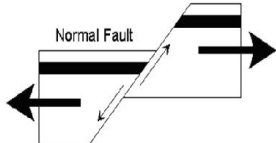
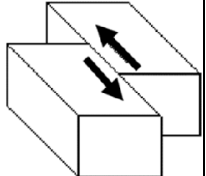
Date: _____

SWBAT: Match the forces to the boundary they produce and differentiate between various faults.

TYPES OF STRESS:	COMPRESSION	TENSION	SHEARING
ROCK MOVEMENT:		<ul style="list-style-type: none"> • Rocks become thinner 	<ul style="list-style-type: none"> • Causes rocks to twist, bend, or break
PLATE BOUNDARY:			
SKETCH:			

Response to Stress

FOLD	Anticline		
	Syncline		

FRACTURE						
TYPES OF FAULTS	Reverse Fault		Normal Fault		Strike-Slip Fault	

Earthquakes

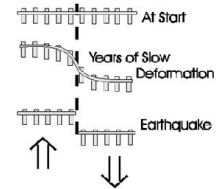
Date: _____

SWBAT: Differentiate between earthquake measurement scales and describe the mechanics of an earthquake.

Earthquakes: _____ of the earth's crust

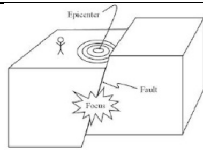
- Usually occurs when rocks under stress suddenly shift along a fault.
- Earthquakes are caused _____

- _____:
- **Stress** builds between two plates that are locked in place by **friction**.
 - Plates overcome friction causing plates to move (earthquake).
 - Plates snap back to their former shape.



Parts of an Earthquake

_____:
point on the **fault** at which the first movement occurs.



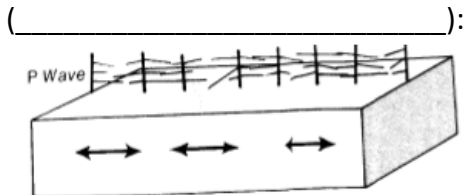
_____:
point on the **surface** directly above the focus.

Seismic Waves

- Vibrations are called seismic waves. They radiate outward in all directions.

3 Types of Seismic Waves:

'P' Waves

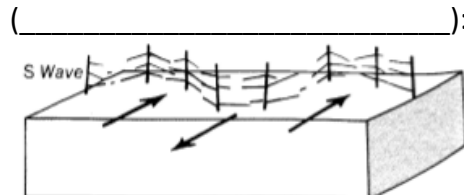


Wave Motion:

Travel Through:

Speed:

'S' Waves

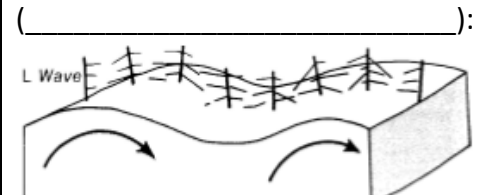


Wave Motion:

Travel Through:

Speed:

'L' Waves



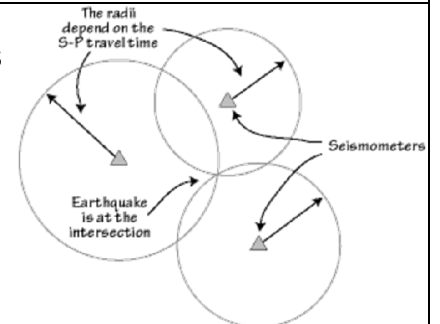
Wave Motion:

Travel Through:

Speed:

_____ : Instrument that detects and records earthquake waves.

- _____
- Seismographs can tell how far away the epicenter is and how strong the earthquake is
- Need _____ seismographs to determine exact location.



Scales to Measure Earthquakes

Richter Scale

- Measures _____
- Amount of energy released

Mercalli Scale

- Measures _____

Rossi-Forel Scale

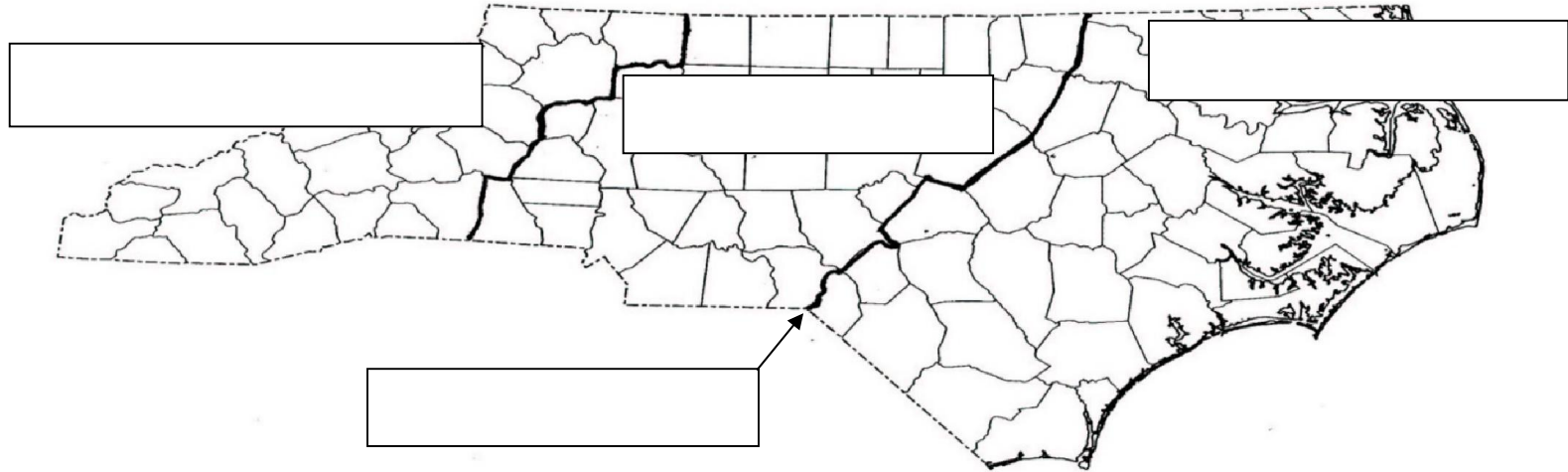
- Measures _____

Name: _____

NC Geology

Date: _____

SWBAT: Connect major types of geologic processes to landforms in NC and SE United States.



<p>_____:</p> <ul style="list-style-type: none"> • Blue Ridge Mountains, part of the Appalachian Mts <ul style="list-style-type: none"> ○ Known for their _____ • Created from _____ • Started growing around 400 mya (Paleozoic Era) • Stopped growing around 270 mya 	<p>_____:</p> <ul style="list-style-type: none"> • Italian word for: " _____ " • Area less steep than the mountains but steeper than the coastal plain. • Created by _____ 	<p>_____:</p> <ul style="list-style-type: none"> • Flatter than the piedmont. • Created from _____ <table border="1"> <tr> <td data-bbox="1375 933 1696 1172"> <p>Inner Coastal Plain</p> <ul style="list-style-type: none"> • steeper and dryer than the outer coastal plain • Contains _____ </td> <td data-bbox="1696 933 2026 1172"> <p>Outer Coastal Plain</p> <ul style="list-style-type: none"> • Contains _____ </td> </tr> </table>	<p>Inner Coastal Plain</p> <ul style="list-style-type: none"> • steeper and dryer than the outer coastal plain • Contains _____ 	<p>Outer Coastal Plain</p> <ul style="list-style-type: none"> • Contains _____
<p>Inner Coastal Plain</p> <ul style="list-style-type: none"> • steeper and dryer than the outer coastal plain • Contains _____ 	<p>Outer Coastal Plain</p> <ul style="list-style-type: none"> • Contains _____ 			

_____ : the boundary between these two different types of bedrock.

- Piedmont and Coastal plains contain different types of bedrock.
- Piedmont is _____
- Coastal Plain is _____

NC Geologic Timeline

- 1.7 BYA: NC land forms
- 444 MYA: NC and Europe begin to collide
- 320 MYA: Pangaea forms with NC in heart
- 250 MYA: Pangaea breaks, Mountains start to weather
- 145 MYA: Oceans recede, Coastal plain visible
- 145 MYA – Present: Ocean advances and recedes multiple times

Topographic Maps

Date: _____

SWBAT: Interpret and construct topographic map. Predict geologic formations based off topographic maps.

Topographic Maps

- Show the _____ of the Earth.

Examples of features: hills, rivers, valleys...

Topographic Maps

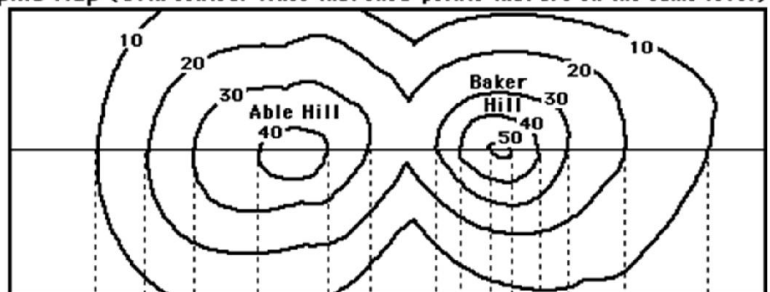
Contour Lines	<ul style="list-style-type: none"> • Connect all the points at _____. • Lines never cross! • The closer the lines, the _____. • “V” lines indicate a valley • “V” lines always point upstream (rivers flow from high to low elevation) • _____ indicates hills or mountains.
Depression Contours	<ul style="list-style-type: none"> • Show a _____. • Are dashed
Contour Interval	<ul style="list-style-type: none"> • The difference in elevation between _____.
Contour Index	<ul style="list-style-type: none"> • Every _____ contour line is in _____ and labeled with the elevation number • Difference between 2 contour index lines divided by 5 = contour interval
Relief	<ul style="list-style-type: none"> • Difference between the _____. • Example: 150 ft. (highest) - 50 feet (lowest) = 100 feet (relief)

The top of this drawing is a contour map showing the hills that are illustrated at the bottom.

- On this map, the vertical distance between each contour line is 10 feet.

1. Which is higher, Able Hill or Baker Hill?
2. Which is steeper, Able Hill or Baker Hill?
3. How many feet of elevation are there between contour lines?
4. How high is Able Hill?
5. How high is Baker Hill?
6. Are the contour lines closer together on Able Hill or Baker Hill?

Topographic Map (with contour lines that show points that are on the same level)



The two hills seen from the side, with elevations marked and dotted lines pointing to the corresponding contour lines.

Name: _____






Mountain Building

Date: _____

SWBAT: Differentiate between mountain types. Explain the conditions for formation.

Mountains are classified by the forces that create them.

- Mountains erode slowly through action of _____
- High elevations on mountains are _____ than at sea level, which affect the _____ of mountains with different elevation
- Highest Mountain: Mount Everest (Himalayas)

Mountain Type	Formation	Description	Example
Folded		<ul style="list-style-type: none"> • Tectonic movements have squeezed rock layers together. Evidence of _____	
Fault Block		<ul style="list-style-type: none"> • These blocks were then lifted above the surrounding crust. Faulting _____	
Dome		<ul style="list-style-type: none"> • Resulting in: 	
Eroded		<ul style="list-style-type: none"> • Leaves mountains standing between valleys. 	
Volcanic		<ul style="list-style-type: none"> • May develop on: 	

Volcanoes

Date:

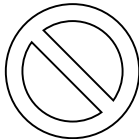
SWBAT: Identify 3 types of volcanoes and tell where/how they form.


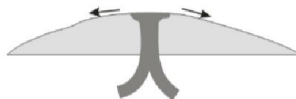
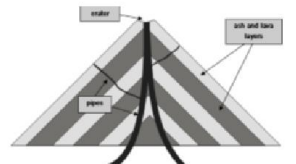
Volcanoes: An opening in the earth's crust through which magma erupts.

Magma:

Lava:

Type of Magma	Felsic	Mafic
Composition		
Characteristics		
Rock Formed		
Viscosity- ability of a liquid to resist flowing	<ul style="list-style-type: none"> • High Viscosity <ul style="list-style-type: none"> ○ Example: Corn Syrup 	<ul style="list-style-type: none"> • Low Viscosity <ul style="list-style-type: none"> ○ Example: Baby Oil

Type of Eruption	Boundary Type	Where it Occurs	Description	Example
Rift			<ul style="list-style-type: none"> • Non-explosive eruption • Mafic lava 	
Subduction Boundary			<ul style="list-style-type: none"> • Explosive eruption • Felsic lava • Lava, steam, & ash ejected • Most common 	
Hot Spot			<ul style="list-style-type: none"> • Eruptions can be explosive or non-explosive • Cause unclear 	

Type of Volcano	Illustration	Type of Boundary	Type of Eruption	Type of Lava	Description	Example
Cinder Cone	 <p>Small mountain; steep sides</p>				<ul style="list-style-type: none"> • Explosive • Cinders and rock particles are blown into the air 	
Shield	 <p>Dome-shaped mountain</p>				<ul style="list-style-type: none"> • Non-explosive • Lava quietly flows from the vent • The mountain covers a large area; gently sloped sides 	
Composite Cone/ Stratovolcano	 <p>Large mountain; steep sides; cone-shaped</p>				<ul style="list-style-type: none"> • Explosive and non-explosive • A violent eruption sends up volcanic bombs, cinders and ash. • A quiet volcanic flow follows the explosion. 	

Other dangers of volcanoes	Description
<p>_____ : Mixture of water, rock fragments and sediment that flow down the slopes of a volcano</p>	<ul style="list-style-type: none"> ○ Looks like a mass of wet concrete ○ Eruptions may trigger one or more lahars by quickly melting snow/ice or ejecting water from a crater lake ○ Can easily grow to more than 10 times their initial size ○ Typically associated with _____
<p>_____ : Made up of tiny, dust-like fragments of jagged rock, minerals and volcanic glass.</p>	<ul style="list-style-type: none"> ○ Hard, abrasive, and does not dissolve in water ○ After a violent eruption, the ash in the air can be thick enough to block sunlight and lower temperatures worldwide
<p>_____ : Current of superheated volcanic ash, lava, and gas that flows from a volcano.</p>	<ul style="list-style-type: none"> ○ Moves _____ ○ Caused when an eruption column collapses or when a dome collapses

