



Topic/Objective CHAPTER: 18

NAME:

Pd: 1 2 4 5 other

DATE

10/2

Volcano

Essential Question

Look @ Deadliest World Volcanoes

Cue: Review:

Thoughts: Main Idea

NOTE Taking AREA:

- ↳ One of the world's Most active Volcano is on the Big Island of Hawaii
 - ↳ Mt. Kilauea
 - ↳ shield volcano (8000 ft tall)
 - ↳ covered more than $(37)^2$ miles (1,369 miles) of land more than 80 feet thick under lava.
 - ↳ lava pond has Ave Temp $+2100^{\circ}\text{F}$
 - ↳ Produces enough lava to pave a 2-lane highway; 50 X around the world.
 - ↳ That's 3000 RR. cars/day
 - ↳ Added more than 400 ^{new} Acres to the Big Island
 - ↳ 2 other Volcanoes Mauna Kea and Mauna Loa

erupts
Jan 3, 2003

Goddess of Fire is Pele "Paylay"

- ↳ Takes human form and wanders the island
 - ↳ Tall, Young, beautiful woman
 - ↳ Old, ugly, and frail woman
 - ↳ often seen w/white dog
- Testing You, to See if you are worthy
- ↳ Place a Curse on you if you disturb or steal from her.
- ↳ Peace offering is Bottle of Gin



Topic/Objective CHAPTER:

NAME:

DATE

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

- ↳ South Am has the most active Volcanoes in the world.
- ↳ Pacaya in Guatemala (7 active)
- ↳ Nevado del Ruiz
 - ↳ Nov, 13, 1985 erupted melting only 2% of the ice caps causing Lahar flow (mudflow) killing some 25 people located 33 miles away
- ↳ Mt. Popo (Popocatepetl) is just 3 miles from 1 of the largest cities that hold 10 million; Mexico City.
- ↳ Montserrat (Soufriere Hills)
 - ↳ island in West Indies
 - ↳ April 1996 it erupted sending a cloud some 30,000 ft
 - ↳ Equakes every 30 seconds
 - ↳ 150 mph Pyroclastic surge
- ↳ Iceland village of Haybay
 - ↳ Jan 1973 a large Fissure Volcano opened up splitting the island in 2.
 - ↳ Spewed out more than 33 million tons of Volcanic Ash
 - ↳ 500 ft wall of lava was on its way to destroy the town
 - ↳ 43 pumps and 19 miles of pipe they sprayed the lava w/more than 4000 tons of H_2O / hour.

SUMMARY:



Topic/Objective - CHAPTER:

NAME:

Pd: 1 2 4 5 other

DATE

2 of 2

Essential Question

Deadliest World Volcanoes

Cue: Review:
Thoughts: Main idea

NOTE Taking AREA:

May 18, 1980 8:32 A.M. after sleeping for 128 years... IT AWAKENS!

↳ Mt. Saint Helens

- ↳ Most deadliest in U.S. history
- ↳ 10,000 Earthquakes before the eruption have been recorded.
- ↳ created Lahar's flow (mud flow)
- ↳ 57 People died w/in that 9 hour eruption

↳ Mt. Rainer

- ↳ Most dangerous w/in U.S.

Ring of FIRE series of Volcanoes [400+] around the Pacific rim.

KrakaToa

- ↳ 1883 an island in Indonesian b/t Sumatra & Java which are also volcanic, erupted that sent a Shock wave that circled the world 7 times

↳ (continued)



Topic/Objective CHAPTER: 18

NAME:

DATE

2007

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

Krakatoa (continued)

- ↳ dust from the eruption fell 10 days later over 3000 miles away
- ↳ Killing over 37,000 people.

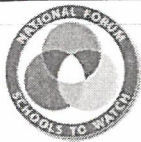
↳ Tambora (near Krakatoa)

- ↳ on Sumbawa Islands, Indonesia erupted in 1815.
- ↳ This eruption killing 71,000 people sent enormous volumes of pyroclastic flow, and 10 meter high wall of water (Tsunami) that devastated the shoreline.
- ↳ Year w/o a Summer (1815)
 - ↳ where it snowed in June & July around the world due to the Volcanic Ash & dust from the eruption

↳ Toba

- ↳ nearly

SUMMARY:



Topic/Objective CHAPTER: 13

NAME:

Pd: 1 2 4 5 other

Volcanoes

DATE

10/2

Essential Question

What is Volcanism Where they form

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

Volcanism

↳ All the processes associated w/the discharge of magma, hot fluids, and gases.

↳ most Volcanoes form @ plate boundaries

types of Boundaries

Types of Volcanic Boundaries

(1) Divergent Plate Boundaries

↳ 2 plate separate or split apart ← →

↳ created: M.A.R. or M.O.R.

↳ eruptions: here tend to be non-explosive

: form huge piles of lava called: pillow lava

↳ mostly found in Iceland, bottom of Atlantic ocean @ (M.A.R.)

(2) Convergent Plate Boundaries

↳ 2 plates collide together → ←

↳ creates Subduction Zone

↳ most Volcanoes on land result from Oceanic - Continental subduction.

e.g. Naza plate - South Am. plate

↳ Volcanoes are characterized by:
Explosive Eruptions

NOTES CONTINUE ON OTHER SIDE



Topic/Objective CHAPTER:

NAME:

DATE

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

(2) Convergent Plate Boundaries

- ↳ 2 major belts where they occur
 1. Circum-Pacific Belt
 - ↳ A.K.A. Ring of Fire
 2. Mediterranean Belt

Circum-Pacific Belt

- ↳ larger area that outlines the Pacific Plate
 - ↳ stretches along the western coast of North & South Am. and down the eastern coast of Asia.

Mediterranean Belt

- ↳ smaller area that generally outlines correspond to the boundaries between the Eurasian, African, & Arabian plates.

(3) Hot Spots

- ↳ Some Volcanoes form far from plate boundaries. i.e. Hawaiian Islands
- ↳ is an unusually hot area in Earth's lithosphere where high-temperature plumes of magma (plutons), rise toward the surface, away from Plate Boundaries.
- ↳ the hot spot remains stationary as the plate moves over it.

SUMMARY:



Topic/Objective CHAPTER: 18

NAME:

Pd: 1 2 4 5 other

Volcanoes

DATE

202

Essential Question

What is Volcanism? Where they form?

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

(4) Flood Basalt (Fissure Volcanoes)

↳ form where lava flows out of long cracks in the Earth's crust

↳ Columbia River basalts located in the Northwestern U.S. were formed this way.

another common Convergent Plate Boundary in the U.S. is due to the Juan de Fuca plate is subducting under the Pacific plate

↳ Cascade Mt. Chain

↳ located in the ^{Pacific} Northwest of U.S.

↳ these Volcanoes are all coming from 1 super magma chamber.

↳ Super Volcano

↳ Mt. Saint Helen (most active)

others

Mt. Baker, glacier Peak, Mt. Rainier
Mt. Adams, Mt Hood, Mt. Jefferson

Mt. Thielson, Three Sisters, Crater lake
Mt. McLoughlin, Mt. Shasta, Lassen Peak



Topic/Objective CHAPTER:

NAME:

DATE

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

Mt. Saint Helen

↳ May 18, 1980 it erupts

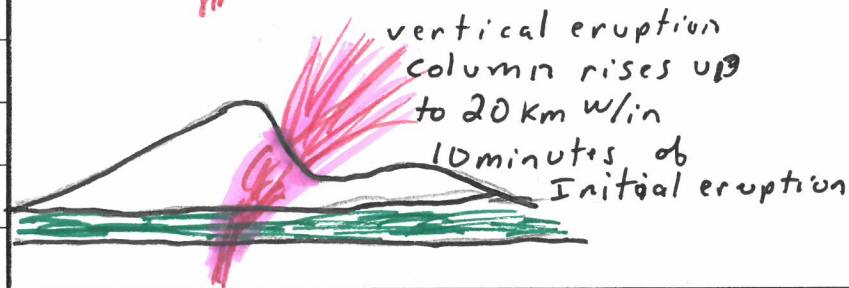
↳ moderate earthquake triggered a massive landslide on the North side of the volcano



↳ eruption reduced the height of volcano by 400 meters (1312 miles)



→ destroy objects 19.2 miles away in a 25 mile radius



SUMMARY:



Volcanoes

1.02

Essential Question

What are the Signs of Volcanic Doom?

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

From video Pompeii the last day

Mt. Vesuvius

August 27, 79 A.D.

@~10 A.M. Mt. Vesuvius started to give signs that it was going to erupt.

Pompeii

For the village of Pompeii they had no idea what was about to happen.

- ↳ Life went on as normal
- ↳ Fulleries (Fullor)
 - ↳ modern day Laundry mats
 - ↳ Clothes washed w/ Human Urine
- ↳ Pizza shops ; Market place ↳ was taxed
- ↳ NO name for Volcano

3 Signs of an Eruptions

Signs given BEFORE an Eruption occurs

1. Minor Tremors (Earthquakes)
2. Land Swells (Deformation)
 - ↳ swell up to 3 meters (10 feet)
3. Smoke from the Mt.

Volcanic Soil

Volcanic Soil is among the richest soil in the world b/c it's filled w/ nutr



Topic/Objective CHAPTER:

NAME:

DATE

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

~ 1 p.m. on Aug 24, 79. A.D. Mt. Vesuvius erupts

- ↳ Magma inside the volcano was blasted 10 miles into the air, where it turned to "foam" ↳ stratosphere
- ↳ This type of volcano is known as a Strato or Composite volcano

Dangers after Eruption

Dangers after an Eruptions

1. Major earthquake due to blast
2. "Blast" itself
 - ↳ sound (shock wave)
 - ↳ Debris - Ash & rock
3. Blocking out of sunlight
 - ↳ Blast sent Ash into the air (15 miles) blocking out the light from the sun
4. Falling Rocks (what goes up; must come down)
 - ↳ debris returned to earth falling @ rate of ~ 125 mph
 - ↳ Pumice (Ign Rx that floats) ("Foam")
 - ↳ Scoria (Ign Rx heavy & dense)

SUMMARY:

5. Volcanic Lightning
 - ↳ Triggered by the superheated air
6. Structural Collapse
 - ↳ roofs are built to withstand rain
 - ↳ 100 million tons of Ash, pumice and scoria built up on houses.
 - ↳ buried under ~ 100 ft of Ash.



Topic/Objective CHAPTER: 18

NAME:

Pd: 1 2 4 5 other

DATE

2022

Volcanoes

Essential Question

What are the Signs of Volcanic Eruption?

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

Danger continued

Dangers of Eruption

7. Water begins to evaporate and foul odor (sulfur) in the air.

8. Pyroclastic Surge (see separate sheet)

↳ column of debris begins to collapse causing this event.

↳ Pyro = Fire Clastic = Broken pieces

↳ is hot gas of infused/incandescent ash & rock which can travel ~60mph.

9. After shocks (more earthquakes)

10. Trapped inside building and buried alive.

↳ Toxic gases

↳ Suffocation

Causes of a violent eruption

1. Pressure buildup

2. Silica content: magma composition

3. Temperature & Heat

NOTES CONTINUE ON OTHER SIDE



Topic/Objective CHAPTER:

NAME:

DATE

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

Mt. Vesuvius eruption end about 18 hours later.

↳ The area was covered under 10 billion tons of Volcanic ash, rock and Pumice.

↳ City of Herculaneum and Pompeii was covered by more than 100 feet of debris.

↳ Not until 1594 was this city discovered.

- Pliny the Elder was a commander of the Roman Fleet. He was a naturalist, ^{-5pm} and a writer. He tried to rescue them But was over come by TOXIC GAS on the beach where he stood. NO Attempt to save his life.

SUMMARY:

- Pliny the younger (Gaius) wrote the account of the eruption as he viewed Vesuvius from Naples.



Volcanoes

Essential Question

What is a Pyroclastic Surge

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

Pyroclastic Surge

↳ Fire ↳ Broken Pieces

↳ is a hot gas cloud of infused/incandescent ash and rock which travels down the side of a volcano at speeds of @ least 60 mph.

↳ If caught in this Ash cloud; several things can happen:

1. Incineration

- a) 5 x hotter than boiling H_2O
 - ↳ Boiling $H_2O = 212^\circ F (100^\circ C)$
 - ↳ $1060^\circ F$

* b) Instantaneous Death

c) body turned to charcoal

2. Thermal Shock

↳ If you take cover and exposed to the heat

- You are alive {
- a) Skin begins to vaporized
 - b) Teeth & Bones shattered like glass
 - c) Brain boils and explodes.

This was the fate of the City of Herculaneum
was buried under 100 ft of Volcanic Ash



Topic/Objective CHAPTER:

NAME:

DATE

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

3. Toxic Gases

↳ are ahead of the pyroclastic flow and is a mixture of CO_2 and Chlorine.

NOT
instantaneous

↳ Chlorine mixes w/ H_2O in the body to create Hydrochloric Acid.

4. Suffocation

↳ as volcanic ash over comes you your body begins to inhale this debris

NOT

1) 1st breath

↳ inhales gas & ash. It's like breathing fire

2) 2nd breath

↳ The moisture (fluids w/in the lungs), begins to harden and thicken like cement.

3) 3rd breath

↳ Causes you to gasp for more air.

SUMMARY:

Topic/Objective CHAPTER: ch 18

NAME:

Pompeii Video

Pd: 1 2 4 5 other

DATE

Essential Question: What are the signs of volcanic doom?

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA:

Aug 24, __AD 10am Vesuvius started to gave signs that it was going to erupt.

Life was normal: Fulleries (fullur) modern day _____ washed with _____
(which was taxed)

Signs of eruption:

- 1) _____
- 2) _____
- 3) _____

~1pm, Aug 24, AD it erupts... turning magma into foam shooting a column of smoke high into the air. About 10miles+ into the Stratosphere.

This is called: Strato or Composite Volcanoes (in Latin there is no name for Volcano)

Pliny the Elder was a commander of a fleet of Roman battleships. He was also a naturalist, a person who studies natures spectacles and writes about them. Pliny the Younger wrote an account of this eruption as he viewed Vesuvius from Naples.

Dangers of eruption. (Plinian Eruption)

- 1) _____
- 2) _____ (foam blast into the sky at least 10 miles)
- 3) _____
- 4) _____
- 5) _____
- 6) _____ (100 million tons of pumice & ash)
 - a) Volcanic Ash is the most _____
- 7) _____
- 8) _____
- 9) _____
- 10) _____

The city of Herculaneum lays to the west of the volcano and much closer to Vesuvius than Pompeii

SUMMARY:

Topic/Objective CHAPTER:
Pompeii Video

NAME:
Pd: 1 2 4 5 other
DATE

Cue: Review:
Thoughts: Main Idea

NOTE Taking AREA: (CONTINUED)

The city of Herculaneum lays to the west of the volcano and much closer to Vesuvius than Pompeii

Pyroclastic surge: is hot gas of infused/ incandescent ash & rock

- 1) _____
 - a) 5 times _____
 - b) _____
 - c) _____
- 2) _____
 - a) _____
 - b) _____
 - c) _____
- 3) _____
 - a) _____
- 4) _____
 - a) First breath _____
 - b) Second breath _____
 - c) Third breath _____

Causes of a violent eruption

- 1) _____
- 2) _____
- 3) _____

The eruption lasted for about 18 hours covering area with 10 billion Tons of volcanic rock, ash and dust. The buried the cities was under more than 100 feet of debris. In 1594 Pompeii was found.

SUMMARY:

