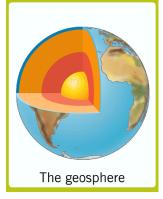
Name _	
Date	per



The Earth as a System

Chapter 3 The Dynamic Earth Section 1, The Geosphere

•	The Earth is an integrated system that consists of	Atmosphere
•	that all interact with each other. Scientists divided this system into four parts: • • • •	Biosphere Geosphere Hydrosphere
	•	The Earth is an integrated system that consists of the geosphere, the atmosphere, the hydrosphere, and the biosphere
The E	arth as a System	
•	Theis	the mostly solid,
	of the Earth that extends from the center of the core	to the surface of the crust.
•	The is the mixtu	
•	Nearly all of these gases are found in the first	above the Earth's surface.
The E	arth as a System	
•	The hydrosphere makes up all of the	
•	Much of this water is in the	, which cover nearly three-quarters of the

The Earth as a System

- The _____ is the part of the Earth where life exists.
- It is a thin layer at the Earth's surface that extends from about _____ above the Earth's surface down to the _____
- The _____ is therefore made up of parts of the geosphere, the atmosphere, and the hydrosphere.

However, water is also found in the ______, on _____, and in the

Discovering Earth's Interior	
Scientists use	to learn about Earth's interior.
 Seismic waves are the same waves that tra 	avel through Earth's interior during an
 A similar process would be you tapping on 	a melon to see if it is ripe.
Discovering Forth's Interior	
Discovering Earth's Interior	through
A seismic wave is which it travels.	through
	of
seismic waves that penetrate the interior of	f the planet
•	arned that the Earth is made up of
·	•
and have interred wi	nat substances make up each layer.
The Composition of the Earth	
Scientists divide the Earth into four layers:	LAYERS OF THE EARTH
•	inner
•	core
•	outer
•	core
These layers are made up of progressively	mantle
material toward the center	, man of
of the Earth.	crust
The Composition of the Earth	
• The	
is the and	
outermost layer of	
the Earth above the mantle.	Left Brain Craft Brain
 It is the 	
It is the layer, and makes up less than	of the planet's mass.
• It is	beneath the <u>oceans</u> and is
beneath the continents.	
The Composition of the Earth	
	s the layer of rock between the Earth's crust and core.
	of medium density, and makes up
percent of the mass of the	
• Theis	s the central part of the Earth below the mantle, and is
composed of the	·

Composition (Listed on Left & Described above) & Earth's Layers based on Figure 3 > Earth's Layers Scientists divide the Earth into **Structure**/Physical Properties different layers based on compo-(listed on Right& described sition and physical properties. Below) Lithosphere 15-300 km thick; the cool, Crust 5-70 km thick; the solid, rigid, outermost layer of the Earth; consists of brittle, outermost layer of the Earth; the crust and the rigid, uppermost part of the continental crust is thick and made mantle; divided into huge pieces called of lightweight materials, whereas tectonic plates, which move around on top oceanic crust is thin and made of of the asthenosphere and can have both denser materials continental and oceanic crust Asthenosphere 250 km thick; the solid, plastic layer of the mantle between the Mantle 2,900 km thick; the layer of mesosphere and the lithosphere; made of the Earth between the crust and the mantle rock that flows very slowly, which core; made of dense, iron-rich minerals allows tectonic plates to move on top of it Mesosphere 2,550 km thick; the "middle sphere"; the lower layer of the mantle between Core 3,428 km radius; a sphere of hot, the asthenosphere and the outer core dense nickel and iron at the center of the Earth Outer Core 2,200 km thick; the outer shell of Earth's core; made of liquid nickel and iron Inner Core 1,228 km radius; a sphere of solid nickel and iron at the center of the Earth The Structure of the Earth The Earth can be divided into ______ layers based on the physical properties of each layer. is the The of the Earth that consists of the crust and the rigid upper part of the mantle. • It is a cool, rigid layer that is 15 km to 300 km thick and is divided into huge pieces called The Structure of the Earth I he _____ is the ____ of the mantle beneath the lithosphere. • The • It is made of _____ that flows slowly, which allows _____ Beneath the asthenosphere is the ______, the lower part of the mantle. The Structure of the Earth • The Earth's _____ is a _____ layer.

Earth's Layers based on

 At the center of the Earth is a 	, which
is made up mostly of	·
 Although the 	is estimated to be between
4,000°C to 5,000°C, ()it is <u>solid</u> because it is
	·
 The inner and outer core make up about 	of Earth's mass.
MAJOR TECTONIC PLATES	Plate Tectonics
	•
	are blocks of
Juan De Fura-	that consist of the <u>crust</u>
North American Plate	and the rigid, outermost part of the mantle and glide
Cook Plate African Plate	across the underlying
Pacific Plate Plate Physics Physics	
Nazca South American Plate Plate Pige	• The are
Indo-Australian Plate	located on tectonic plates and
The state of the s	with them.
South State	 The major tectonic plates include the
0 500 1,000 Miles	,
Plate Boundary 0 1,000 Klometers — Plate Boundary → Plate Movement	,
© 2018 MapsofWorld.com	·
, &	plates.
Plate Boundaries	
 Much of the 	at the surface of the
	between tectonic plates.
	,or
one another.	
	se actions causing to
	to shake the crust, and
to erupt along the plate boundaries.	
Types of Plate Boundaries	
	are <u>continually moving</u> around the
Earth's surface.	
When tectonic plates	· · · · · · · · · · · · · · · · · · ·
one another, or	, enormous forces cause
rock to and	·
 The three types of Plate Boundaries are of 	
	(-1:4:
	(sliding past one another)

Divergent	t Boundaries:				
_			s when	two tectonic plates _	
		each other.			
• Alon	g these boundaries,	ar	nd		_ are common.
Mid-Ocean	Ridges				
• Und	er the Ocean-			of an dealth and head to	
	(A MANUEL STREET	1
) fr	om the Earth's		THE STANDARDS	
man	tle to the surface, solidifying to		0	osator apphare	
	at		200	Metting	
	at		2000 100	Aathn	Carrier Osmicker
Rift Valleys			122		
-	nin Continents divergent bound	aries initially	10	Rift Valley Fault Blocks	
	uce rifts (like a	•	A	THE ROMAN	
	in the Earth), which eventually b		1	作用XXXXXX	The same of the sa
toai	in the Earth, which eventually t	Coomo	ce _{te}		Continental Crust
• An E	xample would be the	_• 			Lithospheric Mantle
		in Africa.		Magma	Asthenosphere
Whe Ocean-Cor	ent Boundaries: en two plates crash together, it is ntinent convergence (Subduct	ion)		vo	LCANIC ARC
• vvne	en		converge	es with	
		, the		TRENCH	CONTINENTAL
aens	ser oceanic plate		li.	OCEANIC PLATE	PLATE
This	the contin	nental plate and me	eits.	-	
• INIS	process, called	, OCCU	irs	· ·	
at th	6	aion io known oo o		LITHOSPHERE	
	The entire re	egion is known as a			
	duction zone.	الم			fa at
	and	u			form at
				in Couth Amoria	-
• An e	example of these is in the			in South America	a
Ocean-Oce	ean convergence (Subduction))		Convergent Boundaries Ocean-Ocean Convergence	
 Whe 	n a convergent boundary occur	S		Mariana Islands	Marianas Trench
			,		
the o	older, more dense of those plate		the		

	other and		.	
•	This process forms the deepest of the such as found at the			
	such as found at the		in the South Pacific Ocean	
•	It will also form			
Conti	nent-Continent convergence			
	Continental crust is	(light)	Plates Collide	
		(0)		
•	When two continental plates converge, they			4
		and		lat
			olate	
•	The amazing			
	are the result of this typ	e of		
	convergent plate boundary.			
•	The		resulted from	
	convergence when			
	•			
Trans	sform Boundaries-Slide past			
•	Transform boundaries are places where plates	c		
	Transform boardaries are places where place	J	Earthquakes	
•	At transform boundaries lithosphere is			
	At transform boundaries lithosphere is		Displaced Rock	
•	Many transform boundaries are found on the			
	, where they connect seg		Lithosphere	
	diverging mid-ocean ridges.	monto oi		1
•	California's		Asthenosphere	
	is a transform boundary.		_	
•	are very commo	on here		
	are very comme	on nois.		
Farth	quakes			
•	A is a break in the Earth's cr	ruet		
	along which of the	ust		
	relati	VA S		
	to one another.	ve		
•	When that are			
	that are		AND STATE OF THE S	
		1	300	
	along a fault, a series of ground vibrations, know	wn	Contract of the Contract of th	
		WII	Acres 1	
•	as, is set off.		Many are so	
•	Earthquakes are occurring that we cannot feel them			
			are	
	movements of the Earth's crust that			

Earthquakes			
 The measure of t 	he	1	EARTHQUAKE
	by an earthquake is called	EE	MAGNITUDE
• The	 magnitude	Great	8.0 or greater Great earthquake that can totally destroy communities near its epicentre
	, and the	Major	7.0 to 7.9 Major earthquake causing serious damage
	magnitude	Strong 7	6.1 to 6.9 May cause major damage in populated areas
Magnitudes great	ter than	6 Moderate	5.5 to 6.0 Slight damage to buildings
		Light 5	2.5 to 5.4 Often felt, but only causes minor damage
Each in an area of		Minor 2	
Each increase of	magnitude by indicates	3	
	times more energy than the	2	2.5 or less Usually not felt, but can be recorded by seismograph
whole	·		Source: UPSeis / Michigan Tech
the enormous stre	arthquakes take place because of esses that are generated, or		— Plate boundary • Recorded earthquake
odon otnon		5	Potential Earthquake
•	million to 20 million years, large numbers occurred along the in		Potential Earthquake Impact in California, US Created by: Haley Christianso John Donago John
	, where parts of the		Societ for MET Commit ADA USA US Operationally committing puller Giffue Commit
are clinning neet	plate and the	plate	Sen Favorion And Lot Fa
are <u>slipping</u> past	one another.		, Les Yaya

Earthquake Impact
Little to No Impact
Little to No Impact

Eartho	quake Hazard		Computer-controlled weights on roof to reduce movement	'Birdcage' interlocking steel frame
•	Scientists when earth		Steel frames which can sway during earth movements	Outer panels flexibly attached to steel
	take place. However, they can help provinformation about		Automatic window shutters to prevent falling glass	Roads to provide quick access for emergency services
	helping people	e prepare.	Open areas where people can assemble if evacuated	Fire-resisitant building materials
•	An area's	is		
	determined by and seismic activition			
•			Foundations sunk into bedrock avoiding clay	Rubber shock-absorber to absorb earth tremore
	, built in high			ing.
Volcai				
•	A is a mountain built from, or melted rock, which rises from the Earth's interior to the surface, and can occur or Volcanoes are often, where plates are either colliding or separating from one another.	ASIA	Pacific Ocean OCEANIA Christchurch (New Zealand)	Paricutin (Mexico) Santiago (Chile)
•	The majority of the world's			
	are loc		ic plate boundarie	s that surround the

'Birdcage' interlocking

cal Effect of Volc	anic Eruptions				
the slope of a of up to	, and can flow down volcano at speeds and (burn): ption,	acid rain /ash fall (eruption clo	eruption column	prevailing wind pyroclastic flow landslide earthquakes
	and produce				
	with the		of		that runs
	solidifies around anyth				
	:		to the ground o	can cause	
	under				
the	of vehicle	es, including _		in flight, and	cause
			ar	ıd	
for several yea In large eruption the	eruptions can	nay reach spread	Volcano	Ash and Sulfuric Act	5
The <u>reduction</u>	in sunlight can cause in the				

EROSION TAKES A LOT OF TIME

_	ra	0		B
_	ΙU	3	ıv	I
_		_	_	_

The Earth's surface is continually battered by and scoured by rocks around and is the process in which the materials of the Earth's surface are, or and transported from one place to another by a natural agent, such as as times passes. Older mountains are therefore smoother than younger ones. Water Erosion Erosion by both and and it to give rise to a into the into the into the into the into the into the	Erosion	
rocks around and	 The Earth's surface is continually battered by 	_ and
is the process in which the materials of the Earth's surface are, or and transported from one place to another by a natural agent, such as as times passes. Older mountains are therefore smoother than younger ones. Water Erosion • Erosion by both and to give rise to a to give rise to a into the into as sandstone, is the as and very quickly. • such as sandstone,	scoured by, which m	noves
is the process in which the materials of the Earth's surface are, or and transported from one place to another by a natural agent, such as as times passes. Older mountains are therefore smoother than younger ones. Water Erosion • Erosion by both and to give rise to a to give rise to a into the into as sandstone, is the as and very quickly. • such as sandstone,	rocks around and	
materials of the Earth's surface are, or and transported from one place to another by a natural agent, such as or Erosion and makes them as times passes. Older mountains are therefore smoother than younger ones. Water Erosion Erosion by both and and Can produce on from ocean storms can to give rise to a Over time, can carve into the Wind Erosion In places where few plants grow, such as and, wind can, very quickly. In places where few plants grow, such as sandstone,, such as sandstone,		
materials of the Earth's surface are, or and transported from one place to another by a natural agent, such as or Erosion and makes them as times passes. Older mountains are therefore smoother than younger ones. Water Erosion Erosion by both and and to give rise to a to give rise to a into the into	• is the process in which	n the
and transported from one place to another by a natural agent, such as or Erosion and makes them as times passes. Older mountains are therefore smoother than younger ones. Water Erosion Erosion by both and on and from ocean storms can to give rise to a into the into the into the into the and very quickly. Wind Erosion In places where few plants grow, such as and, wind can very quickly. Your time, can carve into the into the into the	materials of the Earth's surface are	'only' 55 million year
natural agent, such as or and makes them as times passes. Older mountains are therefore smoother than younger ones. Water Erosion • Erosion by both and and on to give rise to a to give rise to a of into the can carve into the into the and very quickly. • In places where few plants grow, such as and very quickly. • very quickly. • such as sandstone,	, or	
natural agent, such as or and makes them as times passes. Older mountains are therefore smoother than younger ones. Water Erosion • Erosion by both and and on to give rise to a to give rise to a of into the can carve into the into the and very quickly. • In places where few plants grow, such as and very quickly. • very quickly. • such as sandstone,	and transported from one place to anoth	ner by a
Erosion and makes them as times passes. Older mountains are therefore smoother than younger ones. Water Erosion Erosion by both and can produce on to give rise to a to give rise to a into the Over time, can carve into the Wind Erosion also the into the In places where few plants grow, such as and, wind can, very quickly. yery quickly. such as sandstone,	natural agent, such as	
Erosion and makes them as times passes. Older mountains are therefore smoother than younger ones. Water Erosion Erosion by both and on to give rise to a into the into the into the into the into the very quickly. In places where few plants grow, such as and very quickly. • very quickly. • very quickly. • yund can very quickly. • yund can very quickly. • yund can very quickly. • yund cas very quickly.		Alpes
and makes themas times passes. Older mountains are therefore smoother than younger ones. Water Erosion • Erosion by both and to give rise to a to give rise to a of into the Wind Erosion • also the planet. • In places where few plants grow, such as and very quickly. • very quickly. • such as sandstone,	 Erosion 	
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Water Erosion Erosion by both and	·	and the state of t
Erosion by both and		Scottish Highland approx 585 million yea
Erosion by both and		Wask rock Soo out
can produce		Week look
from ocean storms can to give rise to a into the into the of the planet. In places where few plants grow, such as and , wind can very quickly. yery quickly. such as sandstone,	 Erosion by both and 	
from ocean storms can to give rise to a into the can carve into the from ocean storms can to give rise to a into the can carve into the from ocean storms can to give rise to a into the from ocean storms can into the from ocean storms can into the	can produce	Traces -
from ocean storms can to give rise to a of into the can carve into the from ocean storms can to give rise to a into the from ocean storms can to give rise to a into the from ocean storms can to give rise to a into the from ocean storms can into give rise to a into the from ocean storms can into give rise to a into the from ocean storms can into give rise to a into the from ocean storms can into give rise to a into the from ocean storms can into give rise to a into the from ocean storms can into give rise to a into the from ocean storms can into give rise to a into give r	on	More wave erosion More eros
to give rise to a of Over time, can carve into the wind Erosion also of the planet. In places where few plants grow, such as and very quickly. yery quickly. such as sandstone,		into an arch Stack is
Over time, of into the		
Over time, of into the	to give rise to a	
Wind Erosion In places where few plants grow, such as and, wind can very quickly. The places where few plants grow, such as sandstone, such as sandstone, into the plant int	of	@ eschooltoday.com
 Wind Erosion also the of the planet. In places where few plants grow, such as and, wind can very quickly. were as sandstone, 	 Over time, can carve 	
 Wind Erosion also the of the planet. In places where few plants grow, such as and, wind can very quickly. were as sandstone, 	into th	e
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of the planet. In places where few plants grow, such as and, wind can very quickly. , such as sandstone,		
 In places where few plants grow, such as		
and, wind can very quickly. •, such as sandstone,		
very quickly. such as sandstone,		
•, such as <u>sandstone</u> ,		
•, such as <u>sandstone</u> ,	very quickly.	
erode than hard	 , such as <u>sandstone</u>, 	
	erode than har	rd T
rocks, such as granite do.	rocks, such as granite do.	





Chapter 3 The Dynamic Earth Section 1 The Geosphere

Notes Verification Page

A ClassWork Grade 35% of Average ...BOTH sets of signatures are required

- 1. Sign with Mouse, 2. Print or 3. re-copy this FULL PAGE onto notebook paper. Then take a pic of the page with actual HANDWRITTEN signatures. Upload to Schoology classroom for your grade.
 - 1. I have fully completed my notes.
 - 2. I have viewed the videos requested and added in any of the essential facts.
 - 3. Then I re-read through the ENTIRE document to increase my understanding

(Student Name Printed)		
(Student Signature)		

- 1. I have verified that ALL blanks are filled in
- 2. I ensured my student has re-read the document & watched the teaching video.
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(Parent Name Printed)		
(Tarono Tamboa)		
(Parent Signature)		