



Introduction to Earth Science

O Lord, how manifold are Your works! In wisdom You have made them all; The earth is full of Your possessions. Psalm 104:24

1. Why do we study earth science?
 - a. To glorify God.
 - b. To learn a lot of facts. Nothing else.
2. _____ is the way to study science from the understanding that God created the universe and everything in it like God says in the Bible.

Creation

Naturalism

3. _____ is the way to study science that ignores what the Bible says.

Creation

Naturalism

4. Which of the below is something that earth science does not study?
 - a. Climates
 - b. Energy
 - c. Geology
 - d. Moons
 - e. Paleontology

5. What is a scientist called who studies the weather?
 - a. Geologist
 - b. Meteorologist
 - c. Paleontologist
 - d. Oceanographer

6. Volcanology is the study of _____.
 - a. Mountains
 - b. Vulcans
 - c. Volcanoes

PUZZLE

As we learned today, Earth Science studies many things.
Match the field of study on the left to the correct definition on the right.

Geology	The study of the weather and climate.
Meteorology	The study of life that previously lived on earth.
Oceanography	The study of volcanoes.
Paleontology	The study of oceans.
Volcanology	The study of the earth's structure, rocks, minerals, and land and water formations.



More About Glaciers

"Trust in the Lord forever, for in God the Lord, we have an everlasting Rock." Isaiah 26:4

1. Describe how glaciers form.

2. About how thick does snowpack need to be before it is heavy enough to form a massive sheet of ice and be called a "glacier"? _____

3. Which continent is almost entirely covered in ice? _____

4. How much of the world's fresh water is frozen in glaciers on Antarctica?

- a. 25%
- b. 45%
- c. 70%
- d. 90%

5. Choose the correct statements.

- a. All glaciers move.
- b. All glaciers move at the same speed.
- c. Lambert Glacier in Antarctica is the largest glacier in the world.
- d. Jakobshavn Glacier is the fastest moving glacier.

Extra Credit! How fast does the Jakobshavn glacier move?

WORD SEARCH

Find all the words in the word search below.

Antarctica Glacier Ice Igneous
Less Snowmelt in the Summer Metamorphic
More Snowfall in the Winter Move
Sedimentary Snow

L N L U U Z R H R S S O Z U Y F S Y G L U X W W R C G G I
U I O L O F Z G R S W L L O W K E W H N C S I E O Q W N O
I I D Q O C X M O V E V L U Z F S L B Z K K T V P C M P R
T P P B W Y W J L B Q I E U M L I W O J D N B T X V K Z X
D D O R E O Y T Y C Y L S L W S Z E U K I Q A Y A E F D P
H Q N V N X P R U C N W S F H W V U A W R A S Z F J W J E
K S V S U Q Z Y T J U A S D F J D I E Z K N H J P P P K Z
U H Q C I E S E D I M E N T A R Y H A S C T O P L B K G C
P B W N I E Z N A R B W O S H S T O P C V A A S I J G E P
Q W Q O U E U T I V A D W W R N L W I J O R A J G I H F D
S E T X C Y N N G F Y M M Y I E P P U X L C U A M O H K Z
U Q Y H M P M L N S G V E L Y P Z P B S G T J E I R S B C
B Y R R G H Q H E V M E L Z L W M B A V A I J T N S Y L P
F D A G N C P R O I S A T Z S D X Q V I W C I B P Y K O V
U Q J H X S D E U X F B I A G J O X O Q E A G L A C I E R
C R I K D H E D S W B A N H W G I R J F X A U S W U K I O
H J B T X O W M O J J V T N K U Z L Q I S K O Y D F E O S
O M K A N D J N R V V T H I T R P T V O Y V F S K A A M N
H F D I L M S W J L A B E T H T V Y Q E J Y W S M B Q F E
O O L E O E H T R E X G S Y D L T Q W G Q U V Z E A N Q M
F C X Y R U I O D M C A U Q N R O O A Y W N N L T E O J U
W V I O L D G V J T J G M Z G U Q Q Z K D K S R A H Q N R
T K M K M S I K S K W Y M P P K B S R I C N B U M T L I P
N H R W Q Y N I F S F B E G Y U H V Z C D I C E O C U Q T
S E X O Y T X S C N L H R C L B I N C C B P I Y R R J X W
V Y X L Y O A C N S H P V U S E V J V A V G F Q P D R G X
C D X P S P N B U N J O M Z W U M F C Y W S Q Y H M Z T R
N O H K T N K V T U L C B Q U J X Z Z D X V U B I V H K A
W G A V T K M F H X W R C U J J R N Q B E P H E C V F Q M



Two Types of Glaciers

...just as it is written, "Behold, I lay in Zion a stone of stumbling and a rock of offense, and he who believes in Him will not be disappointed." Romans 9:33

1. What are the two types of glaciers? _____
2. Choose the correct statement.
 - a. Glaciers that form in the mountains are called ice sheets.
 - b. Alpine glaciers can form in any mountain range no matter how tall the mountains are.
 - c. There are glaciers in Australia's Great Dividing Range mountains.
 - d. Because they are glaciers, ice sheets move.
3. **True or False?** The largest glaciers are ice sheets.
4. What two land-masses are covered almost entirely by glaciers?

5. **True or False?** The maximum thickness of the glaciers covering Antarctica is more than 2.5 miles.
6. What happens to the dirt and rock underneath and next to glaciers?
 - a. Nothing.
 - b. It gets scraped and scooped into the glacier as the glacier moves.
7. Sometimes glaciers move off the land and onto the ocean. What is the name for the part of a glacier on top of water? _____
8. What is it called when part of a glacier breaks off into the ocean, and what is the broken part of the glacier called? _____

Extra Credit! Which is bigger, the A68 iceberg or the island of South Georgia where it ran aground? _____



How Glaciers Change the Earth

In the six hundredth year of Noah's life, in the second month, on the seventeenth day of the month, on the same day all the fountains of the great deep burst open, and the floodgates of the sky were opened. Genesis 7:11

1. What is an "ice age"?

A time in the past when glaciers covered a lot more of the earth than they do today.

A made-up idea that has no observations supporting it.

2. **True or False?** Creation and naturalism geologists believe that there was an ice age.

3. Choose the correct statements.

- a. Naturalism geologists cannot scientifically explain how the ice age occurred.
- b. Creation geologists can scientifically explain how the ice age occurred.
- c. Creation geologists think that there were many ice ages in the past.
- d. Naturalism geologists think that there was only 1 ice age in the past.

4. When do creation geologists think the ice age occurred?

Right before Noah's Flood.

Right after Noah's Flood.

5. During the ice age, about how much of the earth was covered in glaciers?

30%

40%

50%

6. Which conditions below accurately describe what creation geologists think were going on that contributed to the ice age?
- a. Very little to no volcanic activity.
 - b. Lots and lots of volcanic activity.
 - c. Warm oceans making the air over the oceans very moist to provide the necessary water for lots and lots of snow.
 - d. Cold oceans making the air very cold since snow can only happen in cold air.
 - e. The land masses were very warm, making the air over the land warmer than the air over the oceans.
 - f. The land masses were very cold, making the air over the land masses colder than the air over the oceans.
7. **True or False?** Creation geologists think that the glaciers started to form very soon after Noah's Flood and the ice lasted for about 500 years after Noah's Flood.



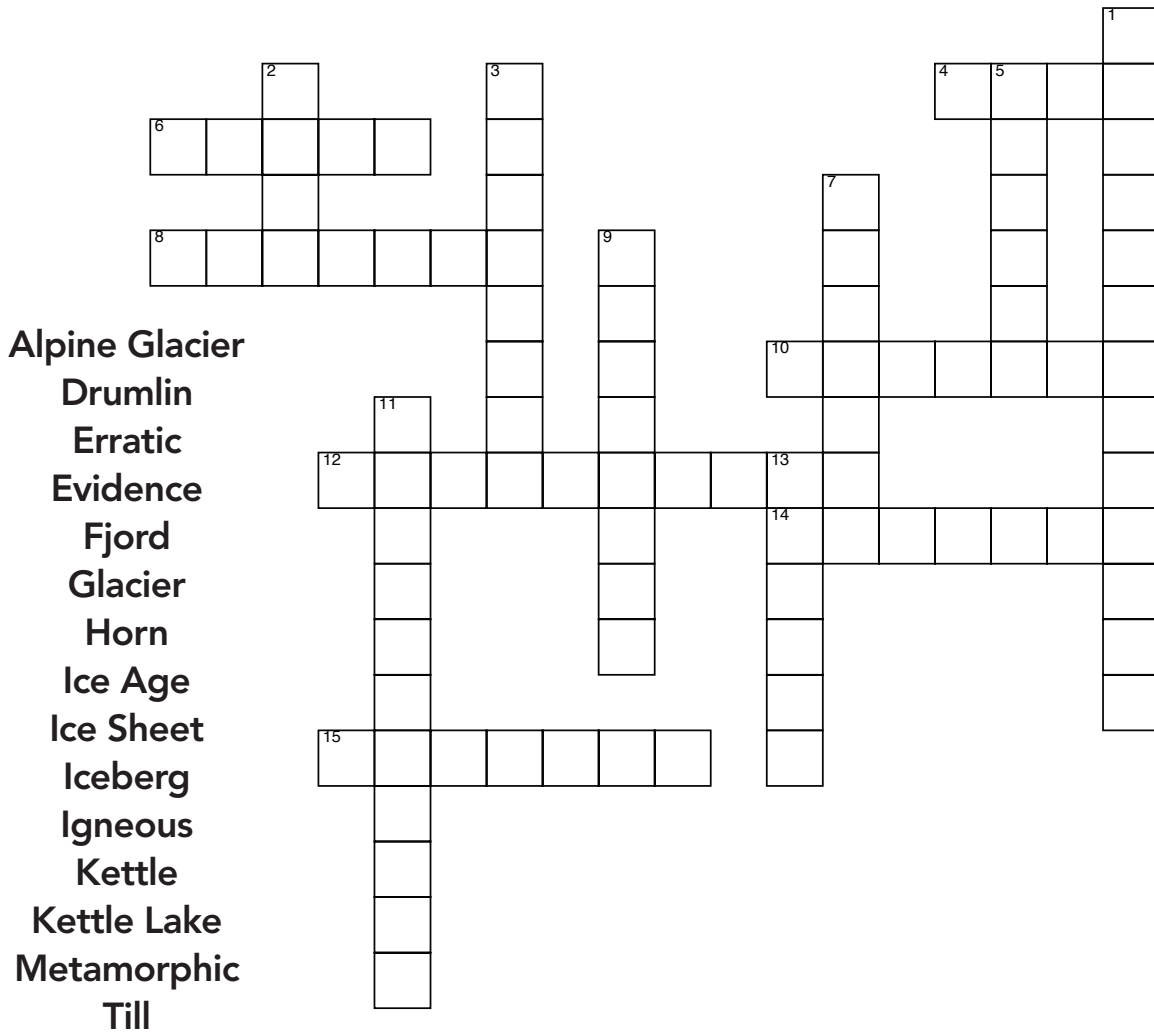
Evidence of Glaciers, Part 1

...and the water receded steadily from the earth, and at the end of one hundred and fifty days the water decreased. Genesis 8:3

1. Which conditions do creation geologists think were present after Noah's Flood so that the ice age could happen?
 - a. Warm oceans providing lots of moisture into the air.
 - b. Cold land so that when the warm, moist ocean air moved onto the land, it snowed a lot during the winters.
 - c. No volcanic eruptions.
 - d. Lots and lot of sunlight reaching the land, warming the land up.
 - e. Lots of volcanic ash in the air.
 - f. Colder summers.
2. **True or False?** Part of the reason that the ice age ended was due to reduction in volcanic activity so that the land masses warmed up.
3. Choose the correct statements.
 - a. Glaciers leave behind evidence that we can observe and use to understand where glaciers were in the past.
 - b. Ruts/scars in the rock caused by glaciers are called glacial striping.
 - c. Scars cut into the rock by a glacier are cut in the same direction as the glacier moved.
 - d. Part of the reason the ice age ended was because the oceans cooled down.
 - e. Part of the reason the ice age ended is because more sunlight reached the land, warming it up, so that the summers were warmer, thereby melting more snow in the summer than fell in the winter.

CROSSWORD PUZZLE

Finish the crossword puzzle below using the words provided.



ACROSS

4. Glacial dirt and rock.
6. A/an _____ is formed when a glacier moves through a valley, which later fills with water.
8. A type of rock formed from melted rock.
10. A glacier chunk in the ocean.
12. A large glacier hole filled with water.
14. A boulder dropped in place by a glacier as it melts.
15. A/an _____ is an enormous pile of till with a steep slope on one side and a gentle slope on the other side.

DOWN

1. A mountain glacier.
2. A mountain with edges sharply cut by a glacier.
3. A flat-land glacier.
5. Warm oceans and cold land combined caused the _____ to occur.
7. A huge chunk of ice formed from snow that moves.
9. Till, glacial striations, glacial erratics, moraines and drumlins are all _____ of glaciers in the past.
11. A type of rock formed from another type of rock.
13. A/an _____ is formed when a glacier becomes stuck in till and then melts, creating a large bowl.