Earth's Changing Surface Review and Reinforce Packet

8/15/10

Name

Homeroom

Name _____ Date _____ Class _____

SECTION 1-1 **REVIEW AND REINFORCE**

Exploring Earth's Surface

◆ Understanding Main Ideas

Fill in the blanks in the table below.

Landform	Elevation	Relief
Plains	Low or high	1. _____
2. _____	High	High
3. _____	High	Low

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

_____ **6.** plateau

_____ **7.** topography

_____ **8.** elevation

_____ **9.** hydrosphere

_____ **10.** biosphere

_____ **11.** relief

_____ **12.** landform region

_____ **13.** lithosphere

_____ **14.** atmosphere

_____ **15.** plain

a. the mixture of gases that surrounds Earth

b. the height above sea level of a point on Earth's surface

c. the shape of the land

d. flat or gently rolling land with low relief

e. a large area of land where the topography is similar

f. all living things

g. the difference in elevation between the highest and the lowest parts of an area

h. Earth's oceans, lakes, rivers, and ice

i. the solid, rocky outer layer of Earth

j. a landform that has high elevation and a fairly level surface

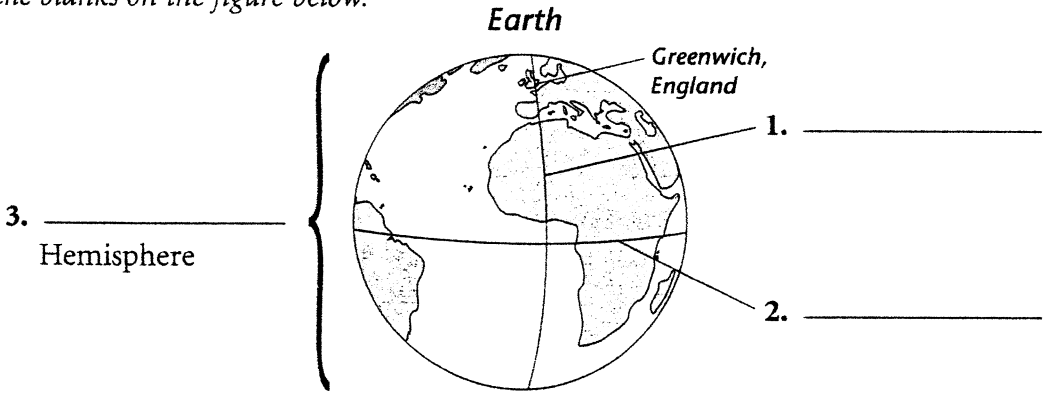
Name _____ Date _____ Class _____

SECTION 1-2 REVIEW AND REINFORCE

Models of Earth

◆ Understanding Main Ideas

Fill in the blanks on the figure below.



◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

_____ **6.** globe

_____ **7.** longitude

_____ **8.** latitude

_____ **9.** hemisphere

_____ **10.** degree

_____ **11.** symbols

_____ **12.** scale

_____ **13.** key

_____ **14.** prime meridian

_____ **15.** equator

a. a list of all the symbols used on a map with an explanation of their meaning

b. the imaginary line that makes a half circle from the North Pole to the South Pole and passes through Greenwich, England

c. pictures that stand for features on Earth's surface

d. the relationship between distance on a map to distance on Earth's surface

e. the distance in degrees north and south of the equator

f. one half of the sphere that makes up Earth's surface

g. a sphere that represents Earth's entire surface

h. $\frac{1}{360}$ of the way around a full circle

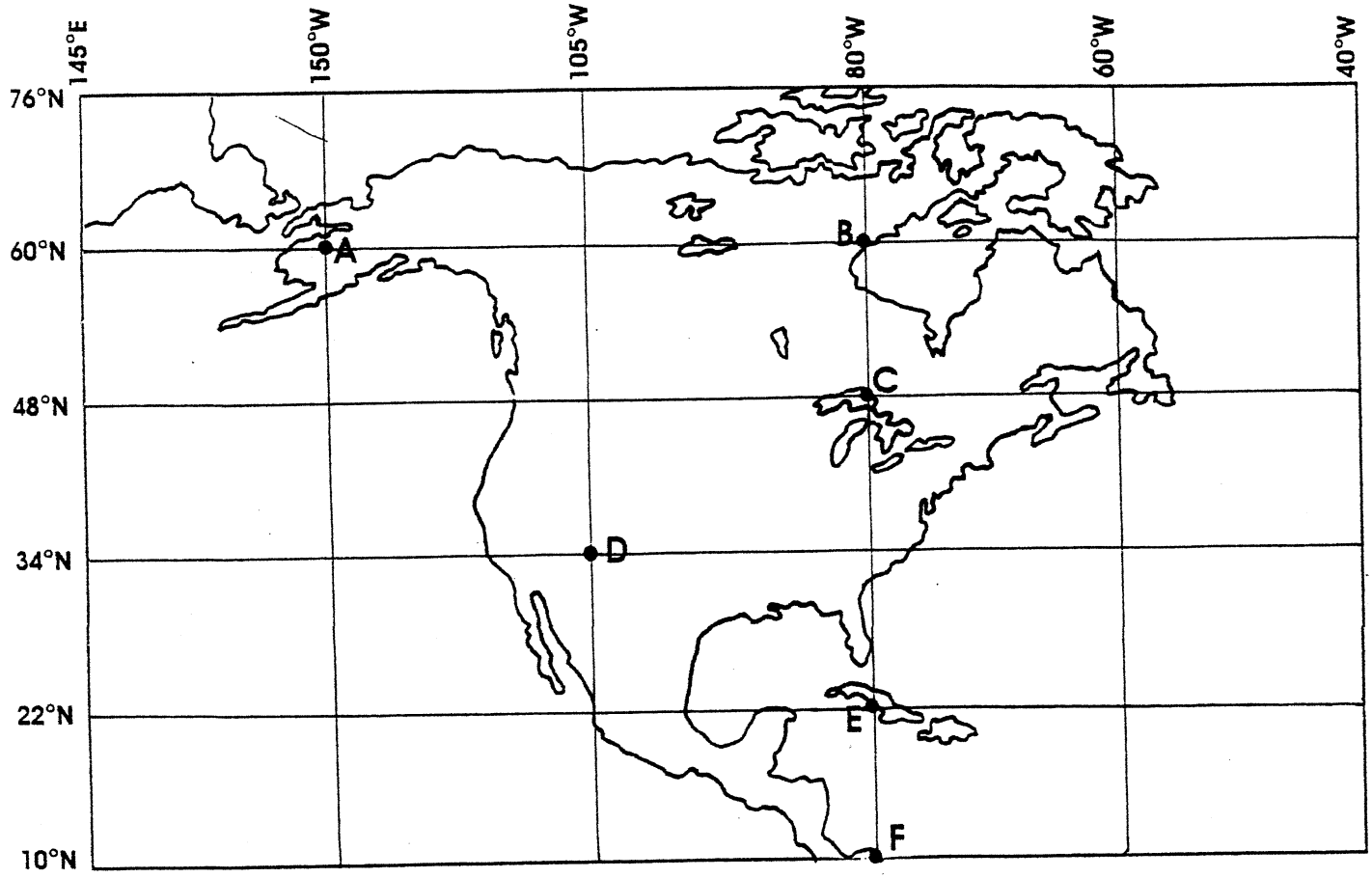
i. the distance in degrees east or west of the prime meridian

j. the imaginary line that circles Earth halfway between the North and South poles

Using Latitude and Longitude

Name _____

Use the latitude and longitude grid to pinpoint each location specified in the questions below.



1. What is the latitude of . . .

   point **A**? _____ point **D**? _____

   point **B**? _____ point **E**? _____

   point **C**? _____ point **F**? _____

2. What is the longitude of . . .

   point **A**? _____ point **D**? _____

   point **B**? _____ point **E**? _____

   point **C**? _____ point **F**? _____

3. Give the location of . . .

   point **A.** _____ point **D.** _____

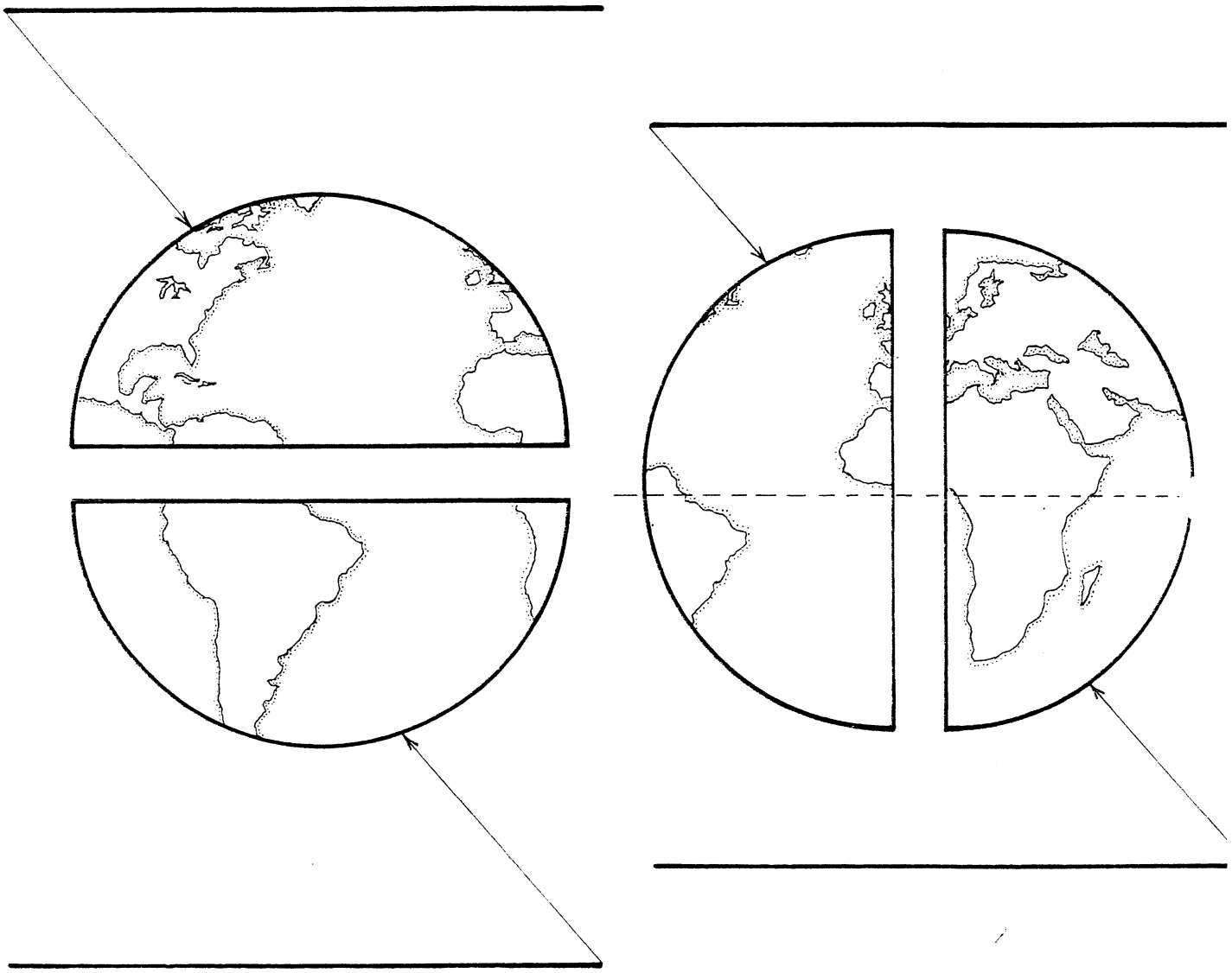
   point **B.** _____ point **E.** _____

   point **C.** _____ point **F.** _____

Hemispheres

Name_____

The Earth is a giant sphere. When the Earth is divided into two equal parts ec part is called a hemisphere. Label the four hemispheres pictured below using th words from the **WORD BANK.**



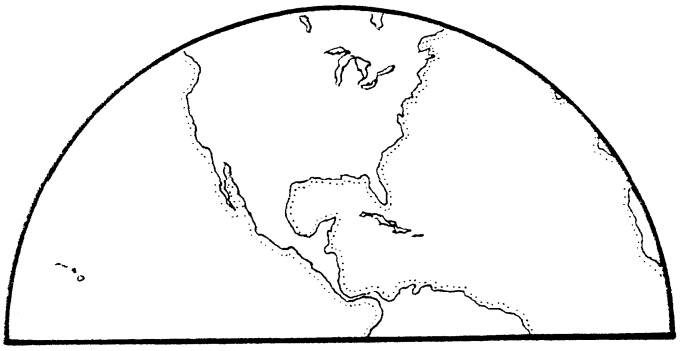
WORD BANK

Northern Hemisphere
Eastern Hemisphere
Southern Hemisphere
Western Hemisphere

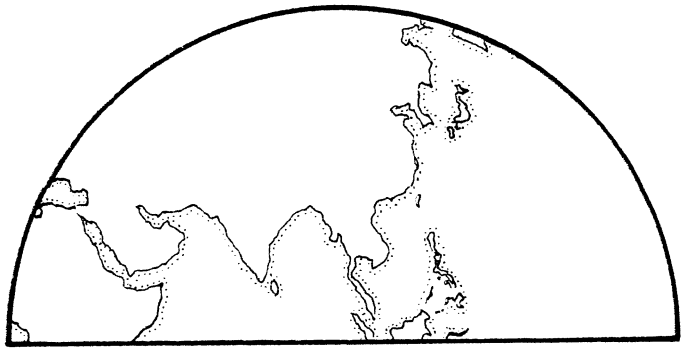
More Than One Hemisphere

Name _____

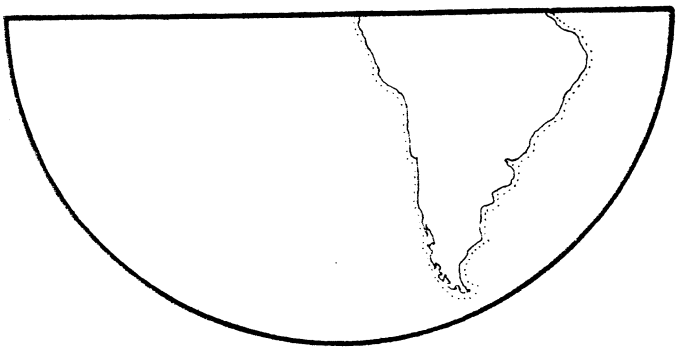
You live in more than one hemisphere. Although it's impossible to live in the Northern and Southern Hemispheres, or the Eastern and Western Hemisphere at the same time, it is possible to live in the Northern and Eastern, or Northern and Western, or Southern and Eastern, or Southern and Western Hemisphere. Label th two hemispheres pictured in each hemisphere.



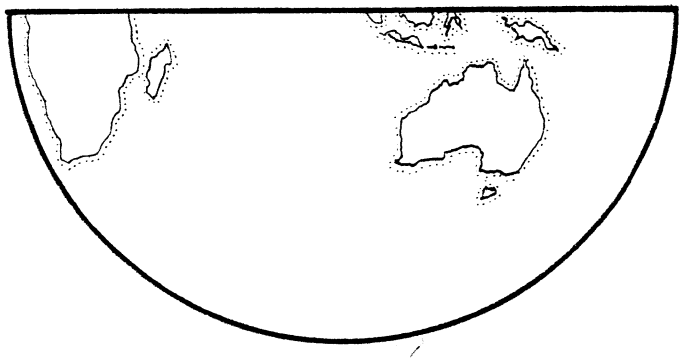
_____ and
_____ Hemispheres



_____ and
_____ Hemisphe



_____ and
_____ Hemispheres



_____ and
_____ Hemisphere

WORD BANK

Northern	Southern
Eastern	Western

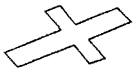
Name _____ Date _____ Class _____

SECTION 1-4 **REVIEW AND REINFORCE**

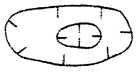
Topographic Maps

◆ Understanding Main Ideas

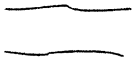
Identify each of the symbols below by filling in the blanks.



1. _____



4. _____



2. _____

5. _____

3. _____

6. _____

8. You see that a USGS map of your area has a scale of 1 : 24,000. What does this tell you?

9. Can a contour line on a topographic map connect a point with an elevation of 100 feet to a point with an elevation of 110 feet? Explain why or why not.

◆ Building Vocabulary

Fill in the blank to complete each statement.

12. The elevation difference from one contour line to the next is called the _____.

13. The _____ is a method of finding latitude, longitude, and elevation of points on Earth's surface using a network of satellites.

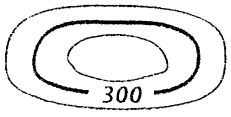
14. A(n) _____ connects points of equal elevation on a topographic map.

15. A(n) _____ map shows the surface features of an area.

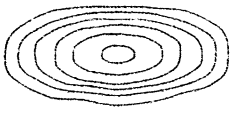
Name _____ Date _____ Class _____

SECTION 1-4 **ENRICH**

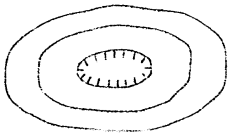
Reading a Topographic Map



Elevation

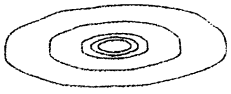


Hill

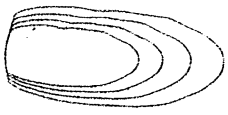


Depression

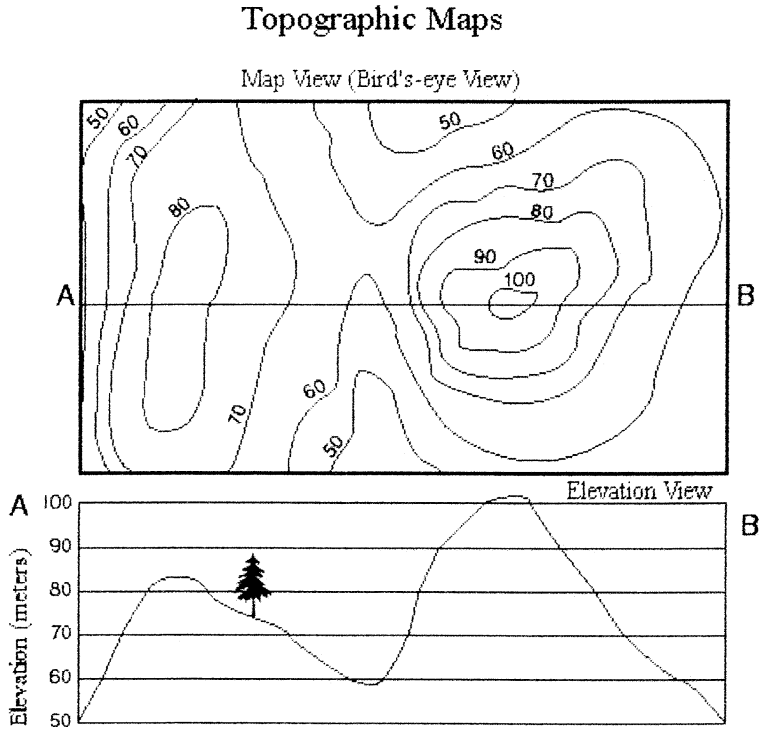
Stream



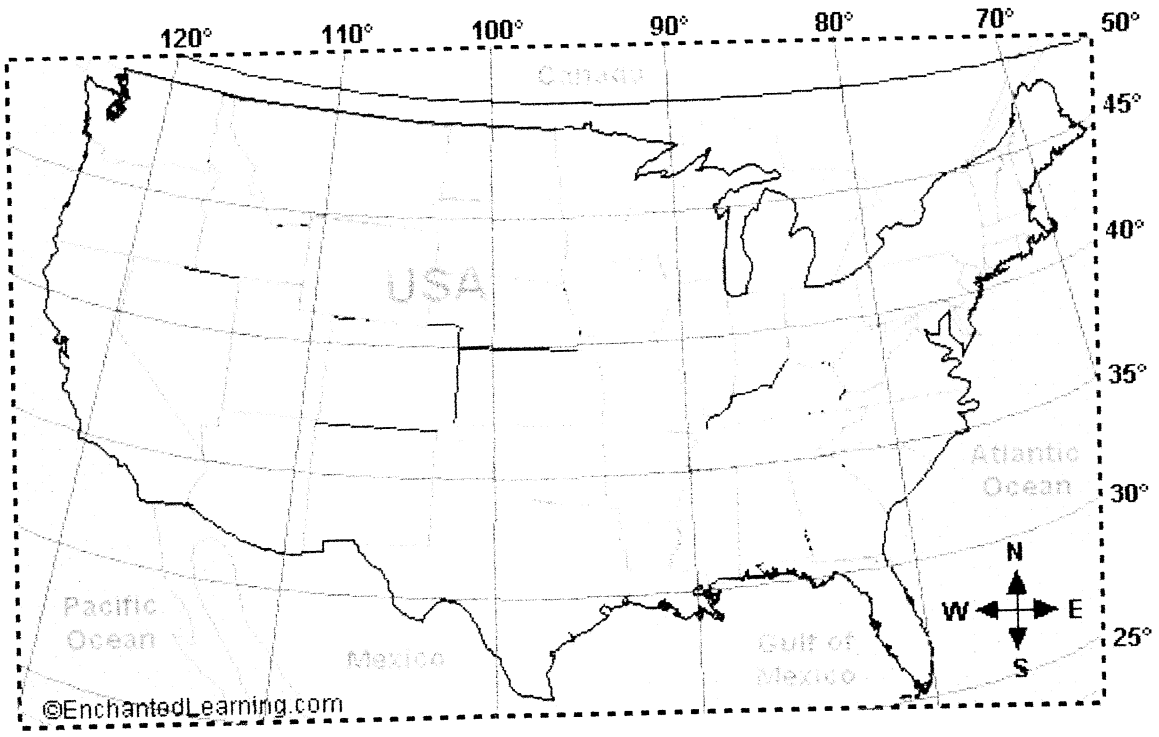
Gentle-to-steep elevation



Cliff



USA (Contiguous) Latitude and Longitude Activity

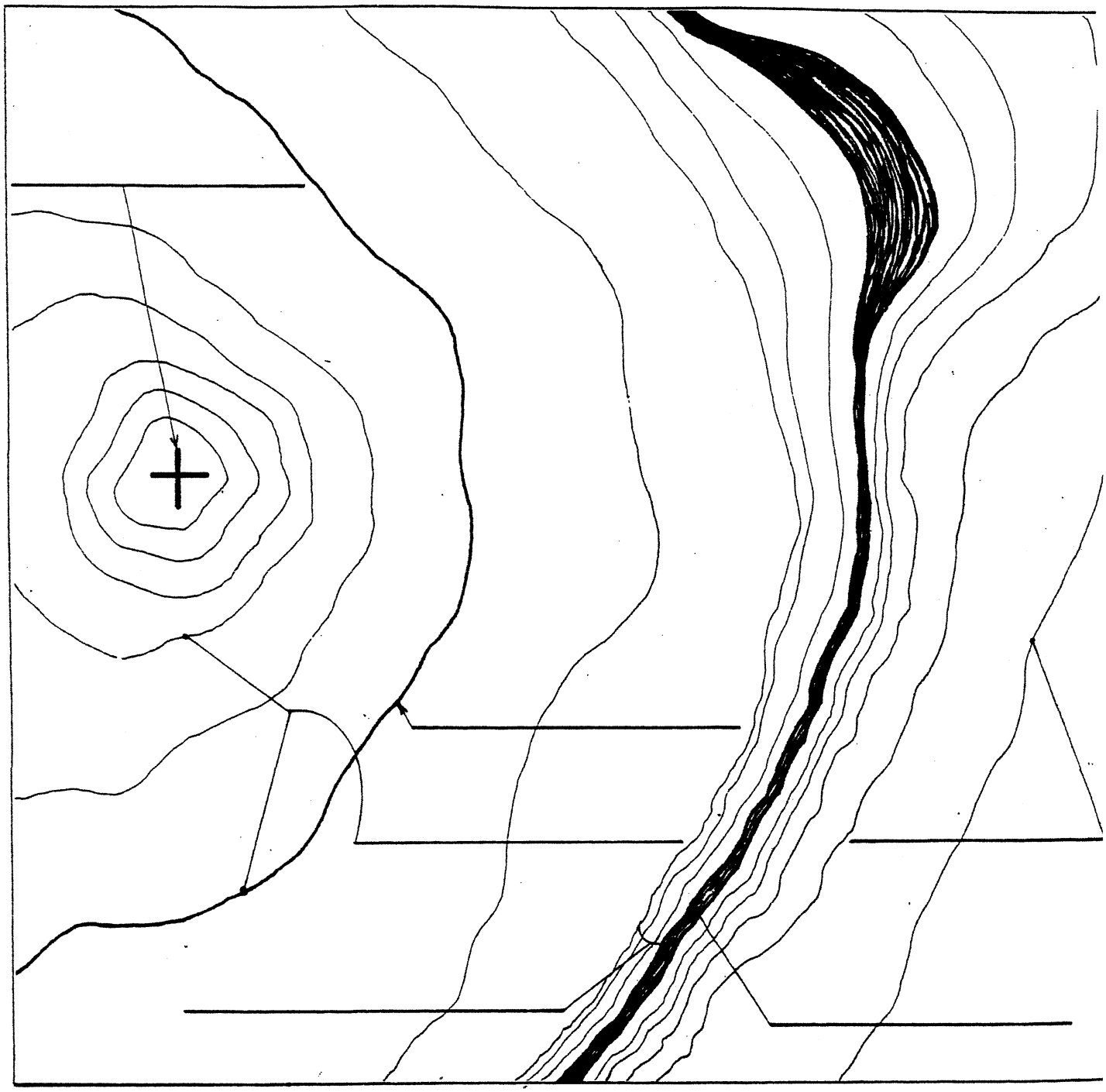


1. Do lines of latitude run east-west or north-south?	
2. Name three states that extend below latitude 30 degrees N (in the contiguous US), and label them on the map.	
3. Name one US state that is mostly east of longitude 70 degrees W, and label it on the map.	
4. Name three US states (shown on this map) that extend west of longitude 120 degrees W, and label them on the map.	
5. Is the location 45 degrees N latitude, 82 degrees W longitude on land or under water? On the map, mark it with a red X.	
6. Name the state that is located entirely between 40-45 degrees N latitude and between 90-100 degrees W longitude, and label it on the map.	

Topographic Maps

Name _____

A topographic map uses contour lines to show the elevation and slope of hills, valleys, and other natural features. Label the various land features and elements of the topographic map pictured below.



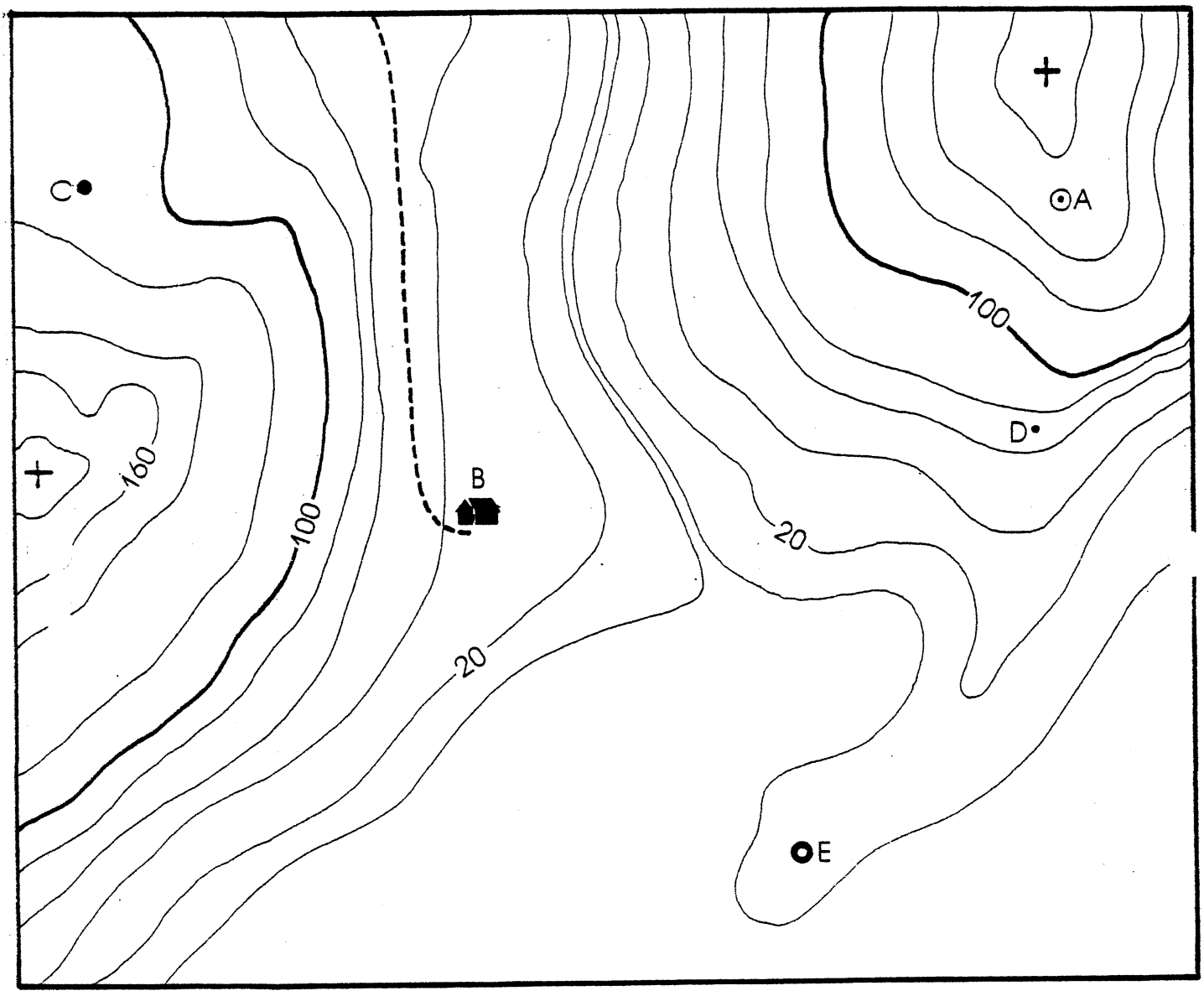
WORD BANK

contour line	index contour line	mountain top
steep slope	gentle slope	river

Topographical Maps

Name_____

To[illegible] graphical maps give the geographical positions and elevations of both m[illegible]nmade and natural features. Using the contour lines and contour intervals, label the elevations of the features on this map.



FEATURE	ELEVATION
A	between _____ and _____ feet
B	between _____ and _____ feet
C	between _____ and _____ feet
D	between _____ and _____ feet
E	between _____ and _____ feet

Name _____ Date _____ Class _____

SECTION 2-1 REVIEW AND REINFORCE

Rocks and Weathering

◆ Understanding Main Ideas

Fill in the blanks in the table below.

Agent	Type	Description
1. _____	Mechanical	Rock particles wear away rock
2. _____	Chemical	Forms from coal, oil, and gas burning
Freezing and thawing	**3.** _____	Breaks rock by ice wedging
Carbon dioxide	**4.** _____	Forms carbonic acid in water
5. _____	Chemical	Weathers marble and limestone
6. _____	Mechanical	Burrowing in the ground breaks rock
Plant growth	**7.** _____	Roots pry apart cracks in rock
Living organisms	**8.** _____	Produce weak acid that weathers rock
Oxygen	**9.** _____	Causes rust on some rock
10. _____	Mechanical	Sun or forest fire causes rock to crack

11. How does erosion differ from weathering?

◆ Building Vocabulary

Fill in the blank to complete each statement.

13. _____ is the movement of rock particles by wind, water, ice, or gravity.

14. _____ means that a material has spaces that allow water to seep through it.

15. The process that breaks down rock and other materials at Earth's surface is called _____.

16. The grinding away of rock by other rock particles is called _____.

17. The process by which ice widens and deepens cracks in rocks is called _____.

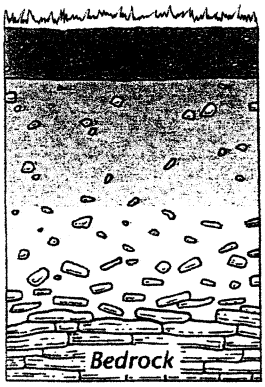
Name _____ Date _____ Class _____

SECTION 2-2 REVIEW AND REINFORCE

Soil Formation and Composition

◆ Understanding Main Ideas

Write a description of each soil horizon in the figure below. (p. 51 ¶ 2)



1. A horizon _____

_____

2. B horizon _____

_____

3. C horizon _____

_____

4. How does soil form, and what is soil made of?

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

_____ **7.** humus

_____ **8.** subsoil

_____ **9.** decomposers

_____ **10.** bedrock

_____ **11.** topsoil

_____ **12.** loam

_____ **13.** soil horizon

_____ **14.** soil

_____ **15.** litter

a. the loose, weathered material on Earth's surface in which plants can grow

b. crumbly, dark brown soil that is a mixture of humus, clay and other minerals

c. a layer of soil that differs from the layers above and below it

d. decayed plant and animal remains

e. organisms that break down animal and plant remains and wastes

f. the solid layer of rock beneath the soil

g. a loose layer of leaves and other plant material on top of soil

h. a layer of soil made mostly of clay and other particles, but with little humus

i. soil made of about equal parts clay, sand, and silt

Name _____ Date _____ Class _____

SECTION 2-3 REVIEW AND REINFORCE

Soil Conservation

◆ Understanding Main Ideas

Complete the flowchart below by filling in the blanks.

1. _____ exposed the soil of the Great Plains. →

A(n) **2.** _____, or lack of rain, turned the topsoil to dust. → Wind blew the soil away, creating an area called the **3.** _____.

4. Why is soil valuable?

◆ Building Vocabulary

Fill in the blank to complete each statement.

7. The practice of plowing fields along the curves of a slope is called _____.

8. _____ is the management of soil to prevent its destruction.

9. A method of planting crops that disturbs the soil and its plant cover as little as possible is called _____.

10. The thick mass of tough roots at the surface of the soil in a grassland is called _____.

Name _____ Date _____ Class _____

SECTION 3-1 REVIEW AND REINFORCE

Changing Earth's Surface

◆ Understanding Main Ideas

Identify each of the examples below by writing landslide, mudslide, slump, *or* creep *on the line beside it.*

_____ **1.** Watery clay soil slides down a mountain.

_____ **2.** A telephone poll leans downhill.

_____ **3.** Rock at the top of a cliff suddenly falls.

_____ **4.** As you step on the mountain path, bits of rock and soil fall downhill.

_____ **5.** After a heavy rainfall, soil on a desert hill slides to the bottom.

_____ **6.** After many years, a gravestone on a hillside falls over.

_____ **7.** Rock and soil suddenly slip downhill in one large mass.

_____ **8.** During an earthquake, rock and soil move down a slope.

9. What causes mass movement?

◆ Building Vocabulary

Fill in the blank to complete each statement.

12. The agents of erosion lay down sediment in new locations in a process called _____.

13. The material moved by erosion is called _____.

14. The process by which natural forces move weathered rock and soil from one place to another is called _____.

15. _____ includes several processes caused by gravity that move sediment downhill.

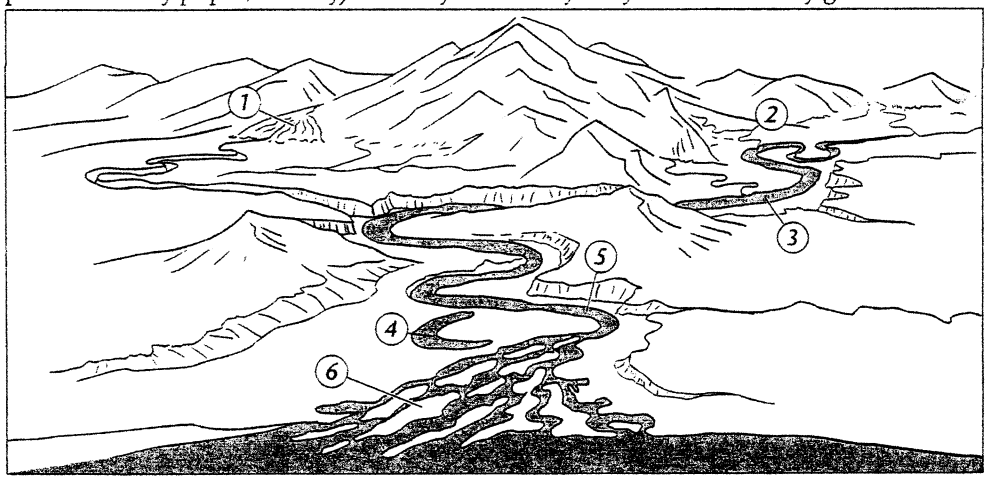
Name _____ Date _____ Class _____

SECTION 3-2 REVIEW AND REINFORCE

Water Erosion

◆ Understanding Main Ideas

On a separate sheet of paper, identify and define each of the features on the figure below.



◆ Building Vocabulary

Fill in the blank to complete each statement.

7. A(n) _____ is a channel along which water is continually flowing down a slope.

8. A(n) _____ is the high ground between drainage basins.

9. The water that moves across Earth's surface after a rainfall is called _____.

10. A cone-shaped deposit that rises from the floor of a cave is called a(n) _____.

11. A(n) _____ is a large channel in the soil that carries runoff.

12. A type of landscape in which caves, deep valleys, and sinkholes are common is called _____.

13. A(n) _____ is a deposit that hangs from the roof of a cave.

14. A(n) _____ is the land area from which a river and its tributaries collect their water.

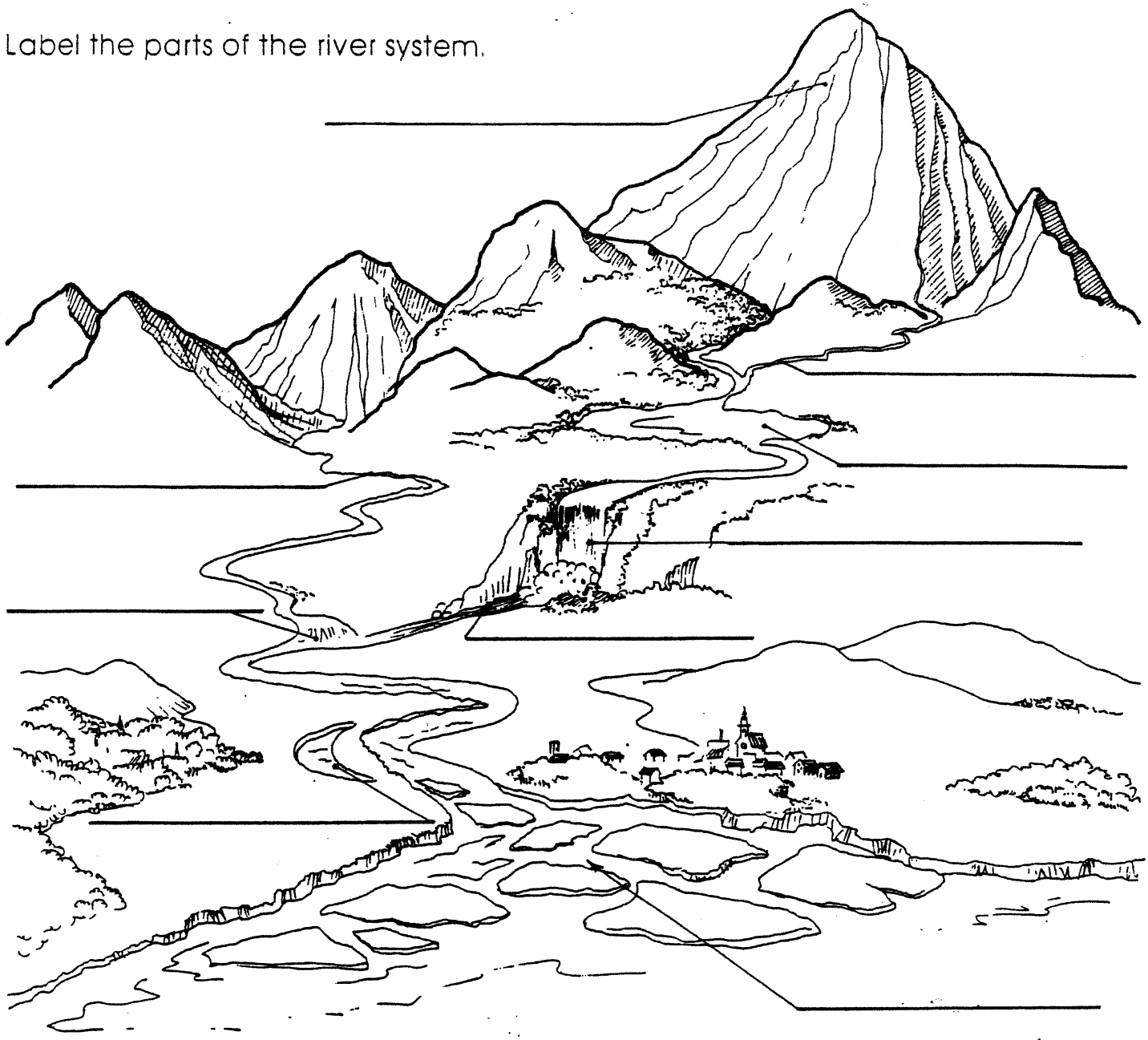
15. The underground water that fills openings in soil and cracks in layers of rock is called _____.

River System

Name _____

A river may begin its journey to the sea high up in the mountains as a melting glacier, or as a number of small streams and brooks high up in the hills. As the river flows downhill the moving water reshapes the land by carrying away sand, stones, and clay. The river and all the water that flows into it make up the **river system.**

Label the parts of the river system.



WORD BANK

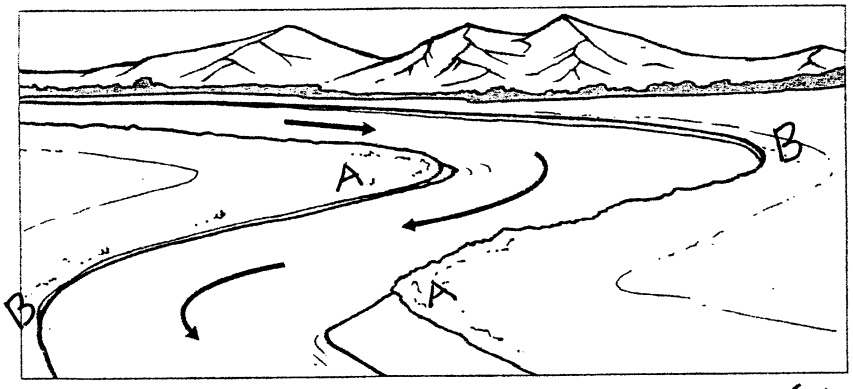
glacier	lake	waterfall	rapids
delta	meander	alluvial fan	tributary
oxbow lake			

Name _____ Date _____ Class _____

SECTION 3-3 REVIEW AND REINFORCE

The Force of Moving Water

◆ Understanding Main Ideas



1. Where is the stream eroding its bank? (HWDYKT)

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

_____ **6.** friction

_____ **7.** energy

_____ **8.** load

_____ **9.** potential energy

_____ **10.** abrasion

_____ **11.** kinetic energy

_____ **12.** turbulence

a. the amount of sediment a river carries

b. the movement of water every which way

c. the ability to do work

d. the force that opposes the motion of one surface as it moves across another

e. the energy an object has due to its motion

f. the wearing away of rock by grinding action

g. energy that is stored and waiting to be used later

Name _____ Date _____ Class _____

SECTION 3-4 REVIEW AND REINFORCE

Glaciers

◆ Understanding Main Ideas

Fill in the blanks in the table below.

Glacial Landform	Description	Result of Erosion or Deposition?
1. _____	Mounds or ridges of till	Deposition
Horn	A sharpened peak	2. _____
Cirque	A bowl-shaped hollow	3. _____
4. _____	Small depression formed when a block of ice melts in till	Deposition
Glacial lake	Large lake in large basin eroded by plucking and abrasion	5. _____
Arête	Sharp ridge separating cirques	6. _____
Drumlin	A long mound of till that is higher at one end	7. _____

9. How do glaciers form?

◆ Building Vocabulary

Fill in the blank to complete each statement.

12. A glacier picks up rocks through a process called _____.

13. Times when continental glaciers cover large parts of Earth's surface are called _____.

14. A(n) _____ is any large mass of ice that moves slowly over land.

15. The sediments deposited directly by a glacier are called _____.

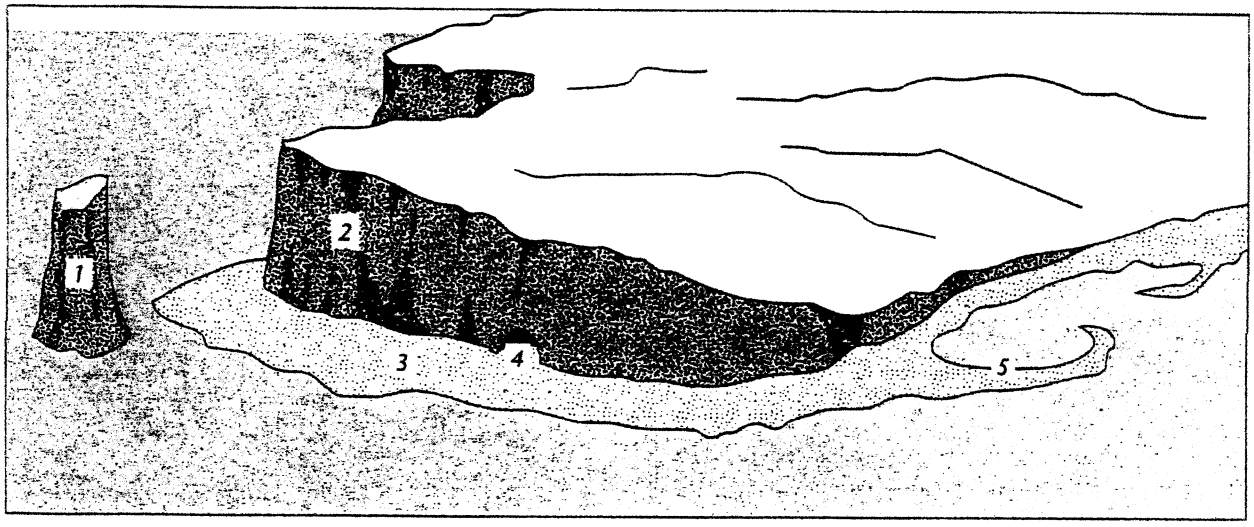
Name _____ Date _____ Class _____

SECTION 3-5 REVIEW AND REINFORCE

Waves

◆ Understanding Main Ideas

The numbers on the figure below point to landforms created either by wave erosion or deposition. On a separate sheet of paper, identify each landform and describe how it formed.



◆ Building Vocabulary

Fill in the blank to complete each statement.

9. The process in which beach sediment moves down a beach with the current is called _____.

10. An area of wave-washed sediment along a coast is a(n) _____.

Name _____ Date _____ Class _____

SECTION 3-6 REVIEW AND REINFORCE

Wind

◆ Understanding Main Ideas

Complete the flowchart below by filling in the blanks.

1. _____ removes sand and other sediment from the ground by the process of **2.** _____. → The wind **3.** _____ the sediment when it hits an obstacle, such as a boulder. → As the sediment piles up, a(n) **4.** _____ forms.

Answer the following questions in the spaces provided.

5. Describe how wind moves different sizes of sediment.

_____

_____

_____

_____

6. How does desert pavement form?

_____

_____

_____

_____

7. How are the sediments in loess deposits different from the sediments in a sand dune?

_____

_____

_____

_____

◆ Building Vocabulary

Fill in the blank to complete each statement.

8. The process by which wind removes surface materials is _____.

9. Fine sediment deposited by wind in layers is called _____.

10. A deposit of wind-blown sand is called a(n) _____.

Name _____ Date _____ Class _____

SECTION 4-1 REVIEW AND REINFORCE

Fossils

◆ Understanding Main Ideas

Fill in the blanks in the table below.

Type of Fossil	Description
Petrified fossil	Fossils in which **1.** _____ replace all or part an organism
2. _____	A hollow area in sediment in the shape of an organism
3. _____	A copy of the shape of an organism
Carbon film	An extremely thin coating of **4.** _____ on rock
Trace fossils	Evidence of the **5.** _____ of ancient organisms
6. _____	Remains of organisms in tar, amber, or ice

◆ Building Vocabulary

Fill in the blank to complete each statement.

10. The process by which all the different kinds of living things have changed over long periods of time is called _____.

11. The type of rock that is made of hardened sediment is called _____.

12. A type of organism is _____ if it no longer exists and will never again live on Earth.

13. A(n) _____ is a scientist who studies fossils.

14. The preserved remains or traces of living things are called _____.

15. A well-tested concept that explains a wide range of observations is called a(n) _____.

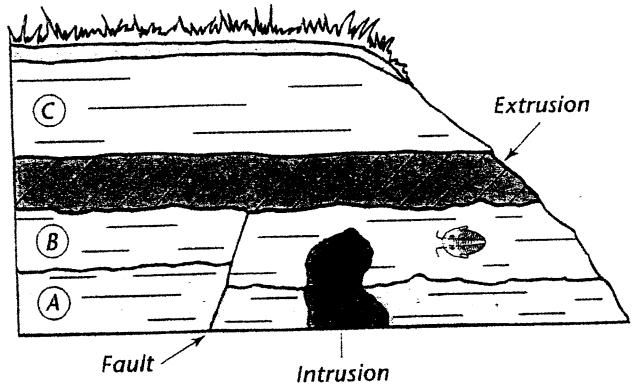
Name _____ Date _____ Class _____

SECTION 4-2 **REVIEW AND REINFORCE**

Finding the Relative Age of Rocks

◆ Understanding Main Ideas

Use the figure below to answer questions 1–4.



1. What is the youngest rock layer on the figure?
2. Is the extrusion older or younger than rock layer B?
3. Is the fault older or younger than rock layer A?

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

_____ **5.** fault

_____ **6.** extrusion

_____ **7.** unconformity

_____ **8.** relative age

_____ **9.** law of superposition

_____ **10.** intrusion

_____ **11.** absolute age

_____ **12.** index fossil

a. the number of years since a rock formed

b. a break or crack along which rocks move

c. the way to determine relative ages of rocks

d. a hardened layer of magma

e. the age of a rock compared with the age of other rocks

f. fossils used to determine the relative ages of rock layers

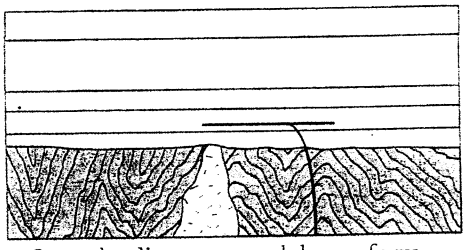
g. a place where an eroded surface is in contact with a newer rock layer

h. a hardened layer of lava

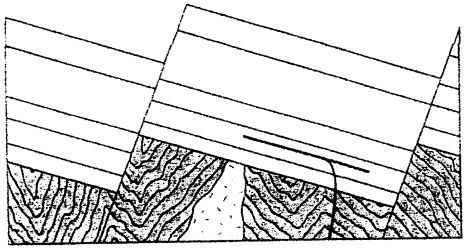
Name _____ Date _____ Class _____

The Grandest Canyon of All

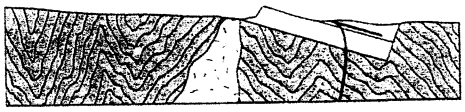
How did the Grand Canyon form? It formed through the processes that build up and wear down the surface of Earth. The figures below show how this majestic landscape came to be.



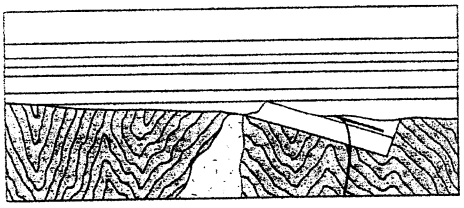
A Several sedimentary rock layers form over ancient rock.



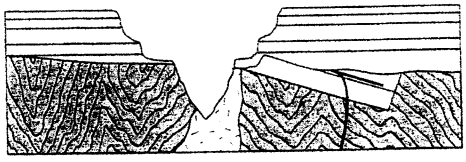
B Forces within Earth cause large faults, and layers of the sedimentary rock shift.



C Weathering and erosion wear down the whole area.



D More sedimentary rock layers form over the old, eroded surface.



E Finally, the Colorado River flows over the surface and cuts down through the layers of rock, forming the Grand Canyon.

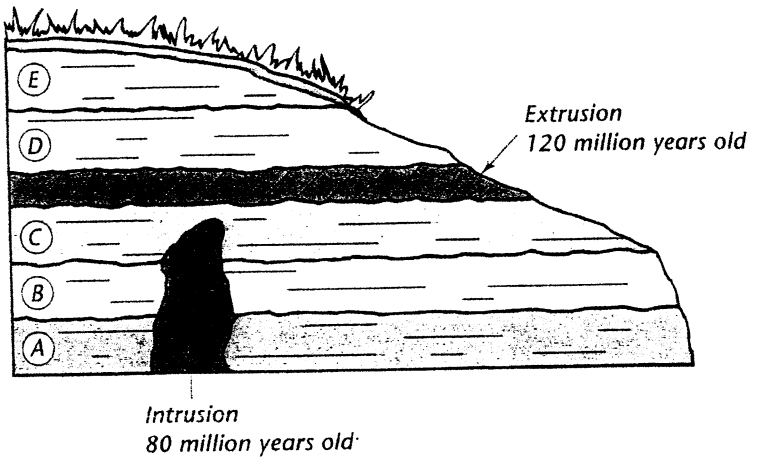
1. How do sedimentary rock layers form?
2. What happened to the sedimentary rock layers that first formed over the ancient rock?
3. Where in this sequence of events is the formation of an unconformity?
4. How did the Grand Canyon itself form?
5. Which is older, the Grand Canyon or the rock layers now exposed on the canyon walls? Explain your reasoning.

Name _____ Date _____ Class _____

SECTION 4-3 REVIEW AND REINFORCE

Radioactive Dating of Rocks

◆ Understanding Main Ideas



1. Can geologists use radioactive dating to find the absolute ages of sedimentary layers A, B, C, D, and E?
2. Can geologists use radioactive dating to find the absolute ages of the extrusion or the intrusion?
3. What is the age of rock layer C?

◆ Building Vocabulary

Fill in the blank to complete each statement.

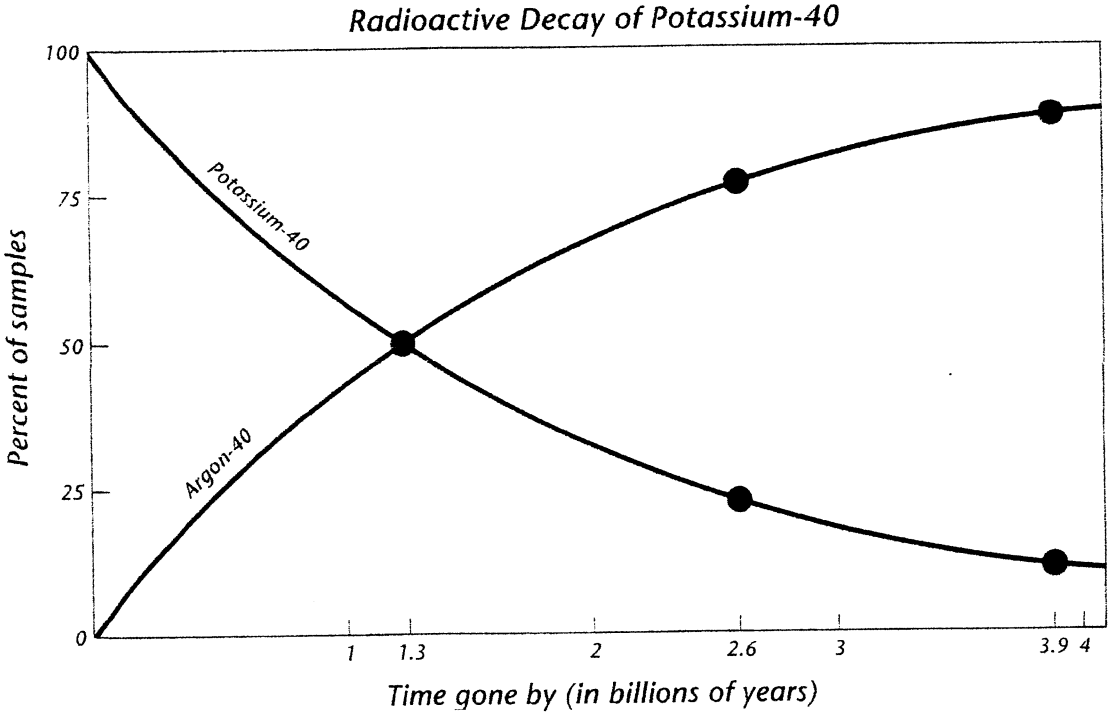
4. When all the atoms of a particular type of matter are the same, the matter is a(n) _____.
5. The time it takes for half of the atoms in a sample of a radioactive element to decay is called its _____.
6. All matter is made of tiny particles called _____.
7. During _____, the atoms of one element break down to form atoms of another element.

Name _____ Date _____ Class _____

SECTION 4-3 **ENRICH**

A Continuous Process

In potassium-argon dating, geologists measure the amount of radioactive potassium-40 in igneous rock and compare that amount with the amount of stable argon-40. The stable argon-40 forms as a result of the radioactive decay of the potassium-40. From this comparison, geologists can tell the absolute age of the rock. The graph below shows this radioactive decay over time.



1. When the rock first forms, what is the percentage of potassium-40 compared with the percentage of argon-40?
2. What is the half-life of potassium-40?
3. What are the percentages of the two elements at 1.3 billion years?
4. After the first half-life of potassium-40, does the rock contain more potassium-40 or argon-40?
5. What are the percentages of the two elements after three half-lives of potassium-40?
6. Does a geologist have to wait 1.3 billion years before seeing a difference in the amounts of these two elements? Explain.

Name _____ Date _____ Class _____

SECTION 4-4 REVIEW AND REINFORCE

The Geologic Time Scale

◆ Understanding Main Ideas

Put the following in order from oldest to most recent by writing a number in the blank beside each.

_____ **1.** Mesozoic Era

_____ **2.** Precambrian Time

_____ **3.** Cenozoic Era

_____ **4.** Paleozoic Era

Rewrite the following sentence to make it true.

5. Geologists subdivide epochs into periods and periods into eras.

_____

_____

6. Why is the geologic time scale used to show Earth's history?

◆ Building Vocabulary

Fill in the blank to complete each statement.

9. Animals without backbones are called _____.

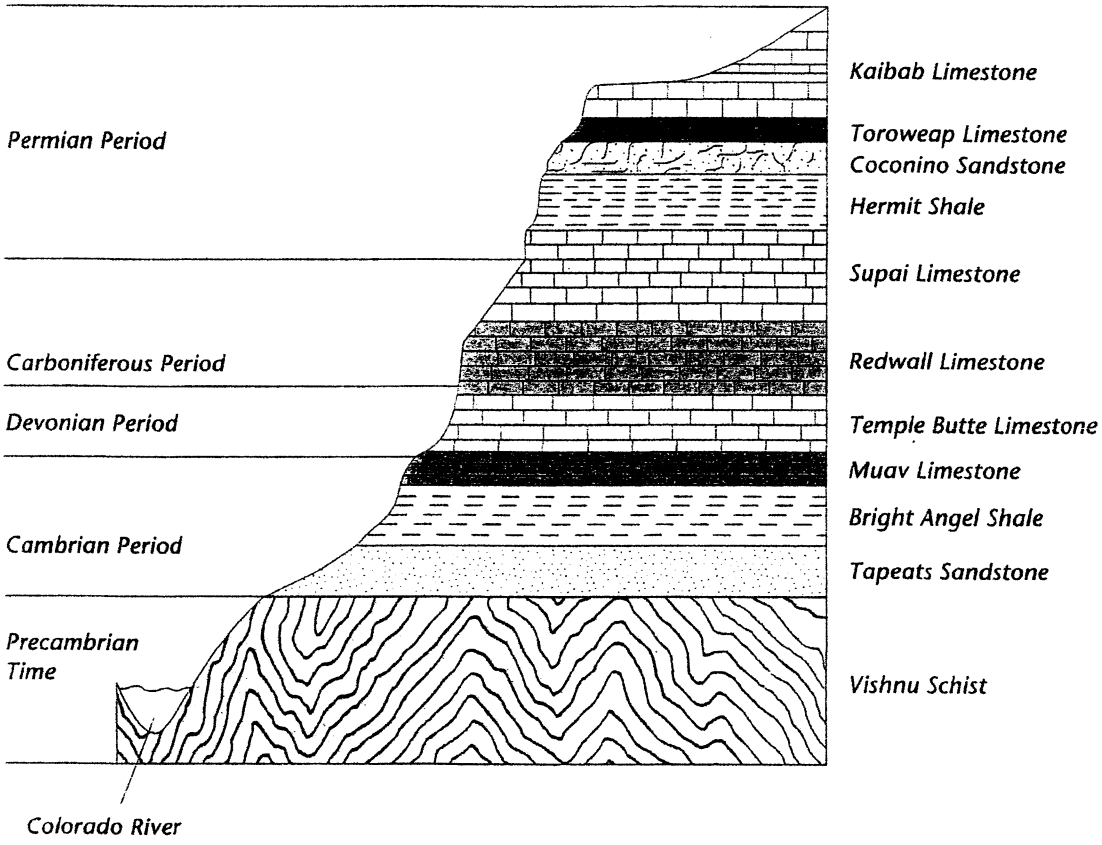
10. The record of life forms and geologic events in Earth's history is called the _____.

Name _____ Date _____ Class _____

SECTION 4-4 **ENRICH**

A Young Canyon Made of Old Layers

As the Colorado River cut down through Earth's crust to form the Grand Canyon, it exposed layer after layer of sedimentary rock. The figure below shows how old those layers are.



4

1. Did any of the rock in this part of the Grand Canyon form before the Paleozoic Era began?
2. During which period did the Redwall limestone form?
3. During which period did the Bright Angel shale form?
4. During which period did the Coconino sandstone form?
5. Did any of the rock that forms the Grand Canyon form during the Mesozoic Era?

Name _____ Date _____ Class _____

SECTION 4-5 **REVIEW AND REINFORCE**

Earth's History

◆ Understanding Main Ideas

Fill in the blanks in the table below.

Event	Time or Era	Event	Time or Era
Mass extinction at end of Permian Period	**1.** _____	First reptiles appear	**6.** _____
Vertebrates evolve	**2.** _____	Pangaea forms	**7.** _____
Age of Mammals	**3.** _____	Mass extinction at end of Cretaceous Period	**8.** _____
Age of Reptiles	**4.** _____	Earliest life forms appear on Earth	**9.** _____
Earth forms	**5.** _____	First birds appear	**10.** _____

11. What were the earliest life forms on Earth like?

13. Describe the probable causes of two mass extinctions.

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

_____ **17.** reptile

_____ **18.** amphibian

_____ **19.** mammal

_____ **20.** vertebrate

a. animal that feeds its young milk

b. animal with strong legs and eggs with thick shells

c. animal that evolved from lungfish

d. animal with a backbone