8TH GRADE SCIENCE STAAR REVIEW

reporting category 3

Name _____ Class _____

Underline your strong TEKS and circle your weak TEKS:

8.7A Day/Night & Seasons

8.7B Lunar Cycle

8.7C Tides

8.8A Components of the Universe

8.8B The Sun

8.8C EM Spectrum

8.8D Light Years

8.8E Origin of the Universe

8.9A Plate Tectonic Theory

8.9B Crustal Features

8.9C Topographic Maps

8.10A Solar Energy and Convection

8.10B Weather Maps

8.10C Role of Oceans in Weather

7.8C Groundwater and Surface Water

6.11B Gravity & the Solar System

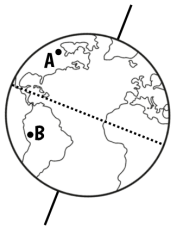
Name: _____Science Teacher: _____

Reporting Category 3: Earth & Space (MOD)

8.7A Day/Night & Seasons

Time it takes for the Earth to rotate on its axis: _____

Time it takes for the Earth to revolve around the Sun: _____



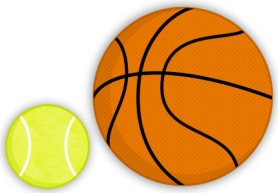
Two locations on Earth are shown (A & B) as they face the Sun. Fill in the blanks using the image provided.

- At Location(s) _____ it is daytime.
- It is summer at Location _____ and winter at Location _____.
- There are more hours of daylight at Location _____.
- Location _____ has longer nights and shorter days.
- The seasons that Texas experiences are most like Position _____.

The day and night cycle on Earth is caused by: _____

The Earth is closer to the Sun in _____ (*season or month*) and farther from the Sun in _____ (*season or month*). The varying distance from the Sun to the Earth _____ (**is/is not**) the reason for the seasons.

Seasons are caused by the 23.5˚ tilt of the _____ and the _____ (**rotation/revolution**) of the Earth around the Sun.



Students are modeling the Earth, the Sun, and their relative motions. They have a basketball and a tennis ball. Fill in the blanks, then circle the correct statement(s) below that describe what the students should do in order to accurately model the **cause of day and night on the Earth**.

The basketball will represent the _____. The tennis ball will represent the _____.

- lift the tennis ball off the table
- rotate the tennis ball on an axis
- rotate the ball (Earth) clockwise
- rotate the basketball on an axis
- move the tennis ball around the basketball
- rotate the ball (Earth) counter-clockwise

Students are modeling the Earth, the Sun, and their relative motions. They have a volleyball and a golf ball. Fill in the blanks, then circle the correct statement(s) below that describe what the students should do in order to accurately model the **cause of seasons on the Earth**.

The volleyball will represent the _____. The golf ball will represent the _____.

- rotate the golf ball on an axis
- tilt the axis of the golf ball
- move the volleyball counter-clockwise around the golf ball.

- rotate the volleyball on an axis
- tilt the axis of the volleyball
- move the golf ball counter-clockwise around the volleyball

Use the diagram below to identify the seasons. Circle "shorter" or "longer".

Label below for the Northern Hemisphere:

Position 1: _____

Between 1 & 2, do the days get shorter or longer?

Position 2: _____

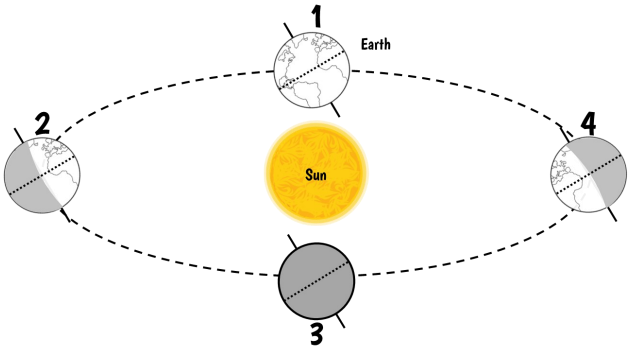
Between 2 & 3, do the days get shorter or longer?

Position 3: _____

Between 3 & 4, do the days get shorter or longer?

Position 4: _____

Between 4 & 1, do the days get shorter or longer?



How much time passes from Position 2 to Position 4? _____

How much time passes from Position 2 to Position 1? _____

8.7B Lunar Cycle

Students are using a flashlight, tennis ball, and basketball to model the lunar cycle. The students want to model a new moon. *Draw the tennis ball in the diagram below to show the correct position of the moon during a new moon phase.*

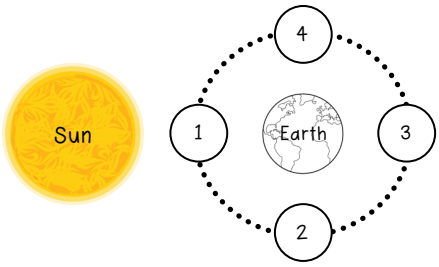
Flashlight = Sun

Basketball = Earth

How long does it take the moon to revolve around the Earth one time? _____

In what direction does the moon revolve around the Earth? _____

What moon phase comes after a first quarter moon? _____



Match the moon phases pictured below to the correct numbered position above.


Seen at position _____.


Seen at position _____.

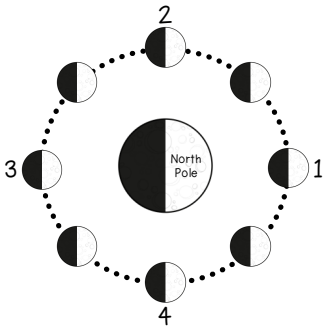

Seen at position _____.


Seen between positions _____ and _____.

How long does it take for the moon to travel from Position 1 to Position 2? _____

How long does it take for the moon to travel from Position 2 to Position 4? _____

How long does it take for the moon to travel from Position 3 back to Position 3? _____



Moon phase at position 1: _____

Moon phase between 1 & 2: _____

Moon phase at position 2: _____

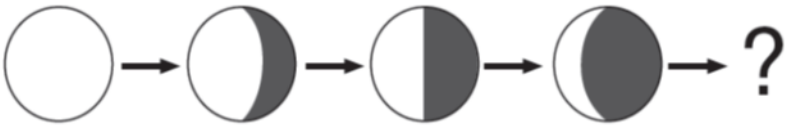
Moon phase between 2 & 3: _____

Moon phase at position 3: _____

Moon phase between 3 & 4: _____

Moon phase at position 4: _____

Moon phase between 4 & 1: _____



Which word best describes the changes in the moon's appearance during the sequence shown above?

A. Gibbous ~~C. Crescent~~

B. Waning D. Waxing

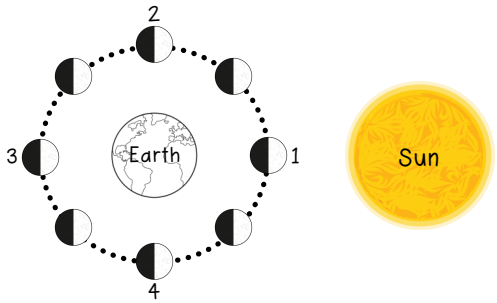
What is the name of the phase of the moon in the picture?

A. Third/Last Quarter C. First Quarter

B. Waning Crescent ~~D. Half moon~~

8.7C Tides

Tides are caused by the gravitational pull of the _____ & _____.
Which object has a greater effect on tides and why?



Which two positions bring higher than normal tides?

A. Positions 1 and 2
B. Positions 1 and 3
~~C. Positions 2 and 3~~
D. Positions 2 and 4

At any point on Earth's oceans, there are _____(#) high tides and _____ (#) low tides each 24 hour day.

Spring tides occur during the _____ and _____ moon phases.

Neap tides occur during the _____ and _____ moon phases.

8.8A Components of the Universe

The major characteristic that determines the life cycle of a star is -

A. The type of nebula that created it
B. The mass of the star
C. The color of the star
~~D. The density of the star~~


Galaxy W


Galaxy X


Galaxy Y


Galaxy Z

Which data table correctly classifies the galaxies pictured above?

Table #1

Galaxy	Classification
W	elliptical
X	irregular
Y	spiral
Z	irregular

Table #2

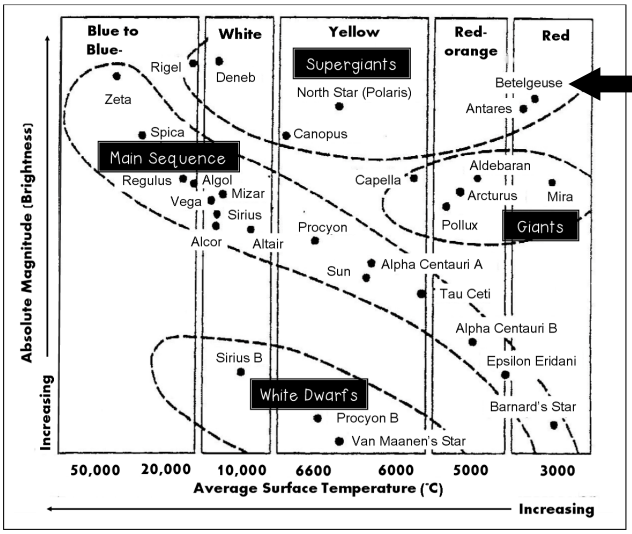
Galaxy	Classification
W	irregular
X	elliptical
Y	spiral
Z	elliptical

Table #3

Galaxy	Classification
W	irregular
X	spiral
Y	elliptical
Z	spiral

The Earth is a member of the _____ _____ galaxy.

What does the Hertzsprung-Russell diagram tell us about the star Betelgeuse?



A. It has a low surface temperature and high luminosity
B. It has high surface temperature and high luminosity
C. It has low surface temperature and low luminosity
~~D. It has high surface temperature and low luminosity~~

WORD BANK:
- absolute magnitude
- apparent magnitude
- nebula
- galaxy

A _____ is a very large group of stars held together by gravity.

A _____ is a very large cloud of dust and gas.

The _____ magnitude of a star is its actual brightness, if viewed from a standard distance.

The _____ magnitude of a star is the brightness of the star as seen from Earth.

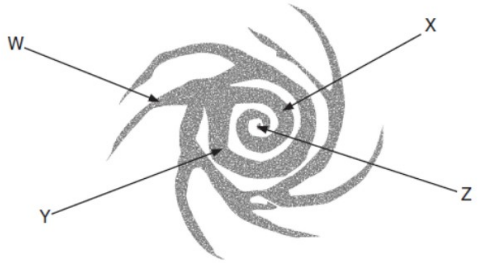
What star characteristics are used to classify them on the H-R Diagram?

8.8B The Sun

Why is the sun so much brighter than the other stars visible in the sky?

The size of the sun is _____, compared to other main-sequence stars.

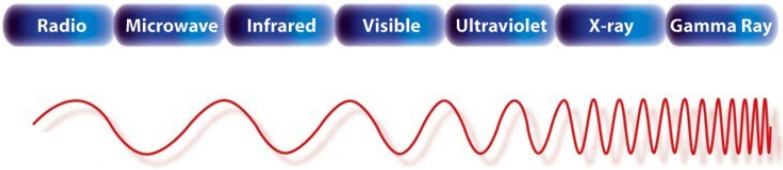
Circle the location (W, X, Y, or Z) in the picture (right) that best represents the location of the sun.



The provided graphic represents a model of three different stars. Which model is the best representation of our sun?

A. The small blue/white star
B. The medium yellow star
C. The large red star
~~D. Our sun is not represented here~~

8.8C EM Spectrum

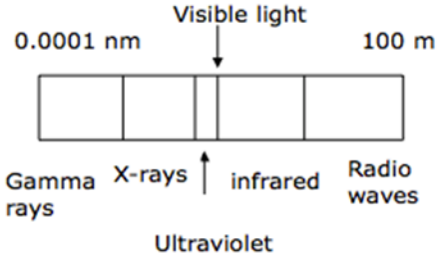


An object in space that cannot be seen is giving off waves that produce very large wavelengths. Which type of electromagnetic radiation is this object giving off?

A. radio waves
B. infrared rays
~~C. visible light~~
D. gamma rays

What part of the electromagnetic spectrum can be observed with the unaided eye?

A. visible light
B. infrared
C. radio waves
~~D. gamma rays~~



8.8D Light Years

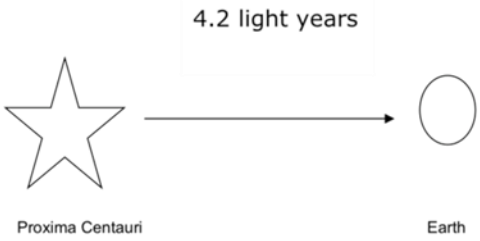
Define light-year:

A light-year would be most appropriate for measuring -

A. the distance between Earth and the Sun.
~~B. the time it takes to travel to the moon.~~
C. the time it takes to travel to Mars.
D. the distance between galaxies.

Proxima Centauri is 4.2 light-years away from Earth. How long has its light been traveling to reach us?

A. 4.2 minutes
~~B. 4.2 days~~
C. 4.2 months
D. 4.2 years



8.8E Origin of the Universe

The Big Bang Theory proposes that our universe formed as the result of a huge explosion that sent all existing matter flying outward from a single point. Which of the following observations is used as evidence to support this theory?

A. Light we see from distant galaxies was emitted long ago.
B. Gravity holds a galaxy in the same general area.
C. All galaxies appear to be moving away from all other galaxies.
~~D. Many galaxies have similar shapes.~~

8.9A Plate Tectonic Theory

What scientist first formally proposed that the Earth's landmasses were once joined together as one giant supercontinent that had since drifted apart? _____

The name given to the super-continent was: _____

Was this hypothesis accepted by the scientific community when it was first proposed? _____

Why or why not? _____

_____

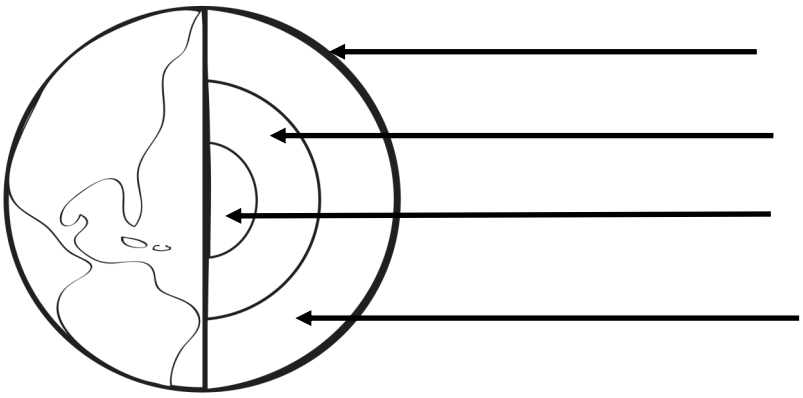
List at least 3 pieces of evidence used to support the Continental Drift Theory:

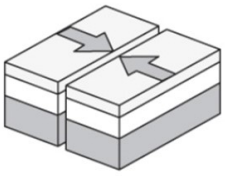
1. _____
2. _____
3. _____

Harry Hess' discovery of seafloor spreading provided the mechanism to explain how continental drift could work. The two hypotheses were merged into what is now known as the _____ Theory. It proposes that the lithosphere is broken into plates that float on top of the _____.

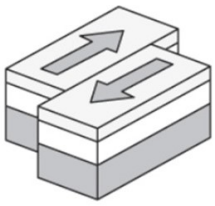
8.9B Crustal Features

Label the layers of the Earth in this model.

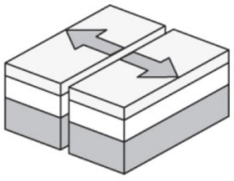




Type of plate boundary:

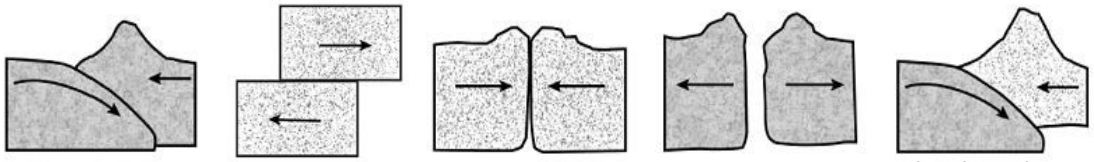


Type of plate boundary:

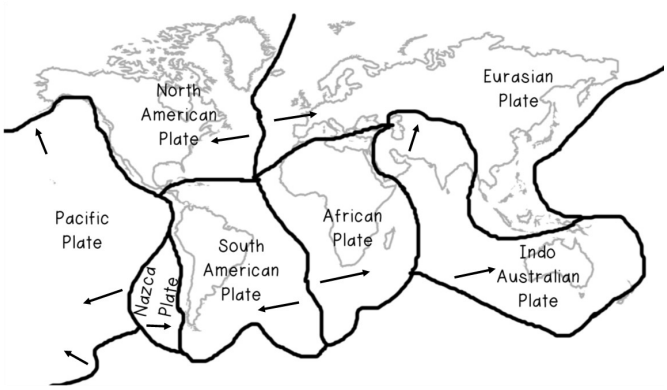


Type of plate boundary:

Use the images below to correctly match each crustal feature to the plate boundary interaction that would create it.



- Folded mountains would be formed at plate boundary _____.
- Faults and earthquakes would be formed at plate boundary _____.
- Island arcs, trenches, & volcanic islands would be formed at plate boundary _____.
- Volcanic mountains and trenches would be formed at plate boundary _____.
- Rift valleys or mid-ocean ridges would be formed at plate boundary _____.



Look at the plate boundary located off the western coast of South America (above). This is most likely an area of -

A. sea-floor spreading because the plates are spreading apart.
B. folded mountains because the plates are colliding.
C. subduction because the plates are colliding.
~~D. mid-ocean ridges because the plates are pulling apart.~~

8.9C Topographic Maps

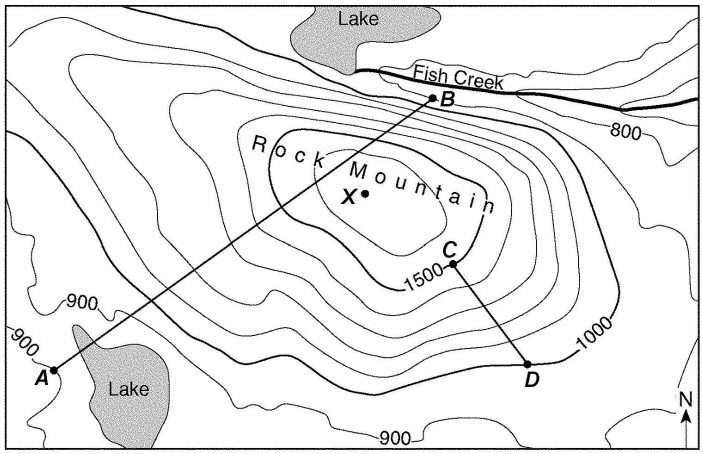
A family wants to climb Rock Mountain, but they would prefer to take the easiest path that has the most gentle slope. Which side of Rock Mountain should they climb?

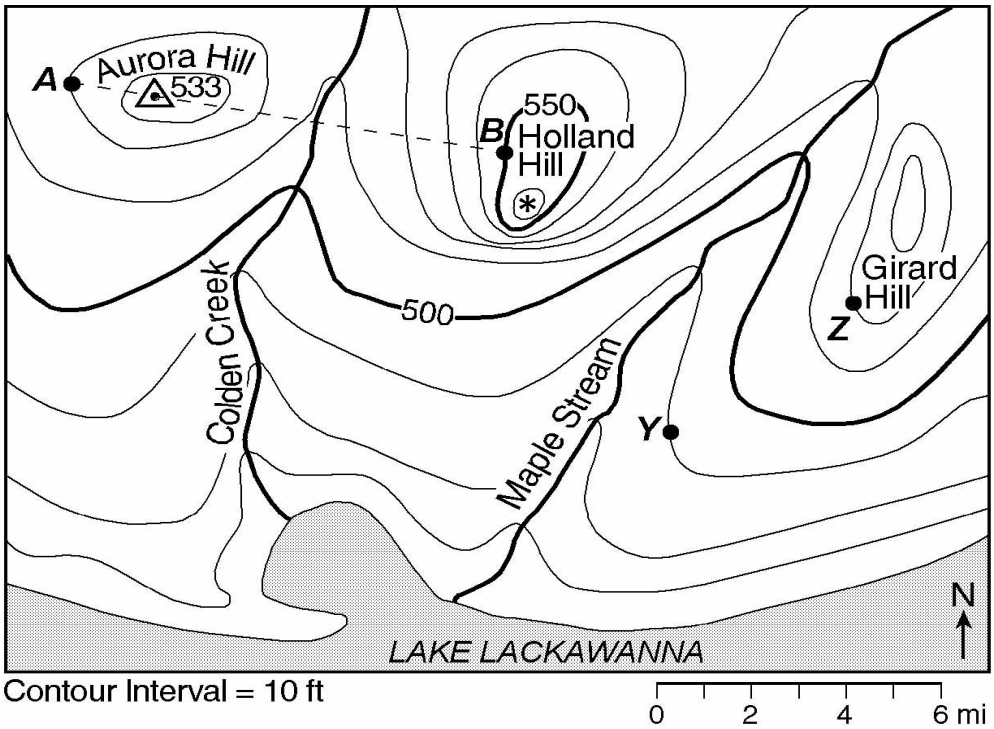
A. the Northeast side

~~B. the South side~~

C. the Northwest side

D. the West side





If someone is standing at the highest elevation on Holland Hill (shown by the asterisk *), what elevation (in feet) might they be standing at?

A. 560 C. 570
~~B. 551-559~~ D. 561-569

A hiker is hiking from Location Y to Location Z. What is the difference in elevation between these two locations? _____

•*Put a triangle on the map in the location where the slope is the steepest.*

•*On the map, label the elevation of point A.*

•In which direction does Maple Stream flow? *Draw an arrow on the map showing the direction of water flow.*

What is the distance from point A to point B, to the nearest mile? _____

What is the lowest elevation on this map? _____

The contour interval of this map is 10 ft. What is contour interval (define it)? _____

_____

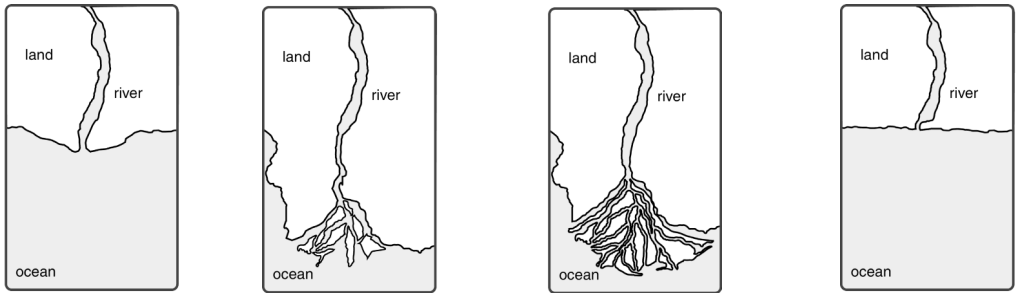
_____

Explain why this topographic map may need to be updated in the future. What changes may occur? _____

_____

_____

Study the 4 illustrations below. They were drawn by a student to represent the satellite views taken of the same area every 15 years. What is the best sequence of the formation of a river delta based on the illustrations? Number the illustrations 1-4 to put them in the most logical sequence (from earliest to latest).

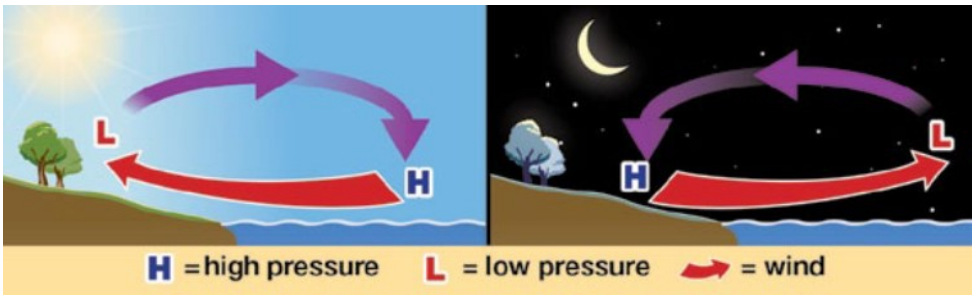


_____ # _____ # _____ # _____

8.10A Solar Energy and Convection

The process of _____, the transfer of thermal energy in liquids and gases, causes wind because _____ air rises and _____ air sinks.

Refer to this illustration for the following 4 questions.



Sea breezes blow from the ocean to the shore because-

A. as the Earth rotate on its axis, breezes are created.
~~B. ocean currents cause large waves which makes wind blow toward shore.~~
C. the Sun heats up the water more quickly.
D. the Sun heats up the land more quickly.

What does the illustration on the right panel show?

A. a sea breeze
B. a land breeze
C. the Coriolis effect
~~D. cold fronts~~

What is the name of the process that causes the events shown in the illustrations above?

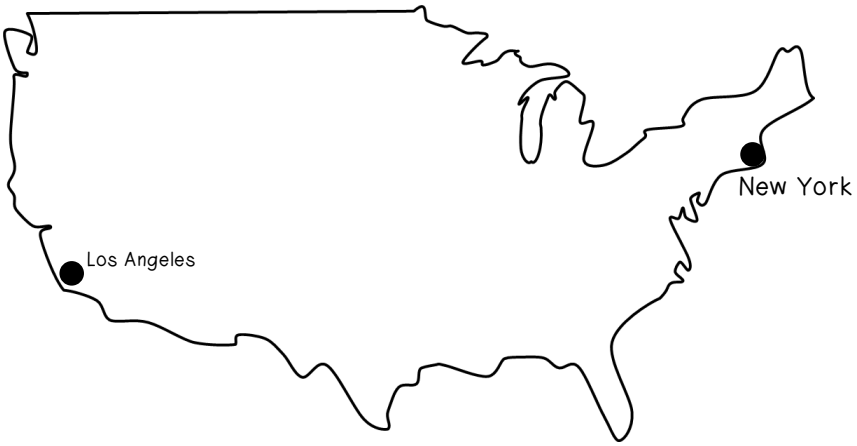
A. radiation
B. conduction
C. convection
~~D. weathering~~

These diagrams illustrate the fact that-

A. water vapor in the atmosphere condenses to form clouds.
B. winds are produced by the uneven heating of the land by the Sun.
C. water vapor evaporates more quickly when temperatures are warmer.
~~D. weather conditions mainly occur in the Earth's lower atmosphere.~~

8.10B Weather Maps

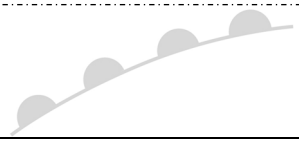
New York is experiencing, clear sunny skies while Los Angeles is experiencing dangerous thunderstorms. Add the pressure systems that are present over New York and Los Angeles.



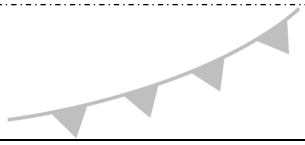
Use colored pencils to correctly shade the following weather map symbols and fill in the boxes below.

WORD BANK:

- stationary front
- warm front
- cold front
- occluded front
- rain, possible violent storms
- light to moderate rain
- often bring many days of almost continuous precipitation
- cooler temperatures and drier air
- warmer temperatures and more humid
- usually produce light rain or other precipitation



Type of front:
Weather associated with this front approaching:
Weather that follows this type of front:

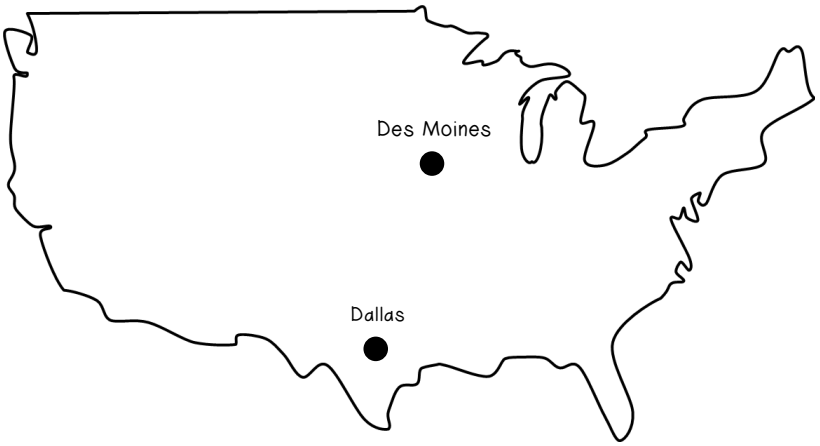


Type of front:
Weather associated with this front approaching:
Weather that follows this type of front:

Type of front:
Weather associated with this front:

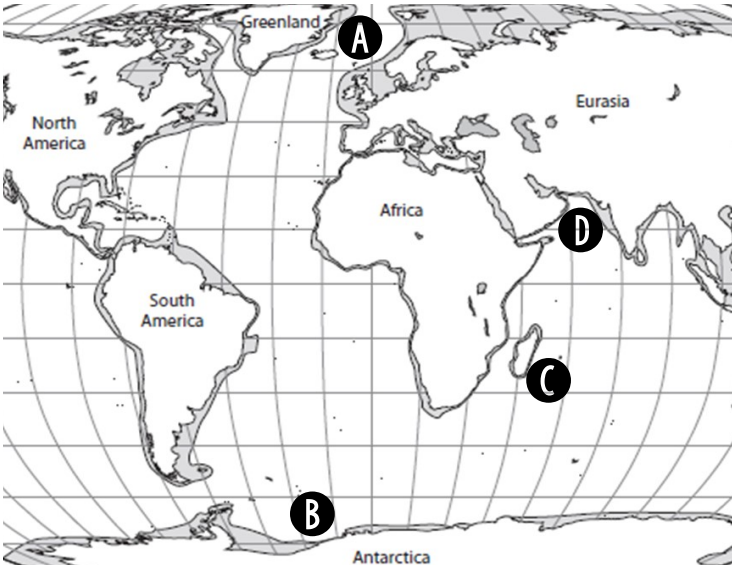
Type of front:
Weather associated with this front:

Create a US weather map that shows a cold front going through Des Moines moving southeast. Dallas has been experiencing several days of light drizzle with very little change in temperature. Draw in the type of front that is present in the Dallas area.



8.10C Role of Oceans in Weather

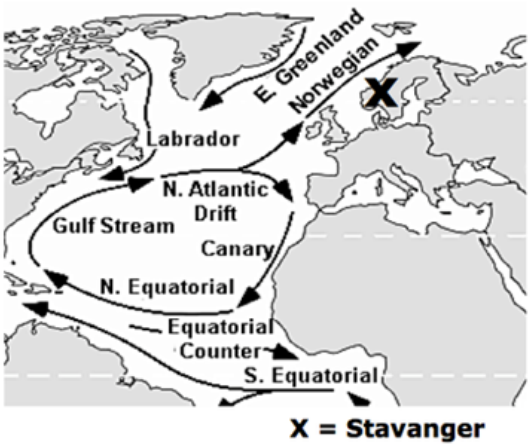
Hurricanes begin over oceans. Which location below most likely produced the most violent storms? *Circle your answer choice in the map and explain your answer below.*

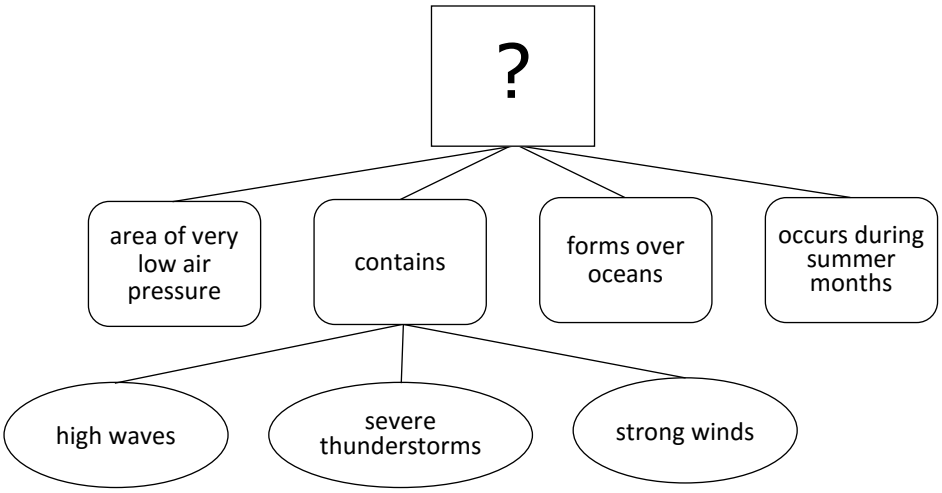


The ocean surface current that runs along the west coast of the U.S. bringing cool water from the polar region is called the _____ Current. Along the east coast, the _____ Current brings warmer water from the tropical region.

Refer to the map (right). Stavanger, Norway has a warmer climate than the rest of Norway. What could cause this?

A. Stavanger is the southernmost city.
B. The Gulf Stream current carries warm water to the Stavanger area.
C. The Arctic Current carries cold water toward Norway.
~~D. There is no sea ice in the region to create the cold, deep ocean currents.~~



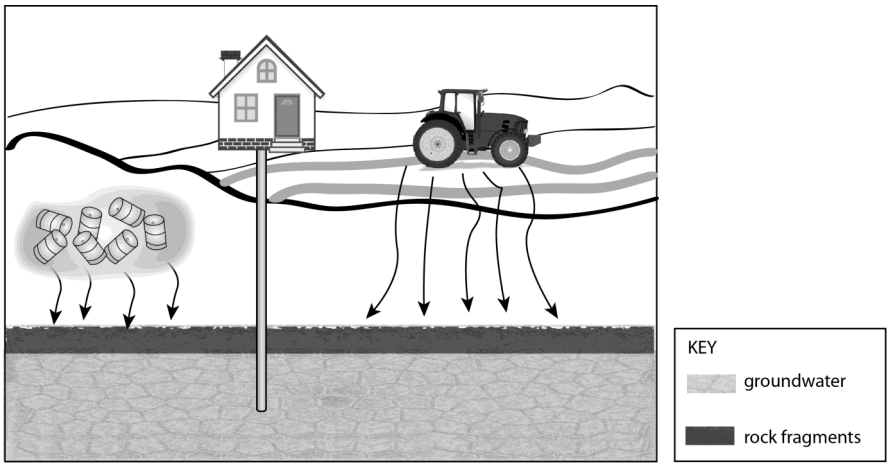


Which of the following best describes the conditions found above and should replace the question mark?

A. Hurricane C. Tornado

B. Tsunami ~~D. Water spout~~

7.8C Groundwater and Surface Water



The diagram above shows how humans are affecting the groundwater in a farming community. Which of the following statements is best supported by the diagram?

~~A. The water level will decrease by added chemicals to the ground.~~

B. Pollutants from different sources can contaminate the groundwater.

C. The rock fragments will protect the groundwater from the pollutants.

D. Toxic waste does not affect the drinking water because it is buried.

When fertilizers enter surface water, they cause problems in the watershed by-

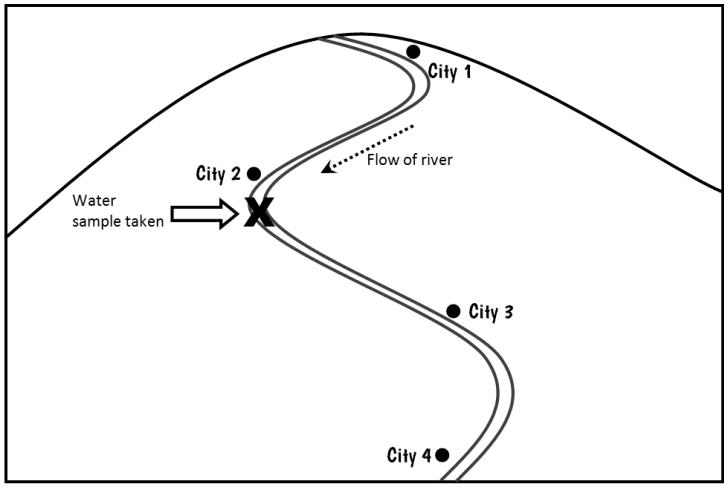
A. causing rapid growth of algae which decreases oxygen levels & chokes aquatic life.

B. raising the water level in nearby rivers that leads to flooding.

~~C. clogging narrow streams which prevents the proper flow of water.~~

D. increasing the amount of nutrients available to aquatic life in rivers and streams.

The picture (right) shows a river and 4 cities located along the river. A water sample was taken at Location X and it was found to be polluted with various chemicals. What is the most likely source of this pollution?



A. City 1 and City 2

B. City 2 and City 3

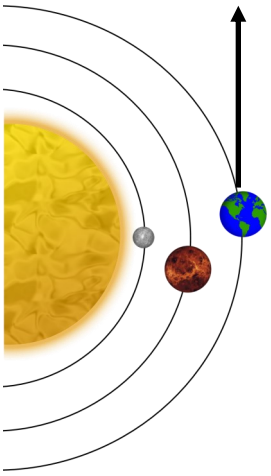
C. City 3 and City 4

~~D. City 1 and City 4~~

6.11B Gravity & the Solar System

Which of the following increases the gravitational attraction between two objects? *Check all that apply.*

	Increase the distance between the objects
	Increase the mass of the objects
	Decrease the distance between the objects
	Decrease the mass of the objects
	Change the color of the objects from light to dark
	Increase the orbital path of at least one of the objects
	Have objects with the exact same mass



What keeps the Earth from traveling in an elliptical orbit around the Sun instead of traveling in a straight line (as shown with the arrow)?

A. The gravitational attraction between Earth and Venus.

~~B. The electromagnetic force between the surrounding planets.~~

C. The gravitational attraction between the Sun and the Earth.

D. The centripetal force of the Earth's moon.