Your Name _____ Score _____

Group Members _____ Minutes _____

Standard 4
Key Idea 2

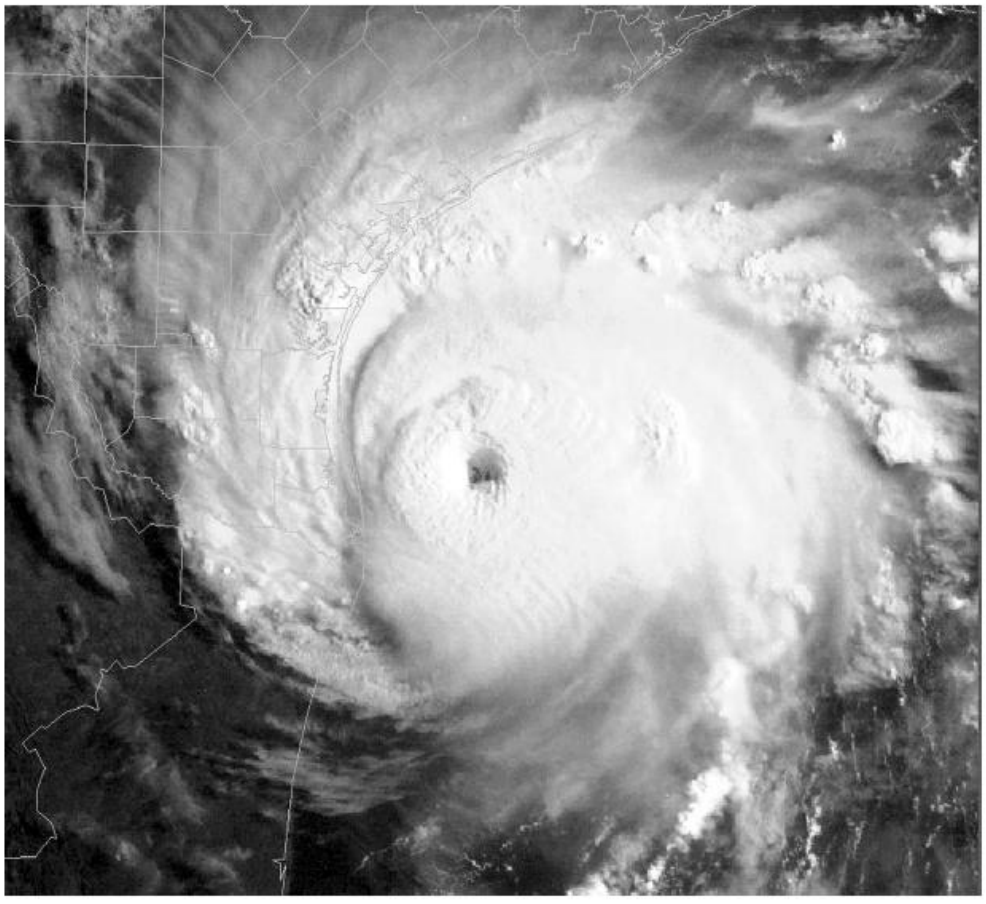
Performance Indicator 2.1

Use the concepts of density and heat energy to explain observations of weather patterns, seasonal changes, and the movements of Earth's plates.

Major Understanding:

2.1h Atmospheric moisture, temperature and pressure distributions; jet streams, wind; air masses and frontal boundaries; and the movement of cyclonic systems and associated tornadoes, thunderstorms, and hurricanes occur in observable patterns. Loss of property, personal injury, and loss of life can be reduced by effective emergency preparedness.

2.1i Seasonal changes can be explained using concepts of density and heat energy. These changes include the shifting of global temperature zones, the shifting of planetary wind and ocean current patterns, the occurrence of monsoons, hurricanes, flooding, and severe weather.



Mini Lesson 1: Hurricanes

Hurricanes that affect the US usually form in the Northern Atlantic Ocean. As solar radiation warms the ocean surface evaporation increases. The warmer the temperatures, the greater the rate of evaporation. As you may recall, warm, moist air rises, expands and cools to the dew point and clouds form. Energy and water vapor continue to be added to the atmosphere. This creates a low pressure area, known as a tropical depression. If winds are sustained above 39 miles per hour it is considered a tropical storm. If the winds are over 74 miles per hour it becomes a hurricane.

Category	Winds
1	74-95 mph
2	96-110 mph
3	111-130 mph
4	131-155 mph
5	> 155 mph

Most hurricanes occur in late summer early autumn because this is when the ocean surface is warmest. They are the most destructive storms. High winds, storm surges (ocean water pushed onto the coast) and major flooding occur. One more thing that adds to the disaster is that tornados can form. A hurricane is sometimes referred to as a cyclone because it is such a large area of low pressure. A typhoon is the same as a hurricane, however forms over the Northwest Pacific Ocean.

Hurricanes are fairly easy to predict because advancements in weather radar and satellite technology allows meteorologists to watch them develop and keep track of their path. Where exactly they hit land is not full proof. If a hurricane appears to pose a threat to your area within 48 hours, a hurricane watch is issued. A warning is issued if conditions are expected within 36 hours.

When you are ordered to evacuate LEAVE THE AREA.

Need to know:

1. Where do hurricanes form? _____
2. How do clouds form in a hurricane? _____

_____

3. What is added to the atmosphere to fuel the development of a hurricane? _____
4. What is a tropical depression? _____
5. What is the difference between a tropical storm and a hurricane? _____

_____

_____

Think

6. What is the difference between a sustained wind and a wind gust?

_____

7. How fast are sustained winds in a category 5 hurricane? _____

8. When do hurricanes usually occur? _____ & _____

9. List three things that make a hurricane destructive.8

   a) _____

   b) _____

   c) _____

10. What is the name of a "hurricane" that forms over the Northwest Pacific Ocean? _____

11. Why is the development and movement of hurricanes easier to predict today compared to in the past? _____

12. What is the difference between a hurricane watch and a hurricane warning?

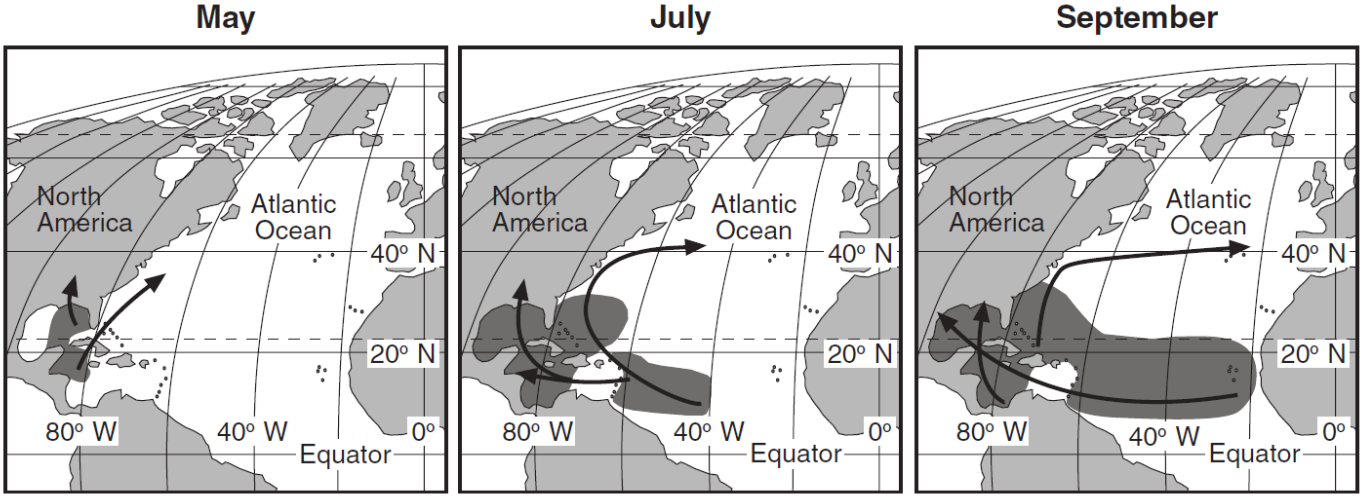
    _____

    _____

13. What should you do if you are ordered to evacuate? _____

Show what you know: Determining Relative Humidity and Dewpoint Temperatures

The maps below show areas of hurricane formation and normal hurricane paths in the Atlantic Ocean during May, July, and September. The areas of hurricane formation usually have surface ocean-water temperatures greater than 80°F.



1. How does the area of hurricane formation change from May to September?

   _____

2. State one reason why most hurricane paths curve northeastward as hurricanes move north of 30° N latitude. (Hint: ESRT page 14)

   _____

Key

Area of hurricane formation

Normal hurricane paths

Introduction:

Hurricanes are typically about 300 miles wide, however, one of the largest, Hurricane Irene was nearly twice that size. It is extremely important to know the path of these massive cyclones in order to limit the loss of life.

Objective:

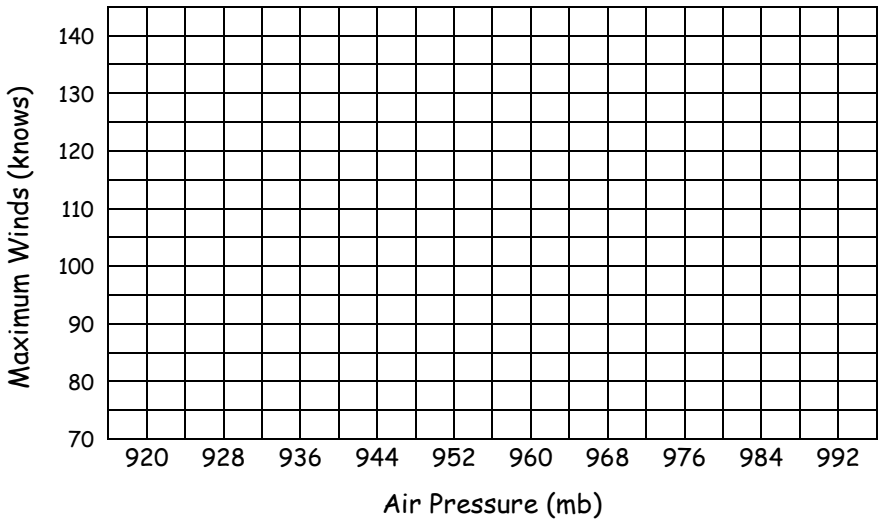
- To plot the paths of two separate hurricanes.

Procedure:

1. Using the maximum winds and air pressure data in the table below, place an **X** on the graph provided below for *each* date of the hurricane.

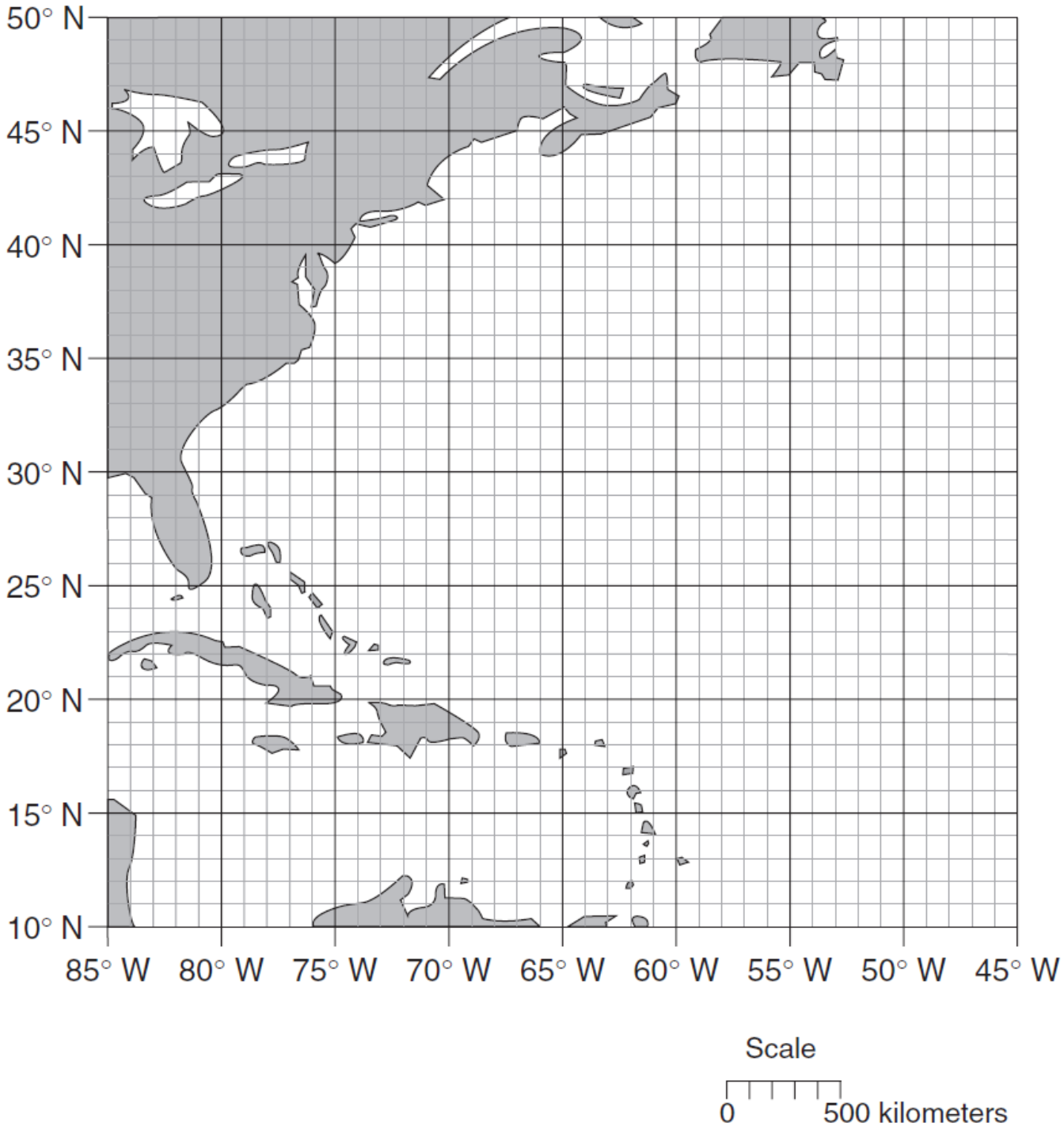
Hurricane Data

Date	Time	Latitude	Longitude	Maximum Winds (knots)	Air Pressure (mb)
Sept. 10	11:00 a.m.	19° N	59° W	70	989
Sept. 10	11:00 a.m.	22° N	62° W	95	962
Sept. 10	11:00 a.m.	23° N	67° W	105	955
Sept. 10	11:00 a.m.	24° N	72° W	135	921
Sept. 10	11:00 a.m.	26° N	77° W	125	932
Sept. 10	11:00 a.m.	30° N	79° W	110	943



2. Describe the relationship between air pressure and wind speed associated with this hurricane.

3. Using the latitude and longitude data in the table above, place an **X** on the map provided on **page 5** for *each* location of the hurricane during these 6 days.
4. Connect all of the **X**s with a solid line.
5. Label the September 15 (9/15) position of the hurricane on the map.
6. Starting from this plotted position on September 15, draw a dashed line on the map to indicate the storm's most likely path for the next 5 days.

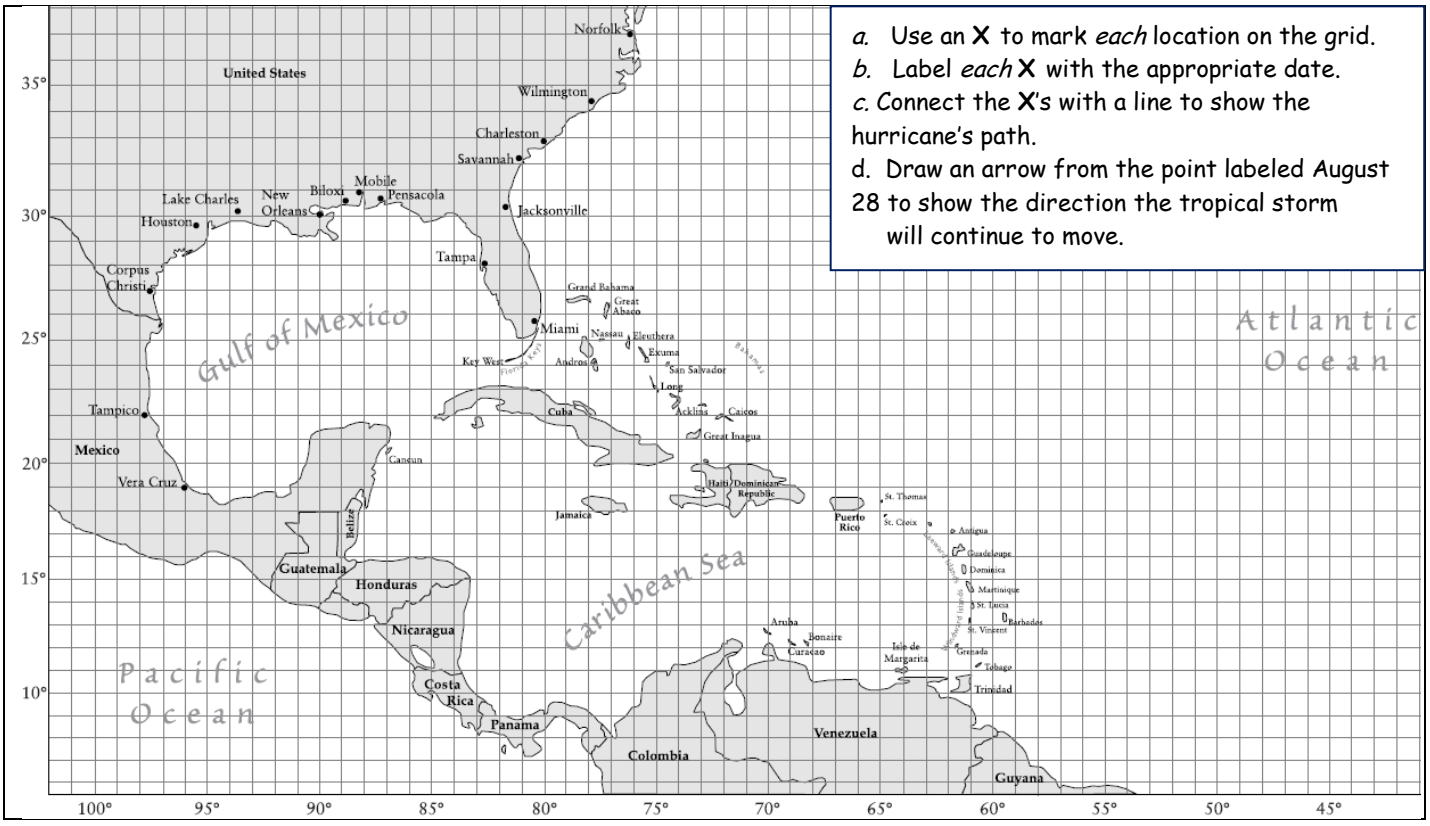


In August 1992, Hurricane Andrew, the most costly natural disaster in United States history, hit southern Florida. The data table below shows the location and classification of Hurricane Andrew on 7 days in August 1992.

Data Table

Day	Latitude	Longitude	Storm Classification
August 18	13° N	46° W	Tropical Storm
August 20	19° N	59° W	Tropical Storm
August 22	25° N	66° W	Hurricane
August 24	25° N	78° W	Hurricane
August 26	28° N	90° W	Hurricane
August 27	32° N	91° W	Tropical Storm
August 28	34° N	86° W	Tropical Storm

7. On the hurricane tracking map provided, plot the locations of Hurricane Andrew given in the data table, following the directions given on the map below.



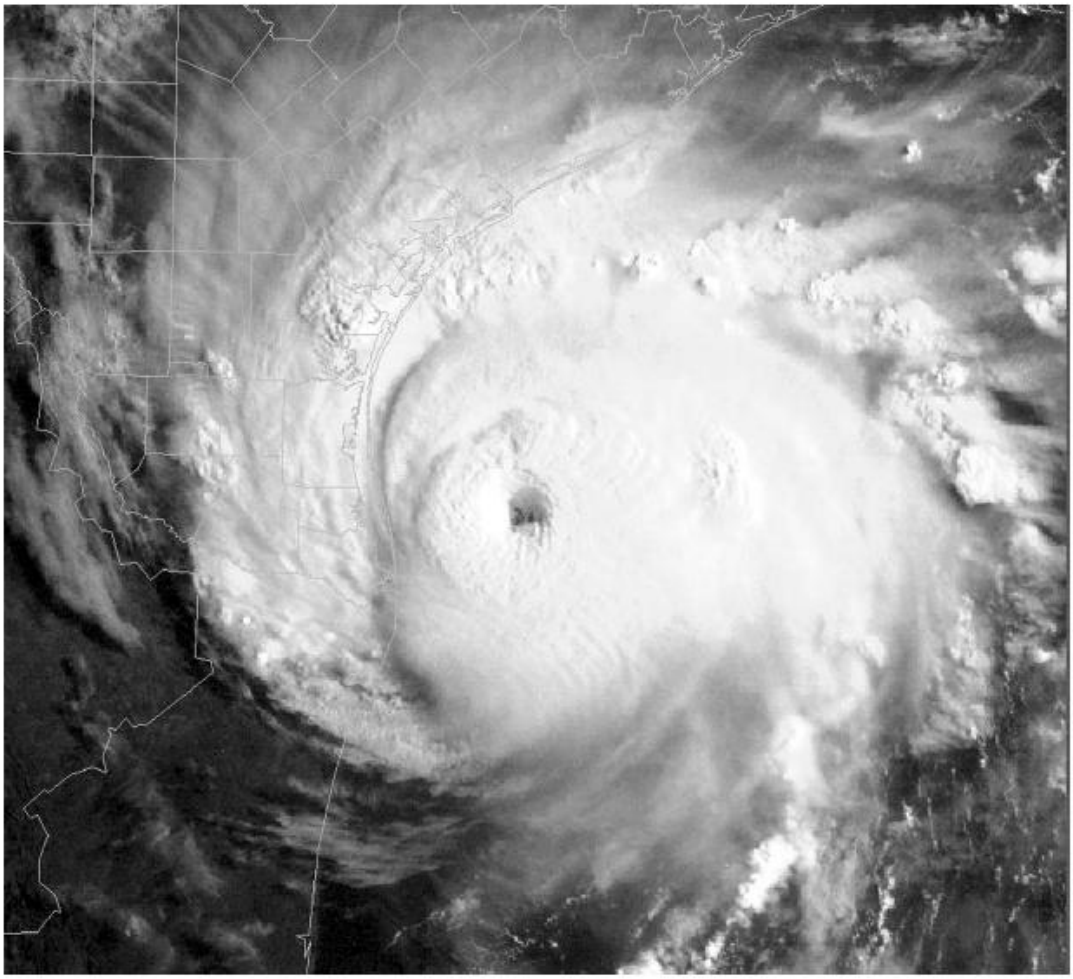
8. As Hurricane Andrew approached Miami, Florida, cloudiness and precipitation increased dramatically. State how the air pressure at Miami was changing at this time. _____

9. By August 27, Hurricane Andrew was downgraded from a hurricane to a tropical storm because its windspeed decreased. State two reasons why Hurricane Andrew's windspeed decreased at this time. _____

_____

Regents Questions:

Base your answers to questions 1 through 4 on the satellite image below, which shows a Northern Hemisphere hurricane, and on your knowledge of Earth science.



____ 1. What is the usual surface wind pattern around the eye of Northern Hemisphere hurricanes?
(1) clockwise and outward (3) counterclockwise and outward
(2) clockwise and inward (4) counterclockwise and inward

____ 2. Which air mass is normally associated with the formation of hurricanes?
(1) continental tropical (3) continental polar
(2) maritime tropical (4) maritime polar

____ 3. 44 Clouds form in the hurricane because the air is
(1) sinking, expanding, and cooling (3) rising, expanding, and cooling
(2) sinking, compressing, and warming (4) rising, compressing, and warming

____ 4. When the eye of this hurricane reaches 43° N latitude, this hurricane will mostlikely be pushed by planetary winds toward the
(1) northwest (2) northeast (3) southwest (4) southeast

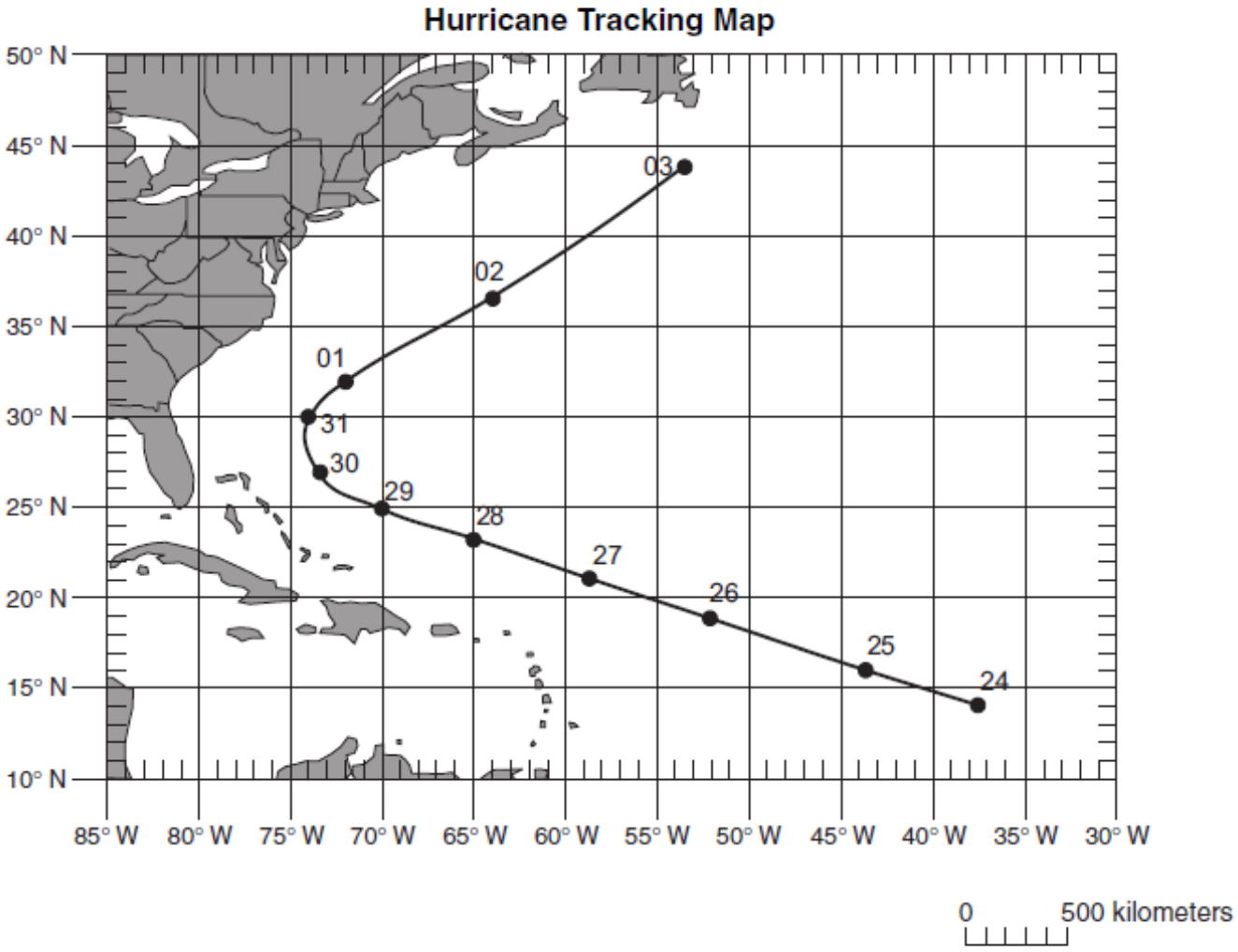
Base your answers to questions 5 through 7 on data tables I and II and on the Hurricane Tracking Map below. Table I represents the storm track data for an Atlantic hurricane. Location, wind velocity, air pressure, and storm strength are shown for the storm's center at 3 p.m. Greenwich time each day. Table II shows a scale of relative storm strength. The map shows the hurricane's path.

Data Table I

Latitude (°N)	Longitude (°W)	Date	Wind Velocity (kts)	Air Pressure (mb)	Storm Strength
14	37	Aug. 24	30	1006	Tropical depression
16	44	Aug. 26	70	987	Category-1 hurricane
19	52	Aug. 26	90	970	Category-2 hurricane
21	59	Aug. 27	80	997	Category-1 hurricane
23	65	Aug. 28	80	988	Category-1 hurricane
25	70	Aug. 29	80	988	Category-1 hurricane
27	73	Aug. 30	65	988	Category-1 hurricane
30	74	Aug. 31	85	976	Category-2 hurricane
32	72	Sept. 1	85	968	Category-2 hurricane
37	64	Sept. 2	70	975	Category-1 hurricane
44	53	Sept. 3	65	955	Category-1 hurricane

Data Table II

Storm Strength Scale	Relative strength
Tropical depression Category-1 hurricane Category-2 hurricane Category-3 hurricane Category-4 hurricane Category-5 hurricane	Weakest ↓ Strongest



5. Describe *two* characteristics of the circulation pattern of the surface winds around the center (eye) of a Northern Hemisphere low-pressure hurricane.

_____ and _____

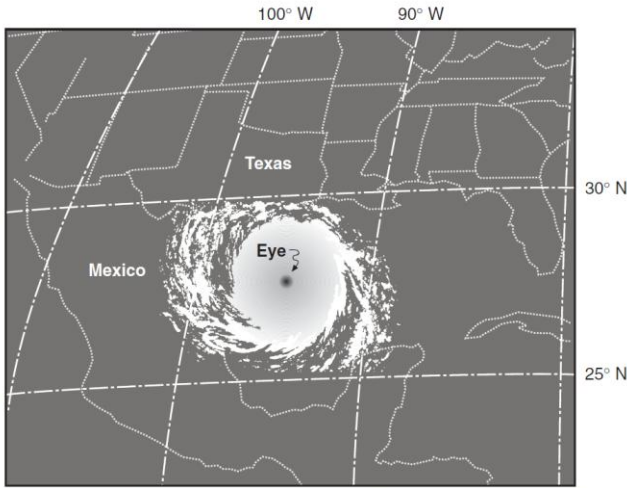
6. The hurricane did not continue moving toward the same compass direction during the entire period shown by the data table. Explain why the hurricane changed direction.

_____

7. Calculate the average daily rate of movement of the hurricane during the period from 3 p.m. August 24 to 3 p.m. August 28. The hurricane traveled 2,600 kilometers during this 4-day period.

Write the equation used to determine the rate of change.	
Substitute data into the equation.	
Calculate the rate and label it with the proper units.	

Base your answers to questions 8 through 13 on the weather satellite photograph of a portion of the United States and Mexico provided in your answer booklet. The photograph shows the clouds of a major hurricane approaching the eastern coastline of Texas and Mexico. The calm center of the hurricane, the eye, is labeled.



8. This hurricane has a pattern of surface winds typical of all low-pressure systems in the Northern Hemisphere. On the satellite photograph provided, draw *three* arrows on the clouds to show the direction of the surface wind movement outside the eye of the hurricane.

9. Cloud droplets form around small particles in the atmosphere. Describe how the hurricane clouds formed from water vapor. Include the terms "dewpoint" and either "condensation" or "condense" in your answer.

_____

_____

_____

10. State the latitude and longitude of the hurricane's eye. The compass directions must be included in the answer.

(Don't forget compass direction.)

Latitude _____

Longitude _____

11. At the location shown in the photograph, the hurricane had maximum winds recorded at 110 miles per hour. Within a 24-hour period, the hurricane moved 150 miles inland and had maximum winds of only 65 miles per hour. State two reasons why the wind velocity of a hurricane usually decreases when the hurricane moves over a land surface.

a) _____

b) _____

12. State *two* dangerous conditions, other than hurricane winds, that could cause human fatalities as the hurricane strikes the coast.

a) _____

b) _____

13. Describe *one* emergency preparation humans could take to avoid a problem caused by one of these dangerous conditions.

_____

_____

Mini Lesson 2: Tornado

Tornados are spiraling columns of air that reach from a cumulonimbus cloud and touch down on Earth's surface. They are formed from thunderstorms. Warm, moist air from the Gulf of Mexico collides with cool, dry air from Canada and creates instability in the atmosphere. As these air masses collide, there is a change in wind direction which causes horizontal spinning to occur. As wind speed increases, rising air within the rising air column tilts. A waterspout is a weak tornado that forms over water.

Tornadoes can occur any time of year but are most common from March through May in the southern states and during the summer for the northern states. Dangers include high winds, downed power lines and flying debris. If you are in a tornado watch area, go to your basement or a first floor interior room (without windows) in your house. If outside, do not get into your car and try to outrun it. Go to a ditch or low area and lay down flat on the ground.

Need to know:

1. What is a tornado? _____
2. What happens when two air masses collide? _____
3. When do tornados generally occur in the southern states? _____
4. When do they occur in the northern states? _____
5. Name three hazards a tornado creates. _____ , _____ and _____

6. Give an example of an interior room in your house. _____
7. Why is it not a good idea to try and outrun a tornado?

   _____
8. What should you do if you are outside in a park and you see a tornado heading your way.

   _____

   _____

Regents Questions:

Base your answers to questions 70 through 74 on the passage below and on your knowledge of Earth science. The passage describes a tornado produced from a thunderstorm that moved through a portion of New York State on May 31, 1998.

New York Tornado

A small tornado formed and moved through the town of Apalachin, New York, at 5:30 p.m., producing winds between 40 and 72 miles per hour. The tops of trees were snapped off, and many large limbs fell to the ground. The path of the destruction measured up to 200 feet wide. At 5:45 p.m., the tornado next moved through the town of Vestal where winds ranged between 73 and 112 miles per hour. Many people experienced personal property damage as many homes were hit with flying material.

At 6:10 p.m., the tornado moved close to Binghamton, producing winds between 113 and 157 miles per hour. A 1000-foot television tower was pushed over, and many heavy objects were tossed about by the strong winds. Then the tornado lifted off the ground for short periods of time and bounced along toward the town of Windsor. At 6:15 p.m., light damage was done to trees as limbs fell and small shallow-rooted trees were pushed over in Windsor.

The tornado increased in strength again at 6:20 p.m. as it moved into Sanford. Some homes were damaged as their roof shingles and siding were ripped off. One mobile home was turned over on its side.

The tornado moved through the town of Deposit at 6:30 p.m., creating a path of destruction 200 yards wide. The tornado skipped along hilltops, touching down occasionally on the valley floors. However, much damage was done to homes as the tornado's winds reached their maximum speeds of 158 to 206 miles per hour. The tornado weakened and sporadically touched down after leaving Deposit. By 7:00 p.m., the tornado had finally ended its 1 -hour rampage.

1. The tornado mentioned in this passage was produced by cold, dry air from Canada quickly advancing into warm, moist air already in place over the northeastern United States. List the two-letter air-mass symbols that would identify *each* of the two air masses responsible for producing this tornado.

   and

2. Which type of front was located at the boundary between the advancing cold, dry airmass and the warm, moist air mass?

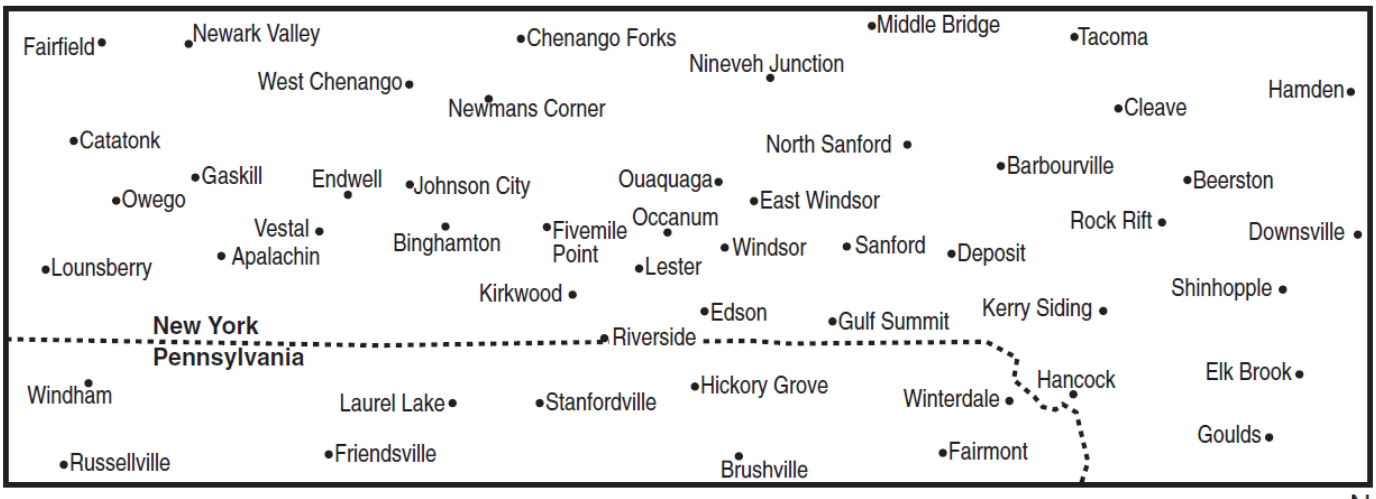
Fujita Scale

F-Scale Number	Wind Speed (mph)	Type of Damage Done
F-0	40–72	some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards
F-1	73–112	peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed
F-2	113–157	considerable damage; roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated
F-3	158–206	roof and some walls torn off well-constructed homes; trains overturned; most trees in forest uprooted
F-4	207–260	well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated
F-5	261–318	strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile-sized missiles fly through the air in excess of 100 meters; trees debarked; steel-reinforced concrete structures badly damaged

3. Using the Fujita Scale shown above and the information in the passage, complete the table *to the right*, by assigning an F-Scale number for the tornado as it passed through each town given in the table.

Town	F-Scale Number
Vestal	
Windsor	
Sanford	
Deposit	

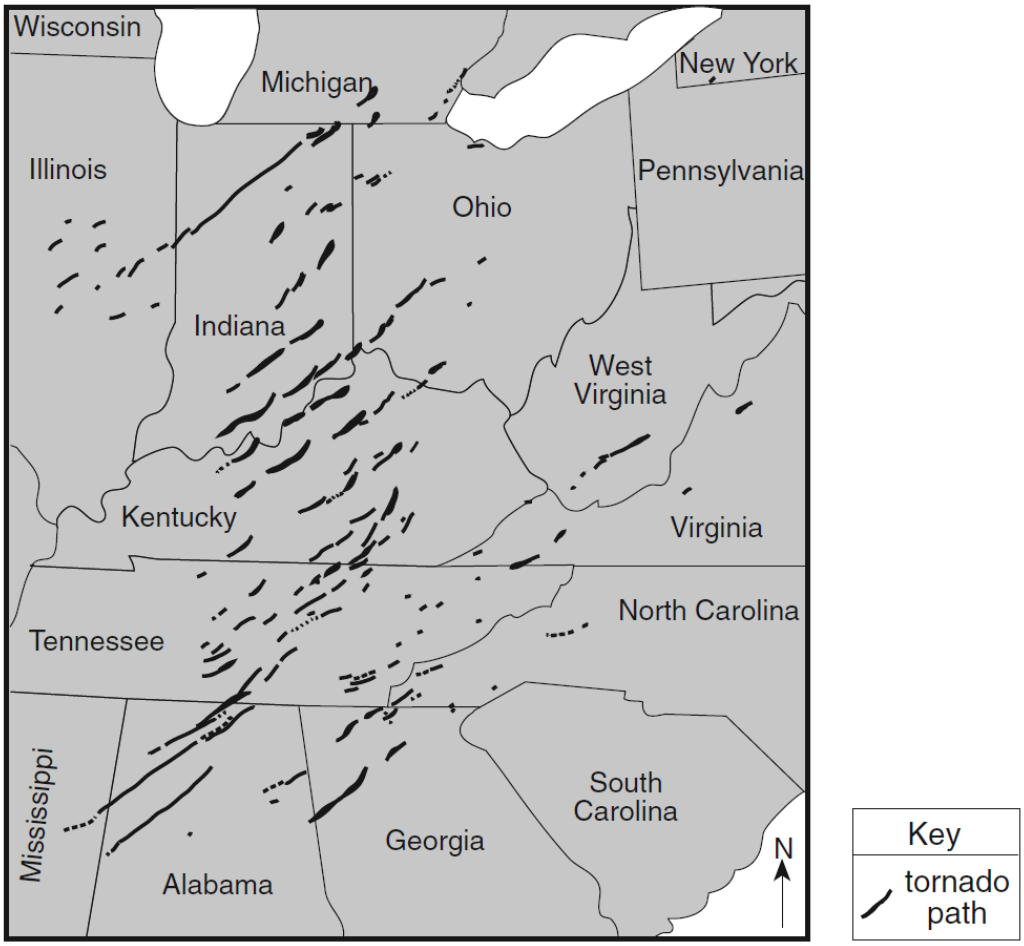
4. On the map *below*, draw the path of the tornado and the direction the tornado moved, by following the directions below.
   - Place an **X** through the point for *each of the six* towns mentioned in the passage.
   - Connect the **X**s with a line in the order that each town was mentioned in the passage.
   - Place an arrow at one end of your line to show the direction of the tornado's movement.



5. In the space provided, calculate the tornado's average rate of travel in miles per minute, between Vestal and Windsor, by using the equation below. Express your answer to the nearest tenth.

$$tornado's\ rate\ of\ travel = \frac{distance\ between\ Vestal\ and\ Windsor\ (miles)}{time}$$

Base your answers to questions 6 through 9 on the map below, which shows a portion of the United States where 148 tornadoes occurred during a 24-hour period in April 1974. The paths of the tornadoes are shown.



6. Explain why all the tornadoes moved toward the northeast. _____

_____

7. Describe the air movement most likely found within these tornadoes. _____

_____

8. A school receives a tornado warning. Describe *one* emergency action that a teacher and the students in a classroom should immediately take to protect themselves from injury.

_____

_____

9. Most of these tornadoes occurred with thunderstorms along cold fronts. Identify the water cycle process that forms clouds along cold fronts. _____

_____

_____

Mini Lesson 3: Winter Storms

Snow forms when a very cold and dry air mass comes in contact with a warm, moist air mass. As moisture from a warm air mass rises, it changes to snow or ice crystals. Precipitation can also be in the form of sleet, hail or freezing rain. When there is a heavy snow with poor visibility and winds in excess of 35 mph it is considered a blizzard.

Lake effect snow occurs when the cold air mass moves over an open lake or body of water that has not yet frozen. Moisture from the lake rises into the air and is transformed into snow. Frost bite, hypothermia, flying debris, roof collapse, and downed power lines are only a few of the problems associated with winter storms.

During the winter months always travel with blankets and non- perishable food and water in case you are stranded. Dress appropriately, in layers, throughout the winter months. At home, always keep a disaster supply kit.

Need to know:

1. How does snow form? _____

_____

2. Name three types of precipitation, other than snow that may fall during a winter storm.

_____ _____ _____

3. When is a snow storm considered a blizzard? _____
4. List three problems associated with winter storms. _____

_____

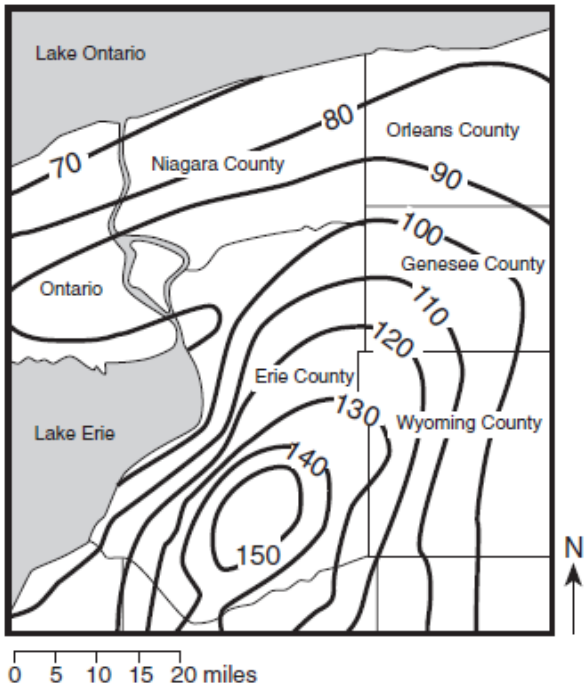
5. If traveling by car, what should you always bring? _____

_____

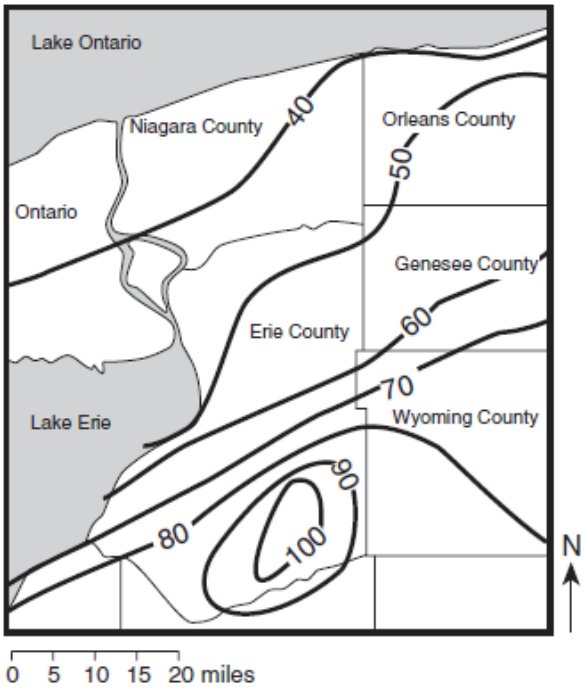
Base your answers to questions 1 through 4 on the three western New York State snowfall maps below and on your knowledge of Earth science. The three maps represent three different winter seasons. The isolines show the total inches of snowfall received each winter season. Some western New York State counties are labeled on each map. The dotted line *AB* has been drawn on the 1991–1992 winter season map.

Total Inches of Snowfall Received

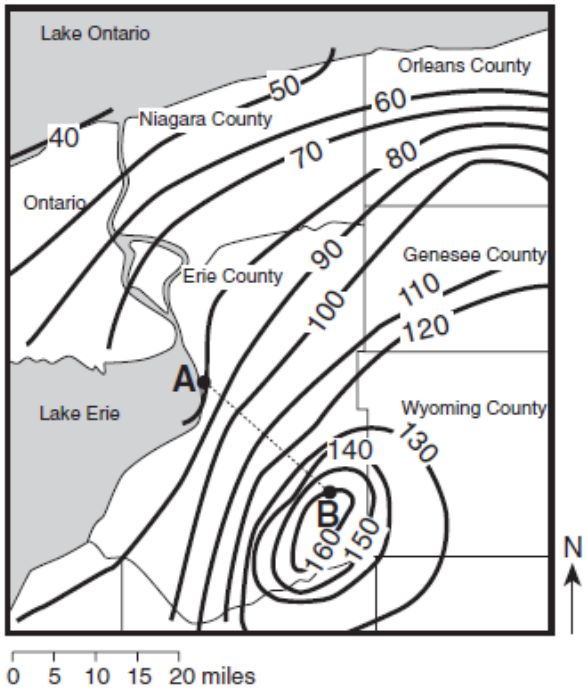
1985–1986 Winter Season



1990–1991 Winter Season



1991–1992 Winter Season



1. Calculate the average snowfall gradient along the dotted line between points *A* and *B* on the 1991–1992 winter season map, and label your answer with the correct units.

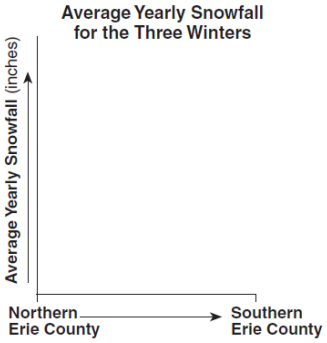
Write the equation used to determine the rate of change.	
Substitute data into the equation.	
Calculate the rate and label it with the proper units.	

2. Once the surface of Lake Erie completely freezes over with ice, the amount of snow from each snowstorm is usually reduced. Explain why a covering of ice on Lake Erie may cause the amount of snow from snowstorms to be reduced.

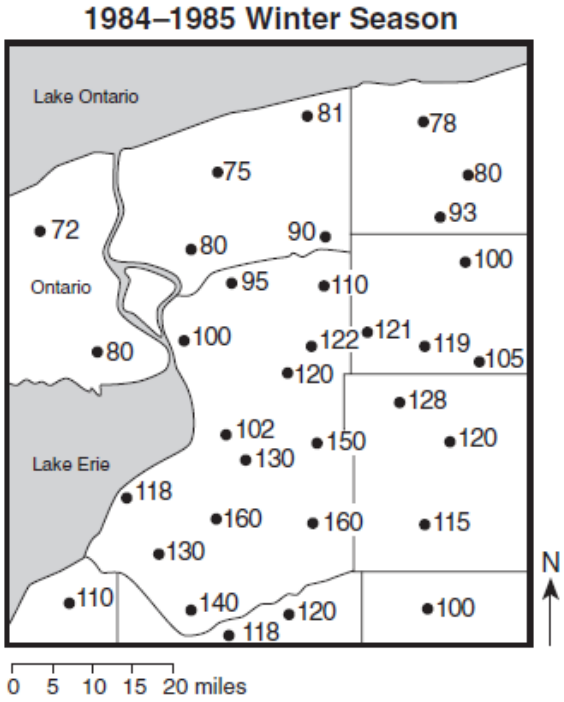
_____

_____

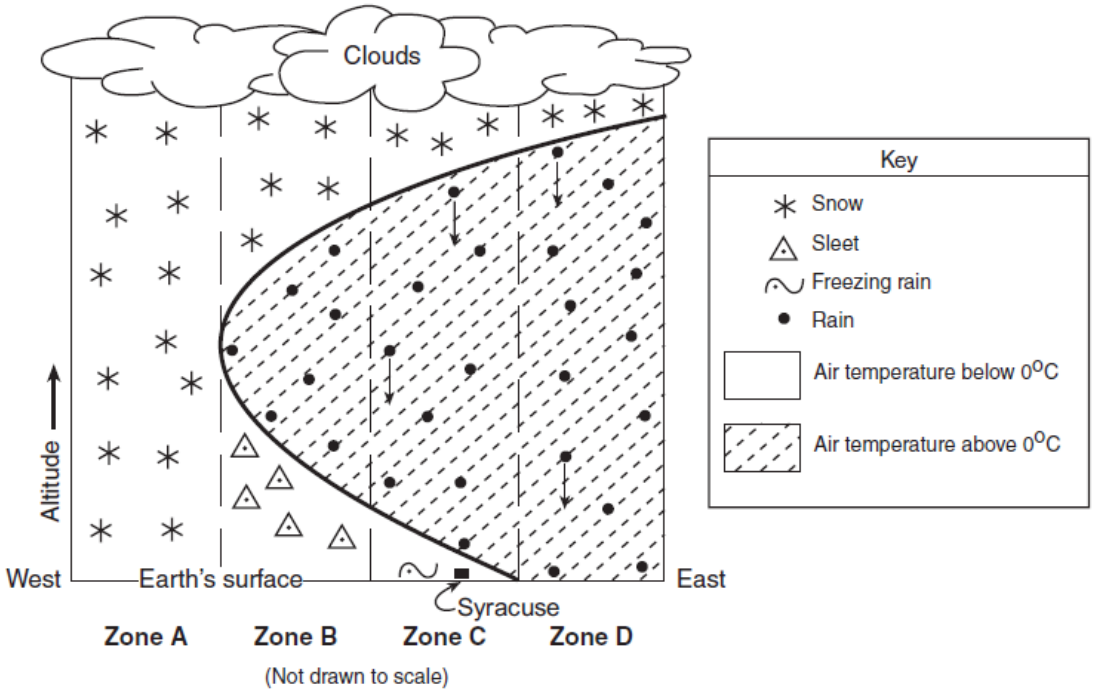
3. On the grid *to the right*, draw a line graph to show the general relationship between the amount of snowfall recorded in northern Erie County with the amount of snowfall recorded in southern Erie County, as shown on the three snowfall maps.



4. The map *below* shows the total inches of snowfall received at various locations for the 1984–1985 winter season. Draw the 120-inch snowfall isoline.



Base your answers to questions 5 through 8 on the atmospheric cross section below, which represents a winter storm system. Zones *A, B, C,* and *D* are located on a west to east line at approximately 43° N latitude across New York State. This cross section shows how solid and liquid forms of precipitation depend on the air temperature above Earth's surface. The storm is moving from west to east.



5. Explain why sleet is occurring in Zone *B.* _____

_____

At the time of the events represented by the cross section, Syracuse, New York, is experiencing the following weather conditions:

Cloud Cover	100%
Wind speed	15 knots
Present weather	Freezing rain
Precipitation	1.23 in. past 6 hrs
Visibility	1 mile
Temperature	
Dewpoint	
Wind direction	from

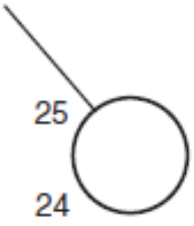
6. The temperature, dewpoint, and wind direction are shown on the weather station model in your answer booklet.
   a) Using proper format, add the temperature, dewpoint and wind direction to the table.
   b) Using proper format, add the information shown in the table to the model provided *below.*

7. As the storm moves eastward, the type of precipitation received in Syracuse changes State the type of precipitation that will immediately follow freezing rain. _____

8. Describe the general air movement and temperature change that caused the clouds associated with this storm to form.

_____

_____



Base your answers to questions 9 through 12 on the magazine article and diagram below.

Lake-Effect Snow

During the cold months of the year, the words "lake effect" are very much a part of the weather picture in many locations in New York State. Snow created by the lake effect may represent more than half the season's snowfall in some areas. In order for heavy lake-effect snow to develop, the temperature of the water at the surface of the lake must be higher than the temperature of the air flowing over the water. The higher the water temperature and the lower the air temperature, the greater the potential for lake-effect snow.

A lake-effect storm begins when air flowing across the lake is warmed as it comes in close contact with the water. The warmed air rises and takes moisture along with it. This moisture, which is water vapor from the lake, is turned into clouds as it encounters much colder air above. When the clouds reach the shore of the lake, they deposit their snow on nearby land. A typical lake-effect storm is illustrated in the diagram below.

The area most likely to receive snow from a lake is called a "snowbelt." Lake Ontario's snowbelt includes the counties along the eastern and southeastern ends of the lake. Because the lake runs lengthwise from west to east, the prevailing westerly winds are able to gather the maximum amount of moisture as they flow across the entire length of the lake. There can be lake-effect snowfall anywhere around the lake, but the heaviest and most frequent snowfalls occur near the eastern shore.

In parts of the snowbelt, the lake effect combines with a phenomenon known as orographic lifting to produce some very heavy snowfalls. After cold air has streamed over the length of Lake Ontario, it moves inland and is forced to climb the slopes of the Tug Hill Plateau and the Adirondack Mountains, resulting in very heavy snowfall.

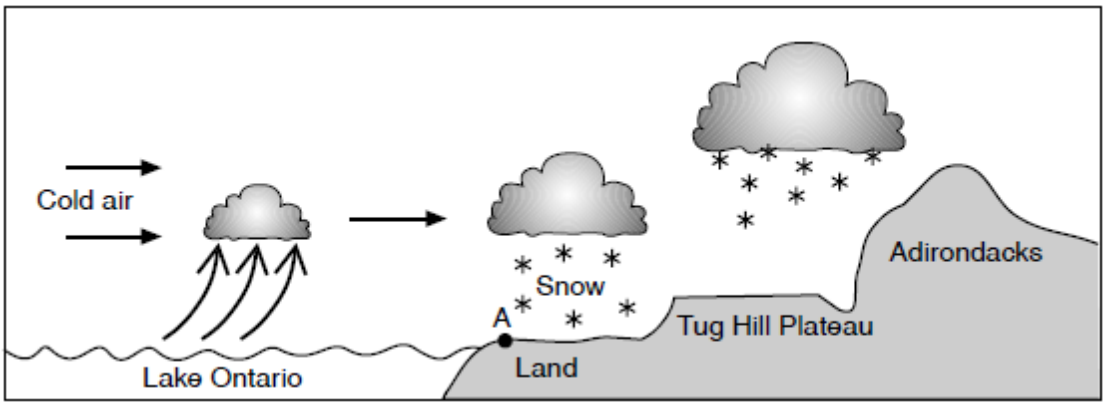
9. State the relationship that must exist between water temperature and air temperature for lake-effect snow to develop. _____

_____

10. State why locations east and southeast of Lake Ontario are more likely to receive lake-effect snow than are locations west of the lake. _____

_____

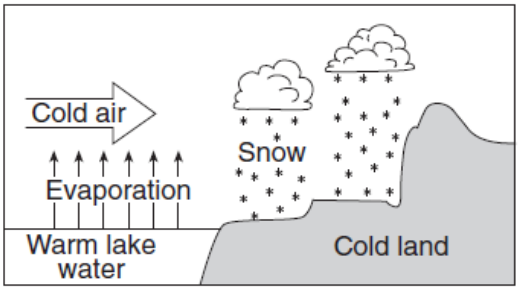
11. State the name of the New York State landscape region that includes location *A* shown in the diagram below. _____



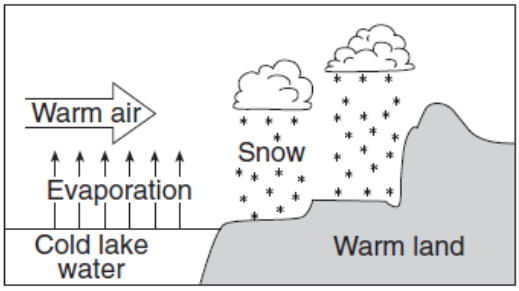
12. State why very heavy snowfall occurs in the Tug Hill Plateau region. _____

_____

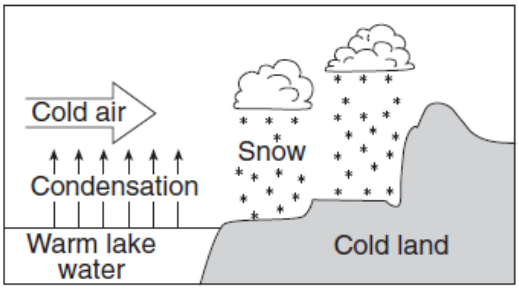
____ 13. Which cross section below best represents the conditions that cause early winter lake-effect snowstorms in New York State?



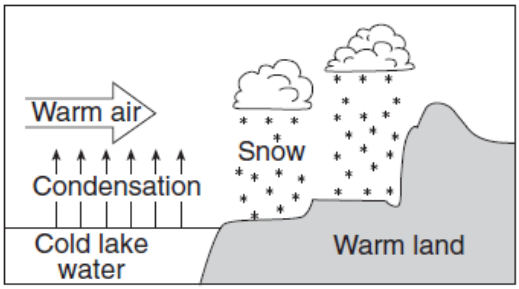
(1)



(3)



(2)



(4)

____ 14. A strong west wind steadily blew over Lake Ontario picking up moisture. As this moist air flowed over the Tug Hill Plateau, the plateau received a 36-inch snowfall. This snow fell from clouds that formed when rising air was
(1) cooled by expansion, causing water vapor to condense
(2) cooled by compression, causing water vapor to condense
(3) warmed by expansion, causing water vapor to evaporate
(4) warmed by compression, causing water vapor to evaporate

Mini Lesson 4: Thunderstorms and Floods

Thunder is a direct result of lightning. As a stream of electrons flow from cloud to cloud or between a cloud and the ground the surrounding air is super heated and the air molecules rapidly move away from the electron flow. Once the electron stream is completed (lightning) the air molecules move back together. This rapid expanding and contracting of air molecules is what we hear as thunder. Thunderstorms form when there is moist, unstable air that is rising really fast. Typically they are relative small compared to the size of hurricanes or winter storms but they are very dangerous. Lightning actually kills more people each year than tornadoes. Heavy rain from thunderstorms can lead to flash flooding. Strong winds, hail, and tornadoes are also dangers associated with some thunderstorms.

Flash floods occur when a great amount of water is "dumped" in an area. Sources for flash floods include hurricanes, thunderstorms, tsunamis, and a rapid melting of snow. They are deadly and should be taken seriously.

Need to know:

1. What causes thunder? _____

_____

2. Is thunder dangerous?
3. Other than lightning, list three other dangers of thunderstorms.

_____

_____

_____

4. Why is a flash flood more dangerous than just a regular flooding?

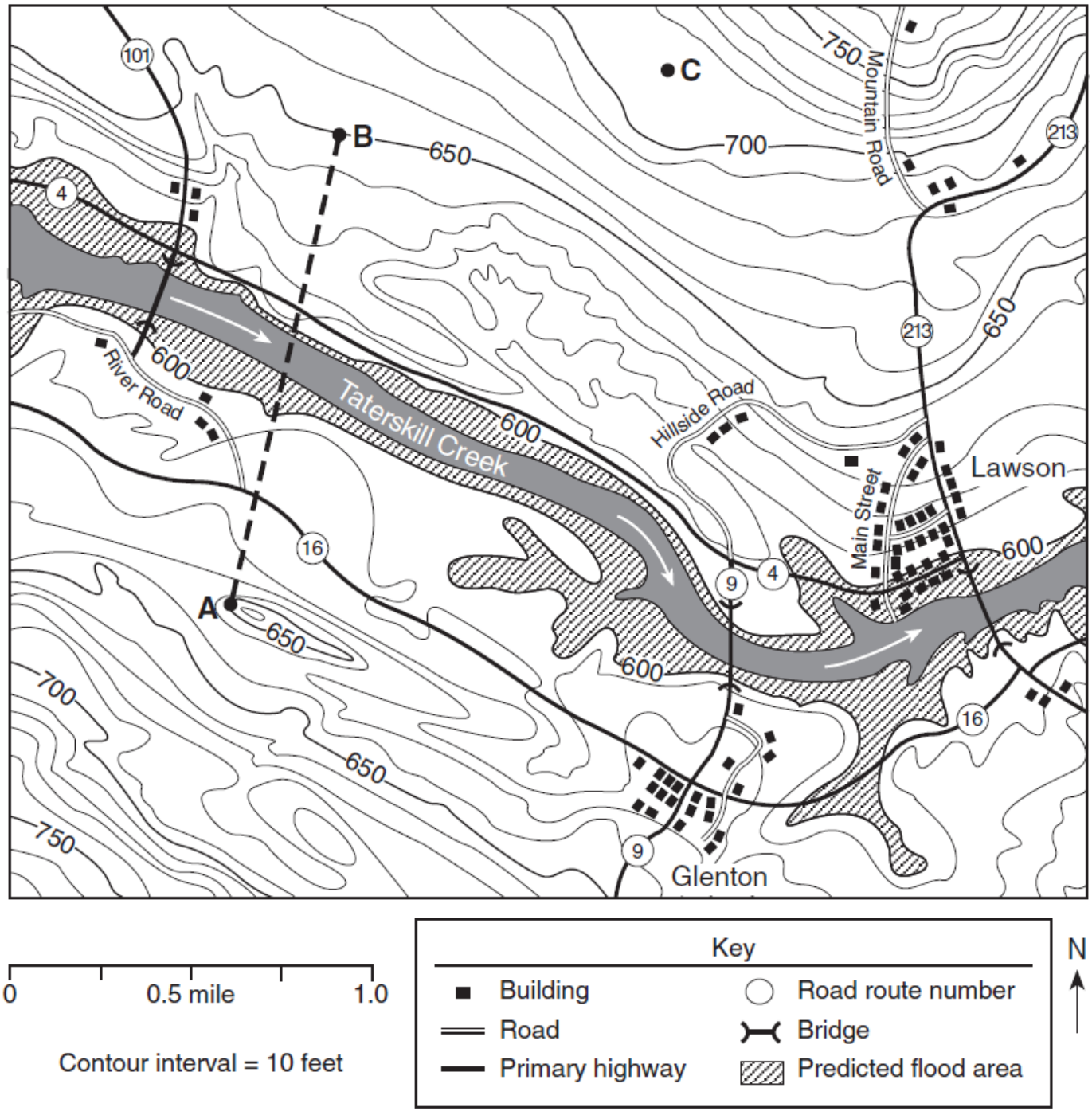
_____

_____

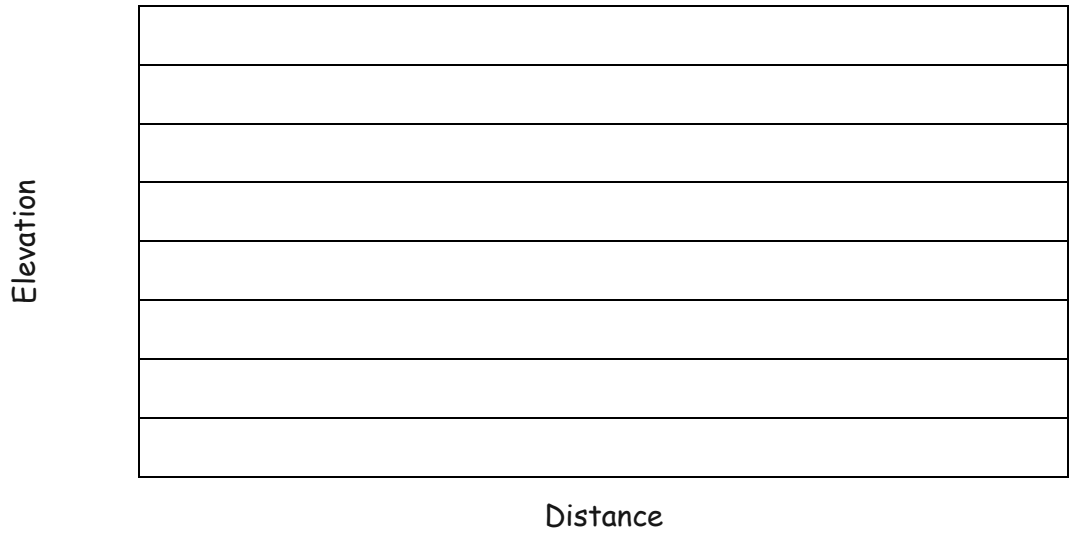
_____

Base your answers to questions 1 through 4 on the topographic map below. The map shows a portion of the Taterskill Creek flowing past the towns of Lawson and Glenton. The shaded area is Taterskill Creek. The arrows in the creek show its direction of flow. Points *A, B,* and *C* are locations on the map. Points *A* and *B* are connected with a reference line.

Mercado Dam is located 32 miles upstream from Lawson. In the remote possibility of a failure of the Mercado Dam, the Taterskill Creek is expected to rise to the 600-foot contour line in the vicinity of the two towns.



1. On the grid provided *below,* construct a topographic profile from point *A* to point *B,* following the directions below.
   - Write numbers along the vertical axis to show an appropriate scale for the elevations crossed by line *AB*. Your number scale should label at least half of the lines along the vertical axis and should not extend beyond the grid provided.
   - Plot the elevation along line *AB* by marking an **X** at *each* point where a contour line is crossed. Point *A* and point *B* have been plotted for you.
   - Connect all the **X**s to complete a profile that accurately reflects the elevation of the land.



2. State a possible elevation for point *C* on the map. _____

3. If Mercado Dam ruptured, the first floodwater would take exactly 4 hours to reach the town of Lawson. In the space provided *below,* calculate the average rate of travel for the leading edge of the floodwater. Label your answer with the correct units.

4. Identify *two* emergency preparedness activities that town officials in Lawson could take before a dam failure to protect people and property from the flood.

   _____

   _____

Materials
- ✓ Internet access

Introduction:

Being prepared for a potential disaster can save your life. There are unique procedures for each type of emergency however there are some things that are common to each.

Objective:

To have a complete list of items and procedures that are common to almost any emergency

To determine what must be done to prepare for each specific emergency

Procedure:

1. Go onto the internet and search disaster preparedness.

2. Find information on what is needed for a survival kit.

3.Write down at least 10 items needed for the kit.

4. List at least four things you need to do to make sure all members of your family are safe (or to let them know you are ok).

5. For each of the disasters below, describe or list things you can do to prepare for them and what to do if you are caught in the middle of the disaster.

a) A hurricane is approaching, what should you do?

You are caught in the middle of a hurricane, what should you do?

b) A tornado warning has been issued, what should you do?

You are caught in the middle of a tornado, what should you do?

c) **There is a thunderstorm warning, what should you do?**

You are caught in the middle of a thunderstorm, what should you do?

d) **There is a flash flood warning, what should you do?**

You are caught in the middle of a flash flood, what should you do?

e) **You are in your car in the middle of a blizzard, what should you do?**

f) **You are in your car and stranded on the thruway. The weather isn't too bad and you are dressed for the weather. What should you do?**

g) **You are in your home and a major earthquake is happening right now. What should you do?**

h) **A tsunami warning has been issued, what should you do?**

i) You are in immediate danger as a volcano unexpectedly erupted. What do you do?

6. Compare your answers for the previous disasters. Create a list of 5 common things you should do in any emergency situation.

7. Create a brochure that covers a disaster plan for one of the previous situations. This MUST BE TYPED. It can be a trifold or an organized sheet of paper.

Include

- Supply kit information
- Family safety
- Emergency contact numbers and information
- Procedures to follow before the emergency (if possible)
- Procedures to follow in case you are caught in the middle of the emergency
- Procedures to follow after the emergency.

❖ If you need help in formatting your brochure, ask a teacher, parent or student for instructions.
There is no excuse to not have this done.