1. Define precipitation. Precipitation is liquid or solid **water** falling from clouds to the Earth's surface or formed on different bodies as a result of atmospheric **water vapor🡪** condensation🡪Rain.
2. Define condensation. **Condensation** is the process by which water vapor in the air is changed into liquid water.
3. Define evaporation. **Evaporation** is the process by which water changes from a liquid to a gas or vapor.
4. Define transpiration. **Transpiration** is the process of water movement through a plant and its evaporation from aerial parts, such as leaves, stems and flowers.
5. Define runoff. **Runoff** can be described as the part of the water cycle that flows over land as surface water instead of being absorbed into groundwater or evaporating.
6. What is the driving force of the water cycle? The sun duh.
7. What are the unique qualities of Earth’s atmosphere that allow our planet to support life? **Our atmosphere** contains water vapor which helps to moderate **our** daily temperatures. **Our atmosphere** contains 21% oxygen, which **is** necessary for us to breathe.
8. What are the two gases that make up 99% of Earth’s atmosphere? Oxygen and nitrogen.
9. Explain the difference between latitude and altitude. Latitude is the horizontal invisible line in maps from a planet’s equator. Altitude is the height above sea level.
10. List and provide a couple of characteristics for each of the layers of the atmosphere. Make sure to provide information on temperature including whether temperature increases or decreases with altitude. The troposphere is the lowest layer of the atmosphere. This is the layer where we live and where weather happens. Temperature in this layer generally decreases with height. The stratosphere houses the ozone layer. Its warm because it absorbs the UV rays from the sun. The temperature increases with height. The mesosphere contains ratios of nitrogen and oxygen similar to the troposphere, except the concentrations are 1000 times less and there is little water vapor there, so the air is too thin for weather to occur. Its temperature decreases with height. The thermosphere is the uppermost layer of the atmosphere. In this layer the temperature increases with height because it is being directly heated by the sun.
11. What information is the radiosonde collecting to forecast weather? In its two hour trip, the **radiosonde** floats to the upper stratosphere where it **collects** and sends back data every second about air pressure, **temperature**, relative humidity, wind speed and wind direction.
12. Define atmospheric pressure. the force exerted on a surface by the **air** above it as gravity pulls it to Earth
13. How does a barometer measure air pressure? The barometer works by balancing the weight of mercury in the glass tube against the atmospheric pressure
14. What is the unit of measure for air pressure? pounds per square inch (psi)
15. What type of weather is associated with high barometric pressure?  whirling mass of cool, dry air that generally brings fair **weather** and light winds.
16. What type of weather is associated with low barometric pressure? leads to cloudiness, wind, and precipitation.
17. Explain convection currents. flowing fluid that is moving because there is a temperature or density difference within the material.
18. Explain the Coriolis Effect. traveling long distances around the Earth appear to move at a curve because the Earth is rotating at different speeds.
19. Define wind and explain what causes it. **Wind is** the movement of air, **caused** by the uneven heating of the Earth by the sun and the Earth's own rotation.
20. With low pressure, air \_rises\_ and with high pressure, air sinks\_.
21. With low temperature, air pressure \_\_\_\_\_\_\_ and with high pressure, air pressure \_\_\_\_\_.
22. What are the wind patterns that make up the global winds? Polar Easterlies, prevailing westerlies, and trade winds.
23. Define weather. state of the atmosphere and includes temperature, precipitation, humidity, cloudiness, visibility, pressure, and winds.
24. Define climate. **Climate** is the weather of a place averaged over a period of time,
25. List what each of the following measure. Barometer measures air pressure, Hygrometer measures humidity, Anemometer wind speed/wind pressure.
26. What are climate zones characterized by? classified by the Köppen classification system.  based on the temperature, the amount of precipitation, and the times of year when precipitation occurs.
27. Three types of climates are: Provide a description for each type of climate.
    1. Temperate Climate: Moderate rainfall. Mild to warm summers. Cool to cold winters.
    2. Polar: Winter is all dark and bitterly cold. Summer days are long, but summers are cool.
    3. Tropical: Only 2 seasons. A wet season and a dry season. Constantly rains. Sunlight is intense.
28. What types of data are collected to develop weather forecasts? Collecting data like temperature, humidity and wind.
29. What is the relationship between forecast accuracy and time? **A** seven-day **forecast can accurately** predict **the** weather about 80 percent of **the** time and **a** five-day **forecast can accurately** predict **the** weather approximately 90 percent of **the** time. However, **a** 10-day—or longer—**forecast is** only right about half **the** time.
30. List and describe the characteristics for each of the four types of fronts
    1. Cold Front. Thunderstorms sometimes develop ahead of these fronts as the warm air ahead of the front rises over the colder air.
    2. Warm Front. Higher humidity. Moves slower than cold fronts.
    3. Occluded front. An occluded front occurs when a cold front overtakes a warm front. There are both cold and warm.
    4. Stationary front. Winds tend to blow along it in opposing directions on each side. Conditions along the front are clear and dry, however, if moisture is available near the front, clouds and light precipitation may develop.
31. What is lightning? Lightening is an electric current.
32. What causes thunderstorms? **Thunderstorms** form when warm, moist air rises into cold air. The warm air becomes cooler, which causes water vapor🡪Condensation🡪the cooler air drops lower in the atmosphere, warms up and rises again.
33. What is a tornado? is a violent rotating column of air extending from a thunderstorm to the ground.

What is a water spout? It’s a like a tornado but above water. A waterspout is an intense columnar vortex that occurs over a body of water.

1. Where is Tornado Alley? South-central US.
2. What causes the tornadoes in Tornado Alley? dry cold air moving south from Canada meets warm moist air traveling north from the Gulf of Mexico.
3. How do tornadoes form? **Tornadoes form** when warm, humid air collides with cold, dry air. The denser cold air is pushed over the warm air, usually producing thunderstorms.
4. How is tornado intensity measured? What are the ranges in the scale? The TORRO **scale** has 12 levels, it ranges from T0 for weak tornadoes and T11 for strongest.
5. What is a hurricane? A storm that forms over tropical waters.
6. Where do hurricanes occur? Warm ocean waters with moist air near the equator.
7. What are other names for hurricanes? Cyclone and typhoons.
8. How do tropical storms and hurricanes form?

Tropical storms- Warm air rises, causing an area of lower air pressure below. Form over warm waters and moist air.

Hurricanes- When warm moist air over the water rises, it is replaced by cooler air. The cooler air will then warm and start to rise. This cycle causes huge **storm** clouds to **form**.

1. Explain climate change. describes a **change** in the average conditions — such as temperature and rainfall — in a region over a long period of time.
2. What is global warming? the gradual heating of Earth's surface, oceans and atmosphere.
3. What is Earth’s primary source of energy? The sun.
4. What are the three ways heat is transferred in Earth’s atmosphere? Convection, conductions, and radiation.
5. Where is the majority of solar energy absorbed? The Earth itself, the land.
6. What is the greenhouse effect? The **greenhouse effect** is the warming of an atmosphere by its absorbing and emitting infrared radiation; while allowing shortwave radiation to pass on through

They trap in heat.