

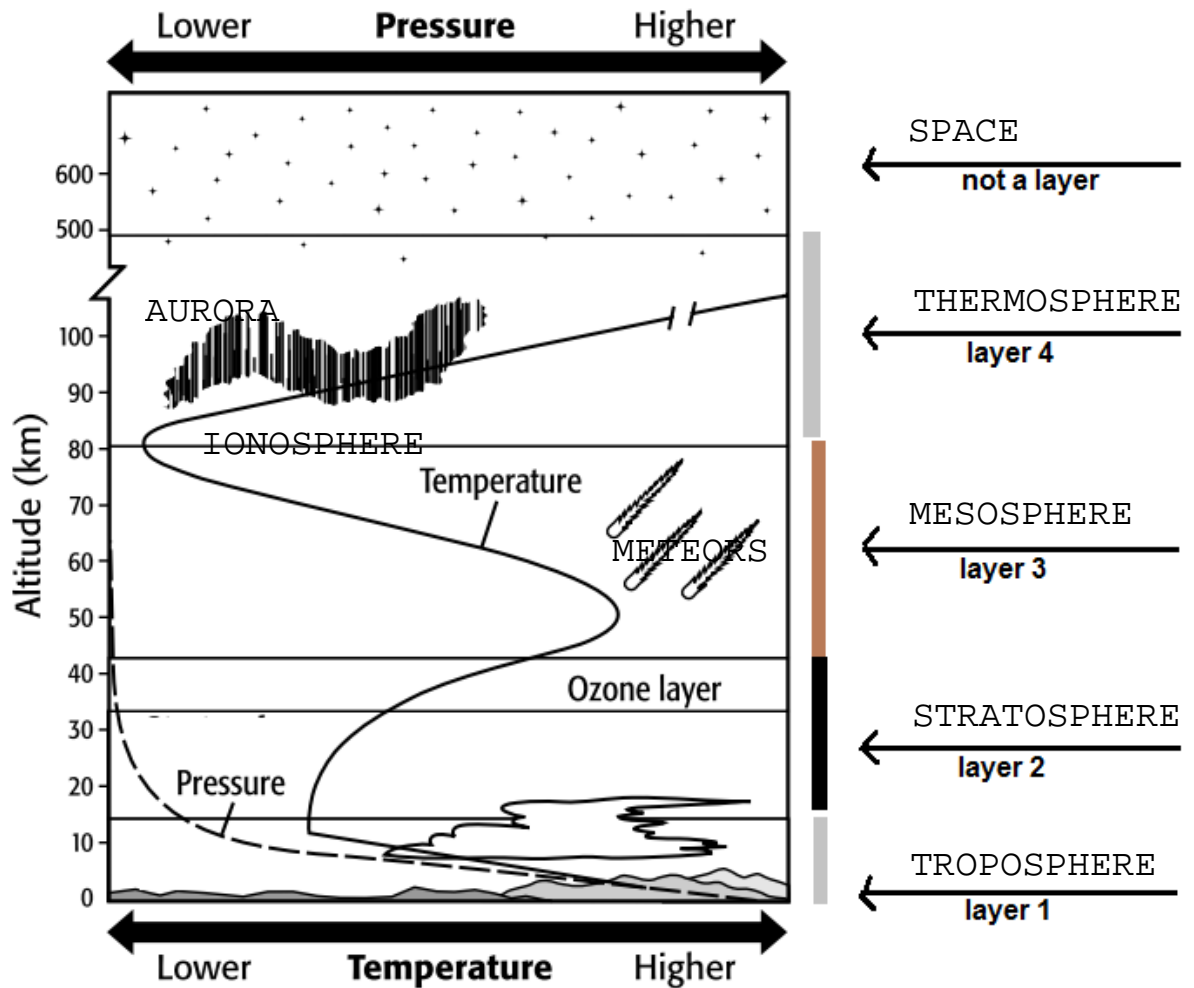
WEATHER AND CLIMATE 1-1 KEY

DEFINE:

1. Atmosphere- **LAYER OF GASES SURROUNDING EARTH**
2. Air pressure- **THE FORCE THAT AIR EXERTS**
3. Water vapor- **WATER IN GAS FORM**

LABEL:

4. Troposphere
5. Stratosphere
6. Mesosphere
7. Thermosphere
8. Ionosphere
9. Space
10. Aurora
11. meteor



12. What gases make up earth's atmosphere? Percent?

NITROGEN 78% OXYGEN 21% TRACE GASES 1%

13. What is the air pressure on Earth at sea level?

14.7 POUNDS/ IN²

14. How are the layers of the atmosphere divided?

WHERE THE TEMPERATURE CHANGES

15. What is the layer where all weather takes place?

TROPOSPHERE

16. What layer has the highest temperature?

THERMOSPHERE

17. Why does the high temperature layer not feel hot?

MOLECULES TOO FAR APART

18. What layer is the coldest?

MESOSPHERE

WEATHER AND CLIMATE 1-2

DEFINE:

- 19. Radiation- **ENERGY MOVING BY ELECTROMAGNETIC WAVES**
- 20. Conduction- **ENERGY MOVING BY MOLECULES TOUCHING**
- 21. Convection- **ENERGY MOVING BY MOLECULES RELOCATING (HEAT UP, COLD DOWN)**
- 22. Greenhouse effect- **THE HEATING OF ATMOSPHERIC GASES BY INFRARED WAVES**
- 23. Global warming- **THE HEATING OF THE EARTH DUE TO THE GREENHOUSE EFFECT**
- 24. Radiation balance- **THE RADIATION COMING FROM THE SUN EQUALS THE RADIATION LEAVING**
- 25. Describe the process of the greenhouse effect

**SHORT WAVES FROM SUN PASS THROUGH ATMOSPHERE AND HIT EARTH
EARTH RERADIATES WAVES AS HEAT WAVES (LONGER)
HEAT WAVES (INFRARED) ARE ABSORBED BY THE ATMOSPHERE**

- 26. What causes global warming? **THE GREENHOUSE EFFECT**
- 27. What might happen if global warming continues? **GLACIERS MELT FLOODING COASTS, BIGGER STORMS, FOREST FIRES,**

WEATHER AND CLIMATE 1-3

MATCH:

B Wind	A] Trade winds, polar easterlies, westerlies
C Coriolis effect	B] Moving air
D Jet stream	C] The curving of winds due to Earth rotating
A Global winds	D] narrow belt of high speed wind in upper troposphere

- 28. Wind always moves from areas of **HIGH** pressure to areas of **LOW** pressure.
- 29. What causes sea breezes? (draw and label if you like)
**DAY--WARM AIR RISES ABOVE HOT SAND, COOL AIR FROM OCEAN RUSHES IN
NIGHT—WARM AIR RISES ABOVE WARM WATER, AIR FROM BEACH RUSHES IN**
- 30. What causes mountain and valley breezes? (draw and label if you like)
**DAY- HOT AIR FROM VALLEY RISES UP MOUNTAIN
NIGHT – COLD AIR SINKS DOWN MOUNTATION**

WEATHER AND CLIMATE 1-4

DEFINE

- 31. Air pollution- **TOXIC GASES OR PARTICLES IN THE AIR**

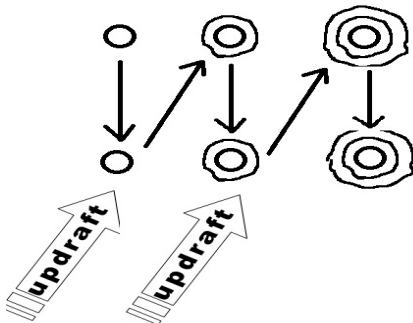
32. Acid precipitation- **DAMAGING PRECIPITATION FORMED FROM SULFUR AND NITROGEN COMPOUNDS MIXING WITH WATER IN THE AIR**
33. Primary pollutants- **POLLUTION PUT DIRECTLY INTO THE AIR**
34. Secondary pollutants- **POLLUTANTS THAT FORM WHEN CHEMICALS REACT WITH OTHER CHEMICALS (OR SUNLIGHT) TO MAKE A NEW POLLUTION**
35. Acidification- **WHEN THE ACIDITY OF SOIL OR LAKES INCREASES**
36. Ventilation- **OPENING A WINDOW TO REDUCE INDOOR AIR POLLUTION**
37. Scrubber- **DEVICE THAT REMOVES POLLUTANTS BEFORE THEY ARE RELEASED FROM SMOKE STACKS**
38. How does smog form? **SUNLIGHT REACTS WITH OZONE AND VEHICLE EXHAUST**
39. Why does Los Angeles have a major smog problem? **IT IS SURROUNDED BY MOUNTAINS**
40. What causes acid precipitation? **WHEN SULFUR AND NITROGEN COMPOUNDS COMBINE WITH WATER IN THE AIR**
41. What does acid precipitation do to plants? **DAMAGES LEAVES, CAUSES ROOTS TO ABSORB TOXIC HEAVY METALS, GOOD NUTRIENTS GET WASHED AWAY**
42. What does acid precipitation do to aquatic ecosystems? **CAUSES EGGS TO NOT HATCH, FISH AND AQUATIC PLANTS MAY DIE,**
43. What does acid precipitation do to buildings or statues made of limestone or marble? **WEARS THEM DOWN**
44. What chemical caused the ozone hole?
CFCS
45. Why is the ozone hole a bad thing?
ALLOWS UV RAYS TO MAKE IT DOWN TO EARTH
46. What are the short term effects of air pollution on human health? Long term?
**BREATHING PROBLEMS, COUGHING, WATERY EYES
ASTHMA, LUNG CANCER**

Weather and Climate Chapter 2-1

DEFINE:

1. Weather- **THE CONDITION OF THE ATMOSPHERE AT A PARTICULAR TIME AND PLACE**
2. Humidity- **WATER IN THE AIR**
3. Relative Humidity- **THE AMOUNT OF WATER IN THE AIR COMPARED TO HOW MUCH WATER IT CAN HOLD**
4. Condensation- **WHEN WATER IN GAS FORM COMES TOGETHER IN TINY LIQUID DROPLETS**

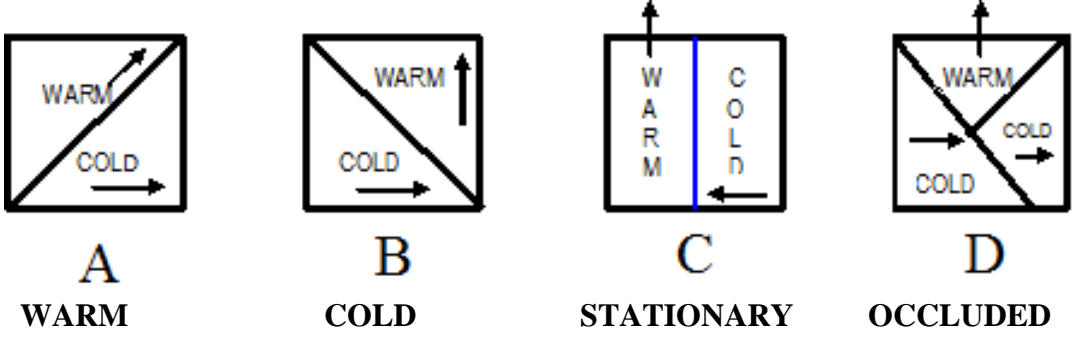
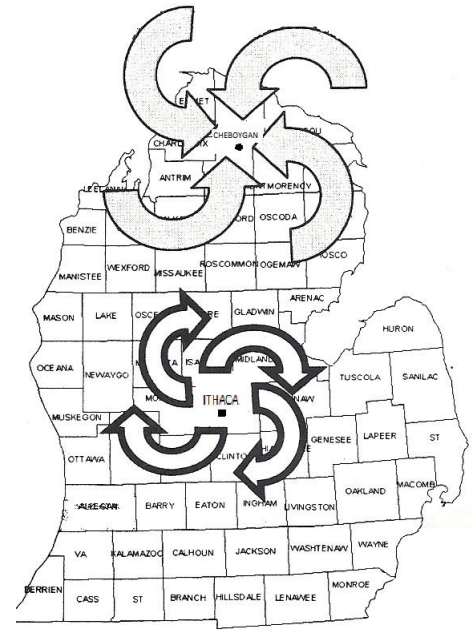
5. Cloud- **A COLLECTION OF VISIBLE CONDENSATION IN THE AIR**
6. Precipitation- **ANY FORM OF WATER FALLING FROM THE SKY**
7. Saturated- **100% FILLED WITH WATER**
8. Psychrometer- **DEVICE USED TO MEASURE RELATIVE HUMIDITY**
9. Dew Point- **TEMPERATURE NEEDED TO MAKE THE WATER IN THE AIR CONDENSE. TEMPERATURE NEEDED TO MAKE RAIN, SNOW, CLOUDS**
10. Cumulus Cloud- **FLUFFY PUFFY**
11. Cumulonimbus cloud- **FLUFFY PUFFY AND RAINY**
12. Stratus Cloud- **SMEARY FOGGY**
13. Fog- **STRATUS CLOUD TOUCHING THE GROUND**
14. Cirrus Cloud- **HIGH STREAKY CLOUD**
15. Sleet- **RAIN THAT FELL THROUGH A LAYER OF FREEZING AIR MAKING IT ICE**
16. Hail- **RAIN THAT GETS BLOWN UPWARD MANY TIMES ADDING LAYERS OF ICE**
17. What happens to the relative humidity as temperature of air drops?
INCREASES
18. What does a big difference between the wet bulb and dry bulb thermometers of a psychrometer indicate about the relative humidity?
THE HUMIDITY IS LOW (THE AIR IS DRY)
19. Why does dew and frost occur at night and disappear by late morning?
IT GETS COLD ENOUGH TO HIT THE DEWPOINT. DISAPPEARS BECAUSE THE HEAT OF THE SUN MAKES THE TEMP GO HIGHER THAN THE DEWPOINT
20. What type of precipitation would each cloud produce?
 - a. Cumulus- **LIGHT**
 - b. Cumulonimbus- **HEAVY**
 - c. Stratus- **SPRINKLY**
 - d. Cirrus- **NONE**
21. What two ways are clouds classified?
BY HEIGHT AND SHAPE (ALTITUDE AND FORM)
22. Explain how hail forms. Draw it.



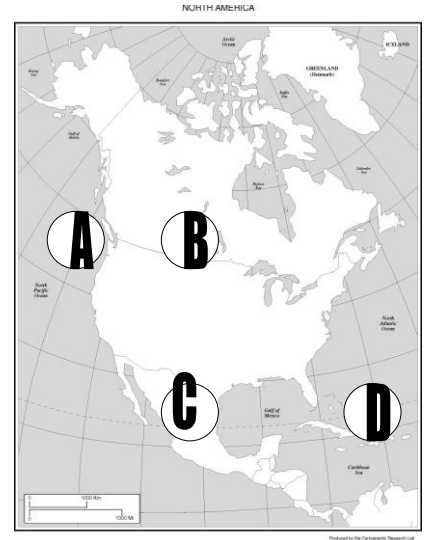
Weather and Climate Chapter 2-2

DEFINE:

- 23. Air Mass- **LARGE BODY OF AIR WITH SIMILAR TEMPERATURE AND MOISTURE**
- 24. Front- **PLACE WHERE 2 AIR MASSES MEET (THE PLACE WHERE PRECIPITATION IS HAPPENING)**
- 25. Label the Cyclone on the map
- 26. Label the Anticyclone on the map
- 27. What weather would you suspect from a cyclone (low pressure)?
PRECIPITATION
- 28. What weather would you suspect from an Anticyclone (high pressure)?
NICE WEATHER; DRY



- 29. Which front has light, constant precipitation?
STATIONARY
- 30. Which front has heavy precipitation?
COLD
- 31. Which front has severe weather and possible tornadoes?
OCCLUDED
- 32. Which front has steady precipitation?
WARM
- 33. What kind of air mass is A?
MARITIME POLAR
- 34. What kind of air mass is B?
CONTINENTAL POLAR
- 35. What kind of air mass is C?
CONTINENTAL TROPICAL
- 36. What kind of air mass is D?
MARITIME TROPICAL



- 37. What two factors determine if rising air will produce just clouds or worse weather?
HOW FAST THE WARM AIR RISES & HOW MUCH WATER IS IN THE AIR

Weather and Climate Chapter 2-3

MATCH:

38. B Thunderstorm	A] Small spinning column of air with high winds. 10 to 60 meters wide
39. E Lightning	B] Severe rain storm that includes lightning, thunder, and sometimes hail
40. H Thunder	C] Large spinning tropical weather system with high winds. Hundreds of miles wide and most destructive of all storms.
41. A Tornado	D] Hurricane name in Asia
42. C Hurricane	E] Electric discharge caused by positive and negative charges jumping in storm clouds; massive static shocks
43. D Typhoon	F] Hurricane name in the Indian Ocean
44. F Cyclones	G] Flood of water brought in by a hurricane
45. G Storm Surge	H] Sound made by lightning

46. Watch- **TORNADOS MAY POSSIBLY FORM**

47. Warning- **TORNADO HAS ACTUALLY BEEN SPOTTED**

48. What two factors cause a thunderstorm to be severe?

HOW FAST THE WARM AIR RISES & HOW MUCH WATER IS IN THE AIR

49. What is the width of a tornado's path of travel? Wind speeds?

10-60 METERS 120-180 KM/HR

50. How does a tornado form?

AN UPDRAFT MAKES AIR THAT IS SPINNING VERTICALLY START TO SPIN HORIZONTALLY

51. What is the wind speed of a hurricane?

AT LEAST 120 KM/HR

52. How high can the storm surge of a hurricane be?

9 METERS HIGH

53. How does a hurricane form?

THUNDERSTORMS OVER THE OCEAN JOIN UP

54. What happens to a hurricane's strength when it moves on shore?

WEAKENS (LOSES ITS ENERGY WHICH IS WARM, WET, RISING AIR)

Weather and Climate Chapter 2-4

DEFINE:

55. Weather forecast- **PREDICTION OF FUTURE WEATHER**

56. Station Model- **PICTURE THAT CONTAINS WEATHER DATA**

57. B Thermometer-	A] Measures wind direction using a bag
58. E Barometer-	B] Measures how fast molecules are moving; measures heat
59. G Anemometer-	C] Device that tracks precipitation
60. A Windsock-	D] Measures wind direction using a pointer
61. D Wind vane-	E] Measures the air pressure
62. C Radar-	F] Technology in the outer atmosphere that can take pictures of weather systems
63. F Weather Satellite-	G] Measures wind speed
64. H Weather Balloon-	H] Tool that floats into the sky carrying weather measuring equipment

65. What is the map symbol for a warm front?

66. What is the map symbol for a Cold front?

67. What kind of incoming weather does a falling barometer indicate? Rising barometer?

FALLING-PRECIPIATION/ STORM IS COMING

RISING – NICE WEATHER IS COMING

Label the cloud types



A

CIRRUS



B

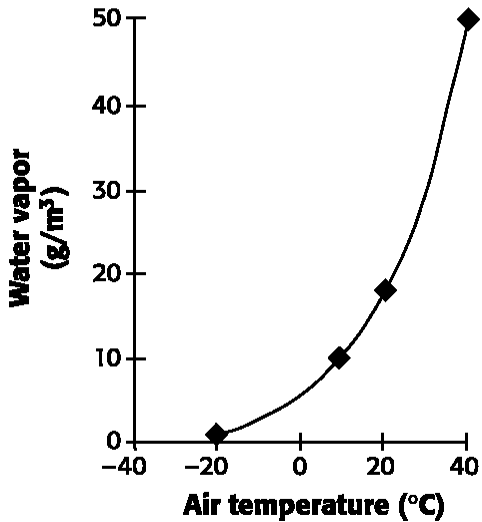
STRATUS



C

CUMULOUS

Maximum Amount of Water Air Can Hold at Various Temperatures



68. What does this graph show?

THE AMOUNT OF WATER AIR CAN HOLD AT CERTAIN TEMPERATURES

69. How much water can the air hold at 20 degrees?

20 GRAMS

70. If the air only has 10 grams of water at 20 degrees, what is the relative humidity?

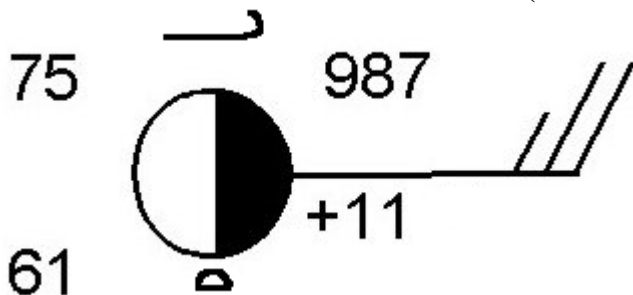
50%

71. If the air only has 30 grams of water at 40 degrees, what is the relative humidity?

60%

72. If there are 20 grams of water in 20 degree air that gets chilled down to 10 degrees, what will happen to the water?

IT WILL FALL OUT OF THE AIR (PRECIPITATION)



73. Where is the wind coming from?

EAST

74. What do the symbols directly above and below the circle represent?

CLOUD TYPES

75. To what degree is the sky covered with clouds?

1/2

76. What is the barometric pressure?

987

77. What precipitation is occurring?

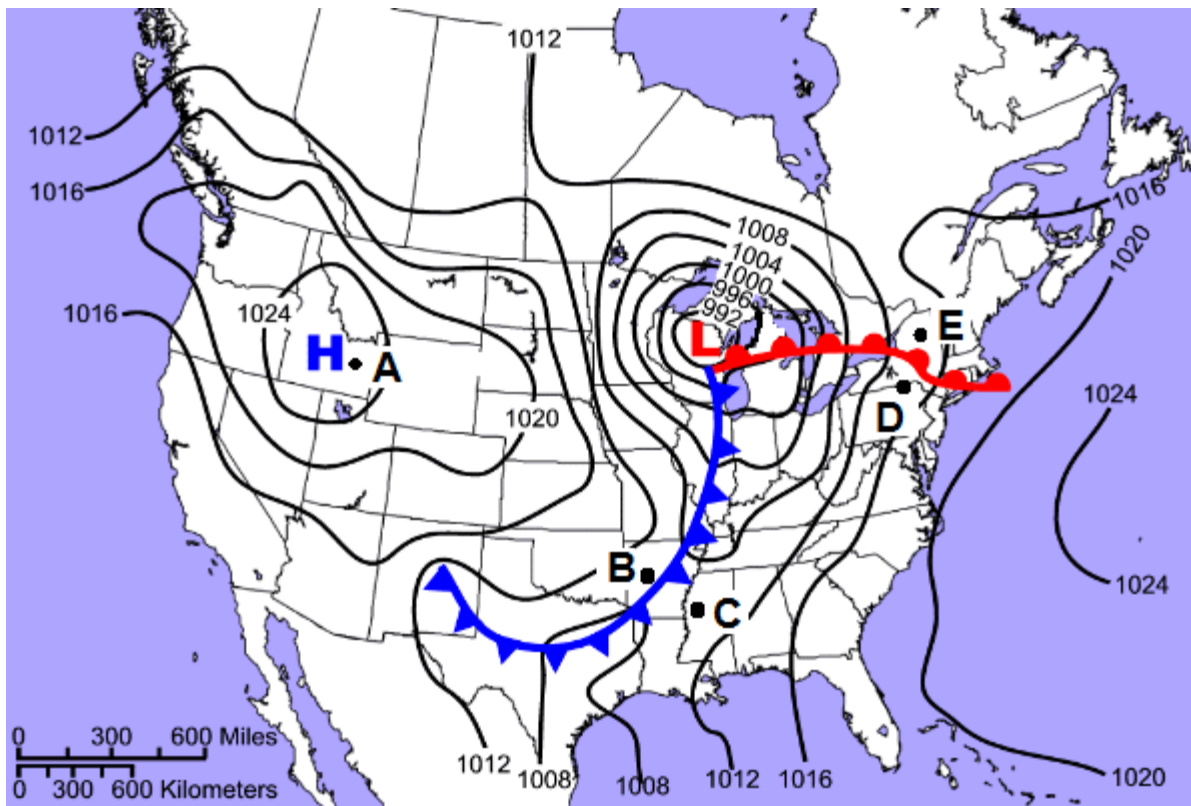
NONE

78. What temperature is it?

75

79. What is the dew point?

61



What city just experienced a cold front?

B

What city just experienced a warm front?

D

What city is colder b or c?

B

What direction is the warm front moving?

NORTH

What direction is the cold front moving?

EAST

If the temperature is 70 degrees Fahrenheit, what kind of weather did city D just have?

GENTLE RAIN

If the temperature is 28 degrees Fahrenheit, what kind of weather did city B just have?

SNOW

What do the numbers in the thousands stand for?

PRESSURE

What does the H stand for?

HIGH PRESSURE

What does the L stand for?

LOW PRESSURE

Where is the air sinking?

HIGH PRESSURE

Where is the air rising?

LOW PRESSURE

What pressure is Florida getting?

1020