

Science 1206
Unit 2: Weather Dynamics
Worksheet 14: Weather Forecasting



Weather forecasting is a prediction of what the weather will be like in an hour, tomorrow, or next week.

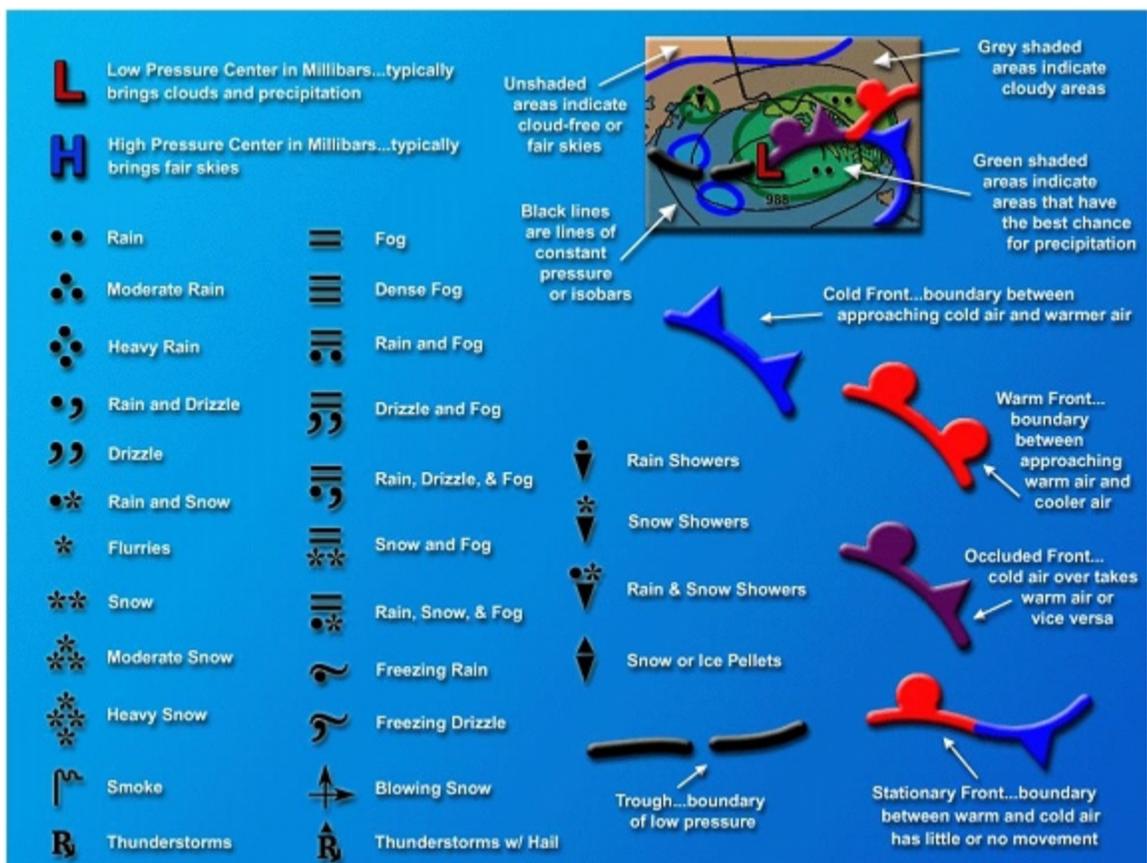
Meteorology The study of the atmosphere and weather forecasting

Meteorologists refers to a person who studies weather and make weather forecasts

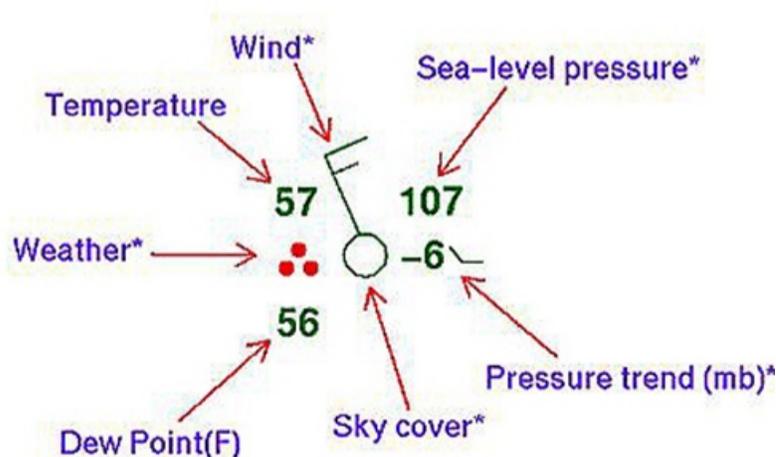


weather map displays various meteorological features across a particular area at a particular point in time and has various symbols which all have specific meanings.

Weather symbols are used on my weather maps as shorthand for the conditions at weather observing stations



Station Model



Reading a weather map

Isobar : refers to a line connecting points of equal atmospheric pressure. The closer the isobar the stronger the winds

Isotherm: Connects areas of equal temperature; therm means temperature

Weather Forecasting Technology:

1. **Weather Satellite:** An orbiting spacecraft that regularly gathers weather related data and relays them to weather stations on the ground.

High Orbit Satellites

- Orbits about 36 000 km above the equator.
- Provides images that show cloud cover, earth’s physical features and amount of infrared radiation from the atmosphere

Low orbit Satellites

- Orbit about 1000 km above the poles
- Gather data that is used to detect changes in air temperature and water vapor at different levels of the atmosphere, as well as global wind patterns.

2. Weather Balloons

Helium –filled balloons that are launched 2 or more times per day from weather stations across North America

Carry instruments that collect data on temperature, pressure, humidity and ice crystals
Can also be used to determine speed and directions of Winds

3. Ground Based Technology

Instruments used at a weather station

Instrument	Weather Factor measured
Thermometer	Current Min & Max Temperature
Anemometer	Wind Speed and Direction
Aneriod Barometer	Atmospheric Pressure
Rain Gauge	Rain Fall
Hydrometer	Relative Humidity

4. Computer Technology

Data from satellites, weather balloons and ground based instruments are gathered, stored and analyzed by computer software

Computers linked to satellite communications systems allows info to be sent around the world

PART A: MULTIPLE CHOICE

1. A ____ studies and forecasts the weather using data gathered from many sources.
(A) station model
(B) geologist
(C) meteorologist
(D) biologist
2. Which science studies weather and forecasting of weather?
(A) ecology
(B) environmental science
(C) meteorology
(D) astronomy

3. What is dew point?
- (A) change in phase from liquid to vapour
 (B) loss of moisture from plant leaves
 (C) temperature at which ice forms in the clouds
 (D) temperature at which condensation occurs on the surface of objects
4. Which symbol on a weather map indicates a region of high pressure?
- (A) L
 (B) S
 (C) H
 (D) 860
5. Cloud cover is indicated by a circle. What does the following cloud cover symbol mean?
- (A) obscured sky
 (B) cloudy sky
 (C) partly cloudy sky
 (D) scattered clouds
- 
6. What type of cloud is indicated by the following cloud symbol?
- (A) cirrus
 (B) cirrostratus
 (C) cumulus
 (D) cirrocumulus
- 
7. What type of weather condition is indicated by the following symbol?
- (A) rain
 (B) fog
 (C) snow
 (D) haze
- 
8. What type of weather condition is represented by the following symbol?
- (A) rain
 (B) tornado
 (C) windy
 (D) thunderstorm
- 
9. Which symbol refers to an increase in barometric pressure?
- (A) L
 (B) H
 (C) +0.6
 (D) 101.5
10. To keep track of high and low pressure areas, weather maps are drawn with lines connecting points of equal atmospheric pressure. These lines are called ____.
- (A) fronts
 (B) equibars
 (C) isobars
 (D) isotherms
11. What is the purpose of isobars?
- (A) to measure air pressure
 (B) to describe the weather conditions in a weather station
 (C) to find out what form precipitation will take
 (D) to connect points of equal air pressure on a weather map

12. Images of weather systems on television come from

- (A) station models.
- (B) weather satellites.
- (C) weather balloons.
- (D) anemometers.

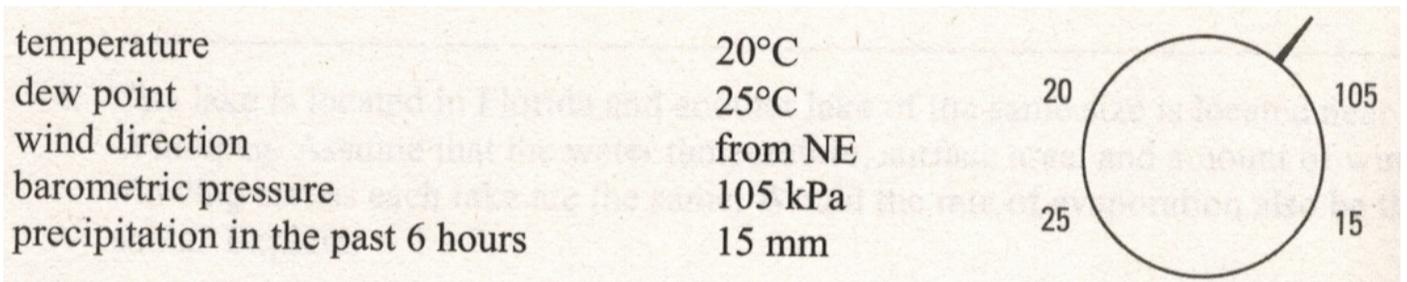
13. Which information can you get from a weather map?

- (A) a 5-day weather forecast
- (B) wind speeds and directions
- (C) the locations of cold fronts
- (D) barometric pressure

PART B: WRITTEN RESPONSE

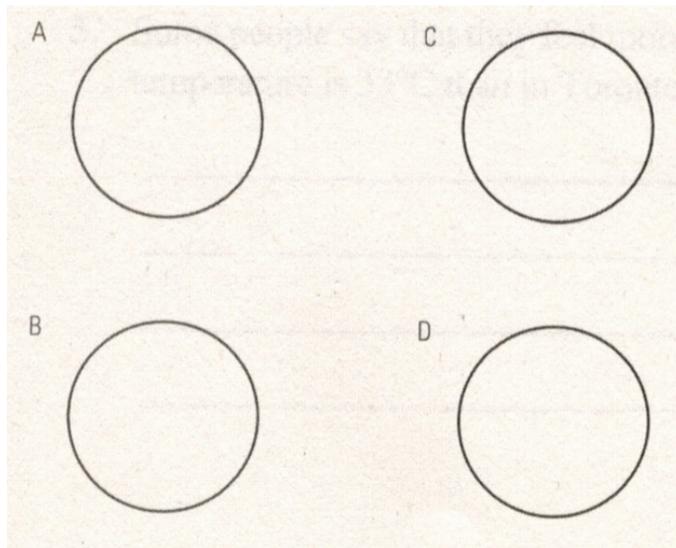
1. **The National Weather Service uses station models to represent the weather conditions in an area. Symbols and numbers are used to represent many aspects of weather, including temperature, dew point, and direction, barometric pressure, and precipitation.**

Examine the station models below. The information shown includes the following:



Use the data below to complete the station models

[8]



2. Why are accurate weather forecast difficult to make?

[2]

3. Name four tools that today's weather forecasters use to help them predict the weather. What kind of information does each tool collect? [2]

Forecasting Tool	Information Collected
_____	_____
_____	_____
_____	_____
_____	_____