

Directed Reading 21.4 (EVEN)

Section: Forecasting the Weather

1. How did people of early civilizations meet the challenges of weather prediction?

2. Describe the origins of scientific weather forecasting.

GLOBAL WEATHER MONITORING

3. List seven types of weather observations reported from weather stations around the world.

4. What are three services sponsored by the World Meteorological Organization?

Directed Reading *continued*

WEATHER MAPS

- _____ 5. The data that weather stations collect are transferred
- a. onto weather satellites.
 - b. to weather stations.
 - c. onto weather maps.
 - d. to weather instruments.
- _____ 6. What do meteorologists use to communicate data on a weather map so it can be understood around the world?
- a. words and colors
 - b. words and numbers
 - c. symbols and letters
 - d. symbols and colors
- _____ 7. A pattern of meteorological symbols that represent the weather at a particular observing station and that is recorded on a weather map is
- a. a station model.
 - b. a station report.
 - c. the station forecast.
 - d. the station weather.
8. In addition to cloud cover, wind speed and direction, and weather conditions, what else do station models indicate?
- _____
- _____
9. What is the dew point, and what does it indicate about the air?
- _____
- _____
10. Describe the number and the line in the upper right-hand corner of the station model, and explain what they show.
- _____
- _____
- _____

Directed Reading *continued*

- _____ 11. Lines that connect points of equal temperature on a weather map are called
- a. isolines.
 - b. isotherms.
 - c. thermal lines.
 - d. isobars.
- _____ 12. Lines on a weather map that connect points of equal atmospheric pressure are
- a. isopressures.
 - b. isotherms.
 - c. pressure lines.
 - d. isobars.
- _____ 13. Closely spaced lines of atmospheric pressure indicate high wind speeds and
- a. no change in pressure.
 - b. wet weather.
 - c. a gradual change in pressure.
 - d. a rapid change in pressure.
- _____ 14. Isobars that form circles on a weather map are marked with an H or an L and indicate centers of
- a. heat and light.
 - b. high pressure and low pressure.
 - c. high temperature and low temperature.
 - d. high clouds and low clouds.
15. What do common weather symbols describe?

16. On a weather map, what identifies a front?

17. How are areas of precipitation commonly marked on weather maps?

Directed Reading *continued*

WEATHER FORECASTS

18. How do meteorologists forecast the weather?

19. How do computers use information supplied by Doppler radar and satellite images?

20. Explain why meteorologists use more than one computer model to forecast weather.

21. What types of weather information can be predicted most accurately?

22. What types of weather information are more difficult to predict accurately?

Directed Reading *continued*

23. Explain how meteorologists use computers to make more accurate forecasts.

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|----------------------------------|--|
| _____ 24. nowcasts | a. predict weather accurately 3 to 5 days ahead |
| _____ 25. daily forecasts | b. predict weather over monthly and seasonal periods |
| _____ 26. extended forecasts | c. predict weather for a 48 h period |
| _____ 27. medium-range forecasts | d. predict weather 3 to 7 days ahead |
| _____ 28. long-range forecasts | e. issued when severe weather has been spotted or is expected within 24 h |
| _____ 29. watch | f. use radar and enable forecasters to focus on timing precipitation and tracking severe weather |
| _____ 30. warning | g. issued when the conditions are ideal for severe weather |

CONTROLLING THE WEATHER

31. What is cloud seeding?

32. How has cloud seeding been used in Russia?

Directed Reading *continued*

33. How have scientists attempted to control hurricanes?

34. Why have scientists abandoned storm and hurricane control?

35. How have scientists attempted to control lightning?

36. What have been the results of attempts at lightning control?
