

- \_\_\_\_ 21. Electromagnetic waves can transfer energy without a(n)  
 a. electric field. c. change in either a magnetic field or an electric field.  
 b. magnetic field. d. medium.
- \_\_\_\_ 22. Which electromagnetic waves have the longest wavelengths and lowest frequencies?  
 a. gamma rays c. radio waves  
 b. infrared waves d. ultraviolet rays
- \_\_\_\_ 23. Strawberries reflect light waves of which of the following wavelengths?  
 a. purple wavelengths c. yellow wavelengths  
 b. blue wavelengths d. red wavelengths
- \_\_\_\_ 24. Which type of scanner is used for airport security and is shown in the diagram?



- a. gamma ray scanner c. ultraviolet ray scanner  
 b. X-ray scanner d. fluorescent scanner
- \_\_\_\_ 25. If light waves change speed when they pass from one medium into another, the light will be \_\_\_\_\_.  
 a. separated c. reflected  
 b. diffracted d. refracted
- \_\_\_\_ 26. Which light wave has the shortest wavelength and the highest frequency?  
 a. red c. violet  
 b. blue d. yellow
- \_\_\_\_ 27. Which action must occur first in the process of producing an electromagnetic wave?  
 a. the magnetic field changes c. a charged particle vibrates  
 b. the field around a charged particle vibrates d. the electric field changes
- \_\_\_\_ 28. The number of cycles or waves passing a particular point every second is the \_\_\_\_\_.  
 a. frequency c. wavelength  
 b. pitch d. amplitude
- \_\_\_\_ 29. When your mother tells you to turn down the radio, she is asking you to \_\_\_\_\_.  
 a. lower the amplitude of the sound wave c. lower the frequency of the sound wave  
 b. raise the frequency of the sound wave d. raise the amplitude of the sound wave
- \_\_\_\_ 30. Which of the following media can sound NOT travel through?  
 a. empty space c. air  
 b. metal d. water