Name _____ Class _____ Date _____

Section 24.1 The Study of Light

(pages 674–677)

This section describes the electromagnetic spectrum and how scientists use spectroscopy to study it. It also explains the Doppler effect and how it is used in astronomy.

Reading Strategy (page 674)

Predicting Before you read, predict the meaning of the term *electromagnetic spectrum* and write your definition in the table. After you read, revise your definition if it was incorrect. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Vocabulary Term	Before You Read	After You Read
electromagnetic spectrum	a.	b.

1. Why is an understanding of light important to astronomers?

_____

_____

Electromagnetic Radiation (pages 674–675)

2. The arrangement of electromagnetic waves according to their wavelengths and frequencies is called the _____. Circle the correct answer.

   emission spectrum continuous spectrum electromagnetic spectrum

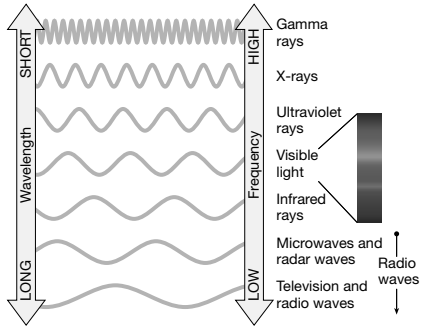
3. The types of energy that make up the electromagnetic spectrum are gamma rays, _____, ultraviolet light, _____, infrared radiation, microwaves, and radio waves.

4. Is the following sentence true or false? Different electromagnetic waves travel through a vacuum at different speeds. _____

5. Particles of light are called _____.

6. Circle the letter of the waves in the figure that have the highest frequency.

a. gamma rays
b. ultraviolet rays
c. infrared rays



Spectroscopy (page 676)

Match each description with its spectrum.

Description	Spectrum
_____ **7.** band of color with a series of dark lines running through it	a. absorption spectrum
_____ **8.** uninterrupted band of color	b. emission spectrum
_____ **9.** series of bright lines of particular wavelengths	c. continuous spectrum

10. Spectroscopy is the study of the properties of light that depend on _____.

11. A star's spectrum can tell astronomers the star's elements and _____.

The Doppler Effect (page 677)

12. When a wave source is moving toward or away from an object, the wavelength changes, a phenomenon known as the _____.

Match each situation with its type of change in a wave.

Situation	Change in Wave
_____ **13.** sound source approaches an observer	a. pitch becomes lower
_____ **14.** light source moves away from an observer	b. pitch becomes higher
_____ **15.** sound source moves away from an observer	c. light becomes redder