

CHECK YOUR LEARNING

Suggested Answers

1. Stars are luminous; planets and moons are non-luminous because they only reflect light and do not actually produce it
2. Most of the electrical energy it uses becomes heat, not visible light.
3. electric discharge
4. Phosphorescent materials turn absorbed UV light into emitted visible light over varying periods of time, but fluorescent materials do so immediately.

5. (a) No, they just make clothes "glow" by fluorescence in daylight.
(b) Sample answer: It is unwise to use detergents with additives, because they cause harm to the environment. This threatens all living organisms.
6. A fluorescent material would not glow if it were illuminated by infrared light. This is because fluorescence requires ultraviolet light. Infrared light has less energy than ultraviolet light.
7. Chemiluminescence is called "cold light" because it produces light, but virtually no heat.
8. A light stick would be relatively safe in an explosive environment because it produces virtually no heat and cannot cause sparks.
9. Organisms might protect themselves from predators, lure prey, and attract mates.
10. Sample answer: Compared to incandescent bulbs, LEDs produce little heat, do not require a filament, and are more energy efficient.
11. Student answers should focus on the key drawback to CFLs: They contain mercury, a health hazard; LEDs promise to be more environmentally friendly. LEDs, however, are still more expensive than CFLs. CFLs are considered a short-term replacement for incandescent bulbs until LEDs become more economically practical.