

STEM *Sims*™

# Green Building



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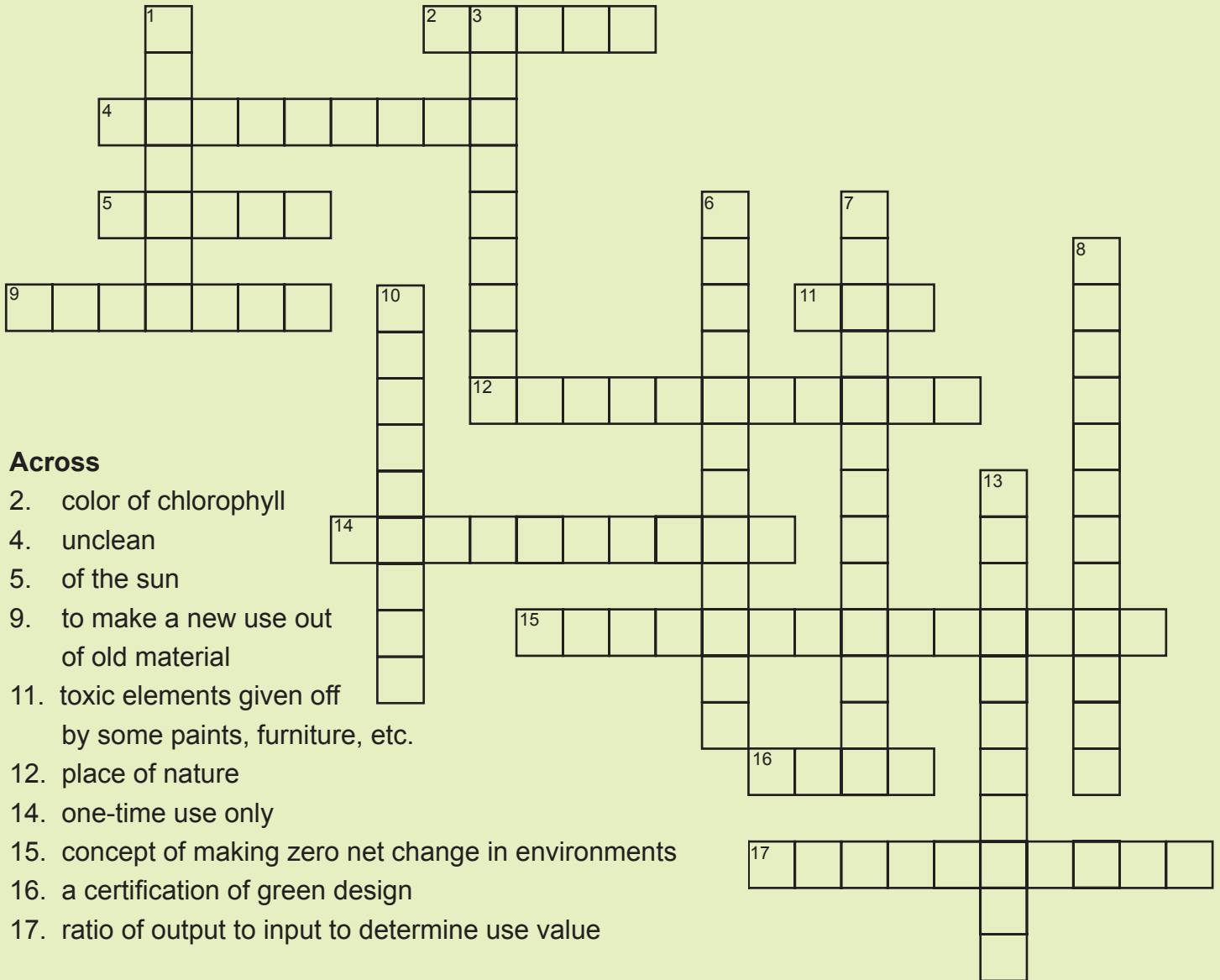
**Do you need an idea for a scientific study?  
Try out one of our ideas or make one of your own.**

**Start learning right now about energy efficiency and environmental designs of green buildings. Take the following brief quiz to see how much you already know about green buildings. See the bottom of page 4 to check your answers.**

1. How many times worse is the quality of indoor air to outside air, partly due to volatile organic compounds (VOCs)?
  - a. negligent difference
  - b. 2-5
  - c. 6-8
  - d. 9-11
2. What is the oldest Leadership in Energy and Environmental Design (LEED) certified building in the United States?
  - a. The Berkeley Plantation, 1726
  - b. The White House, 1792-1800
  - c. Fay House, Harvard, 1807
  - d. The Empire State Building, 1931
3. Who was the first U.S. president to have solar panels on the roof of the White House?
  - a. Lyndon B. Johnson
  - b. Jimmy Carter
  - c. Bill Clinton
  - d. Barack Obama
4. Which of the following became the first LEED-certified Children's Museum in 2005?
  - a. Children's Discovery Museum, Normal, IL
  - b. Brooklyn Children's Museum, NYC, NY
  - c. Boston Children's Museum, Boston, MA
  - d. Pittsburgh Children's Museum, Pittsburgh, PA
5. Which was the first professional outdoor football/baseball stadium to be LEED gold certified?
  - a. Soldier Field, Chicago Bears
  - b. Levi's Stadium, San Francisco 49ers
  - c. Nationals Park, Washington Nationals
  - d. M&T Bank Stadium, Baltimore Ravens



## Green Games



### Across

2. color of chlorophyll
4. unclean
5. of the sun
9. to make a new use out of old material
11. toxic elements given off by some paints, furniture, etc.
12. place of nature
14. one-time use only
15. concept of making zero net change in environments
16. a certification of green design
17. ratio of output to input to determine use value

### Down

1. study of environmental interactions
3. capable of replacement
6. cells used to convert sunlight to energy
7. able to be broken down by organic means
8. the process of saving natural resources
10. things given off in processes
13. using windows to provide light

# Green Building

## We Built This City on Sustainability

Building “green” does not refer to the color, nor does it refer necessarily to building things with the latest technologies. Green building simply means a building that attempts to reduce its carbon footprint by incorporating sustainable practices. The U.S. Green Building Council created a standardized method of determining the sustainability of a building, the Leadership in Energy and Environmental Design (LEED), which is stratified into certified, silver, gold, and platinum. The oldest building to be LEED certified is actually Sede Centrale in Venice, Italy, built in 1453. That currently beats the second-oldest LEED certified building by about 354 years!



LEED certification is based on a scorecard divided into seven major categories: Energy & Atmosphere, Indoor Environmental Quality, Innovation, Material & Resources, Regional Priority Credits, Sustainable Sites, and Water Efficiency. To be certified, a building must make 40-49 points, silver= 50-59 points, gold= 60-79 points, and platinum= 80-110 points. Let's say a building receives 4 points for LEED certified design and construction, 15 points for alternative commuting transportation, 5 points for additional indoor plumbing fixture and fitting efficiency, 5 points for water efficient landscaping, 18 points for optimizing energy efficiency performance, 6 points

for on-site and off-site renewable energy, and 1 point for sustainable furniture, what certification ranking would that building receive? (See answer below).

These categories were chosen to reward sustainable practices, use of renewable energy, and reducing overall negative impacts on the planet and the people that inhabit it. It's amazing to learn that volatile organic compounds found in certain types of furniture reduce indoor air quality, or that by providing natural lighting through more windows, it reduces the amount of electricity required, or even that cisterns can collect rainfall, purify the water, and use it for building uses, reducing the amount of water purchased from the municipal supply. How can you keep it green?

Please visit our site for more helpful information:

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**Answers:** Page 2 Answers: 1) b. 2) c. 3) b. 4) a. 5) d. Page 3 Answers: 1) ECOLOGY 2) GREEN 3) RENEWABLE 4) POLLUTION 5) SOLAR 6) PHOTOVOLTAIC 7) BIODEGRADABLE 8) CONSERVATION 9) RECYCLE 10) EMISSIONS 11) VOC 12) ENVIRONMENT 13) DAYLIGHTING 14) DISPOSABLE 15) SUSTAINABILITY 16) LEED 17) EFFICIENCY Page 4 Answers: Silver

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