

# 1

# ELECTRICITY

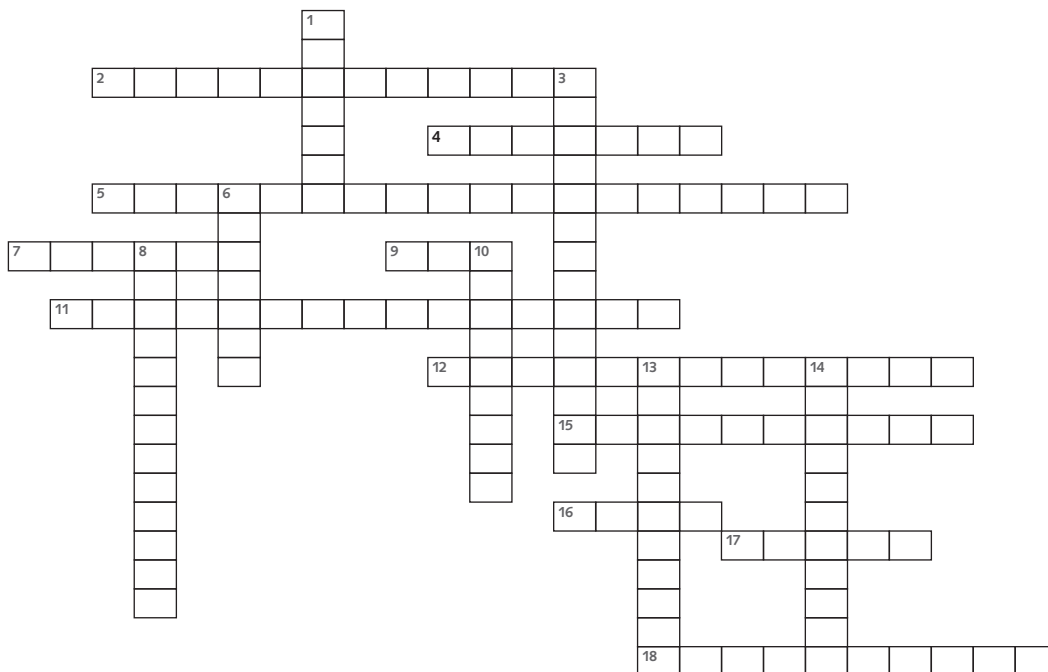
1 Do the following crossword.

ACROSS

- 2. They convert kinetic energy of the wind into mechanical power (two words)
- 4. Organic material having stored sunlight as chemical energy
- 5. It changes its direction of flow moving along a wire (two words)
- 7. A unity of electric current named after a scientist
- 9. Used to store water in a reservoir
- 11. Unbroken path where electricity can flow (two words)
- 12. The process of converting AC into DC
- 15. It is measured in Ohms
- 16. It measures the difference of potential between the two ends of a conductor
- 17. The smallest parts of matter
- 18. They convert sunlight directly into electricity (two words)

DOWN

- 1. Part of the atom with a neutral charge
- 3. Silicon is an example of these materials
- 6. The Greek word for amber
- 8. It converts electrical energy into mechanical energy (two words)
- 10. It consists of dots and dashes (two words)
- 13. Coal, oil or natural gases (two words)
- 14. It changes the voltage of AC supply



**2** Before reading the text below, make sure you know the meaning of the following terms. Try this matching activity.

- |                |                          |                                             |
|----------------|--------------------------|---------------------------------------------|
| a. benefit     | <input type="checkbox"/> | 1. Reduce                                   |
| b. thermostat  | <input type="checkbox"/> | 2. Electric devices in your house           |
| c. appliances  | <input type="checkbox"/> | 3. Device used to adjust heating in a house |
| d. cut back    | <input type="checkbox"/> | 4. A gradual outflow or loss                |
| e. plugged in  | <input type="checkbox"/> | 5. Trouble                                  |
| f. drain       | <input type="checkbox"/> | 6. Connected to the electric supply         |
| g. hassle      | <input type="checkbox"/> | 7. A block of electrical sockets            |
| h. power strip | <input type="checkbox"/> | 8. Advantage                                |

## A. ENERGY VAMPIRES

Sometimes we don't even realize how much energy we're using at any given time. It's a good idea to become more aware of what it means using energy without giving us any particular benefit. Between being vigilant around the house and making some minor changes like raising the temperature on the thermostat in the summer and lowering it in the winter, using energy-efficient appliances and light bulbs and automating the on/off times of our lighting and temperature control, we can really help cut back on energy usage. After all, the less power we consume, the less our energy provider can make us pay for.

Let's focus on less obvious sources of energy usage: the energy that electrical appliances use when they are plugged in but not in use. It's true – some appliances suck power even when they're not actively being used. This type of energy drain is sometimes referred to as, "vampire," "stand-by" or "phantom" energy loss. Phantom energy loss accounts for approximately five percent of a home's electric consumption.

Since we do not want to pay for something from which we get no benefit, let's discuss which appliances are the biggest energy vampires.

- Battery chargers (for phones, digital cameras, electronic devices, tools, etc.) draw power even when the device is fully charged or not even connected.
- Appliances and equipment which have standby or "sleep" mode, like computers and monitors, draw power to keep the device "on" even when it's inactive.

Basically, any appliance that needs power available to update information or display data (like a modem or digital clock) can be considered a vampire if what it produces serves no benefit to you when you're not using it. For example, a game console that remembers the date and time is a vampire if it's plugged in when you are not playing.

It's recommended that you unplug appliances and devices that you use infrequently so they're not displaying, say, the time or their status, when you're not using it. To avoid hassle of plugging and unplugging more frequently-used vampires, plug all your phone chargers, for instance, into one power strip which can easily be plugged in when needed and unplugged when it's not.

**3** Now answer the following questions.

- According to the text, is it easy to realize the amount of energy we are using?
- How can we save energy as far as heating is concerned?
- What is known as phantom or vampire energy loss?
- Which are the appliances responsible for this energy loss?
- What should you do to avoid it?
- What device can let you save time in unplugging more frequently used appliances?

**4** Have a quick look at the text and choose the best heading

- a. Singapore Botanical Garden
- b. How to save energy using trees
- c. High-tech supertrees

## B. A SOLAR POWER GARDEN

Usually words like “artificial” and “man-made” bring to mind our poor attempts to replace something natural that’s been destroyed by human development.

But in the case of Singapore’s new artificial forest, the effect is spectacular and surprisingly good for the planet, too.

In July 2012, the country opened the doors to a 250-acre landscaping project called “Gardens by the Bay”. In addition to tropical flowers, climbing ferns and a spectacular view, this massive waterfront garden will feature a man-made mechanical forest of solar-powered trees up to 50 meters high.

According to CNN, the garden’s 18 supertrees is doing more than just giving the public something to look at. Each acts as a vertical garden, generating solar power, acting as air venting ducts for nearby conservatories and collecting rainwater.

To generate electricity, 11 of the supertrees are fitted with solar photovoltaic panels that convert sunlight into energy, which provides lighting and aids water technology within the adjacent climate-controlled conservatories. The trees also mimic their natural counterparts by absorbing and dispersing heat, and providing visitors with some much-needed shade.

An initiative from Singapore’s National Parks Board, the garden is part of a redevelopment scheme to create a new downtown district in the Marina Bay area, on Singapore’s south side. By developing the park as an eco-tourism destination, rather than just another shopping area or business park, the country hopes to demonstrate its own commitment to sustainability, as well as stunning flora and fauna from around the world.



**5** Find terms or phrases in the text above having the same meaning as or similar meaning to the following.

- |                     |                  |                |
|---------------------|------------------|----------------|
| a. make us think of | d. include       | g. transform   |
| b. huge             | e. operate       | h. imitate     |
| c. coastal          | f. equipped with | i. interest in |