**SUGAR POWER**

Like any other electrical device, a pacemaker needs power. Since the first permanent pacemaker was installed in 1958, manufacturers have tried many different ways of powering them. For example, a variety of chemical batteries have been used. However, these need to be replaced frequently, which requires operating on the patient.

Today, non-rechargeable lithium batteries are common. Used in many implants, they provide between seven and ten years of life. That is more than enough: by the time the battery has run down it is generally time to replace the whole device with a newer model.

But that has not discouraged researchers from trying to find a small, constant energy source that does not require recharging. Now, several researchers are getting close to a solution using glucose, a type of sugar that is the main energy source for all cells in the body.

Glucose is continuously delivered everywhere in the body. This means a sugar-powered device would have a constant supply of fuel, and could be put almost anywhere.

One approach, involves breaking down glucose in a living cell, naturally allowing electricity to be generated from the glucose. Unfortunately, at present, only two of the 24 electrons in a glucose molecule can be used, which is not yet enough to power a pace maker. *Adapted from the Economist, June 30th, 2012*[/box]

Complete the sentences with information from the text. Write**NO MORE THAN TWO WORDS** for each answer.

1. Since they were invented, pacemakers have been powered by many types of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. New batteries last for a maximum of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Scientists are trying to locate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that never needs recharging.
4. The human body is mainly powered by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. It is possible to put a sugar-powered pace maker \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the body.
6. The new approach means electricity  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ comes from the glucose.
7. Now, scientists can only get electricity from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrons.

Check your answers below.

1. batteries
2. 10 years
3. (an) energy source
4. glucose
5. almost anywhere
6. naturally
7. two











