Name: Date:

READING COMPREHENSION

WHAT IS AN MRI?

Magnetic Resonance Imaging (commonly known as an MRI) is a way to take pictures of organs and structures inside the body using a magnetic field and pulses of radio wave energy. It works because the human body is composed mostly of water, and the nuclei of Hydrogen – one of the molecular components of water – become aligned in a magnetic field. When the magnetic field is turned on, the protons in the nucleus of an atom flip the direction in which they spin; when the field is turned off, the protons gradually return to their normal spin, a process called precession. This process of the protons returning to their normal spin produces a radio signal that can be detected by the scanner and converted into a digital image.

An MRI can show things that cannot be shown by other procedures such as an X-ray, an ultrasound, or a computer tomography (CT) scan. It can detect problems like tumors, internal bleeding, injury, diseases of the blood vessel, problems with spinal discs, or infection. It is also preferable to a CT scan, as it produces no ionizing radiation.

The standard MRI is a closed machine that contains a strong magnet. The patient lies on their back on a table, and the head, chest, and arms may be strapped down, as it is important that the patient lie completely still. The table slides into the enclosed space containing the magnet. The area to be scanned may be wrapped in a device called a coil, and depending on the reason for the scan, a special strap that senses breathing or heartbeat is sometimes used to ensure the machine takes the scan at the optimal time.

An MRI has no known harmful effects, though the powerful magnet may affect pacemakers, artificial limbs, or other medical devices containing iron.

Answer the questions by giving a check mark if the statement is TRUE or a cross if the statement is FALSE.

- ☐ An MRI is just another way to show what an X-ray shows.
- ☐ An MRI has many harmful side effects.
- ☐ The MRI works because the human body is made up of mostly oxygen.
- ☐ An MRI does not expose the subject to radiation.
- ☐ An MRI uses a magnetic field and radio waves to create images.
- ☐ It is the protons returning to their normal spin that allows am image to be created.