



Name: _____

Class: _____ Date: _____

Now You See, Now You Don't

An extension of "Lasers cast new light on buried city"

"Lasers cast new light on buried city" (page 21, *What's Up* March 2018) tells of an amazing technology that allows us to see things buried underground. Several such technologies are there that allows us to see things the human eye cannot normally see.

INSTRUCTIONS

1. The table below lists five amazing technologies that enable us to see beyond what the naked eye can see. However, entries in column (B) and column (C) are jumbled.
2. In groups of four, cut out the boxes in the table, rearrange them and paste them on a separate sheet of paper in the correct order. The shaded headings are given in the correct order.

| Name (A) | How it works (B) | How it is used (C) |
|--|---|--|
| x-ray | An intense magnetic field and radio-frequency (RF) waves excite the atoms within a human body. These excited atoms provide a real-time, three-dimensional view of the organs and bones. | It is used in medicine and scientific research to observe minute things at atomic levels and at very high resolutions. |
| MRI (Magnetic Resonance Imaging) | A beam of electrons — tiny enough to pass through the molecules of a substance — is passed through a very thin slice of a sample to view microscopic things. | It is used to detect bone fractures, certain tumours, pneumonia, foreign objects lodged within the body, dental problems, etc. It is also used by airport security to scan baggage. |
| Sonar Sound Navigation & Ranging | Very high frequency sound waves that cannot be heard by the human ear are used to create digital images of the organs inside the human body. | It is used to map the ocean floor, underwater hazards to ships and such. It is also used to locate sunken ships and other wreckages. |
| Ultrasound | Pulses of sound waves are bounced off objects under the water. The time taken for these waves to return is measured and used to map the distances and orientation of these objects. | It is used to evaluate sports-related injuries and to diagnose chronic diseases. It is very safe as no radiation is used. |
| Electron Microscope | High energy electromagnetic radiation passes through most objects, including our bodies. It captures images (shadows) of denser materials, like bones, on a film. | It is used to find the cause of pains, swelling, and infection in the body. It is also used to examine an unborn baby, or the brain of an infant. It is very safe as no radiation is used. |