

## FINAL ENGLISH PROJECT: MRI

### 1. Introduction

This project is based on the study of Magnetic Resonance Imaging (MRI). MRI is a medical imaging technique that uses magnetic fields and radiofrequency waves to create images of the human body. In this project, students will learn key vocabulary, understand how MRI works, and apply their knowledge using English.

### 2. Objectives

- Learn and use technical English vocabulary related to MRI.
- Understand the basic physical principles of MRI.
- Improve reading, writing, speaking, and listening skills.
- Explain scientific concepts in English clearly and accurately.

### 3. Vocabulary Activity

Match the terms with their definitions:

1. Magnetic field
  2. Proton
  3. Radiofrequency (RF)
  4. Relaxation
  5. Gradient field
  6. Coil
  7. Signal
  8. Voxel
- A. A small volume element in imaging
  - B. A device that receives the signal
  - C. Energy emitted after excitation
  - D. A charged particle in the nucleus
  - E. Variation of magnetic field for image selection
  - F. Electromagnetic wave used in MRI
  - G. Region where magnetic forces act
  - H. Return to equilibrium after excitation

### 4. Reading and Gap Fill

Complete the text with the correct words:  
(magnetic – signal – hydrogen – relaxation – frequency – energy)

MRI works by placing the patient in a strong \_\_\_\_\_ field. The nuclei of \_\_\_\_\_ atoms align with this field. Then, a radiofrequency pulse changes their \_\_\_\_\_. When the pulse stops, the nuclei return to equilibrium in a process called \_\_\_\_\_. During this process, they release \_\_\_\_\_, which is detected as a \_\_\_\_\_.

## 5. True or False. Correct the false.

1. MRI uses ionizing radiation.
2. Hydrogen atoms are important because of their abundance in the body.
3. T1 and T2 are types of magnetic fields.
4. RF pulses excite the nuclei.
5. The signal is collected by a coil.

## 6. Short Answer Questions

Answer in 1–2 sentences:

1. Why is hydrogen important in MRI?
2. What happens during relaxation?
3. What is the function of gradients?
4. What does T2 measure?
5. Why is safety important in MRI rooms?

## 7. Writing Task

Explain how MRI works in 4 steps:

1. Alignment
2. Excitation
3. Relaxation
4. Signal detection

Write a short paragraph (80–120 words).

## 8. Translation Activity

Translate into English:

1. La señal se genera mediante radiofrecuencia.
2. Los protones vuelven a su posición inicial.
3. El campo magnético principal alinea los núcleos.
4. La señal es recogida por una antena.

## 9. Video Task

Explain the MRI procedure using your own words. Avoid technical vocabulary and make it easy to understand.