Lesson 2 Worksheet

In this worksheet, we will be delving deeper into the complex yet captivating subject matter of lesson 2, which focuses on Magnetic Resonance Imaging (MRI). This worksheet is designed to be a multifaceted educational tool, featuring a range of question formats including multiple-choice questions, fill-in-the-blank exercises, and short answer responses.

Recommended Grade Levels: 6-8

Multiple Choice Questions

1) Who is considered "The Father of MRI"?

a) Nikola Tesla

b) Albert Einstein

c) Raymond Vahan Damadian

d) Isaac Newton

2) What component of the MRI machine is responsible for creating a strong magnetic field?

a) Radiofrequency Coils

b) Gradient Coils

c) Magnets

d) Patient Table

3) Which of the following can MRI technology diagnose?

a) Brain tumors

b) Knee injuries

c) Degenerative diseases

d) All of the above

4) What is the role of Radiofrequency (RF) coils in an MRI machine?

a) To adjust the patient table

b) To emit X-rays

c) To send and receive signals from the body

d) To operate the machine and monitor imaging

5) What is a primary safety concern when undergoing an MRI scan?

a) Removing all metal items

b) Keeping your eyes open

c) Consuming a lot of water before the scan

d) Eating a full meal prior to the scan

6) What is the role of a display console in an MRI machine?

a) To create a magnetic field

b) To operate the machine and adjust image quality

c) To provide a comfortable surface for the patient

d) To encode signals from the body

7) Why is patient comfort important during an MRI scan?

a) To speed up the imaging process

b) To ensure high-quality images

c) To reduce the machine's electricity consumption

d) To lessen the time spent by healthcare professionals

Fill-in-the-blank Questions

1) MRI's strong magnetic fields align with _____ nuclei to start the imaging process.

2) Unlike X-rays, MRI uses _____ and _____ to create detailed images.

3) The magnets used in some MRI systems can be as strong as _____ Tesla.

4) Gradient coils are like the _____ and _____ features on a camera.

5) Computer science plays a critical role in converting MRI data into _____ images.

6) Patient tables are designed to keep the patient _____ and _____ during the MRI scan.

7) Dr. Raymond Vahan Damadian filed the first patent for an MRI machine in the year _____.

Short Answer Questions

How do MRIs differ from X-rays in terms of the technology used?

How powerful are the magnets used in MRI machines compared to Earth's magnetic field?

What is the function of gradient coils in an MRI machine?

How are RF coils similar to speakers and microphones in your cell phone?

Why are computers and specialized software important in MRI technology?

What is the function of the display console in an MRI machine?

Why is it important to avoid skin-to-skin contact during an MRI?

Multiple Choice & Fill in The Blank Answer KEY

Multiple Choice KEY

1) C
2) C
3) D
4) C
5) A
6) B
7) B

Fill in The Blank KEY

1) Hydrogen
2) Magnetic Fields and Radio Waves
3) 3
4) Zoom and Focus
5) Detailed
6) Still and Comfortable
7) 1972