NMR Spectroscopy: The basics

Pre-lesson assignment – textbook page 512-514

FIRST watch the video tutorial on NMR Spectroscopy

Define the following Key Terms

- Chemical Shift
- Nuclear Spin

Make notes on the basics of NMR Spectroscopy

1. Explain why ^{1}H and ^{13}C have nuclear spin, but ^{12}C does not.
2. In an NMR spectrometer, nuclei can be aligned with or against the magnetic field.
    a. What kind of radiation is used to align the nuclei against the field?
    b. What happens to the nuclei when they are put into this higher energy state.
    c. Why is the magnet so strong?
3. Give one medical use of NMR spectroscopy.
4. What is the standard additive to a sample that shows a peak at δ=0ppm? What is it's purpose?
5. Give two structures that will affect the chemical shift of an atom.
6. Explain why deuterated solvents such as $CDCl_3$ are used instead of $CHCl_3$