Nuclear Reactor Video Notes:

https://www.youtube.com/watch?v=1U6Nzcv9Vws

A nuclear reactor has 3 main components (parts)

 1.

 2.

 3.

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are usually in the shape of thin rods, about \_\_\_\_\_\_\_\_\_\_\_ thick.

They are made of ***fissionable material*** like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The part of the reactor that contains the fuel elements is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The fuel elements are usually immersed in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that acts as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The purpose of the moderator is to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the energy neutrons in the reactor core.

The control rods are usually made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The function of the control rods

is to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ excess \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. A steady rate of nuclear reaction

can be maintained by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the control rods in the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The reactor core is usually enclosed in thick walls of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Why?). The reactor core is

connected to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The steam that is produced is used to turn a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to generate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



Label the diagram above with the following terms: ***fuel elements, heat exchanger, turbine, moderator, steam, control rods, reactor core, electrical power lines.***

Questions:

1. What is a **fissionable material**? Give one example.

2. What is heavy water?

3. Explain how the moderator slows down the neutrons.