

Using any Internet browser, go to the following URL:

<http://science.howstuffworks.com/fusion-reactor.htm>

#### Procedure

Read through the How Stuff Works article on Fusion Reactors and answer the following questions:

#### Questions

List three advantages provided by fusion reactors.

a.

b.

c.

A consortium of countries is proposing to build an experimental fusion reactor. In what country will this experimental reactor be built?

Watch the animation of the deuterium-deuterium fusion reaction. In your own words, explain what is coming together, and what is being released (in addition to energy).

Watch the animation of the tritium-deuterium fusion reaction. In your own words, explain what is coming together, and what is being released (in addition to energy).

Why do two protons want to naturally repel one another?

What two conditions must exist for nuclear fusion to occur?

a.

b.

Which of these two conditions overcomes the natural electrical repulsion that occurs between protons?

Which of the two fusion reaction animations shown is possible with our current

technology?

What is the problem we have in producing the second reaction?

Which of the two fusion reactions will ultimately be better to use? Provide two reasons why one reaction is better.

Describe the two ways we are planning on using to achieve hydrogen fusion. Which method will be used by the proposed ITER project?

a.

b.

For fusion to be a viable electricity source, more energy must be produced vs. what was needed to create the fusion. For the ITER project, (a.) what is the projected power needed to start the fusion reaction? (b.) What is the projected power yield from the fusion reaction?

a.

b.

Will the ITER project initially run in short bursts (if so, for how long?) or will it be a sustained fusion reaction?

What would NASA like to use fusion reactors for?

What was “wrong” with the 1989 cold fusion experiment where researchers claimed to have made a nuclear fusion reactor at room temperature?