

Students can learn much at expo-type events by interacting directly with the presenters at their booths. We've assembled some key questions students can use to help their learning and that teachers can use as one metric of student-professional interaction. The following questions are arranged by booth owner and can be supplemented by the teacher.

Contemporary Physics Education Project (CPEP)

Sam Lightner (lightner@westminster.edu)

Cherie Harper (gsphysics@live.com)

Of the three types of energy-releasing reactions (chemical, fission, fusion) which one releases the most energy per kg of fuel?

List three naturally occurring plasmas that exist in space beyond the Earth's atmosphere.

In the fusion simulation done at the booth, what specific nuclei do the large and small bottle tops represent?

General Atomics

Rick Lee (rick.lee@gat.com)

What is gaseous plasma and why is it referred to as the 4th state of matter?

What is the most abundant element in the universe and through what process is this element incorporated into heavier elements?

How is electricity generated that comes into your home?

Suppose oil production peaked (maxed out) in 15 years. How old will you be? How will your reliance on oil be changed in 15 years?

The Laboratory for Laser Energetics (University of Rochester)

Reuben Epstein (reps@lle.rochester.edu)

What do the letters in the name LASER stand for?

What amount of seawater contains an amount of fusion energy equivalent to the energy in the world's oil reserve? In other words, what volume of seawater, in cubic kilometers, would this be?

What kind of rocket is used to compress fusion fuel to high density?

Lawrence Livermore National Laboratory

Steve Allen (allens@fusion.gat.com)

How do radio waves, visible light, and X-rays differ as components of the electromagnetic spectrum?

Why do astronomers use radio, visible light and X-ray telescopes to collect data about the sun and other stars?

What COLOR is common to the plasmas that we see on earth (like the tokamak) and in the sky (like the Orion Nebula)?

MIT Plasma Science and Fusion Center

Paul Rivenberg (rivenberg@psfc.mit.edu)

Name at least four examples of plasmas.

Why are magnets used to confine plasmas in some fusion experiments?

Name two ways plasmas could be used to help people.

Princeton Plasma Physics Laboratory

Deedee Ortiz (mortiz@pppl.gov)

What is the difference between a gas and a plasma?

Name a naturally-occurring plasma and a human-produced plasma.

The plasma inside a fluorescent light is approximately 10,000 degrees Kelvin. Why is the glass of the bulb warm but not hot?

U.S. ITER Office, Oak Ridge National Laboratory

Jamie Payne (paynejp@ornl.gov)

What is the ITER project?

What kind of reaction, which occurs naturally on the Sun, does the ITER project hope to achieve on Earth?

What are the advantages of fusion energy?

The Wonders of Physics (University of Wisconsin)

Mike Randall (randall@physics.wisc.edu)

How does a plasma globe operate?

What is a Tesla coil?

How does the ring launcher work?