In-Class Activity: **The post-earthquake nuclear crisis: The Japan syndrome**

Prior to coming to class, please read the accompanying article *The Japan syndrome*, published in [The Economist](http://www.economist.com/blogs/babbage/2011/03/post-earthquake_nuclear_crisis)and answer the questions below and bring them to the class. You may want to consult your textbook or any online sources. In class you will work in groups to share your answers and as a group you will agree on the answers and come to an agreement as a group.

Each group will be asked to answer one question. You will have ten minutes in class to go over your answers and then we will go over your answers.

Name(s) (printed)

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1. Describe how fission works.
2. What properties of Zr alloys are important in its use as a material to encase fuel pellets?
3. To prevent the superheating of the reactors, engineers flooded the reactor with seawater laced with boric acid.  What is the role of boric acid?
4. In your opinion was the flooding of the nuclear plant effective, why or why not?
5. The article states that the explosions were due to hydrogen igniting. What is the source of hydrogen?
6. What is the risk due to spent fuel?
7. Based on your reading of the Japan Syndrome, what must be done to avoid a meltdown?
8. The article reports radiation levels in terms of millisieverts (mSv), what is the advantage of using this unit instead of Becquerels?