

Lesson Plan for 9/7/05

1. Introduce myself and course
2. Pass out, then fill out index cards

First and Last Name (on front, large print, clearly written, in color if you'd like)

E-mail (on back in pen or pencil)

Major

Year

Hometown

Enrolled in the course?

Enrolled in this specific section?

3. Introduce everyone (while filling out index cards, say first and last name and favorite animal and/or sport)
4. Pass out, then go through syllabus
5. Break into pairs and give them a few minutes and then have each student say their partner's name and an interesting fact about them and collect pens, markers, pencils, and crayons
6. Saw articles about a tenth planet, the first images of a planet around another star, only a few pre-explosion images of stars that went SN (something I'm interested in and will start doing some research on) , Deep Impact Mission:

On July 4th of this year the NASA Deep Impact mission crashed a 371 kg Impactor probe into the avocado-shaped Comet Tempel 1 and recorded the event via a Flyby mothership. It was a complete success. The Impactor ended its almost six-month mission by successfully transmitting back images of the comet as it raced at a speed of 43,000 miles per hour into the surface of Tempel 1. The Comet Tempel 1 was moving at a brisk 66,000 miles per hour and has an approximate diameter 6.5 km and an estimated density of about 0.4 g/cm³.

Marina Bai, a Russian astrologer, has sued the NASA, claiming the Deep Impact probe that punched a crater into the comet Tempel 1 "ruins the natural balance of forces in the universe." Bai is seeking damages totaling \$300 million – the approximate equivalent of the mission's cost - for her "moral sufferings." She said earlier that the experiment would "deform her horoscope."

Use three sig figs here, as accurate as we need to be, usually an approximation will do (will talk more about this later in the section), only use a bunch of sig figs to prove a point (we'll see this in a couple minute) Conservation of Momentum $c = 3e10 \text{ cm/s}$ $1 \text{ mi} = 1.61 \text{ km}$ $D = M / V$
 $M = D * V$ $M_c = 5.75e16 \text{ g}$ $M_i = 3.71e7 \text{ g}$ $v_c = 2.95e6 \text{ cm/s}$ $v_i = 1.92e6 \text{ cm/s}$

"The bottom line is that we have an object the size of a washing machine colliding with a comet the size of Manhattan Island."

7. Pass out worksheet, give some time to work on it in small groups, walk around while they work, then discuss some of the problems as a class.