

Laboratory 1

Thursday, January 25, 2000

The first laboratory will take place on Thursday, January 25 during the regularly scheduled recitation periods.

Grading: The laboratory will count as one 10pt quiz grade. Attendance at the lab counts for 5 points. Your answer to the question below counts for another 5 points.

Goals: The goal of the laboratories is to have fun playing with real chemicals, while utilizing the chemical concepts covered in the course. We are not going to provide you with cookbook laboratory procedures. Rather, we will pose a scientific question, and ask you to devise a procedure that uses the available equipment to answer the question.

You may work in groups of up to four people.

Consider the following question.

Which type of fuel (fat or carbohydrate) has the highest calorific content?

Equipment:

- A birthday candle.
- A couple of wooden splints (i.e. big toothpicks).
- An empty coke can.
- A graduated cylinder (the chemical laboratory equivalent of a measuring cup.)
- An electronic balance that reads to 1/100 of a gram or better.
- Aluminum foil.
- A thermometer accurate to about $\frac{1}{2}$ a degree Celsius.

In one or two paragraphs, please explain what you did in the laboratory. In your explanation, include as quantitative an answer to the above question as is possible, given the data you obtained in the lab.