

## Unit F Mole Project (pg 1 of 2) Just how big is a mole?

Your task is to produce an analogy to help others understand just how large the number  $6.02 \times 10^{23}$  really is. It will be graded according to the rubric below. You must try to get your comparison number to a manageable size (below 500 million at most). Include any assumptions or definitions that you made in order to make your calculations. Include the work for your solution complete with unit labels. Model your format after the two samples posted on the chapter 6 document page.

Hand this sheet in with your project with your “five good reasons” listed on the back..

### Formatting guidelines:

- 8.5 × 11 paper, any color - typed (including your calculations – learn to make exponents such as  $\times 10^{23}$ , NOT  $\times 10^{23}$ )
- Neatness & spelling are important. It should be easy to read. Spelling counts – ask someone to proofread for you.
- Title at the top in bold and significantly larger font. (Subtitle is optional, and if you have one, it should be in slightly smaller font than the title.)
- Comparison sentence in large font (not as large as title, or subtitle, but larger than the assumptions and calcs). It should be a statement NOT a question. In your comparison sentence round off your comparison number and state it as a number and words, e.g. 45.6 million.
- Paper should be held portrait not landscape, no holes on side, think about spacing – do not leave large areas unused
- Assumptions presented below your comparison sentence the comparison sentence. Assumptions in print smaller than the comparison sentence and as a bulleted list. Learn to make bullets that wrap around properly if your assumption goes on more than one line.
- Calculations in dimensional analysis format (complete with units, showing the units cancel out as appropriate)
- Name at the bottom right hand corner, typed. (No class, no date, nothing else.)

The project will be graded using the 50 point rubric on the back. Hand this rubric in with your rough draft and hand the rough draft and rubric back in with the final product.

Five *good* reasons for five more points. Please spend some time on this, don't leave it until the day you are handing in the project.

- Such as....What did you learn while you were making the analogy, why did you make it the way that you did. What special skills did you use, did you learn anything new techniques on your computer, who helped with ideas, why you chose what you did? or.....
- Do not tell me..... you worked hard, you followed the directions, or that you need the points, or that you are nice. While those may be true, I *expect* that you will work hard, follow the directions, and *of course* you need the points, and well, if you're *not* nice.....why not? So simply stating that you should get an extra point because you followed some particular direction, will not get you the extra point.

### Rough Draft

Rough draft can be done by hand, on 8.5 × 11 paper, it must include your comparison sentence and your dimensional analysis as a minimum. The rough draft must be handed back in with the final

Be sure and hand in this rubric sheet with your name on the back side.

Scoring Rubric - To be turned in with rough draft and again with final product.

POINTS:	5	4	3	2	1
Rough Draft	on time and in great shape	late and/or some thought but not very thorough	later and/or needs much work	later still and not complete	did not come in
creativity, uniqueness	completely fresh, new ideas, creative, clever	interesting ideas with a different approach, clever	good ideas, but not very unique or different	mundane, showing little creativity, nearly copied the sample ideas	showing no creativity, completely copied samples.
comparison size	comparison size is below 500 million $5 \times 10^8$	comparison size is below 1 billion $1 \times 10^9$	comparison size is below 10 billion $1 \times 10^{10}$	comparison size is below 500 billion $5 \times 10^{11}$	comparison size is above a trillion $1 \times 10^{12}$
assumptions or definitions	all appropriate assumptions and definitions presented	all presented but not all accurate	missing some assumptions or definitions	missing some and some not accurate	no assumptions or definitions presented
<i>For the following items one point for each guideline</i>					
calculations	dimensional analysis format	clear set-up	typed scientific notation as demonstrated in guidelines	accurate	units on numbers and shown how they cancel out with color coordinated cross-off
general format	8.5"×11" typed	no holes, no staples	portrait not landscape	<i>Assumptions</i> : bulleted with wrap around text	name placement, no other info, typed
	rough draft turned back in with project	made ALL the changes from rough draft	comparison number written in numbers <i>and</i> words	<b>LARGE</b> font for title	smallest font for assumptions
comparison sentence	statement format NOT a question	clearly stated	comparison number rounded off	different font size - slightly smaller than title but <b>larger</b> than assumptions.	spelling and punctuation
sketch or graphics	clever	relevant	entertaining	colorful	neat and clear (not pixelated or not smudges, pencil marks)

Briefly explain five good reasons (*in reference to your project*) why you should get the last 5 points out of 50 total.

- 1.
  
- 2.
  
- 3.
  
- 4.
  
- 5.