

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 very different approach than the samples provided | good ideas, but not very unique or different from the samples provided | mundane, showing little creativity, nearly copied the sample ideas | showing no creativity, completely copied samples.           |
| comparison size        | comparison size is below 500 million<br>$5 \times 10^8$ | comparison size is below 1 billion<br>$1 \times 10^9$                      | comparison size is below 10 billion<br>$1 \times 10^{10}$              | comparison size is below 500 billion<br>$5 \times 10^{11}$         | comparison size is above 500 billion<br>$5+ \times 10^{11}$ |

*For the following items one point for each guideline*

|                                         |                                            |                                               |                                                         |                                                                                      |                                                                                 |
|-----------------------------------------|--------------------------------------------|-----------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| assumptions, definitions, or "look-ups" | one assumption and/or definition presented | second assumption and/or definition presented | third assumption and/or definition presented            | missing some assumptions and/or some not accurate                                    | assumptions presented in appropriate <sup>1</sup> units                         |
| 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 and long enough so you can demonstrate 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>LARGEST</b> font for title                                                        | smallest font for assumptions                                                   |
| comparison sentence                     | statement format NOT a question            | clearly stated                                | comparison number rounded off                           | mid-size font - slightly smaller than title but <b>larger</b> than assumptions.      | accurate spelling and punctuation                                               |
| sketch or graphics                      | clever <sup>2</sup>                        | relevant to your idea                         | entertaining <sup>2</sup>                               | colorful (beyond black and white)                                                    | neat and clear (not pixelated no smudges, no pencil marks)                      |

<sup>1</sup>assumptions If you provide an assumption or "look-up" such as the distance to the moon or some planet, the distance should be given in miles or kilometers (light years?) not inches, but if you need the distance in inches, that conversion should be part of your dimensional analysis calculation

<sup>2</sup>clever If you think your graphic is clever, but you are concerned that old, not-so-hip teacher may not understand, be sure and explain on the back as to why your sketch or graphic is clever.

<sup>3</sup>entertaining If you think your graphic is entertaining, but you are concerned that old, not-so-hip teacher may not understand why the graphic is entertaining, be sure and explain on the back as to why your sketch or graphic is entertaining.

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 unit E document page.

Hand this sheet in staples to your rough draft project, but do NOT staple to your final project.

**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. The poster 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). This sentence 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 and balance – do not leave large awkward areas unused.
- A minimum of three assumptions (or definitions) presented below your comparison sentence. Assumptions in print smaller than the comparison sentence and as a wrap around bulleted list. Learn to make bullets that wrap around properly being sure that at least one of your assumptions wraps 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 45 point rubric on the front. Hand in this rubric stapled your rough draft, and hand the rough draft *and* rubric back in with the final product.

**Rough Draft – Due on Tuesday Thursday December 5<sup>th</sup> (Final Draft due on Friday December 13<sup>th</sup>)**

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

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