**Day 3: Perceived (extrinsic) value versus intrinsic value of Gold - In-Class Activity**

**Group #: \_\_\_ Names of those present:**

**Pre-Class Assignments:** Gold video, nanomaterials homework assignment

**Societal Concept:** Value is a social concept that is assigned to a material based on many factors. Materials have intrinsic physical properties, only some of which are selected as more relevant by a society in meeting social needs based on cultural perspectives. But, a material’s use can change and this can affect its financial value.

1. What did your group find is the current value of an ounce of gold? How would you think the advent of an engineering application (e.g. gold particles for nanomedicine) of gold might affect its financial value? Explain your opinion.
2. If a typical dose of gold nanoparticles is 2 milligrams/kilogram of body weight and the average person weigh 150 lbs. How much gold is in a typical dose of cancer treatment? If the shot costs $800, what percent of the cost is associated with the cost of the gold?
3. Give a rough estimate of the percentage of the world’s production of gold that could go into nanomedicine if it’s completely adopted in the US to treat pancreatic cancer. (You will need to figure out how many people have the cancer you are treating and assume some arbitrary number of treatments per year, say 10, as well as locate information on the average yearly production of gold.) Now that you’ve done the math, do you think this will measurably impact the financial value (or cost) of gold? Explain.
4. So you are the president of a company and your scientists have come up with two possible solutions for a cancer treatment. One uses Tantalum nanoparticles and one uses Gold nanoparticles and they both had the same effectiveness which one would you choose and why?
5. What considerations related to the operational chain involved in gold, e.g., gold’s mining, pollution, trade, recyclability, etc. might impact its perceived value?
6. Thinking about the material that we covered in this week’s unit, add another question to the impact paradigm.