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REFLECTION PROMPT: Reflecting back on the five weeks with your group, what strengths or processes do you think really helped your group in class? With this group, I really liked our expanded version of the four quadrants, which included facts, assumptions, lacking and representation, as well as our additions of plans, goal, and equations. I really liked that we included numbering to our plan and numbered the steps of our solution process that correlated to the plan. In this group all of us took turns writing different parts of our quadrants and different parts of the solving or conceptual questions. Every member of the group was constantly aware of one another and whether or not we were following along and engaged, which really helped me feel involved and helped me learn the material to the best of my ability.

As we transition into new groups this week, what strategies would you like to take with you from your old group? I'll definitely try to implement our plan/goal/equations section of our quadrants, as well as try to stay as involved as possible. We can establish a rotation for leading discussions or summarizing key points to ensure everyone has a chance to contribute and stay informed. With my next group we can try to designate a different member each week to facilitate discussions or take notes during meetings.

What dynamics/processes would you want to change or establish with your new group? How do you plan on doing that? Be specific and include supporting examples from class. Write the strategy or method(s) you will try next week? Building upon the successful structure of the quadrants from the previous group, I'll definitely propose incorporating a similar approach with my new group. By including sections for plans, goals, and equations in our problem-solving process, we can enhance our organization and clarity in tackling assignments or tasks. Each member can take responsibility for specific sections. For example, we can assign one member to outline the plan, another to define the goals, and so on, ensuring that every aspect is thoroughly addressed. To maintain the high level of engagement observed in the previous group, I suggest implementing regular check-ins and feedback sessions. This could involve setting aside time at the end of each meeting to reflect on our progress, discuss any challenges encountered, and provide constructive feedback to one another.

PASTE IMAGES OF YOUR TUESDAY WHITEBOARDS HERE:

FACTS

- Hard rock density = $2.6 \times 10^3 \text{ kg/m}^3$
- Soft rock density = $2.2 \times 10^3 \text{ kg/m}^3$
- Hard rock specific heat = $1 \times 10^3 \text{ J/kg/K}$
- Soft rock specific heat = $1.4 \times 10^3 \text{ J/kg/K}$
- Specific heat water = 4.18 J/kg/K
- Room temp = 298 K

ASSUMPTIONS:

- Endless & constant fire (heat)
- Oil fire = 2000 K
- avg rock: 0.5 m^3 volume
- rocks cube form
- pit size = $2.2 \text{ m} \times 2.2 \text{ m} \times 2.2 \text{ m}$
- H_2O mass: 8000 kg
- Volume pit = 8.8 m^3
- volume rock = 0.8 m^3
- Volume H_2O = 8 m^3

PLAN:

- 1) Find Q_{avg} needed to raise temp by 72 K
- 2) How much energy each rock transfers
- 3) Set up system and decide on rocks
- 4) Find how many rocks needed



GOAL:

Design the pit to boil water and cook the beast to a temp of 370 K

LACKING:

- Amount of rocks needed
- Mass of water

REPRESENTATIONS:



1) $\Delta E = m_c c_w \Delta T_w + m_i c_i \Delta T_i$ {System = water & chunk}
 $= (8000)(4.18)(72) + (1760)(1.4 \times 10^3)(72)$
 $\Delta E = 1.798 \times 10^8 \text{ J}$

2) $Q = mc\Delta T$ {System = Rock}
 $-1.798 \times 10^8 = M(1 \times 10^3)(370 - 2000)$
 $M = 110.3 \text{ kg}$
 $V = 0.04 \text{ m}^3$

Force diagram:
 F_d (down), $mcat$ (down), T (up)
 $\Delta E = W + Q$

Energy balance:
 $\Delta E = Q$
 $T_{E_{sys}} = T_{E_{nr}}$
 $mcat + mcdt = -Q$

Volume and density calculations:
 $V = 0.04 \text{ m}^3$
 $V = 0.04 \text{ m}^3$
 $V = 0.04 \text{ m}^3$
 $T_E = mcdt$
 $Q = mcdt$
 $D = \frac{m}{V}$
 V_{nr}