TOWER OF CUPS

You can use only one variation OR if you have time you can use all options to allow students to improve their product

Variation One

- Tools: 50 Plastic Cups
- Objective: With your group build the tallest tower using only the plastic cups.
- The winning group will have the tallest tower measured from the base to the top point of the top cup.
- Planning Period: 90 seconds
- Building Time: 3 minutes

Variation Two

- Repeat round one, but make any improvements you feel necessary.
  - You may **not** build the exact tower you built in round one.
- Planning Period: 2 minutes
- Time Limit: 6 minutes

Variation Three

- Tools: 50 Plastic Cups
- Objective: With your group, build a structure that has a smaller base than its top.
- The winning group will have the tallest tower measured from the base to the top point of the top cup.
- Planning Period: 2 minutes
- Time: 5 minutes

Variation Four

- Tools: 50 Plastic Cups
- Objective: With your group, build a bridge (only using plastic cups) that will support the weight of a textbook (approximately 3.87 pounds).
- The winning group will have the tallest bridge that supports the textbook. (Tallest will be measured at the level which holds the textbook.)
- Planning Period: 3 minutes
- Time Limit: 6 minutes

How to Adapt To Problem Based Learning

- Observe objectives and learning outcomes
- Observe skills sets that need to be learned
- Adapt cups to reflect necessary outcomes
- Create a classroom discussion about what was learned. Point out good design techniques in each group's work.

- Students should have a packet/worksheet/journal to write down thoughts, observations, definitions, and connections to learning outcomes.
- Give students a chance to redo the activity after discussing what could be improved.
- ALWAYS summarize the activity. NEVER just walk through the motions of an activity.

Variations of Tower of Cups

- Math:
  - Write an equation on one cup. (The equation should have several solutions). Have students build a tower by stacking cups that are "equivalent".
    - Example 1: The equation would be the top cup of the tower. The solutions would be the base of the tower.
    - Example 2: Write several equations that are equivalent. Throw in some equations that are not equivalent. The students can only build a tower using equivalent equations. Adjacent cups must have equivalent equations.
  - Build a tower and have students calculate the surface area. The winning group could be the group that has the maximum (or minimum) surface area.

- Any subject matter:
  - Write definitions on cups. Write terminology on cups. Write examples of the definition in action (hopefully you have several examples). Students could build towers by matching the definition to the term and to the examples. Adjacent cups must relate to each other (Term, definition, or example). Some examples may be several different definitions in action.

- You don't have to build towers!
  - You could build:
    - Miniature cars to race
    - Houses
    - Lighthouses
  - Discuss the properties of the plastic:
    - At what heat would the plastic melt?
    - What material would best fuse the cups together to build a sturdy structure?

- Introduce new materials to build new structures (like a pulley system):
  - Wooden tongue depressor
  - Pipe Cleaners
  - Hot glue
  - Not hot glue
    - Tape (masking, clear, double-sided)