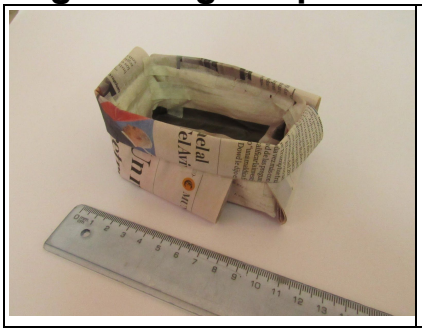
Engineering - Paper Water Tank - Inquiry Questions



$$\frac{\text{Amount of H2O Held (mL)}}{\text{Mass of Water Tank (g)}} = \text{Score}$$

DIVIDE

HIGHER IS BETTER

Statement of Inquiry:

Engineers must use finite resources responsibly to design structures efficiently.

I Factual Questions:

1. How does paper react when it is exposed to water?
2. What shapes are used to make actual water tanks?
3. How can an efficiency measurement of a water tank be determined?

II Conceptual Questions:

1. Can engineering modeling with simple materials provide engaging and challenging learning opportunities for students?
2. What is the value of masking tape in newspaper tank design?
3. What is the relationship between a newspaper tank's mass and the amount of water it can hold after three minutes?
4. What is the relationship between a newspaper tank's shape and the amount of water it can hold after three minutes?

III Debatable Questions:

1. Why should newspaper tank designers use all of the masking tape?
2. Why should newspaper tank designers use the minimal amount of masking tape?
3. Why are popsicle sticks essential for a successful newspaper tank design?
4. Why are popsicle sticks not essential for a successful newspaper tank design?
5. Why are taller, narrower newspaper tanks better designs than wider, flatter tanks to achieve the goal in the GRASPS?
6. Why are wider, flatter newspaper tanks better designs than taller, narrower tanks to achieve the goal in the GRASPS?
7. Why do newspaper tanks with a higher mass have greater success than tanks with lower mass?
8. Why do newspaper tanks with a lower mass have greater success than tanks with higher mass?