

### Science Technology Engineering Art & Mathematic Lessons

### **Shower/Bath Water Challenge**

**Lesson Goal:** To discuss the importance of water conservation and how each decision we make impacts the usage of natural resources

Timing and determining the actual water level will show who in the house utilizes the most water and let's children be conscious of how much is actually being utilized. The family can also start a competition on who shower can be the fastest or shortest after the challenge is complete.

**Age Group:** 7 – 16 years old

#### **Supplies List:**

- Water Proof Ruler
- Shower/Bath Drain Plug
- Paper
- Pencil
- Approval from parents and siblings to capture and measure their bath/shower usage for three days
- Timer

#### Steps:

- 1. Utilize the table attached to record water usage from your family's shower/bath for three days
- 2. Determine the area of your bathtub or shower by measuring the length and width in inches. (Not the height just the length and width)
- 3. Time the shower or bath as soon as the faucet is turned on, and capture the water by ensuring to utilize the shower drain plug.
- 4. Measure the height of the water in the tub each time a person takes a shower/bath and record the results on the table
- 5. Do the math and determine the total volume of each shower/bath event

#### **RAW DATA TABLE**

| Family | Bath/Shower | Day 1  | Day 1 | Day 2  | Day 2 | Day 3  | Day 3 |
|--------|-------------|--------|-------|--------|-------|--------|-------|
| Member |             | Height | Time  | Height | Time  | Height | Time  |
|        |             |        |       |        |       |        |       |
|        |             |        |       |        |       |        |       |
|        |             |        |       |        |       |        |       |
|        |             |        |       |        |       |        |       |
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Calculate the Volume and Determine who utilizes the most water.

Length of Tub X Width of Tub X Recorded Height = Total Volume Utilized (in^3)

Total Volume Utilized (in^3) / 231 gallons/in^3 = Total Volume Utilized (gallons)

### Day 1 Results

| Family Member | Volume (in^3) | Volume (gallons) |  |
|---------------|---------------|------------------|--|
|               |               |                  |  |
|               |               |                  |  |
|               |               |                  |  |
|               |               |                  |  |
|               |               |                  |  |
|               |               |                  |  |
|               |               |                  |  |
|               |               |                  |  |

### Day 2 Results

| Family Member | Volume (in^3) | Volume (gallons) |  |
|---------------|---------------|------------------|--|
|               |               |                  |  |
|               |               |                  |  |
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|               |               |                  |  |
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|               |               |                  |  |



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## Day 3 Results

| Family Member                                                            | Volume (in^3) | Volume (gallons) |  |  |  |  |
|--------------------------------------------------------------------------|---------------|------------------|--|--|--|--|
|                                                                          |               |                  |  |  |  |  |
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|                                                                          |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
| Who used the most water per day?                                         |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
| Are baths or showers more water efficient                                | cient?        |                  |  |  |  |  |
| Are baths of showers more water emilient:                                |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
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|                                                                          |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
| How can you family cut back on water usage when taking baths or showers? |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |
|                                                                          |               |                  |  |  |  |  |