| <u>Dams</u>                   |   | Name:                          |                               |
|-------------------------------|---|--------------------------------|-------------------------------|
| Problem: _                    |   |                                |                               |
| <b>Key Words:</b> co          | ompression, dead load, live load, water pre   | ssure                          |                               |
| Hypothesis: _                 |   |                                |                               |
| Materials:                    | two 2-liter bottles (prepared)<br>Meter stick | water<br>strip of tape         | tray                          |
| Procedures:                   |   |                                |                               |
| 1. Watch the vio              | deo " <b>Dam Basics</b> "                     |                                |                               |
| 2. Why did the                | ancient Egyptians build the dam in a pyram    | nid shape as opposed to        | all and thin like a wall?     |
|                               |   |                                |                               |
| 3. What built-in              | safety measures are there in dams to prev     | ent the water from overfloor   | owing?                        |
|                               |   |                                |                               |
| <b>4.</b> Select the 2-water. | liter bottle with the straw. Place your finge | r firmly over the end of th    | e straw. Fill the bottle with |
| <b>5.</b> At the sink, s      | et up the 2-liter bottle and meter stick as s |                                |                               |
| 6. Predict the fa             | arthest distance the stream of water will tra | vel: "5 CAN 10 CAN 5 CAN 5 CAN |                               |
| 7. When you're                | ready to record your results, remove your     | finger from the straw. Wh      | en the water level inside     |

7. When you're ready to record your results, remove your finger from the straw. When the water level inside the bottle reaches the 20-cm mark, say, "Twenty." Your partner should record the distance at which the stream of water is hitting the meterstick. Repeat as the water level in the bottle reaches each mark.

|                | 20 cm | 15 cm | 10 cm | 5 cm |
|----------------|-------|-------|-------|------|
| Distance in cm |       |       |       |      |

| 8. At what level was the water pressure greatest?                          | How do your results affect how you              |
|--|---|
| would build a dam?   |   |
|  |   |
|  |   |
|  |   |
| 9. Clean up your area.   |   |
| <b>10.</b> Select the 2-liter bottle with the tape. Fill the bottle with w | rater and place it in your tub. Predict how the |
| water will flow out of the three holes.                                    |   |
|  |   |
|  |   |
| 11. Explain your prediction:   |   |
|  |   |
|  |   |
|  |   |
|  |   |
| 12. Hold the bottle with one hand and quickly pull off the tape            | Describe how the water flows from the holes     |
| 12. There the bettle with one hand and quietly pair on the tape            | . Describe now the water news from the flores   |
|  |   |
|  |   |
|  |   |
| 12 Why does the water flow differently from each hole?                     |   |
| <b>13.</b> Why does the water flow differently from each hole?             |   |
|  |   |
|  |   |
|  |   |
|  |   |
| <b>14.</b> Explain how water is considered a "live load"                   |   |
|  |   |
|  |   |
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|  |   |
|  |   |
|  |   |

**15.** Clean up your area. If you need help with the tub, **ASK!** Make sure to dry everything.