Name: _____ **Date:** _____

Running Water

Can you design a pipeline to move water during a drought?

This hands-on activity accompanies the article "Elephant Guardians" (pp. 4-7). Use it to be an engineer. Design a water pipeline to give people access to drinking water during a drought.

Observe: Wells can provide drinking water for people and animals during a drought. People build pipelines to carry water from the wells to farms or cities.

Define the Problem: Can you build a water pipeline that meets the following criteria?

1. It carries water from a larger, elevated tank to a smaller tank.
2. It is at least 100 cm long.
3. It doesn't leak.

Materials: 5-7 flexible drinking straws • 20-oz. paper cup • 8.5-oz. paper cup • craft sticks • masking tape • modeling clay • rubber bands • 250 ml water • paper towels • scissors • paper and pencil

Design a Solution:

1. Examine the cups. These are your water tanks. Then consider your building materials. Think about how you could move water from the larger tank to the smaller one. How will you elevate the larger tank? What materials will you use to build your pipeline? How will you prevent leaks?
2. Plan your design by drawing it on a piece of paper. Then build your model. Place the paper towels under your design.
3. Test your model by pouring water into your larger, elevated tank. Be prepared to clean up any water that leaks out.
4. Evaluate your design. Did the water move from the larger tank to the smaller tank? Did it leak? If so, how could you improve your design?
5. Modify your original design, then repeat steps 3 and 4.

Conclusions:

1. Did your pipeline meet the criteria? Why or why not?
2. What was the hardest part of building your pipeline?
3. If you were building a real pipeline to carry water from a well to a farm, what other problems might you encounter?

➜ **TAKE IT FURTHER: Design a pipeline to carry water from a main tank to two smaller tanks. Can you divide the water evenly between the two tanks?**