

## Experiment 1.1: Velocity is Relative

### Data

When my helper unplugged the hole, water streamed out of the hole and ended up on the ground.

When my helper dropped the cup, the cup fell to the ground, but no water came out of the hole.

### Summary

I used a pen to poke a hole in the bottom of a Styrofoam cup, near the center. I made sure the hole was as wide as the pen. I put a stepladder on the ground outside and made sure it was secure so that my helper could climb it. I had my helper fill the cup with water, plugging the hole so that no water leaked out. He then climbed the ladder while I watched. At the top of the ladder, he unplugged the hole. After I made my observation, he plugged the hole. Then, he dropped the cup, which led to my second observation.

### Conclusion

The water fell out of the cup when my helper unplugged the hole because he was holding the cup. Relative to the cup, then, the water moved. When he dropped the cup, both the cup and the water were moving. Relative to the cup, then, the water wasn't moving, which is why it didn't come out of the hole.