

# Moving Water Can Do Work

## Question

How can water do work?

## Materials

- 1 Round-barrel pencil, sharpened
- 2 Foam cups
- 30 cm Thread
- 1 Foam craft ball
- 4 Blades
- Scissors
- Glue
- Tape
- Water
- Paper clips
- Ruler

## Procedure, Part 1

1. Make a hole through the middle of the foam ball with the pencil as shown in Diagram 1. Slide the foam ball to the middle of the pencil. Place rings of glue on either side to secure the ball to the pencil.
2. Insert four blades into the foam ball at equal distances from each other, as shown in Diagram 2. Make sure that the blades are not too long to fit into the cup. Glue the blades into place and let dry.
3. Cut two small V-shaped grooves on opposite sides of the top of the cup as shown in Diagram 3.
4. Tie one end of a piece of thread to a paper clip. Tape the other end of the thread to the pencil as shown in Diagram 4.
5. Place the pencil into the grooves on the cup so the foam ball is in the center of the cup. Adjust and re-glue the blades so that they do not hit the edge of the cup.
6. When the glue on the blades is dry, place the water wheel system at the edge of a table so the one paper clip hangs off the table.
7. Get a second cup and fill it nearly full with water. Pour the water slowly and evenly onto the blades, as shown in Diagram 5 on the next page. What happens? Record your observations.

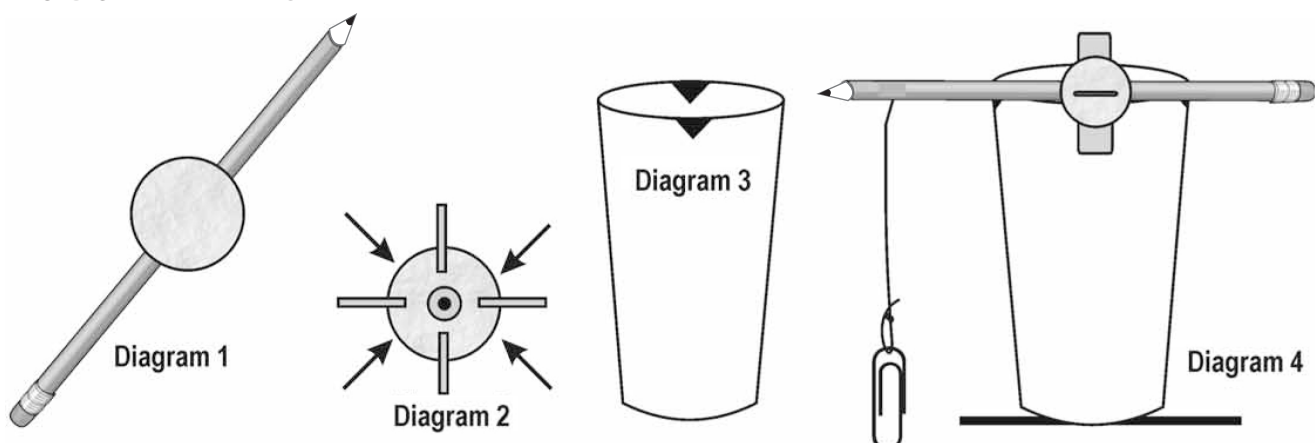
## Observations

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### 🔍 Question

How many paper clips can your water wheel lift?

### 💬 Hypothesis

Read the procedure. Write a hypothesis to answer the question.

If \_\_\_\_\_

then \_\_\_\_\_

because \_\_\_\_\_.

### ✔ Procedure, Part 2

1. Place four additional paper clips on the end of the string so there are a total of five paper clips.
2. Fill the second cup nearly full with water. Pour the water slowly and evenly onto the blades, as shown in Diagram 5.
3. Measure the distance the paper clips were lifted. Record the data in the table.
4. Pour the water you caught back into the pouring cup. Repeat the test two more times. Record the results and calculate the average distance.
5. Add five more paper clips to the end of the thread and repeat steps 2-4.
6. Continue testing your water wheel, adding five paper clips at a time until you cannot lift any more paper clips.

### 👁 Data and Observations

PAPER CLIPS	DISTANCE 1	DISTANCE 2	DISTANCE 3	AVERAGE DISTANCE
5				
10				
15				
20				
25				

### ✳ Conclusion

Explain what happened as more paper clips were added to the string.

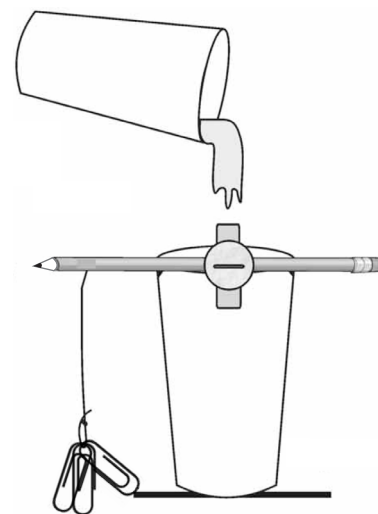


Diagram 5