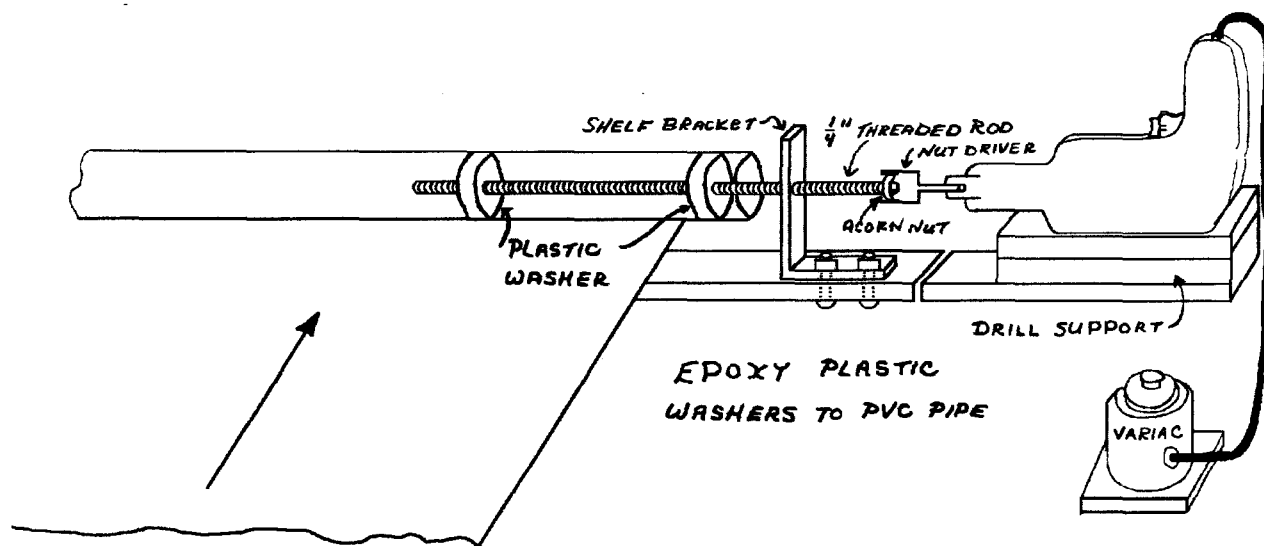


# THE PAPER RIVER INVESTIGATION

by  
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1. Use a stopwatch and a meter stick or the CBL with motion detector to determine the speed of Your STOMPER or other battery powered "boat". Make a sketch to show your set up. Briefly explain your procedure(s). Show all data and calculations for all steps.
2. Place a small object "in" the river, (NOT your lab partner) Determine the speed of the current.
3. Predict the ground speed when the boat is pointed:
  - a. directly **downstream**
  - b. directly **upstream** to the current.
4. Predict: the ground speed and direction that your boat travels when the boat is headed directly across the river.
5. Predict the direction that your boat must be headed if it is to travel directly across the river.
6. Predict:
  - a. the time it will take to cross the river if there is no current
  - b. the time it will take to cross the river when the boat is headed directly across the river (with current).
  - c. the time it will take to cross the river when the boat travels directly across the river.
7. Perform the activity in #3 to find the actual value of the ground speed in both cases.
8. Perform the activity in #4 to find the actual ground speed and direction that the boat travels.
9. Perform the activity in #5 to find the actual heading of the boat if it goes directly across the river.
10. Perform the activities in #6 to determine the actual times.



1-wood board 5" x 5"  
2-shelf brackets 2.5" x 2.5"  
4-bolts for brackets  
1-PVC pipe 1"-ID x 40"

2-1/4" threaded rod  
8-1/4" x 20 nuts  
4-plastic washers  
1-roll paper, 36" x 50'

1-acorn nut  
1-nut driver  
1-variatic  
1-drill