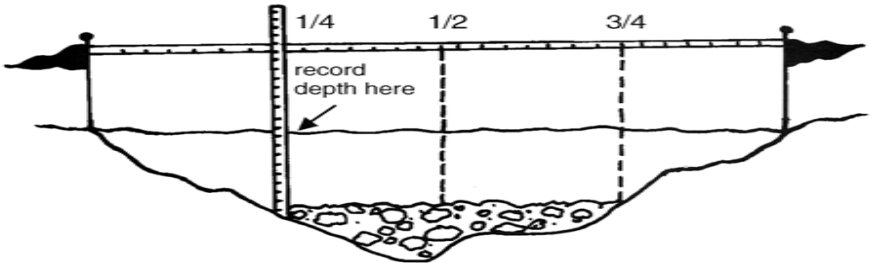
Stream Flow

Step 1 - Measure length of stream section

a. Choose a fairly straight section of stream.
b. Use the tape measure to measure a 50 foot section. Place flags at both ends (next to the water's edge).
c. Record the length stream section as "50 feet" in Step 1 of the Physical Data Collection Sheet.

Step 2 - Measure cross-section area

a. Measure width of stream section
   1. Stretch a tape across the stream between two flags.
   2. Record your width in Step 2a of the Data Collection Sheet <u>in inches</u>.
   3. Keep holding the tape measure between the two flags. You will need it for the next step.



b. Measure average depth of stream section
   1. With the tape measure strung between the two zero ft flags, have a third person move one-fourth of the way across the width of the stream. To find this distance divide your width by 4. For example, if your stream is 20 feet, you would move 5 feet across.
   2. At this one-quarter mark, *rest* your yard stick on the stream bottom (do not dig) and record the depth in Step 2b of the Physical Data Collection Sheet. Record depth in inches.
   3. Move the same distance out along your tape measure (you will now be one-half way across the stream).
   4. Record the second depth measurement in Step 2b.
   5. Record the depth at three-fourths of the way across the stream.
   6. Add the three depths and divide by three to get an average depth for your stream section.

c. Calculate cross-section area
   1. Multiply the width times the depth. You now have cross sectional area in square inches. Divide that value by 144 for cross sectional area in square feet.

Velocity

Step 3- Calculate average travel time – the time it takes an object to travel your 50 foot section

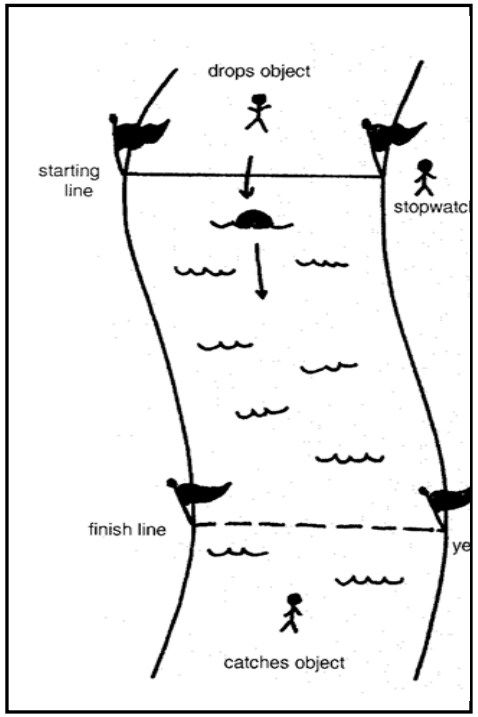
a. Drop a floating object (ping pong ball, orange or grapefruit) in the main channel upstream of your zero flag. Start the stopwatch when the object passes the zero flag (the "starting line").

b. Yell to stop the clock when the object passes the 50 ft flag (the "finish line").

c. Collect the object and record the time on the data sheet.

d. Repeat steps 1-3 two more times. Throw out any tests where the float gets stuck in rocks or debris.

e. Add all three travel times and divide by 3 to get an average. Record on data sheet.



Step 4- Calculate velocity

a. Divide stream section length by average travel time. This will give you velocity in feet per second (feet/sec).

Step 5- Calculate stream flow

a. Multiply the average cross-section area times the average velocity to determine stream flow for your section. Your flow will be in cubic feet per second.

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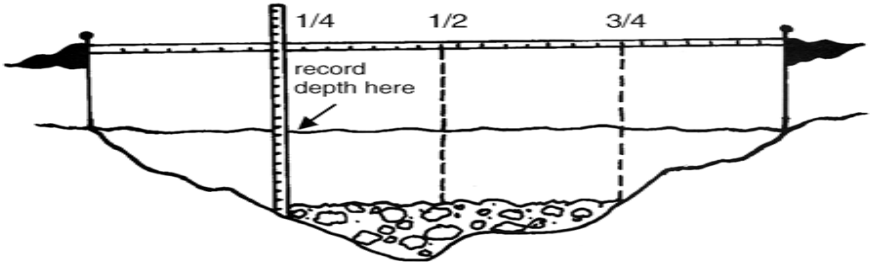

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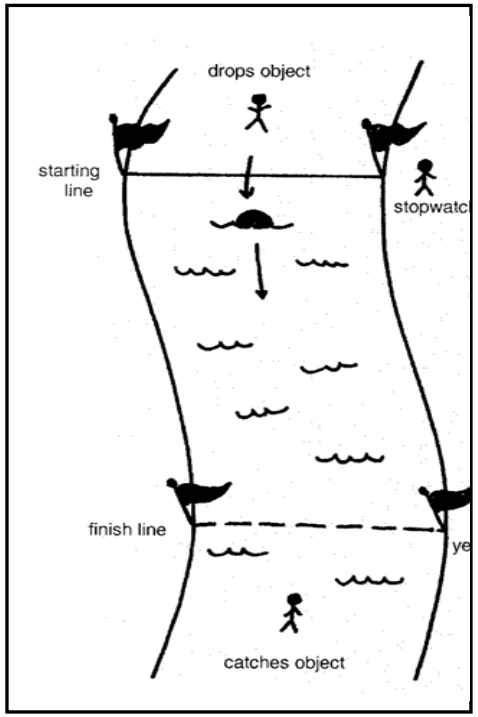

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