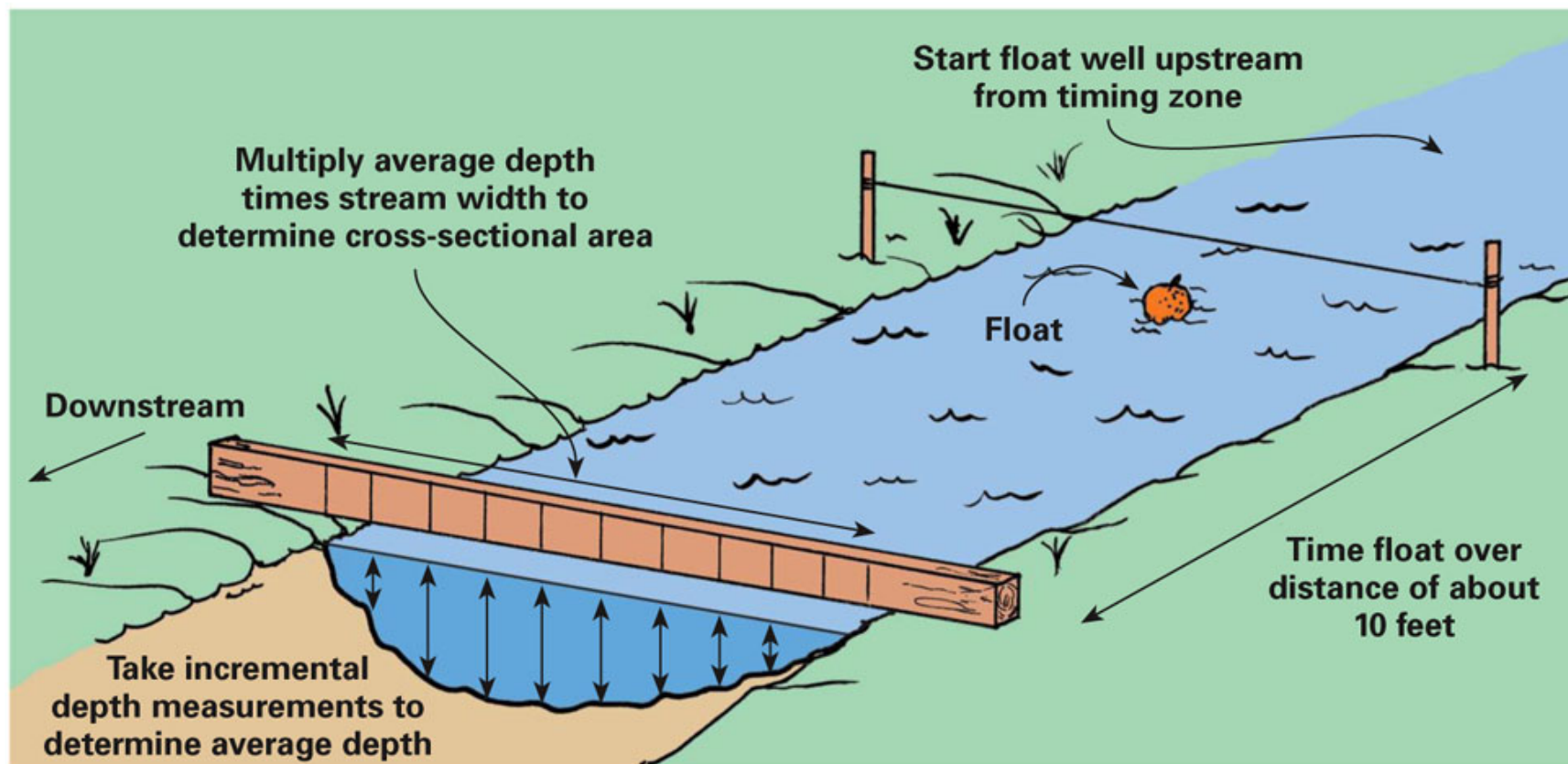




The Float Method of Estimating Flow



6. BUCKET METHOD

The Bucket method is a simple way to measure the flow rate using household items. It requires a stopwatch, a large bucket, and preferably two to three people. To measure the flow rate using the bucket method:

- Measure the volume of the bucket or container. Keep in mind that a typical 5 gallon bucket is often actually less than 5 gallons.
- Find a location along the stream that has a waterfall. If none can be found, a waterfall can be constructed using a weir (see Figure Four).
- With a stopwatch, time how long it takes the waterfall to fill the bucket with water. Start the stopwatch simultaneously with the start of the bucket being filled and stop the stopwatch when the bucket fills. The bucket should not be filled by holding it below the surface of the stream because it is not the true flow rate.
- Record the time it takes to fill the bucket.
- Repeat steps two and three about six or seven times and take the average. It is a good idea to do a few trial runs before recording any data so that one can get a feel for the timing and measurements required.
- Only eliminate data if major problems arise such as debris from the stream interfering with the flow.
- The flow rate is the volume of the bucket divided by the average time it took to fill the bucket.



In this method the Stream flow rate is determined by using the formula :

$$Q = \frac{V}{T}$$

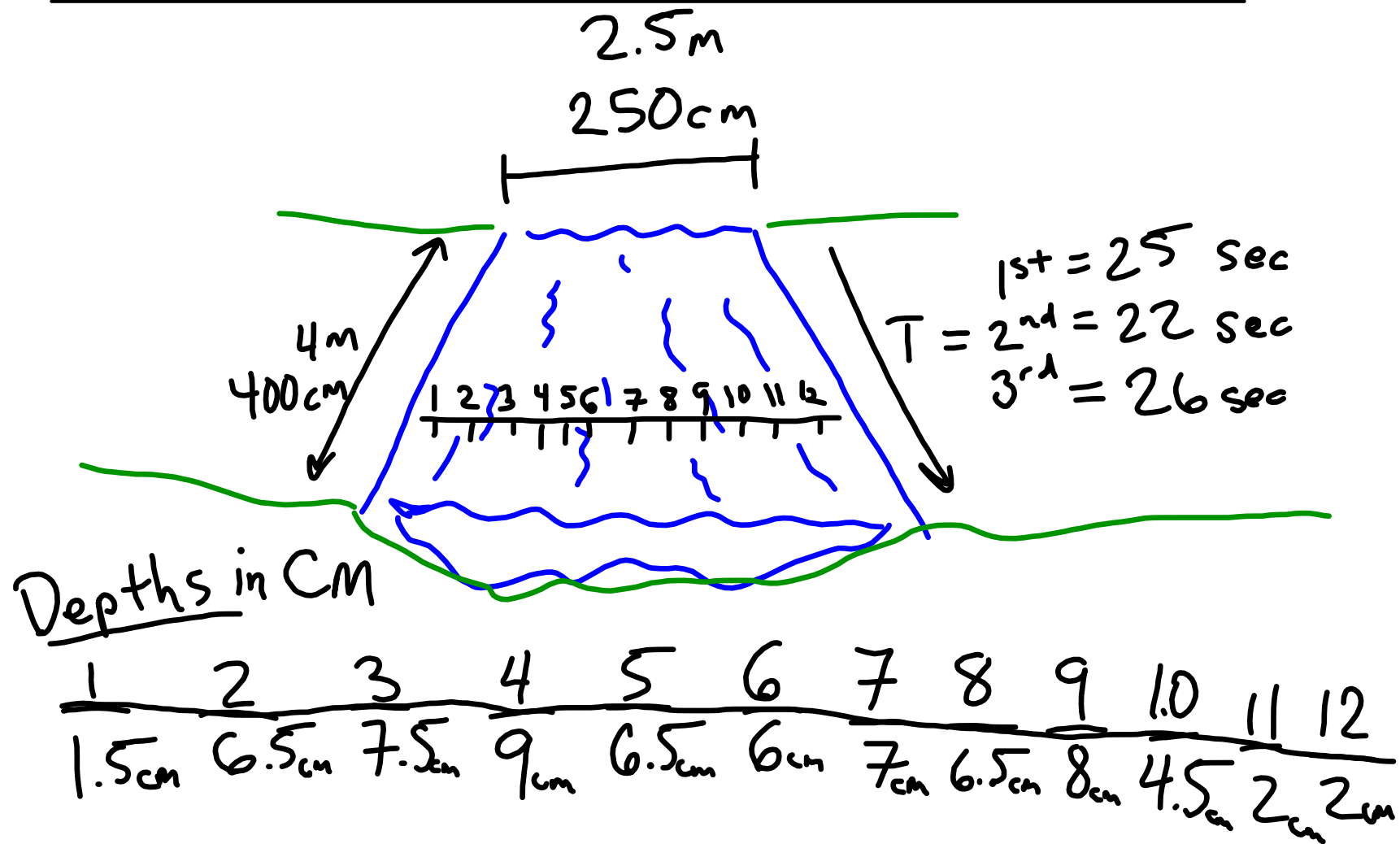
Where,

Q= Stream flow in cubic units per second

V= Volume filled in the bucket during the time

T= Time estimated for the bucket filling up to a certain level

American Fork River Flow Rate 4/22/15



To calculate the flow rate from the floating method. Use the data from the previous slide.

1. Find the Average Depth (in cm)

add all the depths and divide by the times measured (12)

2. Times the average depth by the width (keep it the same units ex. cm)

3. Using the formula for flow rate Calculate your answer.

Flow Rate = ALC/T

A = Area

L = Length of floating test

C = Friction Coefficient (rocky river bottom = 0.08, Sandy smooth river bottom = 0.09) This is because the top doesn't flow as slowly as the bottom, so we adjust it this way.

T = Time it took for the float device to go from point A to point B

Your answer should be _____ cm³/seconds.

