

Determine Discharge of Stream

http://www.ccge.org/resources/learning_centre/classroom_activities/stream_discharge.asp

Materials

- Ruler or meter stick
- Tape measure
- Watch with second hand or stopwatch
- Orange

The stream discharge defines the amount of water that passes a point in a given amount of time. Discharge, expressed as cubic feet/second is calculated as:

average width of channel in feet	X	average depth of channel in feet	X	velocity in feet/second	=	140 cu ft/sec
17½' wide	X	4.0' deep	X	2.0 feet/second		

1. Carefully measure the depth of the channel with a ruler or meter stick. One measurement should be enough as the stream is small. Be careful not to disturb any sediments on the bottom of the stream.

2. Carefully measure the width of the channel with a ruler or meter stick.

3. Calculate the velocity:

- One person (A) stands by the stream and does not move if the stream is large and all other measurements have been made you may need to stand in the stream. You are the dropper of the orange.
- A second person (B) measures a 10 foot to 100 foot length along the stream and marks the point. If the stream is small, stand on the bank by this point. If the stream is large, stand in the stream at this point. You are the catcher of the orange.
- A third person (C) is the timer of the orange.
- Person A (the dropper) drops the orange in the water and shouts 'start' or 'drop' or some other appropriate remark so Person C (the timer) can start the timing.
- When the orange reaches person B (the catcher) catch the orange and shout 'stop' so the timer can stop timing. If the orange does not reach you directly shout stop when it passes by you.
- Record the time it took for the orange to travel the distance and convert to feet per second for velocity. It is recommended to do this several times and take an average.

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