

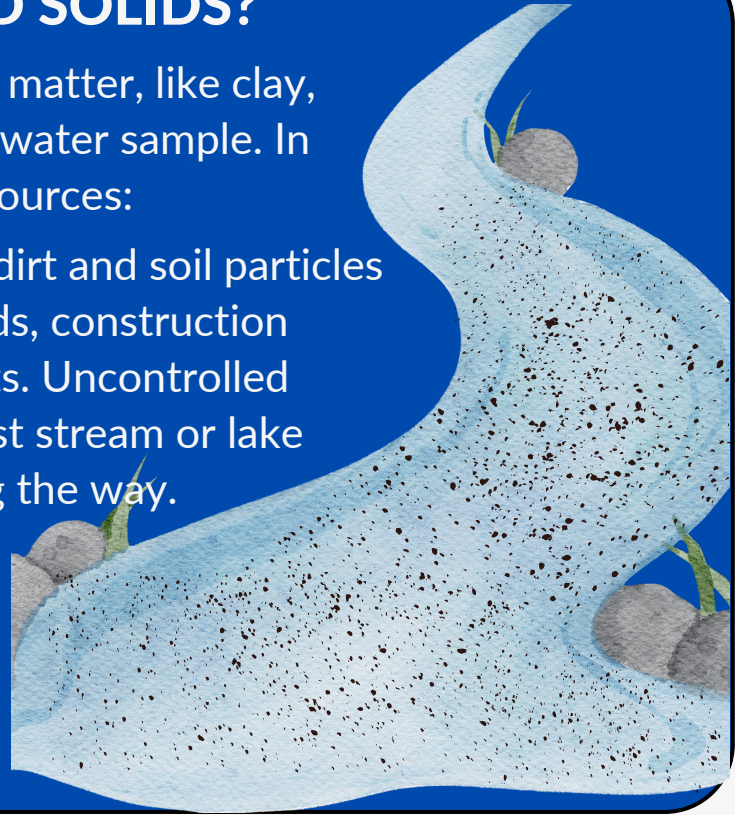
TOTAL SUSPENDED SOLIDS

WHAT ARE TOTAL SUSPENDED SOLIDS?

Suspended solids are fine particles of solid matter, like clay, dirt, or even some plankton, that float in a water sample. In streams, these can come from two major sources:

1. Runoff. Rain or snowmelt can pick up dirt and soil particles ("solids") from places like agricultural fields, construction sites, eroding stream banks, or city streets. Uncontrolled runoff carries these solids into the nearest stream or lake along with any chemicals picked up along the way.

2. Streams. Quick-flowing water scours the stream bottom, lifting mud, sand, pebbles, rocks and even small boulders and carrying them downstream.



WHY DO WE MEASURE TOTAL SUSPENDED SOLIDS?

Suspended solids, especially fine soil particles in runoff, pose threats to aquatic life. Lack of water clarity in itself can impact photosynthesis for aquatic plant life, which reduces the amount of oxygen in the water. Or, it can lower visibility for fish and diving birds (see our Turbidity Fact Sheet).

Fine particles suspended in the water can also clog gills, causing suffocation. As solids settle, they coat the stream bottom and can impair breathing and food-finding abilities of tiny bottom-dwelling organisms that fish depend on for food.

Finally, suspended solids absorb heat from the sun, raising the temperature of the surrounding water and causing thermal stress. Higher temperatures also mean that the water can hold less dissolved oxygen.

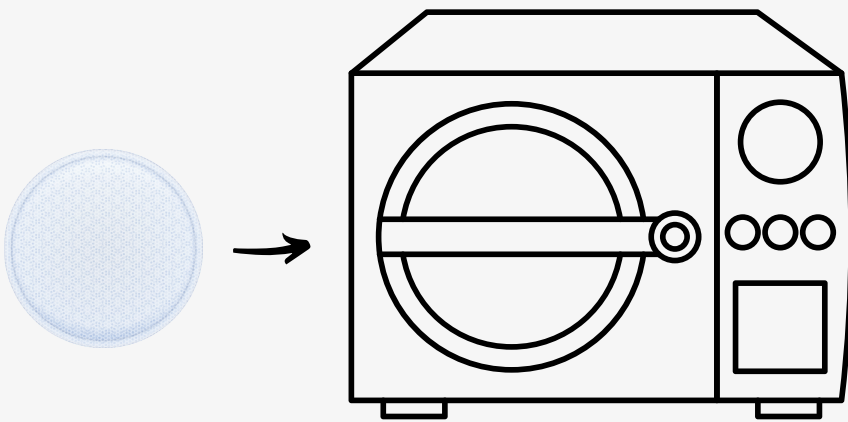
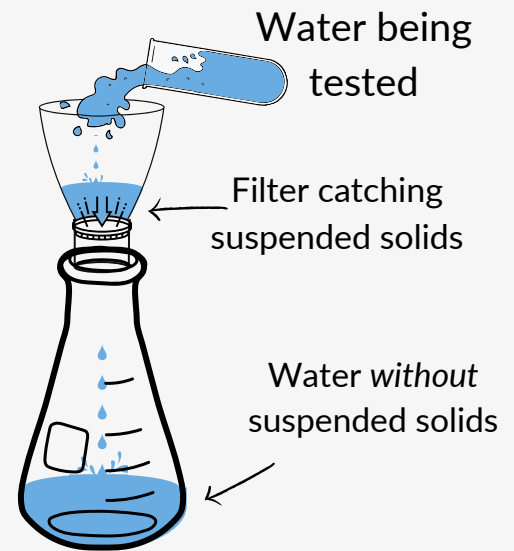


HOW DO WE MEASURE TOTAL SUSPENDED SOLIDS?

Suspended solids are measured by drying and weighing a filter, passing the water sample through the filter in order to trap suspended solids on it, then drying and weighing the filter again. The difference between the “before” and “after” weight of the filter gives the concentration of suspended solids.

First, the water sample is passed through a filter that has been dried and weighed.

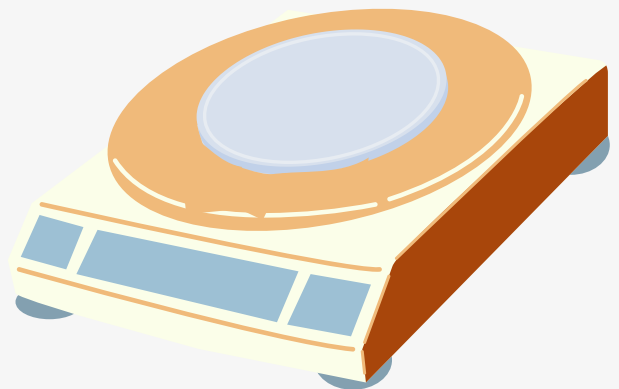
Drying and weighing the filter beforehand is important so that its weight is known *before* anything from our water sample has been added.



A drying oven, where the water weight is removed from the filter.

Then, the filter that caught the sample's suspended solids is dried. This is to get rid of the water weight – the solids, not the water, are the target of this test.

Finally, once the filter has dried, it is weighed again. CSI chemists calculate "total suspended solids" from the weight of the filter *after* the water sample has passed through it minus the weight of the filter beforehand.



Knowing the weight of the solids and the volume of the water sample allows them to calculate the *concentration* of solids.