The Super Sediment Swirl

Soil Sedimentation Test

Charley Schwartz, PE

(July 2014)

|  |  |
| --- | --- |
| Materials @ Each Soil Test Station | Shared Materials |
| * Water Jug w/ Lid (for each soil type)
* Funnel
 | * Pre-measured Soil Container
* Thin Stick (ex. Chopstick)
* Various soil types (clay, sand, etc.)
 |

Methodology

1. Fill Jug with clean water to marked line.
2. Fill Soil Container with selected soil to marked line (may need funnel).
3. Pour pre-measured soil into Jug using Funnel (if soil gets stuck in funnel use chopstick to poke soil through)
4. OBSERVE soil as it plunges into the water
5. Seal Jug with Lid.
6. Vigorously shake and then swirl jug to mix soil and water and create whirlpool inside jug (Have Fun w/ This!)
7. Put Jug down and let it rest
8. OBSERVE for several minutes
9. After top layer of fine particles have settled, gently twist bottle (OBSERVE particles resuspend)

Teaching Points:

How quickly does soil settle to the bottom for each different soil?

Why is there soil layering on the bottom for mixed soil samples (larger heavier particles - settle first)

What are some problems with sediment smothering the bottom of a stream/lake?

How long does it take to be able to see through the Jug?

What might be some problems with water being cloudy for aquatic life?

Notice how water column gets darker with depth in cloudy samples (influence on aquatic plants?)

Compare differences between results of Play Sand, Washed Sand, Top Soil & Clay (ex. Clay water stays cloudy longer).

Facilitator Note: Record the start time of the first clay sample on it’s jug & leave undisturbed for entire event!