Name_____ Period _____ Date _____

Scouring

STEM Sims

Lesson 4: Concrete Elite

Concrete is used in the construction of buildings and roads. It is a mixture of an aggregate, cement, and water. Cement is a powder, which is mixed with an aggregate like gravel, rock, or sand. With the addition of water, concrete is formed and dried to become a hard and strong material. Concrete is heavy, but how will it be affected by the current and the water? Investigate the bridge scour and find out.

Doing the Science

1. Start the Scouring Simulation by clicking on the "Sim" tab.
2. Click on the "Current" button. Clicking the left and right arrows will change the current speed. Click the "OK" button to select Speed 1.
3. Click on the "Build" button then click on the right arrow three times. Click the "OK" button for Concrete.
4. Click on "Inspect" to view the concrete level around the bridge. Click on the "*X*" button to close the inspection menu.
5. Click on "Run" to start the current.
6. Click on "Inspect" to view the concrete level around the bridge.
7. Draw the top view and the side view of the bridge base into Table 1 below. Click on the "*X*" button to exit the inspection menu.
8. Click on the "Reset" button.
9. Repeat steps 2-7 for the remaining five current speeds.

Table 1.

	Current Speed 1	**Current Speed 2**	**Current Speed 3**	**Current Speed 4**	**Current Speed 5**	**Current Speed 6**
Top View						
Side View						

Do You Understand?

1. How did the holes form around the base of the bridge? Was there a steady increase in the size of the hole from the slowest current (Current 1) to the fastest current (Current 6)?

2. How did concrete compare with the sand, pebbles, and rocks in terms of bridge scour?