Ms. Rizzo's STEM Class: A True Story

Ms. Rizzo's students really care about a real-life problem at their school, and they are working to solve it. New construction near the school is allowing large amounts of sediment to wash into a nearby stream. Students have studied the importance of watersheds so they can see how the sediment flowing from this stream into the nearby Dog River Watershed damages plant and animal life. They are working in teams to imagine and design models of barrier systems that might hold back the sediment.

Ms. Rizzo is keeping a sharp eye on her science students as each team tests its barrier system and gathers data. The job of the barriers is to slow down the rate at which sediment is flowing out of a model streambed (a piece of guttering), and some teams are having more luck than others. To test its barrier system, each team pours one liter of water down a streambed containing 15 oz. of sand. Team members then measure the amount of sand that washes past their barriers and flows into a model watershed (a bucket at the end of the streambed). One team member clocks the amount of time this takes. The team uses this data to calculate the sediment flow rate and decide whether to redesign their barriers to hold back more sediment.

Several teams discover that their barrier system does not work well. Ms. Rizzo walks around the room and reminds those teams that it's okay that their barrier systems didn't succeed at first. Failure is just a normal part of the finding a solution, and they can use what they learn to redesign their barriers and try again. She does not tell them how to do that, but she does ask a few questions to be sure they are on the right track.

By now a few teams are starting to realize that when they succeed and decrease the amount of sediment flowing into the watershed, they create a new problem. Now the sediment is backing up in their streambed. Uh oh! How can they solve this new problem?