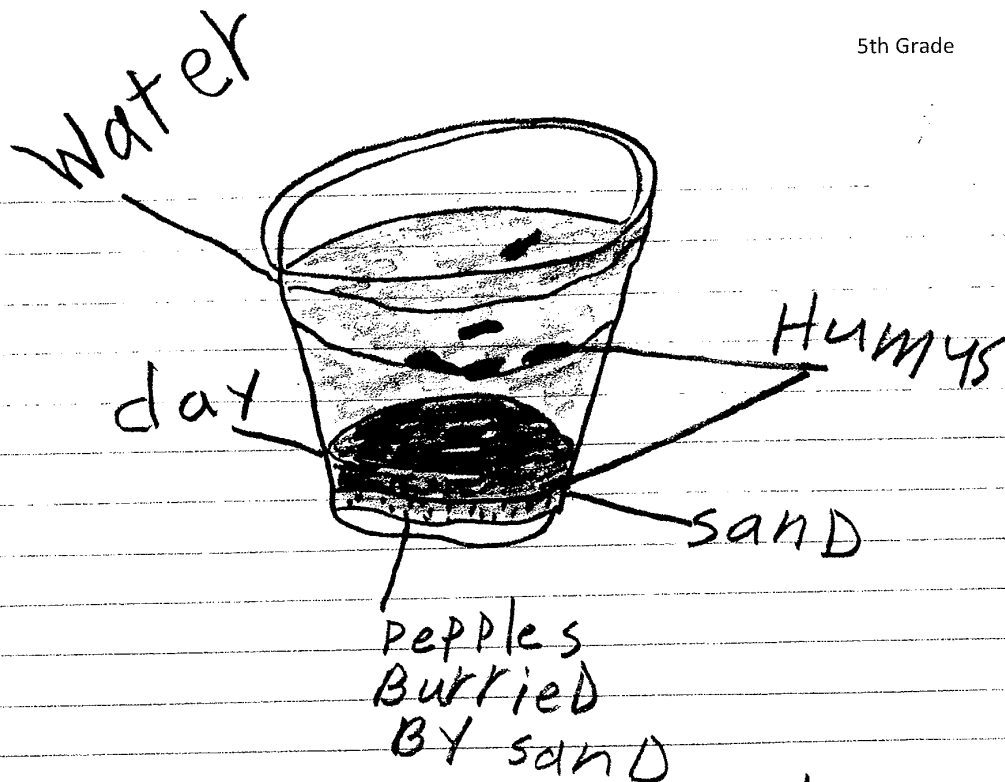


10/27/09

What is the effect of greater water flow on the amount of erosion and deposition? What is the evidence from your model that supports your thinking?

I predict that greater water flow will cause more erosion because when the water goes faster it takes more dirt which is called erosion.



the Humus settles
on the top of the
sand because it
is the lightest.
The sand is the
heaviest component
so that's why it's
always at the
bottom the Humus
is lightest component
that's why it BOBS
over the surface
Clay is the last to
sink because it is
a little lighter
than sand

3.1.10

Fair test

Question

What is the effect of wheel size on the distance a go-cart can travel?

Prediction

My prediction is that the larger wheel will travel further than the two smaller wheels. I think this because the circumference of the large wheel is longer than the other wheels so it will travel a longer distance. In fact, I think that the larger wheel will go about 1.5 times as far.

Fifth Grade, Sample A—*Land and Water* Unit: Nia

- Deconstructing focus questions with students during the engagement stage of the science session helps students learn to read questions carefully, then to use them in answering the questions. Typically, teachers using this science-writing approach have students circle the important words in a question (in this case, *effect*, *greater water flow*, *erosion*, and *deposition*). Then when students write about a question, they use the words to begin their answer and to organize what they say. Here, they would cross off *erosion* after they write about it, then cross off *deposition* after they address that.
- Nia’s prediction and reasoning indicate that she has a strong understanding of the relationship between greater water flow, speed of water flow, and erosion. Although she does not write about deposition, she probably understands the concept but does not go back to the question to be sure she has answered it completely. The circling and checking-off strategies help students completely answer a question.

Fifth Grade, Sample B—*Land and Water* Unit: Sigh McDonald

- To determine properties of humus, sand, and clay, students do a settling test in which they drop the three soil components separately into a cup of water. They make a scientific illustration to show their results, and then write a description of what happened with each component and the reason why they think the soil behaved as it did.
- This student accurately draws and labels what happened in the cup. In his description, he provides an observation and inference for each soil component, which many students forget to include.
- His inferences are relatively accurate, although clay particles generally are the smallest and have the least mass when compared with sand and many of the particles of humus. A scientist might ask, “What do you mean when you write ‘is a little lighter than sand’?”

Fifth Grade, Sample C—*Models and Designs* Unit: Julia L.

- In writing a prediction for the investigation, Julia includes an initial level of reasoning about the effect of circumference on the distance wheels can make a go-cart travel. She then adds another level of reasoning, perhaps based on her observations of the relative size of the smallest and the largest wheels. This is complex scientific thinking. Note that she writes “I think” rather than stating her idea as fact (“The larger wheel *will* go . . .”). This is an important skill for students to learn.
- Students know that they will be testing three wheel sizes, but when they write their predictions and conclusions, they focus on the largest and smallest of the three wheels and thus refer to them as the *larger* and *smaller* wheel.