

11/12/09 Conclusion

Greater water flow has various effects on erosion and deposition.

Greater water flow causes erosion. For example, the width of the stream channel became wider once the water flow increased. I know this because when we first ran the basic stream 8.2 cm wide, whereas when we ran the rushing river it was 15 cm. That's almost double. The rushing river also increased in depth. When we ran the basic stream it was 0 cm deep. When we ran the rushing river it was 3 cm deep.

The greater water flow also effected the deposition as well. The delta became wider and longer, yet became shallower the depth of the delta decreased by 4.5 cm. The delta also had a very round edge. There was a small ring that was about an inch thick, it was light beige color, bordering the delta. In the end part of the channel, where it met the delta, there were many peices of gravel lodged in the soil. The main part of the delta was a rusty orangish-brown. My group and I inferred that this was a mixture of clay and a little bit of sand.




In cunclusion, I think that greater water flow effects erosion and depo-

sition. I beleive that this is due to the fact that faster moving water has more force and is able to carry hevvier loads furthar distances.

I wonder what would happen if we just ran a stream over just hummus. Would the depostion and erosion be any different

2-7-05

What are the properties must objects have if they are to be Magnifies.

Sketch + label	predict: will it magnify	Test: does this obj. magnify?	observe: What are properties of obj?
 sphere	I think it will mag.	yes	transparent convex
 cylinder	I think it might magnify	yes, only on the convex	transparent, convex
 cube	I think it might magnify.	No	Transparent flat sides & face

To be used as magnifier the objects must be transparent and convex. I think this because we tested it. For example the cube didn't work because it had flat sides and 6 faces. However the sphere was transparent and convex. The cylinder worked, but only on the convex side. So two worked the sphere and the cylinder, but one didn't the cube.

3/1/10

The larger wheels goes further. And the larger wheel went 286 cm and the small wheel went 105 cm wheels distance. Therefore the larger the wheels went 181 cm more. Therefore the larger the wheel the longer the distance the go cart travel. At first I thought the smaller wheel would go further then I revised my thinking when I looked at my graph and saw that the larger wheel went further. Now I think that the larger goes further because it had a bigger rotation. My group test results were consistent with the class. Now I want to investigate what would happen if I put more rubber bands on the wheels.

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

- In this unit, students use a model of a stream system to see the effects of greater water flow on erosion and deposition. In the Basic Stream, they cause less water to flow down their model; in the Rushing River, they cause more water to flow. In their conclusion, they have to provide evidence from many different measurements they have taken as well as what they have observed.
- Emily begins her conclusion by providing a general answer to the investigative question “What is the effect of greater water flow on erosion and deposition?” Then she writes a paragraph to discuss erosion and a second paragraph to discuss deposition, which is a structure that her teacher has modeled.
- Emily begins to present her evidence about erosion by making a qualitative statement (the “channel became *wider* once the water flow *increased*”), then she supports the claim with quantitative data from both the Basic Stream and the Rushing River investigations. In one case, she calculates that one measurement is “almost double” the other.
- In her paragraph about deposition, she provides mostly qualitative comparisons and her observations. She does not include her quantitative data. (Checking off data from her data table as she includes the data in her conclusion could help her remember to include these results.) She appropriately identifies an inference that she and her partners make about which soil components are in the delta. She makes some strong observations about where she notices the different soil components (the gravel, clay, and sand).
- In her concluding paragraph, she repeats a generic answer to the question. In other words, she says that greater water flow has an effect but is not specific about what that effect is. Her inference for why there is an effect is sound. A scientist might ask what connection she sees between her idea that faster moving water carries heavier loads and what she reports in her paragraph about deposition. (She mentions seeing gravel, for example, but does not explicitly say that she thinks the gravel either was carried from upstream or has appeared because the lighter particles of sand and clay have been carried farther downstream.)
- On the whole, Emily has written a strong conclusion, especially given the complexity of the scientific thinking and writing that are involved. Because of her advanced thinking and writing skills, she is ready to learn how to write more explicit concluding statements. Often, students essentially repeat their introductory statement when they make the final concluding statement or statements, which is what Emily does here. Instead, she could write a more substantive and explicit concluding paragraph, such as: “In conclusion, I think that greater water flow causes more erosion at the beginning and middle of the stream table, which then leads to more deposition at the end of the stream table, which is the delta and mouth of the stream. I think this happens because . . .” She does a good job of explaining her thinking about the causes of the effects of the greater water flow.

Fifth Grade, Sample B—*Microworlds* Unit: Misty

- To support students in writing a conclusion to this investigation, the teacher provides the following directions: “Answer the question with words from the question. Provide reasoning for the answer after ‘I think this because . . .’ After ‘For example,’ explain each object’s properties and whether it is a magnifier.”
- Misty, a fourth grader who is doing a fifth-grade science unit, writes a strong conclusion, using words from the question to answer it fluently and accurately. She states that her tests are what provide her evidence for her thinking. Then she describes the properties of each object and why she thinks each one did or did not magnify.
- Misty’s next step is to write as if a scientist who is reading her conclusion has not been there for the testing. In that case, she would want to be more explicit, using the word *magnify* instead of *work*, for example. She uses the powerful word *however* to contrast the properties of the sphere and the cube. She also needs to state specifically that the sphere does magnify, then state her inference that it does so because it is transparent and convex.

Fifth Grade, Sample C—*Models and Designs* Unit: Kiddus

- In a class of students who receive services in special education, the teacher gives them a handout that helps everyone stay focused and provides scaffolding so that they can express their scientific thinking and write a scientific conclusion. Kiddus follows that handout.
- He begins his conclusion with an accurate statement that answers the question the students have been investigating. He supports his claim with quantitative data from both the large and small wheels. He also calculates the difference between the distances, then makes a reasonable generalization: “Therefore the larger the wheel the longer the distance the go cart travel.” Many students have trouble making this kind of statement.
- Kiddus understands now why the larger wheel goes farther than the smaller wheel (its larger circumference makes it travel a greater distance with one rotation than the smaller wheel does). Although the conclusion would be stronger if he contrasted the larger and smaller wheels in this way, his mind is focused on the large wheel. In his final sentence, he is thinking scientifically and could easily test the effect of putting more rubber bands on his go-cart.