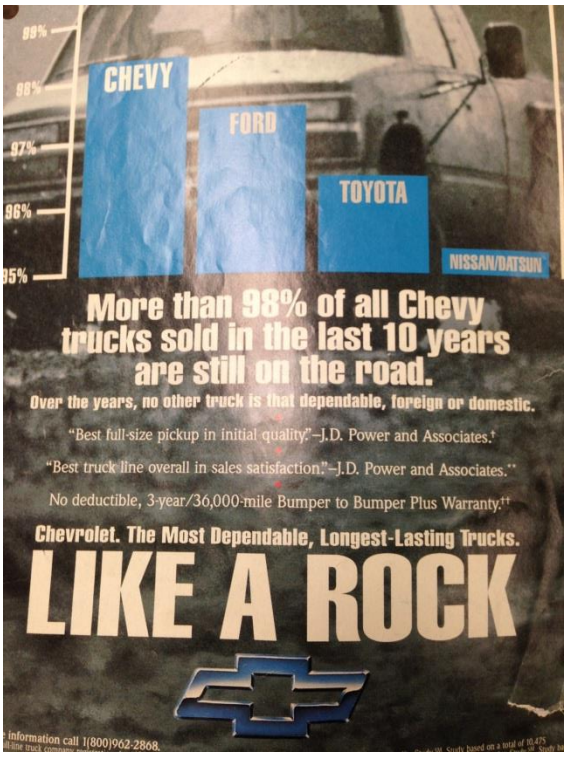
7th Grade Mathematics Students

Making Thinking Visible

The following are examples of methods utilized in 7th grade Math that represent students Making Thinking Visible. These are our interpretations of the strategies that we incorporated into our lessons. Each example includes a brief explanation of our interpretation and use of the strategies.

1. **See-Think-Wonder**

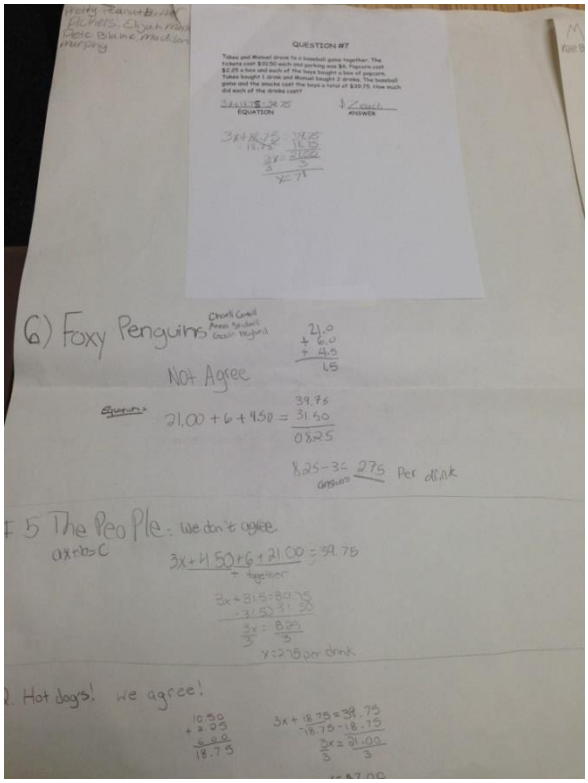


Students are given this image to ponder. Once they have had the chance to read over and observe the advertisement they are asked to explain what they see, what they think is going on and what it makes them wonder. Our objective is for students to see that this graph is misleading. After using the see-think-wonder method, students are able to tie misleading graphs to prior knowledge of graphs as well as see graphs with a more critical eye.

2. **Claim- Support- Question**

Students were given data to explore. They were to give a claim about the data with mathematical support. Afterward, they are asked to question how the data could be interpreted. Students were then given a second set of data and asked to make new claims with mathematical support. Questions where then discussed as a class.

3. **Chalk Talk**

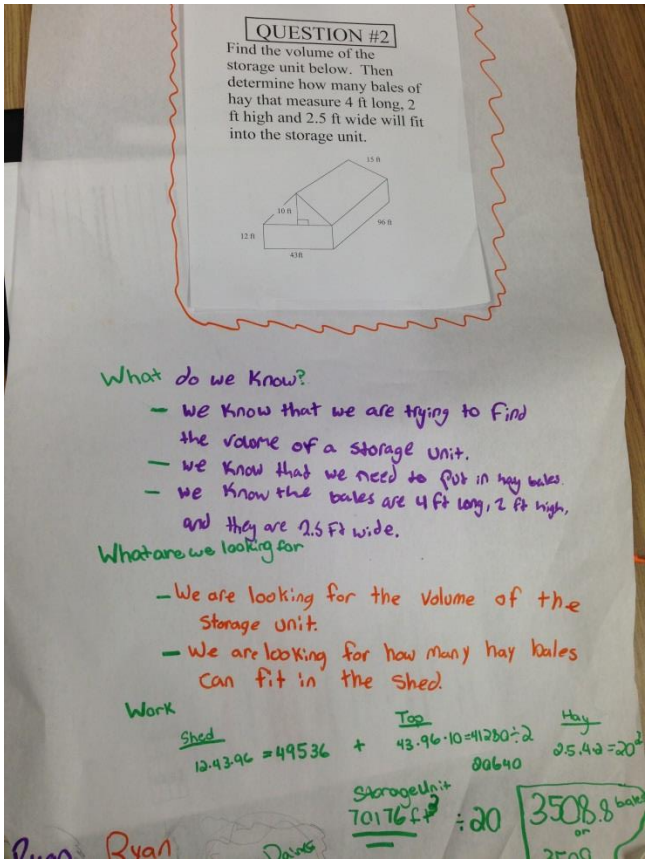


Students were given higher-level thinking mathematical questions to explore. They individually considered the problem and attempt a solution. Then, students work with group members to make connections and come up with a solution. Students then rotate around to consider a new problem using the same process. However, at each subsequent station, students make connections to prior groups through written responses. Here, the groups had to agree or disagree with the first group with written explaination and mathematical work.

4. **Generate- Sort-Connect-Elaborate**

This Generate-Sort-Connect-Elaborate strategy is a mathematical modification of the origian concept mapping type strategy. Although, concept maps using words applies to mathematics, this modification is much more. Students were given a real-world application problem to consider. With no instruction or facilitation, student groups were to generate ideas about the particular problem. Before moving forward, students had to sort these ideas to determine which would most effectively obtain the information and answer needed. Once students completed the first problem they had to connect their ideas to a second, different problem. This connection was both mathematically and with written explanations. Lastly, they were to elaborate on a more complex, third problem using what they deduced from the prior two. Throughout this activity, students had to continue to generate, sort and connect new ideas.

5. **Think, Puzzle, Explore**

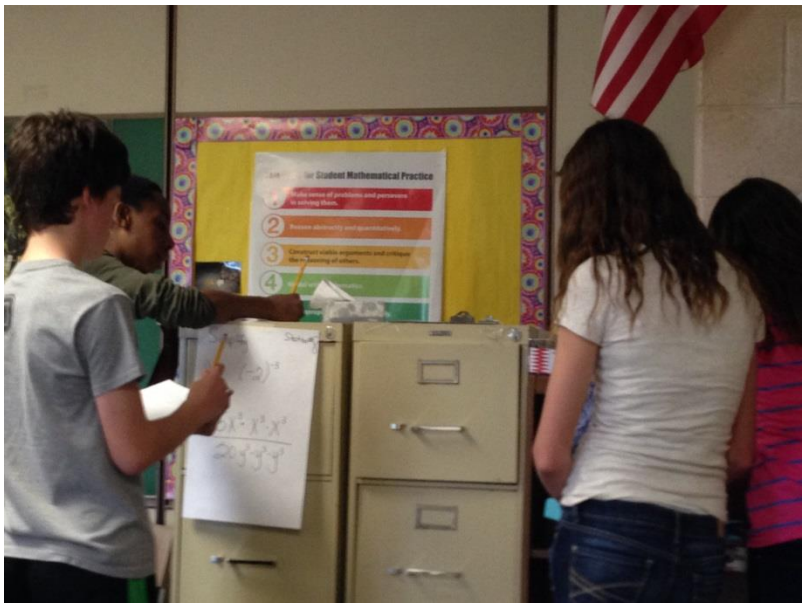


Students were given a real world multistep problem using prisms. In purposfully selected groups, they were to explain what they know about the topic/problem. This drew on prior knowlegde as well as information given in the problem. Studens were then to list the questions they had as well as the questions the problem was asking them to solve. Lastly, students were to discuss these questions and explore how to solve them.

6. **I used to think…Now I think**

Students reflect on their understaning of material almost daily through homework. This activity gets students more involved with their own learning and gain deeper understaning of material. This method was modeled for students for at least 3 weeks before becoming routine. After giving students the answers to check their own homework. They worked in groups to move their thinking forward. Each group would discuss answers that were incorrect on their homework to locate and correct errors. In groups they discuss how their thinking changed using “I used to think… Now I think…”.

7. **Gallery Walk**



Students walk around the room to differents stations to discuss mathematical concepts. This can be done with a variety of material such as accessing prior knowledge, gathering students thoughts on topics, evaluating mathematical work, etc. Students rotate to different stations set up around the room to engage in the mathematical concept. At each station students share their thoughts on the topic at hand. The small group size allows all students to make their thinking visible. Here students are evaluating the mathematical work of another person. They are discussing the technique used and whether it is an appropriate use of the concept.