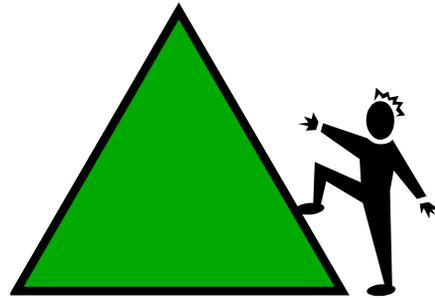


What is a Triangle?

The students had already taken this assessment and worked with triangles earlier in the year. The teacher felt that after their first conversation the students had a fairly good understanding about what a triangle was.

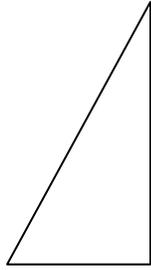
We were not sure if we needed to pursue our work with triangles or not so we gave our students the triangle assessment. Over half the class correctly identified all of the triangles. The remaining half looked pretty good. They missed only one or two. The most common error is that they didn't circle all the triangles. We didn't know if they just skipped it or didn't circle it because they didn't think it was a triangle. Only a few students circled shapes that were not triangles. At first we were only going to work with the students who had mistakes on their papers but then thought the students who did well might help the others make sense.

Look at the following sets of papers (we only included the papers of the students who had incorrect answers). What do you think they understand? What would be your next steps? What would you do instructionally?



What is a Triangle? - Class Discussion

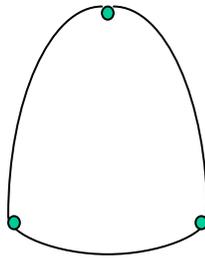
MV: Let's look at triangle 1. Is this a triangle?



(We did a thumbs up and thumbs down poll. There was a mixed response. Some thought it was a triangle while others did not.)

Rachel: It is a triangle because triangles have 3 sides.

Hanna: There are some shapes that have 3 sides that are not triangles. This has 3 sides and is not a triangle.

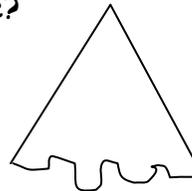


MV: Who agrees and who disagrees with Hanna? (Most of the class raises their hands; they disagree with Hanna.)

Rachel: If you straighten out the sides, it will be a triangle.

Class: (Argues) It is still a triangle, it can have straight or curved lines.

MV: What about this shape? Is it a triangle?



Breanna: It is not a triangle because it doesn't have 3 lines. The bottom is bumpy.

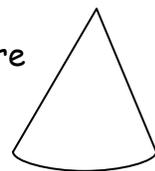
Class: It can't have a bumpy side. (1 person says you can and 3 are not sure.)

MV: What about this shape? Is this a triangle?

Griffin: No, it is not a triangle because a triangle has 3 sides that are straight and 3 points or vertices.

Breanna: (and a few others argue) It is a triangle.

Michelle: It is a triangle. It has 3 sides and 3 vertices.



MV: What about the sides?

Michelle: They can be curved lines.

Griffin: If it has curved lines, it isn't a triangle.

The class is struggling now. 6 students say it can have curved lines, 3 are saying no, and the rest of the class is suddenly undecided. Only Griffin feels strongly enough to stick with his definition.

Breanna: That is where I am confused.

Griffin: Those are not triangles.

Sophia: This one is not a triangle because there are extra points on the bottom. It has way more than 3 sides and vertices.

Madelyn: I am not sure but I think that the zigzag on the bottom is okay.

MV: If it is okay to have curvy lines, is this a triangle?

Hanna: Michelle said that it is okay to have curvy lines so it is a triangle.

Michelle: I think I disagree with myself because that does not look like a triangle. It looks all curvy and weird.

MV: So you are saying it can be a little bit curvy but not too curvy?

Cameron: I think it is a triangle because it has 3 vertices and 3 sides.

Michelle: I am confused. Maybe I agree and maybe I disagree.

Griffin: What if you drew something like this, is it a triangle?

Matthew: It has 3 sides and 3 vertices but it doesn't look like a triangle and the curves go all over.

MV: If you ignore the vertices?

Michelle: It looks like an oval.

MV: If someone walked into the room, would they look at the board and say that is a triangle?

Matthew: I am not sure.

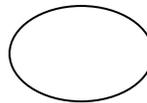
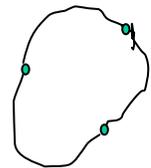
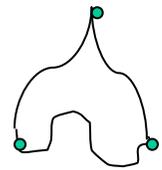
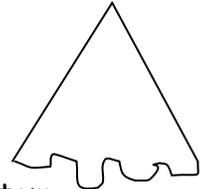
MV: What is a triangle?

Harrison: It has 3 sides and 3 vertices.

MV: How many sides does this shape have?

Class: None, it is a circle.

MV: So what is a side?



At the end of this conversation, only Griffin was willing to continue to argue that a triangle had to have 3 straight lines and 3 vertices. Many of the students thought you could have curvy lines but not too curvy. Even kids who correctly identified all the triangles on the pre-test got caught up in this mess of a conversation. Where do we go from here? Yikes!

Examine the following assessments.

Why do you think the teacher followed up with these two assessments? What do you think the teacher hoped to accomplish?