**Wilhelmina: Polygons and Non-Polygons**

Wilhelmina: A polygon is a group of line segments put together in a special way. For example some of the shapes below are polygons and some are not. So, the first part of your definition for polygons should be this: a polygon is a group of line segments put together in a special way. That’s the first part. We are going, together as a class; create the characteristics for a polygon that will help you more to understand them a little bit more. Remember what they are, okay? So if everybody will write down: a polygon – please write that definition down, and it’s written right in your book on page 8 at the top. Excuse me? It’s in No. 3. Okay. So here we have a group here of polygons and a group here of non-polygons. You have exactly 30 seconds to write as many characteristics as you can for a polygon and a non-polygon. So what makes these two different groups? This is one group polygons. What makes them polygons? What are some characteristics you can see, and what are some characteristics you can see on the non-polygons? So we’ll even say about a minute – so go! See if you can write down some characteristics. So for a polygon, how would you know it’s a polygon? And how would you know if something is a non-polygon? They’ve got characteristics; write them down.

Wilhelmina: Okay – stop. Okay. Some characteristics about polygon and some characteristics about non-polygon. Manuel?

Student: [inaudible].

Wilhelmina: Okay. So the lines always meet? Okay. Sarah?

Student: For the nonpolygons, there are like lines that are kind of circular.

Wilhelmina: So you have some – so they are circular? They’re not straight. Okay. Sarah?

Student: Polygons don’t intersect.

Wilhelmina: They don’t intersect. Good job. Okay. Anything else? Destiny?

Student: [inaudible]

Wilhelmina: Okay. So you’re saying that polygons aren’t curved? Okay. So then what are they created out of? They don’t curve. You’re correct. So let’s go one step; what does each one have? What are these?

Student: [inaudible].

Wilhelmina: Right. So what is this? What’s this right here? They are made up of line segments, correct? So line segments are straight. They’re straight. So, made up of line segments, okay? Justin?

Student: [inaudible]. Nonpolygons, they don’t connect.

Wilhelmina: They don’t connect. Okay, they don’t connect. What else? Zach?

Student: They…For the non-polygons, they, they never have lines or line segments.

Wilhelmina: Well, think, because what is this made up of? Line segments, correct? And this one?

Student: [inaudible].

Wilhelmina: Well, no. The problem with this one is that it what? What’s it doing right here? It crosses. But none on these sides will cross, right? So that’s where we have this that they don’t intersect; they’ll never intersect. Sarah?

Student: [inaudible].

Wilhelmina: Okay. There’s another thing about these; there’s something; there’s one more characteristics about these shapes versus these shapes over here. Cassandra?

Student: [inaudible].

Wilhelmina: What – it’s this one right here.

Student: That’s not a shape.

Wilhelmina: Exactly. Why?

Student: [inaudible].

Wilhelmina: Okay. Let me circle this one; this one; this one; and this one. What do they all have in common? They don’t connect. So they’re what? They’re just left what? They’re left open, okay? They’re just left open. But polygons are always what? Closed. So they’re always closed figures. So a polygon will always be a closed figure. Makes sense? Any questions? Write that down with polygons, ladies and gentlemen. Those are some very good characteristics. Because you need to remember that your polygons will never curve. So a circle cannot be a polygon.

Student: But a triangle can.

Wilhelmina: Yes, a triangle can. It’s a closed figure, right? So we have characteristics; we have lines always meet; they don’t intersect; made up of line segments; closed figures.

**[31:30-38:55]**

Student: So polygons are basically any shape, then?

Wilhelmina: Any shape as long as it is a closed figure; is made up of lines; straight line segment or line segments; and they don’t intersect. So like all of these can’t be polygons.

Student: So it always has to have a line segment? It can’t have, like, a line?

Wilhelmina: They’re all made up of line segments. Remember, a line goes on forever. And for it to be a closed figure, it has to have points.