Teacher: Okay, see what we're going to talk about today. Let's look over at out math target. It says, I'm able to classify triangles by sides or angles and determine whether they are one or more of the following: equilateral, scalene, isosceles, right, acute, or obtuse.

Before we start I'm going to pass out some triangles, so I need distribution managers to come get the triangles and pass them out to your table please.

Today's lesson will be all about triangles but I want to know, what you know already. I created this little chart, it's got a whole bunch of geometry vocabulary on it. What you're going to do is read the words and you're going to place each word into a category.

The categories are: this word is totally new to me. That's kind of like the 3, like when you give a you're like, "I don't know what you're talking about," that's where that would go.

This is, I've heard this word before but I don't know what it means. That would kind of be like a 3 minus, in between there. I know one definition, sorry, I know one definition or could use this word in a sentence, you'll put it here.

The last category is, I know many ways this word could be used, could explain it to another person and give examples and you'll stick the word here. You have a list of words here, you're going to put them in the different categories. I'm only going to give you about 5 minutes to do this because its [00:02:00] just to let "Teacher" know, what you know.

I'm going to call distribution managers again, you're going to pass this paper out and when they do, you need to work immediately on this. Are we clear? Once you get it, write you name, date and get started on it. Here it is, distribution managers.

(pause)

While you're doing that, I'm going to be doing some things on the board.

(pause)

This is not asking questions time. I want to know what you already know. It's now graded, so don't be panicking about if you get it right or wrong, it's not that type of thing. I just want to know what you already know.

(pause)

I'm going to set the timer just so "Teacher" doesn't lose track.

[00:04:00] (pause)

Good way to keep track is to check them [00:06:00] off

(pause)

Make sure you right every word in at least one category.

(pause)

Student: [inaudible 00:06:49]

Teacher: Is it the last one?

Student: Yeah.

Teacher: Just put an arrow and write it on the back. Will you put the title like you know that one, so I know. Whatever the title is, so I know what you're adding to.

(pause)

You've got like [00:08:00] 45 seconds left.

Have you written them all? This is all of these words, are down here? Check them off after you've written them down. You don't even know which ones you've written.

(pause)

Let me see.

(pause)

Okay, there's the timer. What I want you do is this, look at any words that you have left, that you have not written them down. If you have no idea of that word, please make sure it's on the list. Look at what you have left, I want to make sure any word that you don't know, if it's this word is totally new to me, it must be written down. Check through the words that are left and make sure that's the case, once that's done, give your paper to the distribution manager at your table, who will bring them to me.

(pause)

Maybe like 10 more seconds.

[00:10:00] (pause)

Okay, pencils down, please give your paper to the distribution manager.

(pause)

Distribution managers, you're going to bring me those papers and I'm going to trade you for some other paper.

(pause)

Okay, now we're ready to talk all about these triangles. Before we start let's review the word triangle.

Student:	Triangle.
Teacher:	Triangle has a prefix in it, what does it mean?
Students:	3.
Teacher:	3 what?
Students:	3 ...
Teacher:	Tell your table.
Students:	3 sides and 3 vortexes.
Teacher:	3 sides.
Student:	3 vortexes
Teacher:	3 vortexes and what else?
Students:	[inaudible 00:11:34]
Teacher:	What's the second part of it? ...
Students:	[inaudible 00:11:37]
Teacher:	... The word. Tri ...?
Students:	Tri ... Angles.
Teacher:	3 what? 3 sides ...
Students:	3 sides, 3 vertices ...
Teacher:	3 vertices and 3 ...?

Students: Angles.

Teacher: Got all 3?

Student 2:   Yeah.

Teacher: All right.

                 All right, who can tell me what the word triangle means? I need it nice and loud because I'm over here.

                 [00:11:57] can you tell me from way back there, like as [00:12:00] loud as you can.

Student: A triangle has 3 vertices.

Teacher: 3 vertices.

Student: 3 sides.

Teacher: 3 sides.

Student: And 3 angles.

Teacher: 3 angles. Give her a 2 clap snap, that is exactly right. Now we are going to learn about the more detailed ways to classify triangles. That is true, triangle looks like a triangle right? You know "Teacher" is the greatest artist of all time. (laughs) This triangle is beautiful. We can call triangles by different names. We can classify them. We can call it a right triangle. We can call it an acute triangle. We can call it an obtuse triangle. We can have an equilateral triangle, an isosceles triangle or a scalene triangle.

                 Now when I was saying these words, a lot of these words sound familiar. What in the world do you think a right triangle would be? Tell your table.

Students: [crosstalk 00:13:01]

Student: Its a triangle.

Teacher: With what?

Student: Its a right angle.

Teacher: There's a right angle in triangle you think?

Student: There's just another angle ... [inaudible 00:13:09]

Teacher: It has to have what kind of angle though?

Student: A right ... [inaudible 00:13:15]

Teacher: A right angle you think?

Student: A 90 degree angle.

Teacher: A 90 degree angle? Okay, good guess.

              What do yo think?

Student: It can be ...

Teacher: What do you think a right triangle is?

Student: It's a right angle but it's not a [inaudible 00:13:29]

Teacher: That's just a right angle, what's a right triangle?

Student: [inaudible 00:13:36]

Teacher: Good, it's just a guess you don't have to know yet.

              What do we think a right triangle is?

Students: It has at least 1 right angle.

Teacher: Okay, what do you think a right triangle is?

Student: A triangle that has a 90 degree angle.

Teacher: All right, [00:14:00] give me 5.

              I heard a couple definitions for right triangle or alleged definitions. When we see the word "right" what do we automatically think? Raise your hand.

Student: 90 degrees.

Teacher: 90 degrees. What?

Student: 90 degrees.

Teacher: 90 degrees. What's an easy way to draw 90 degrees? Think about what?

Student: Protractor.

Teacher: You could use a protractor, what else could you do?

Student: An L

Teacher: An L. What else could I do?

Student: Just right 90 (pause) degrees.

Teacher: 90 degrees. Is that a 90 degree angle?

Students: No.

Teacher: No. (chuckles)

                We are going to start with an L. "Teacher" is going to ... We're going to make sure that
                we know that this is a perfect 90 degree angle. What can I do to make sure you know
                this is 90 degrees?

Students: Put a little ...

Teacher: Put a little (pause) square there. If the triangle has a "right angle" in it, what do we call
                it? A right ...

Students: A right angle.

Teacher: A right what?

Students: A right triangle.

Teacher: Right. This is a right triangle, okay? Easy right? So far?

                What do you think an acute triangle is? Tell your table.

Student: 30 degrees or less.

Student: Less than 90 degrees.

Teacher: What, what's less than 90 degrees? One of the angles?

Student: A acute triangle is less than 90 ...

Teacher: So if it's an acute triangle what does that mean?

Student: [crosstalk 00:15:27]

Teacher: It has an angle ...

Student: It has a smaller angle that is less than 90 degrees.

Teacher: Okay, what do you think an acute ... What's an acute triangle?

Student: Not like when there's is a [inaudible 00:15:43] and then there is a small angle at the end.

Teacher: Okay but its acute triangle? It has to be in a what shape? What polygon?

Students: Triangle.

Teacher: Okay. All right so I am going to erase this. What's an acute triangle? Someone [00:16:00] else, tell me what an acute triangle is. [Taya 00:16:06].

Student: Less than 90 degrees.

Teacher: Less than 90 degrees, that's not even a complete sentence. I don't know what that means. It's a triangle, what?

Student: It's a triangle that's less than 90 degrees.

Teacher: The triangle is less than 90 degrees?

Student: The right angle

Student: The acute angle.

Teacher: Who can help them out? Lilly.

Student: It's a triangle with at least one angle that's less than 90 degrees.

Teacher: Perfect, 2 claps snap. Lots of triangles that we draw (pause) are acute triangles. See this. Do you agree that this angle is less than 90 degrees?

Students: Yes.

Teacher: And this angle is than less 90 degrees?

Students: Yes.

Teacher: And this angle is less than 90 degrees?

Students: Yes.

Teacher: What do we call them? Who in our class is acute?

Students: "student".

Teacher: "student" (laughs) is acute. Last but not least, what is an obtuse triangle? Tell your table.

Students: [inaudible 00:17:00]

Teacher: Oh, did you? Isn't that gravy[inaudible 00:17:09]

                 All right give me 5. Give me 5. What in the world is an obtuse triangle, [Milan 00:17:21]?

Student: A triangle that at least one angle more than 90 degrees.

Teacher: Absolutely. A triangle that has at least one angle (pause) that is more than 90 degrees. Hence an obtuse triangle. Now what you're going to do right now is, you know that fancy piece of paper that's got triangles on it?

Students: Yes.

Teacher: Find one that's a right triangle and write on it, actually write on it. Write on it, "right." Find one that's acute, write on it, "acute." Find one that's an obtuse triangle, write on it, "obtuse." I only want you to write on 3 triangles. There's more than one of [00:18:00] each.

                 (pause)

                 Right triangle, it's not a right angle.

                 (pause)

                 Where's the right angle in this one?

Student 2:   [inaudible 00:18:23] this one. I had an extra ...

Teacher: Oh yeah, crazy.

                 (pause)

                 Once you find all 3, help your table. Only write on 3, I told you to write on 3 on purpose.

                 (pause)

                 If somebody is struggling to find, help them out.

                 (pause)

                 Got to find what? An obtuse one?

Student: Right there [inaudible 00:19:01]

Teacher: Is that a right angle?

Student: [crosstalk 00:19:08]

Teacher: Remember you have a tool to help you. You have something called a what?

Students: Protractor.

Teacher: Protractor. There should be no guessing. You can prove it with that tool. You can say "Teacher" I know that this is a right triangle because if I measure this angle, I have a 90 degree angle.

                  (pause)

                  What if you measure this one? This angle.

Student: This is 90.

Teacher: Look at this one. What's that?

Student: 180.

Student: And 140.

Teacher: Its more than, yeah? So what [00:20:00] kind of triangle is that [Solomon 00:20:00]?

Student: Obtuse.

Student: Its obtuse.

Teacher: There you go. All right raise your hand if you have not labelled 3 angles. Okay, find somebody at your table that has and say, "can you help me please?"

                  (pause)

                  You guys got all 3?

Students: Yep.

Teacher: Table 5 you got all 3?

Student: Wait, oh no, "student" doesn't.

Teacher: Table 5, oh. Table 4 do you have all 3?

Student: No we have [inaudible 00:20:32]

Teacher: Okay, you got like (pause) 15 seconds.

(pause)

That's not how you help.

Student: I know.

Teacher: Okay, which one are you looking for?

Student: Obtuse.

Teacher: Obtuse? She's looking for a right. She said this one is acute.

Student: How ... Why do you think that's an acute?

Student: Is it less than 90 degrees?

Student: Measure it again.

Teacher: You don't guess, use your protractor.

Student: Its right on 90 degrees.

Teacher: So what kind of angle? I mean, what kind of triangle is that?

Student: It's a right angle.

Teacher: Okay, fix it.

Okay, give me 5. We can classify ... I don't ... Said give me 5. I don't have eyes on me. Don't have eyes. Still waiting for eye balls. Still don't have one person's eye balls. Thank you.

All right so we can classify triangles by their angle or we can classify angles by their sides. Let's take a look at this word. Let me hear you say equilateral.

Students: Equilateral

Teacher: Say it again.

Students: Equilateral.

Teacher: Take it up.

Students: Equilateral (high pitch voices)

Teacher: Take it down.

Students: Equilateral (low pitch voices)

Teacher: What in the world, when you see these letters, "E, Q, U." If I'm classifying the angle by the sides an I have [00:22:00] this "equi," going on, what in the world could that possibly mean, if I'm talking about the sides. Tell your table.

Student: Equal.

Teacher: Equal what?

Student: Sides.

Teacher: That's all triangles.

Student: 4 sides.

Teacher: A triangle has 4 sides?

Student: No[inaudible 00:22:24]

Student: [inaudible 00:22:25]

Teacher: All triangles have 3 sides. What would make an equilateral triangle?

Student: One that has all the same angles?

Student: Wait, no that wouldn't work it would just be a line.

Teacher: Anybody have any ideas? Raise your hand if you have an idea. We're just going to listen to ideas. I'm not going to say right or wrongs, I'm going to keep my face really straight. [00:22:50], what you got?

Student: I think an equal triangle is ...

Teacher: Equilateral triangle. Let me hear you say it.

Student: Equilateral triangle is ... It has equal sides, vertex and angles.

Teacher: Equal sides, vertex and angles. What do you think?

Student: Same thing.

Teacher: Same thing. "student"?

Student: I think an equilateral triangle is a triangle with 3 equal sides.

Teacher: 3 equal sides. "student"?

Student: I think it's a triangle with 3 equal sides.

Student 2:   Same thing.

Teacher: Same thing, 3 equal sides. "Teacher's" going to actually have to use a ruler for this one. We're just going to pretend that I'm drawing this perfectly because I'm the best artist ever.

Student: [crosstalk 00:23:41]

Student: Do you take classes from "Teacher-other". [00:23:46]

Teacher: You know it [inaudible 00:23:48], you're hilarious.

                (pause)

                [00:24:00] Okay, so an equilateral triangle, has equal sides and in math we use symbols to represent that especially if its somebody like Ms. "Teacher", trying to draw something perfectly. I'm not that great at it, so you put a hash mark in each side and that means that the length of the sides are identical.

                If I were to put a mark like this, this is telling you that this sides length is different than these sides. Are we clear? That's the first thing with equilateral triangles. Equilateral triangles have equal sides and they have equal angles. In math if we want to show that an angle is different, we would use an additional line. That would tell me that this angle measure is different than these 2 angle measures.

                Give me a number if you understand what I just said. (pause) You can give me a 1 or a 2, its okay. I need to know. Okay. An equilateral triangle has equal sides and equal what?

Students: Angles.

Teacher: Now we have isosceles and I want you to look. Let me hear you say isosceles.

Students: Isosceles.

Teacher: Say it again.

Students: Isosceles.

Teacher: One more time.

Students: Isosceles.

Teacher: Take it up.

Students: Isosceles. (high pitch voice)

Teacher: Bring it down.

Students: Isosceles. (low pitch voice)

Teacher: I'm going to draw an isosceles triangle and I want you to use my picture and see if you can figure out (pause) what in the world an isosceles triangle is. This is now an isosceles triangle. What do you think that means. Tell your table.

                Well are all 3 sides equal?

Students: [00:26:00] No.

Teacher: How many?

Students: 2

Teacher: 2.

Students: Which are the 2 sides?

Teacher: 2 sides are ... (pause)

                Equal and 2 angles are what? Look.

Student: Equal.

Teacher: 2 angles are equal. An isosceles triangle, how would we define that?

Student: 4 angles are equal.

Teacher: 4, in a triangle?

Student: Oh, 2.

Teacher: 2 what?

Students: Angles. 2 angles are equal.

Teacher: And 2 ...

Students: And 2 sides are equal.

Teacher: Don't forget, let's see. What do we think over here?

Student: [inaudible 00:26:33]

Teacher: Let's look at the picture.

Student: From here, 2 sides are equal.

Teacher: 2 sides are equal, what about the angles?

Student: 2 sides aren't.

Student: They're all equal.

Teacher: Do I have 3 lines?

Student: No.

Teacher: How many sides are equal?

Student: Only 2, the bottom is ...

Teacher: A different ...

Student: A little short.

Teacher: Possibly, we don't know unless we actually measured it right? All right, anybody think they know what an isosceles triangle means. You're going to learn all this in a mini quiz this is just "Teacher" giving you a little small lesson on it.

                [00:27:12]

Student: [inaudible 00:27:14]

Teacher: 2 equal sides and what else? 2 equal what? Can't hear you.

Student: Angles.

Teacher: 2 equal sides and 2 equal ...

Students: Angles.

Teacher: Angles. Last we have this last triangle called scalene. Can I hear you say scalene.

Students: Scalene.

Teacher: Take it up.

Students: Scalene. (high pitch voice)

Teacher: Bring it down.

Students: Scalene (low pitch voice)

Teacher: Now scalene are all their own character okay?

Students: (laughter)

Teacher: Scalene follows no rules.

Student: It's not a triangle.

Teacher: What do you think a scalene triangle is?

Student: It is something that has no equal sides. At all.

Teacher: [00:28:00] No equal sides and no what?

Students: Angles. [inaudible 00:28:03]

Student: [inaudible 00:28:09]

Teacher: In a minute you're going to write on it. Okay, give me 5. What's a scalene triangle, that's the easiest one.

Student: No equal sides.

Teacher: No equal sides and no equal what?

Students: Angles.

Teacher: Angles. Yeah, "Teacher" calls it the crazy triangle.

Student: It looks like a cat [inaudible 00:28:25]

Teacher: Crazy triangle just means it's all different sides all different angles. Now take your triangle sheet. You need to find 1 equilateral, 1 isosceles and 1 scalene triangle and label it. You're going to need to use your tool, you're going to need to use the ruler on your tool because we are classifying by sides. Please do so now.

                (pause)

	We're not guessing, which 1 is equilateral?
Student:	That one.
Teacher:	How do you know? Prove it to me. Yeah, yeah prove it to me.
	(pause)
Student:	[inaudible 00:29:39]
Teacher:	Which 1 is scalene? Did you check it? Measure it, don't guess, measure the sides.
	With the ruler. The length honey. How long is this side? 8
Student:	[00:30:00] [inaudible 00:30:00]
Teacher:	Okay. How long is this side? 8 centimeters, how long is this side?
Student:	6
Teacher:	So it has 8, 8 and a 6. It's got 2 equal sides, which 1 is that?
Student:	Isosceles.
Teacher:	Write what you need to write on there. Okay, you got like, oh I don't know, 30 seconds.
	(pause)
	Did you measure? Which sides are equal? What's the measure of those sides?
Student:	6
Teacher:	6 what?
Student:	Centimeters.
Teacher:	You got to put that there, the 0 is here honey. So 6 what?
Student:	Centimeters.
Teacher:	All right, what's the other 6 centimeters side? Is that 2 equal sides? Prove it to me by measuring not by guessing. If someone is stuck at your table you can help them out.
	(pause)
	We're not guessing, use your tool.

Student: I thought [inaudible 00:31:37]

Teacher: You don't have the tool? You need the tool? Okay.

                Can I go in this closet really quick.

Camera man: Of course, of course.

Teacher: Sorry.

Camera man: It's okay.

Teacher: [00:32:00] You need 2 [00:32:03] All right now, this was just a little brief mini lesson for Ms. "Teacher", now you're going to do some work on your own. Take a look at the web address at the top, the googly. Do you see the googly?

Students: Yes.

Teacher: What do you think you need to do with that googly?

Students: Type it in.

Teacher: Please do so. (pause)

                I think this is a lower case "L" but it might be a 1, so try the "L," if not try the 1. (pause)

                I should see no other tabs open on your chrome books, a self-directed learner would be logging in, typing in the web address. (pause)

Student: Is that a capital "Z"?

Teacher: Yes its a capital "Z" at the end.

Student: Is that a capital "P."

Teacher: Yes that's a capital "P." (pause) I'm just not sure if this is an "L" or a 1.

Student: Its an "L."

Teacher: Its a what?

Student: "L."

Teacher: Okay, its a lower case "L." (pause)

Student: Its hurting my eyes.

Teacher: You're getting dizzy?

Student: Its hurting my eyes Ms. "Teacher".

Teacher: (laughs)

Student: [inaudible 00:33:41]

Teacher: Okay, just wait it will come up. (laughs) I didn't mean to cause anybody to go blind. I just thought it was a cool triangle picture.

                [00:34:00] Don't start yet please, go back.

                Okay if you're following instructions you will be looking at a page that has some crazy triangles and it says "classifying triangles" on the first screen. I'm waiting till everyone's logged in. Do not start until everyone is logged in and I give you the information.

                Its a capital "P."

Student: [inaudible 00:34:21]

Teacher: There you go.

Student: Is that a capital "Z?"

Teacher: Yes that's a capital "Z." (pause)

Student: I tried the capital "Z."

Teacher: Capital "P."

Student: Oh, that's why. Okay, I think I got it.

Teacher: Okay. Are you up? Open that, cut that out. Okay, I'm waiting on just 2 more. (pause)

                Good.

                Raise your hand if you are not in yet. (pause)

Student: [inaudible 00:35:18]

Teacher: Capital "P" first of all.

Student: [inaudible 00:35:23]

Teacher: (laughs) Is it really hurting your eyes? Okay, "Teacher" will change it next time, sorry.

Student: [inaudible 00:35:29]

Teacher: Shh. Okay, please plug in your head phones. (pause)

                Be sure you share everything [00:36:00] with me as Can Comment, it's in the procedure,
                you will see that because I will be back here typing on your work, like I always do
                because that's how I roll.

Student: [inaudible 00:36:11]

Student: [inaudible 00:36:12]

Teacher: Put your head phones in. We should not be talking. Now you will find this web quest has
                games, has videos and at the end we have a kahoot. We can only play the kahoot if 100
                percent of my students have completed the 3 column notes. Are you in?

Student: [inaudible 00:36:33]

Teacher: Okay.

Student: [inaudible 00:36:40] (pause)

Teacher: There you go. Okay please begin. (pause)

                I'm going to be moving some of your groups, if I tell you to move please just take your
                entire ... All of your work and go to a different table. (pause)

                [00:38:00]

                [00:40:00]

Student: [inaudible 00:40:07]

Teacher: (teacher points)

                Here.

Student: Yeah, it won't let me look at copy when I go to file.

Teacher: Lets reopen it. (pause)

                [00:42:00] Give me your email, [00:42:13] ...

Student: B308. (pause)

Teacher: Okay I'm going to share it with you directly into your drive because I'm not sure what's wrong with that. Just one second. (pause) Are you logged in?

Student: No.

Teacher: Who are you logged in under?

Student: "student" [inaudible 00:43:31]

Teacher: Here, log in right there.

Student: Oh.

Teacher: Put your password in. (pause)

Student: Even when I typed in my password it won't let me in. [00:44:00] (pause)

Teacher: There you go. (pause)

               Can I have "student" and "student" [00:44:16] come back to me with just a pencil. (pause)

               Sit right here honey. (pause) Okay, we're going to go over ... Put your name on this for me. (pause) Today's date.

               Hey, no, bring it back here, I got trash. (pause) Do you have a pencil?

Student: Yeah.

Teacher: [inaudible 00:45:14] All right in the center, please do me a favor and write the word, isosceles. An isosceles triangle in that square. (pause) Isosceles triangle what it is? A triangle with what?

Student: 3 ...[00:46:00]

Student 2:   2 equal sides.

Teacher: 2 what? Equal sides.

Student: 2 equal sides.

Teacher: Can you draw me 1 where it says draw. Need a ruler? (pause)

Student: [inaudible 00:46:15]

Teacher: Come over here.

Student: Everyone can type for the 3 column one except for me.

Teacher: You have to go to file ... Did you read the directions?

Student: Oh.

Teacher: Oh yeah. (pause)

                Make sure you measure it. Look it here, we want to start at the end of the ruler, yeah. Where it's easy to count from 1. How long do you want to make your sides?

Student: Can I draw it with my protractor?

Teacher: Yeah.

Student: Oh, protractor. (pause)

Teacher: Use your ruler on the sides though, because isosceles is the sides not the angles, do you understand the difference? If its ... their equilateral, isosceles or scalene. We're talking about the lengths of the sides.

                Sit down. What are you doing?

Student: I thought you said get a ruler but on the ...

Teacher: It's this. Yes.

Student: On the side.

Teacher: How about we make 2 sides 6 centimeters each.

Student: 6 centimeters each. (pause)

Teacher: I'll hold it, hold it steady, there you go. (pause) Okay that's 1 side, now make another side 6 centimeters (pause) Hold it steady, there you go. (pause) [00:48:00] Okay now close it up, it's a triangle. (pause) Now write the definition, what it is? It's a triangle with what?

Student: 2 equal sides.

Student: 2 Equal sides. (pause)

Teacher: Write your definition, it's a triangle with what?

Student: 2 equal sides.

Teacher:	Sorry if my stuff is in your way. (pause)
	Okay if it has 2 equal sides ... Remember how I showed you in math, they put those little symbols on them to show that their equal. Show me which 2 sides are equal by putting those same little hash marks. Not the angle, the side.
	Good job.
	Just going to put the mark on the ... Which 2 sides are equal? Put the little hash mark there and put it on the side that equal. Very good. Now it has 2 equal sides but it also has 2 equal what? You were about to mark them. 2 equal what?
Student:	2 equal angles.
Teacher:	Please mark those 2 equal angles and add it to your definition.
	[00:50:00] (pause) You add it has 2 equal angles. (pause) Now we just decided that its isosceles because it has 2 equal sides. Look at the other side where it says angles. Right, obtuse and acute. Which 1 is this? Is it a right, acute, or obtuse?
Student:	Acute.
Teacher:	You going to check it out. You going to measure it and see. Prove it to me and that's how you prove it to me, using that protractor.
	The protractor to measure the angles honey. Remember, line it up on the vertex, there you go. Is that less than 90?
Student:	Yes.
Teacher:	What kind of angle is?
Student:	Acute.
Teacher:	Can you add that to your description in the middle. Put acute. (pause) Here in the definition. (pause) Just want to add the word acute.
	This 1 triangle is isosceles and what?
Student:	Acute.
Teacher:	Acute. Each triangle has 2 different ways to classify it. Do you see that?
Student:	Mm-hmm (affirmative)
Teacher:	You just told me, what kind of angle does it have?

Student: It has ...

Teacher: What kind?

Student: An acute angle.

Teacher: Please write that word that says has. (pause)

             [00:52:00]

Student: An acute triangle or an acute angle?

Teacher: It has an acute angle doesn't it?

Student: Yes.

Teacher: The triangle has, when we say it, we're saying the triangle so you can say the triangle instead of it. Now what does it not have?

Student: It doesn't have 3 equal sides like an equilateral.

Teacher: It doesn't have 3 equal sides. What else doesn't it have? It doesn't have a lot of stuff.

Student: 3 angles. Doesn't have 3 angles.

Teacher: It doesn't? It doesn't have 3 angles? What about 1, 2, 3. Here's an angle, yeah. All triangles have how many angles?

Student: 3.

Teacher: That's the word, listen to the word. Tri Angle like Tri Cycle, how many wheels does a tricycle have?

Student: 3.

Teacher: Triangle means it has at least 3 what?

Student: 3 sides.

Teacher: 3 sides and 3 ...

Student: Vertices.

Teacher: Vertices and 3 ... The word.

Student: Angles.

Student: Angles.

Teacher: Okay, so what doesn't it have? It doesn't have 3 equal sides, that's one thing it doesn't have.

Student: It doesn't have an obtuse angle.

Teacher: It doesn't have an obtuse angle, those are awesome.

Student: Or a right angle.

Teacher: Or a right angle, can you write all those things down, that it does not have. (pause)

                You can say it does not have, "student". [00:54:00] (pause)

                Shay, I saw you finish those notes, so if you finish the entire thing, you can bring me the 5th grade book and I will show you the geometry lesson that scaffolds up. (pause)

Student: [inaudible 00:54:21]

Teacher: Did you read the directions?

Student: [inaudible 00:54:25]

Teacher: Yep, go back to your procedure, the very last step should say something about that. (pause)

                Okay, so you got isosceles triangle, now we're going to do another 1. This time let's do a equilateral triangle. (pause)

                I don't know where the geometry is in the book. (pause) Oh its topic 16 as well. (pause) Everyone else is doing the book work from that 1, you're going to do it from this 1 okay? (pause)

Student: Yeah look [inaudible 00:55:20]

Teacher: It's just coordinate planes though. Let's see.

                All right, so, equilateral triangle, first thing I want you to do is draw me 1. Equilateral triangle has what? All equal what?

Student: All equal sides.

Student: Sides.

Teacher: You got to do it. (pause)

Student: 6 centimeters?

Teacher: How ever long you want to make it as long as 3 sides are the same.

                You're going to do this instead. There's something I'm not showing them that I got to show you. The interior angles of the triangle ...

Student: Mm-hmm (affirmative)

Teacher: Equal 180 degrees, so if [00:56:00] you know 2 sides you can always figure out the third by doing what?

Student: By adding this 1 and subtracting ...

Teacher: Okay, here it says classifies triangle by it's sides and then by it's angles. This has all 3 equal sides, so what kind of triangle is it?

Student: Equilateral.

Teacher: What kind of angles does it have?

Student: It has 60 degree angles.

Teacher: So what is it, acute, obtuse or right?

Student: Acute.

Teacher: This is an acute equilateral triangle, you have to classify it 2 different ways. Clear?

                You're going to just do ... When everyone else is doing 10 through 14, you're going to do 5 through 11, okay? I have a sticky note somewhere.

                Are those 3 equal sides? They don't look like 3 equal sides to me. Let me measure them, I'm checking your work. You're telling me these are 3 equal sides, so we got ... This 1 is 6 centimeters, this is 6 centimeters, this is 5 centimeters, that's a what?

Student: Isosceles.

Teacher: Isosceles.

                Yes sir. Come on this side okay.

Student: It keeps like ... Whenever I going down here, it just ... When I press this [inaudible 00:57:31]

Teacher: Reload. What could you do? Problem solve, what do you think "Teacher" is going to do?

Student: Log out and then log back in.

Teacher: Or close it and do what?

Student: Do it again.

Teacher: Open it back up because remember, where is it? It's in your ... It's in your drive, so you just click the waffle, go to your drive and you called it [00:58:00] 32515 [00:57:58]. Open it up there. (pause) Okay.

Student: Can I show you something?

Teacher: Yes.

Student: Is this a triangle?

Teacher: You tell me, is that a triangle? Why you asking me crazy questions?

Student: Because.

Teacher: You found a cool 1 but yes it's definitely a triangle.

               All right, that looks better.

               Yes sir.

Student: This said be, what now?

Teacher: Look at the sides.

Student: 75, 75.

Teacher: No, not the angles, the sides.

Student: [inaudible 00:58:37]

Teacher: So what kind of triangle is that? Over here, for sides.

Student: Isosceles.

Teacher: Okay, now look at the angles.

Student: 75, 75, 30.

Teacher: What kind of angle, what kind of triangle?

Student: A (pause) acute.

Teacher: Okay, so it's an isosceles ...

Student: Acute, okay.

Teacher: You good?

Student: Yeah.

Teacher: You sure?

Student: I put 2 of these into order?

Teacher: Yeah, every triangle can be classified by its angles and its sides.

Student: Okay.

Teacher: Okay.

               What's the definition of an equilateral triangle?

Student: All the same sides.

Teacher: All the same, it has all the same ... What's the word we want to use?

Student: Equal ...

Student: That its equal.

Teacher: Okay, it has all equal what?

Student: Sides.

Teacher: Now how can you mark it, so that I know that all 3 sides are supposed to be equal? Not the angles.

Student: Oh yeah.

Teacher: Even though the angles are also equal. (pause) Okay, write your definition.

Student: [inaudible 00:59:47]

Teacher: What's the definition? That equilateral triangles have all what? Equal what, "student"?

Student: Sides.

Teacher:	Very good.
	[01:00:00] (pause)
Student:	Do you have any band-aids or do I have to go to the ...
Teacher:	What do you need a band-aid for? Just to keep it covered?
Student:	Yeah.
Teacher:	Can you go after lunch or do you need it right now?
Student:	I can go after lunch.
Teacher:	Or on your way to lunch.
Student:	Yeah.
Teacher:	Does it hurt?
Student:	It hurts. I looks like [inaudible 01:00:34]
Teacher:	What do you need to cover it? Go on and go to the nurse.
Student:	Do you want band-aids?
Teacher:	Yeah ask Ms. "teacher-other"[01:00:39] to give you a box. (pause)
	And angles, exactly. Mark them so that I know you know that because you're proving it to me. (pause)
	Please go and share your notes with me, if you have not, so I can comment. Some of you have not shared them with me.
	Okay, what does it have?
Student:	It has ...
Teacher:	What kind of angles are those? Right, [01:02:00] acute or obtuse.
Student:	Acute.
Teacher:	It has all acute angles. Does it have all acute angles?
Student:	I'm checking.

Teacher:	You're going to check, that's what I'm talking about. Prove it to me. Very nice the way you lined that up. Nice. What kind of angle is that?
Student:	It's an acute.
Teacher:	You got it on there. Put it back in the corner. Is it less than 90?
Student:	Yes. Its 65.
Teacher:	All right, so that one's acute. What about this 1? Is that 1 less than 90?
Student:	Nope.
Teacher:	Look, 90 is here, it's over here, 60. Is it less than 90? What's bigger 90 or 60?
Student:	90.
Teacher:	Is this less than 90?
Student:	No, its bigger.
Teacher:	Where do you see bigger? You looking at the 120?
Student:	Oh.
Teacher:	Which 1 is it?
Student:	Less than 90.
Teacher:	Less than 90. It has what kind of angles? You just told me.
Student:	Acute.
Teacher:	Acute angles. That means its equilateral and its what?
Student:	Acute.
Teacher:	Please write it in there. (pause) What doesn't it have? It doesn't have a certain kind of angle.
Student:	It doesn't have ...
Student:	Oh it ...
Teacher:	Look up there, no guessing. Right, obtuse, acute. It doesn't have what?

Student: A right and obtuse.

Teacher: Write it down and once you do that, can you go back to your seats?

Student: Okay.

Teacher: Finish your web ... Mini web quest. (pause)

[01:03:54], [01:03:54] and [01:03:54

Thank you guys go ahead and finish your mini quest. Take these with you. Those are for you to help you.[01:04:00]

Bring a pencil please and your tool and your tool.

Student: Are they supposed to [inaudible 01:04:16]?

Teacher: Did you read the directions? I bet you its on that procedure page. I'm kind of cool like that, I kind of give you all the directions. Look on the yellow procedure.

All right, so we're about to classify some angles. In the center of this box, please write the word isosceles. Spell it correctly, since I've written it on the board for you. (pause) Okay, can you draw me an isosceles triangle? What does an isosceles triangle have to have?

Student: 2 angles that are even.

Teacher: 2 equal ... Look under ... What is it under? Is it under angles or is it under sides?

Student: 2 sides that are equal.

Student: [inaudible 01:05:14]

Teacher: Okay, I've got it, thank you.

Wait, how long was that side you just drew?

Student: 4 centimeters.

Teacher: Oh okay, can you draw me 1 please.

Student: [inaudible 01:05:23]

Teacher: You need to use your tool. What does an isosceles triangle have to have?

Under draw honey, not under define. (pause)

Do you remember? Equilateral has 3 equal sides. How many equal sides does isosceles have?

Can you help her out "student"?

Student: 2 sides.

Teacher: Draw a triangle with 2 equal sides. You might [01:06:00] want to flip that over so you can see the numbers the right way. (pause)

Good job "student".

How long do you want to make your sides. Look at your centimeters, which side do you want to use? How many?

Student: 4.

Teacher: Okay, we'll do triangle with 2 sides that are 4 centimeters. (pause) Okay, that's not a triangle yet, now its just an angle.

Why did you change it?

Student: If I do the bottom 1 its still going to be equal.

Teacher: Oh its equilateral. (pause)

Student: Ms. "Teacher", this keeps popping up.

Teacher: You have to close it out and then go back into it. Go through your drive, click the waffle, go to drive and then open the file back up.

All right you drew it. It's a triangle with what? 2 ...

Student: Equal sides.

Teacher: Write it.

Its a triangle with what? 2 ... (pause)

In your box, work on 16-8 because there's no test out right? Thank you. Actually, I'm sorry your test out is different. You know that other paper I gave you, with the chart, bring it to me and I will explain it to you. (pause)

All right, what's the definition? It has 2 what?

Student: It has 2 equal sides.

Teacher:	Okay write it on there. (pause)
	You and "student" come over here.
	Okay, it has 2 equal sides, now [01:08:00] look at it again and look up there at the angles, is it right, acute or obtuse?
	Okay, so you're going to complete this chart by saying always, putting an "A" for always, an "S" for sometimes, an "N" for never. For an example, equilateral triangle ... All triangles have 180 degrees. All of these will be "A" but equilateral triangles, all angles are congruent. Congruent means (pause) equal.
Student:	It has to see if its acute, obtuse, or a right angle.
Teacher:	Is equilateral always all angles are congruent?
Student:	Yes.
Teacher:	In that section you will put what letter?
Students:	"A"
Teacher:	[inaudible 01:08:45] you understand? Okay, is this yours or hers.
Student:	Hers.
Teacher:	Okay, go work on that.
	Will you put this in your box?
	What is it? What kind of angles does it have?
Student:	Its acute.
Teacher:	"student".
	Where you put isosceles, please write the word acute.
Student:	Never mind.
Student:	Which 1 do you want me to watch first?
Teacher:	The 1 that's in the [inaudible 01:09:06] quest. That one.
	Okay, so an isosceles triangle has what kind of angles?

Student: Acute angles.

Teacher: Where it says has, tell me what else it has. (pause)

Student: Acute.

Teacher: Did you figure it out [01:09:28]? Sit down please, thank you. (pause)

                You need to write it, it has acute angles. (pause)

Student: The bathroom is like, flooding.

Teacher: Okay. Sit down, so boys, we're not going to the bathroom right now. Have a
                seat.[01:10:00] Sorry, got to call the office. (pause)

                No you can get that done.

                Taya. Oh you putting the pass back? Okay.

Student 2:   (speaking on the phone) [inaudible 01:10:30] elementary.

Teacher: Hey "student", it [01:10:32]

Student 2:   Oh this is "student".

Teacher: Oh hey "student", the bathroom in the ... The boys bathroom in I building is flooding.

Student 2:   Oh, you're kidding me? Okay, [inaudible 01:10:40] Thank you.

Teacher: Okay, all right, thank you. Bye. (pause)

                Okay if you've finished those 3 column notes, I expect you to be doing your book work
                and your quick check. I need to see that.

                Oh sorry.

Camera man: (laughs)

Teacher: Almost ran slap into that. All, right so how can we mark this triangle so we know it has
                to equal sides? Remember those little hash marks I told you can put on there? Can you
                put it on the 2 sides that are equal please. There you go. It also ... If it has 2 equal sides it
                also has 2 equal something else too.

Student: 2 equal angles.

Teacher:	2 equal angles. Can you put the angle marks so I know its 2 equal angles? Then over here, please write that it has 2 equal angles.
	Justice you can go back to work because clearly you understand it, you can go back to your seat. Take that with you though.
	What doesn't it have?
Student:	It doesn't have a right angle.
Teacher:	Oh, absolutely does not, that's a good 1. What else doesn't it have?
Student:	Obtuse angle.
Teacher:	Doesn't have an obtuse angle. [01:12:00] (pause)
Student:	It doesn't have 3 equal sides.
Teacher:	Write it. (pause)
Student:	3 equal angles.
Teacher:	You can write that too. (pause) I called you back here because I want you to know that every triangle can be classified 2 different ways. We would call this triangle ...
Student:	Acute.
Teacher:	Isosceles
Student:	Triangle.
Teacher:	Acute triangle. Do you understand that? Every triangle, you can classify it by the sides and you can classify it by the angles. Okay. Go back and finish your mini quest. (pause)
	[01:12:55] (pause) [01:12:59], [01:12:59]. (pause) Bring your tool and your pencil. (pause)
	First thing I'd like you to write in that center box, please write isosceles. Make sure you spell it correctly considering I wrote it on the board for you. (pause)
Student:	[inaudible 01:13:47]
Teacher:	Did you finish your 3 column notes? What does it tell you to do in there? (pause)
	[01:14:00] Push the arrows "student", I don't know what you're doing. Push the next arrow. Next. (pause) Before that page. What does it say to do? Okay,

All right, what's an isosceles triangle?

Student: Isosceles triangle is a triangle that has 2 equal sides.

Teacher: Do you agree?

Student: Yes.

Teacher: Put that in your definition please and then draw me a picture. (pause) You tried to do it? Its kind of crazy trying to draw.

I need a triangle with obtuse angles. Very nice, go work on this. Did you hear me? This 1. (pause)

You can work on your work book page, you can pull it up Kahoot and wait for everybody else.

Did you draw it? Why are we waiting, write it down. You just gave me the definition. How do you know that's isosceles? Did you use your tool to measure the sides? (pause) What length do you want to make your sides? Using the ruler, what length do you want to do?

Student: Inches.

Teacher: How many and this says centimeters but how many? [01:16:00]

Student: 3.

Teacher: Make them 3 inches. Make you a triangle with 2 sides that are 3 inches. (pause) You can put those marks on there too, that helps if you're not free hand, like Ms. "Teacher". As long as you only have 1 it will be the same. (pause)

Make sure you're notebook is labeled "student".

Okay, if it has 2 equal sides it also has something else that is equal. 2 equal what?

Student: Angles.

Teacher: Write it in your definition and then show me, demonstrate it.

Why are you erasing that? Why are you erasing it?

Student: Cause they ...

Teacher: Were they both 3? Oh, you're going to make them smaller. Okay.

Student: [inaudible 01:16:58]

Teacher: All right, show me on here those have 2 equal sides. What can you do to that triangle to show me 2 sides are equal? What can you mark on it? Look at those little hash marks I told you about.

Student: Oh.

Teacher: Show me which 2 sides are equal. Nice. If it has 2 equal sides it also has 2 equal what? 2 equal ...

Student: Vertices.

Teacher: They're not called vertices. 2 equal (pause) sides or what? (pause)

Student: Oh, sides or angles.

Teacher: It has 2 equal what? Put that in your definition.

                You drew it? Show me the 2 sides that are equal. Put hash marks on them. Okay, if it has 2 equal sides it also has equal what?

Student: Angles.

Teacher: Show me which angles would be equal. [01:18:00]

Student: Can I have the [inaudible 01:17:54] please.

Teacher: You know where they are.

Student: No for 15s2.

Teacher: Oh. For topic 5, I mean for chapter ...

Student: Ms. "Teacher", I think I left my protractor here. Thank you.

Teacher: Yeah I'll print it for you. You have to go get it from Ms. "student" [01:18:10] room. Wait, its 15-2?

Student: Yes.

Teacher: For grade 5?

Student: Yes. (pause)

Teacher: Okay. (pause)

Get it out here.

Student: [inaudible 01:18:32]

Teacher: You can work on this.

             You read the rules and you label it always, sometimes or never.

Student: Okay. (pause)

Teacher: All right, you said it has 2 equal sides, 2 equal angles but you didn't add it to your definition. (pause)

             Now you, what kind of angles are these? Are they right, acute or obtuse?

Student: They are acute because they are 90 degrees.

Teacher: Add that there. (pause)

Student: Okay, Ms. "Teacher", I'm done.

Teacher: Okay, you told me it also has 2 equal ...

Student: Angles.

Teacher: Mark them, so I know.

Student: Did you point to the middle or did you point to the definition?

Teacher: The middle.

Student: Okay.

Teacher: You're about to do it, I see you're about to put the pencil there. Not with the hash marks, how do you mark angles? Look up there. (pause) Okay, did you add it to your definition?

             What kind of angles are these? Right ...

             "student", bring your Chrome Book back here. (pause)

             Right, acute or obtuse? (pause) You don't have to guess, you can use your protractor and figure it out. Those are ... What kind of angles those are.

             Did you add it to the definition?

Student: Yes.

Teacher: [01:20:00] Okay, now what kind of angles are those?

                I want you to know that every triangle ...

                Please write it in the center square. Acute.

                Every triangle can be classified 2 ways. This triangle is isosceles and what?

Student: Acute angle.

Teacher: Very good. Not angle.

Student: Acute triangle.

Teacher: Very good. What doesn't it have? What's missing?

Student: It doesn't have 3 equal sides.

Teacher: Write it down. There's more things that it doesn't have. What else doesn't it have?

Student: It doesn't have 2 equal angles.

Teacher: Mm-hmm (affirmative) what else? Does it have any right angles?

Student: No.

Teacher: Does it have any obtuse angles? Write everything it does not have.

                Go ahead and do your work book page "student".

Student: [inaudible 01:20:45] (pause)

Teacher: Okay. Hold on, let me check hers.

                You 2 are going to go work on this. Okay, go on.

                Acute. Nice. Please put these in your box and then work on that.

                Okay, everyone you need to be coming to a stopping place. We'll have to save our Kahoot for the end of the day, if we get through it.

                You stay right here.

But you need to secure your papers, windows are open. Make sure you still have your tool. (pause) Close down your or not close them down but close your Chrome Books.

"student", you are still over here honey. What kind of angles are those?

Student: Here?

Teacher: All of them? Are they obtuse? (pause) They're greater than 90? Show me.

Student: Oh no, they're less than.

Teacher: What are they?

Student: They're acute.

Teacher: Okay, are there any right angles? [01:22:00] (pause) Okay, so you need to know that every triangle can be classified 2 different ways. Are you good?

Student: Yes.

Teacher: All right, go back to your seat.

              Let me see. You need to know that every triangle can be classified in how many different ways?

Student: 2.

Teacher: 2 different ways. Go back to your seat. Take this with you Brighton, that's not for me.

Student: [inaudible 01:22:22]

Teacher: You could have a equilateral triangle that's also ...

Student: Isn't an equilateral triangle like that one right there

Teacher: Uh huh.

Student: You could say its ...

Teacher: Scalene.

Student: Scalene or you could measure it.

Teacher: It kind of looks like it would be acute what?

Student: Acute. Yeah acute.

Teacher: Scalene and

Student: Acute.

Teacher: Every triangle can be classified 2 ways.

Student: Yeah, I think ...

Teacher: Leave that here.

Student: A scalene can be like an obtuse angle.

Teacher: Mm-hmm (affirmative) but it could be scalene and acute, couldn't it? Or scalene and right.

                Okay, all right, please secure your papers.

Student: [inaudible 01:23:15] you can write any angle.

Student: I don't know kind of with this.

Teacher: Oh. (pause) Means equal. Like equilateral triangle. All angles are ...

Student: Oh.

Teacher: You put an "A" there, got it?

Student: What about the liner?

Teacher: We'll talk about that after.

Student: Okay. So don't ask what it means.

Teacher: Okay. So basically I'll tell you what it means. Line of symmetry means, if you have an isosceles triangle and you break it in half and have 2 equal pieces but it you had a scalene triangle (pause)

                Could you break it in half and have 2 equal pieces? Do you understand? [01:24:00] Okay.

                Okay, I'm waiting for a table that's ready, fire ready. Your Chrome Books will be closed ... You're staying right here

Student: Why?

Teacher: I did not like the way you were working. Look at me, you understand how it goes in this classroom and when I give you an assignment it needs to be done. (pause)

	Okay, I need all papers secured. Please get your lanyards.
	Keep it with you. Keep it in your book. I'll give it to you when you line up. (pause)
Student:	[inaudible 01:24:41]
Teacher:	Because "student", you should be done with that.
Student:	[inaudible 01:24:45]
Teacher:	Yes sir.
Student:	[inaudible 01:24:48]
Teacher:	I did actually, its in "Teacher-other" room, its in her ... Go ask her if you can have it out of her thing. I actually did fix it.
Student:	Okay, good.
Teacher:	Finally, you know I kept forgetting.
Student:	Ask her for my lanyard?
Teacher:	Huh?
Student:	Ask her for my lanyard?
Teacher:	Yeah, its with their lanyards. I just stuck it in there so I didn't lose it. (pause)
Student:	Are you going to be here [inaudible 01:25:26]
Teacher:	No, I have to go out, I have recess, well Ms. "Teacher-other" doing recess but I have to be talking to these guys that are videotaping us.
Student:	[inaudible 01:25:35]
Teacher:	Not in here. Sorry. Sorry "student".
Student:	Are you going to be up here during lunch?
Teacher:	Yes but you can't come.
Student:	I know, I was going to close the windows for you.
Teacher:	Oh, no you can keep them open.

Okay, "student", please line up.

Okay so Mr. Teacher brought you guys these candies, so on your way out you can take 1 and line up [01:26:00] quickly, quietly and correctly at the green wall please.

Student: Next time them from Okinawa, we really didn't get much of that.

Student: Aww their cats. I'm not going to eat that.

Teacher: Go to the green wall once you get it.

Student: You have to eat off the cat's head? [crosstalk 01:26:16]

Teacher: This is? Or [01:26:18]

Student: "student". What does it taste like?

Teacher: I don't know, I've never had it.

Student: Thank you.

Teacher: Is that a 4th grade line?

Student: Why does it look like a cat?

Teacher: Its like decorated like a cat, I don't know.

Student: Thank you Ms. "Teacher".

Teacher: Your welcome, its Mr. "Teacher". I'll tell Mr. "Teacher" you said thank you.

Student: Thank you.

Student: Thank you.

Student: Thank you.

Teacher: You are so welcome.

Student: Thank you.

Student: Thank you.

Student: Thank you Ms. "Teacher".

Teacher: You are so welcome. Okay, you should be facing the front, behind, not beside the person in front of you, there should be no talking. We are going down to the cafeteria, stay to the right, if you need to catch up, walk quickly.