MICHELLE MAKINSON: Unclip your chart but don't unfold it yet, and just find the sentence starters, the matching discussion sheet. It's in columns, okay? You need to have that visible and in between you for when you're having discussions, right? Okay. So I want to just remind you that that's there and the different categories. We're going to kind of look at the work that we've already accomplished, and you guys have accomplished a lot.

So here's what I don't want to see: nobody fiddling with bags or with the binder clips; just put those to the side. Okay? Even under your desk is fine if you want to get it out of your space, or in your desk. Just remember where you put them. So let's deal with the baggies and the binder clips. Put them somewhere out of the way. Open up your charts so that you can look at the work you did. Okay? And with your partner and in your own mind, find a set of cards that you matched that you think is absolutely a match that you have a great justification for what you did.

So you're going to pick a set of cards, a green, a white, and a gold that go together that you matched, and I want you to pick the one that you can defend, like to save the planet–level defend, which has the best match. We have the most evidence to say that it matches that you feel the most confident in, that your explanation is the most complete. Okay, so tell us why it's a match and why it's a great example of a well made match.

STUDENT: Because the question is...well, it says there are four groups of two stars. What part of the stars is white? And then we chose two out of eight equal parts. So, um, because there are eight stars in total and two are white, so it would be two out of eight. And then our justification card is there are two out of eight parts are white, and the card says two of eight equal parts.

MICHELLE MAKINSON: Alondra, do you have something to add to that?

STUDENT: No.

MICHELLE MAKINSON: Okay. So it's kind of hard to see the justification card, to see the text. Turn and talk to your partner here. Do you agree with their explanation? Is there something more they can add to it? What more could you say? Turn and actually talk to your partner.

STUDENT: I did four.

STUDENT: Which one is white?

STUDENT: It's one out of four because there's four parts.

STUDENT: That's true.

STUDENT: So should we go with that then?

STUDENT: Yeah, let's go with that one.

MICHELLE MAKINSON: What else could we add, Tommy?

STUDENT: Well, I disagree with their answer because there are four groups of two stars so it is one group of white out of four.

MICHELLE MAKINSON: Four. Is there a relationship between the way you're seeing it and the way they saw it? Is there something about the fraction that would be produced that is related? What would we call them?

STUDENT: Equivalent.

MICHELLE MAKINSON: Equivalent. What does that mean?

STUDENT: They're, um, they're equal to each other.

MICHELLE MAKINSON: Okay, so are they really saying the same thing?

STUDENT: Yeah.

MICHELLE MAKINSON: Okay. So when you were saying the answer, is there only one answer?

STUDENT: No.

MICHELLE MAKINSON: No. Interesting. So you saw it as one out of four and they saw it as two out of eight. Is there one person that's correct?

STUDENT: Yeah.

STUDENT: No.

MICHELLE MAKINSON: Oh, okay. Turn and talk to each other about that, equivalent fractions. Rylen and Daejanay, will you share your set? And this time I would like to hear from both people, not just one. Because really, this is group thought, right? You guys agree with each other so you should both have something to say.

STUDENT: We think it's...

MICHELLE MAKINSON: You think it's a match because...

STUDENT: Because there are two t-shirts and the rest are not black t-shirts.

MICHELLE MAKINSON: So how many...what kind of t-shirts?

STUDENTS: Black.

MICHELLE MAKINSON: How many are black?

STUDENTS: Two.

MICHELLE MAKINSON: Two. Is that what the text next to it is talking about? Okay, so can you read that part?

STUDENT: What part of this group of t-shirts is black?

MICHELLE MAKINSON: Okay. And so how many are black?

STUDENTS: Two.

MICHELLE MAKINSON: So why does the white card match the green card?

STUDENT: Because there's two black t-shirts and there's six...

STUDENT: There's six equal shirts, um, there's six t-shirts.

MICHELLE MAKINSON: So that's what makes them equal, is that they're all six of them are t-shirts? Okay. And what's your justification?

STUDENT: There are two shirts that are black and the rest are not.

MICHELLE MAKINSON: Okay. Turn and talk to your partner out in the audience. What could be added to the justification card that would make it more complete, more clear?

STUDENT: Well, the second row, these two t-shirts don't count.

STUDENT: But where? Because it says what the t-shirts are...what fraction because there are four black and two white. I guess the justification card...

MICHELLE MAKINSON: Raise your hand if you want to share your idea about how to make it better. What do you think, JT?

STUDENT: I think they should've added the actually fraction. They said, like, two are black but they never said how many there are in total.

MICHELLE MAKINSON: Oh! So you want to know how many two out of how many. And how many would that would be?

STUDENT: Six.

MICHELLE MAKINSON: Six. Okay. Anybody have a different way of enhancing the justification? Natalie?

STUDENT: They could've written a number on the justification card.

MICHELLE MAKINSON: They could've written what?

STUDENT: They could've written two out of six.

MICHELLE MAKINSON: So what you are saying is similar to what JT is saying?

STUDENT: But they just wrote they are not black.

MICHELLE MAKINSON: Right! And leaving it hanging what the total number was. Okay. Jack, what do you think?

STUDENT: They could put in the equivalent fraction.

MICHELLE MAKINSON: Oh! How do you see it that way? How does that work for you?

STUDENT: Because two six is equal to one third. They could do that.

MICHELLE MAKINSON: How does that picture of the green card prove that?

STUDENT: Because, um, two, um...one column is full and there's three columns.

MICHELLE MAKINSON: Columns?

STUDENT: Rows.

MICHELLE MAKINSON: Rows? Okay, so how many are in a row?

STUDENT: Two.

MICHELLE MAKINSON: And are they exactly the same in each row?

STUDENT: Yes.

MICHELLE MAKINSON: So there's one group of two white t-shirts, one group of two gray t-shirts, and one group of two black t-shirts?

STUDENT: Yes, and that is one third.

MICHELLE MAKINSON: And that's the same as one third. So one third is equivalent to...?

STUDENT: Two sixths.

MICHELLE MAKINSON: Two sixths. Thumbs-up or thumbs-down? So raise your hand if you're starting to see a pattern in the kinds of things you could do to enhance, to make better your justification cards. Did you start to see some of the things that were missing? Okay? So that's what we're looking for, is what's missing, what could we do differently. So the next people going up are Natalie and Sean. Eyes on the speakers, please.

STUDENT: We chose what part of this group of workers is the policeman. And we chose one out of three equal parts. And on the justification card it says one third of the people are police.

MICHELLE MAKINSON: One third of the people are policemen. So turn and talk to your partners. Is there anything that can be done to make that justification card more complete, better? I want to see people turning and talking your partners about their justification.

STUDENT: Their answer should be, like, more clear because I can't see their writing at all and on the card it doesn't tell me, like, how much is, like, um... Yeah, because, like, some of the...the police and

there's one policeman of course. So I agree with their answer but for their justification card I think they should be more clear and concise because I can't see what they're writing. It looks like it's scribble.

MICHELLE MAKINSON: JT, what do you think?

STUDENT: We think they should've added, like, how they got their answer rather than just the answer.

MICHELLE MAKINSON: What would that look like?

STUDENT: Like, there are three people, one of them is a policeman, so the fraction would be one third.

MICHELLE MAKINSON: And that's part of what they kind of said, but they didn't pull it all together and put it in the justification card. So is one of the things that we're seeing that the justification card is where all of your ideas all come together? Where you're going to explain everything, right? It justifies every card that came before it. Does that make sense?

So I want you to look at your own justification cards. Thank you, guys. Um, and you could put your sets back where they go on your chart and look at your things and look at your justification cards. Have you done the best justification that you could do? Is all the evidence that you could've used there? And if not, add it. This is an opportunity to justify your answers in a better way. Okay, so I should see people looking at their cards, talking together with their partners, seeing if they can enhance their justification work.

STUDENT: We're going to add more stuff to our justification cards. Like, um, add what the fraction is, like, two sixths, or eight thirteenths, or two fourths. And say why the denominator is...the denominator and when the numerator is that number.

STUDENT: Okay. We're still doing things, okay?

MICHELLE MAKINSON: All right, we're seeing some people using the experience of other people's thought to help make theirs better. That's a good thing, isn't it? So keep working on that.