

Discourse Moves for Mathematics Discussions:
Unit 1: Display Review
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Eliciting a strategy/hypothesis:

Choose a student invented display and ask someone else to state something they think it shows (1st) or hides (later). Alternate between questions in Box 1 and Box 2 to build relations between what can be seen and the design decisions the authors made (the mathematical ideas they used) to make those features visible:

*Box 1: What can be seen about the data?
(highest/lowest, repeated measures, gaps,
outliers, etc.)*

*Box 2: What did the authors do to make
these features visible? (Ordered,
binned, counted, scale-dimension, etc.)*

“What do you think this display helps us see about the measurements?”

“What does this display tell us about the class’s measurements?”

“What is something that is hard to notice about the measurements in this display?”

“What is something this display hides that maybe is easier to see in other displays?”

“What would be hard to see in this display?”

“What did the authors do to make it visible?”

“How can we see that in this display?”

“What about this display makes that easy to see?”

“Why is that hidden in this display?”

Building collective understanding:

1. *Restate that student’s hypothesis or have someone else restate the hypothesis to make the hypothesis public.*

- “So you think it shows that _____?”
- “_____, can you restate that in your own words? What does _____ think this display shows about the measurements?”
- “_____ claims that this display shows _____.”

2. *Ask any extension/clarification questions if necessary to help others understand.*

Invite students to use the displays to make a point more clear.

- “What do you mean when you say _____?”
- “Can you come point to where you see that on the display?”
- “Where on the display do you see an example of that?”
- “I’m not sure I understand what you mean by _____.”
- “I think you said _____. Do I have that right?”

Eliciting a response to the hypothesis:

Ask the authors if that is what they had intended to show, and open it up to other students for opinions

- “Is that something you were trying to show in your display?”
- “Do you agree with _____ that this display makes it easy to see _____?” Why?
- “What do you think about _____’s claim that this display helps us see _____?”
- “Can someone else help us understand how this display makes it easy to see _____?”

Connective statements/questions:

Ask questions or make comments to promote thinking about tradeoffs of design choices and what is made visible. Avoid positioning one display as “better” than another. Each display shows something about the data.

- “What can you see with this display that we haven’t been able to see so far?”
- “What do these displays both show?”
- “What does this display show that that one hides?”
- “If we chose this display to draw a conclusion, what might we conclude differently than this other one?”
- “Which of these displays hides _____?”

Translation: Moves intended to elicit noticings about how a feature of the data is made visible differently across two displays

- “So we see that this display shows _____. Where do we see that in that display?”
- “Which display makes it easiest to see _____?”
- “How did the authors of this display show the _____ we noticed in the first display?”

Transformation: Moves asking students to conjecture about how hypothetical data sets or data points would alter interpretation of the display.

- “How would the shape look different if the authors had binned by _____ instead of by _____?”
- “How would showing the gaps make the shape different?”
- “What do you think the shape would look like if we asked another class to take measurements?”

Relating back to process: Moves that relate displays back to the process that generated them. This is particularly useful with displays that make shape visible.

- “Think about when we did our measurement. What about measuring caused the shape to look like this?”
- “What is it about the process of measurement that produces what we see?”

Pulling it together:

Teacher makes a brief summary highlighting a “big idea” that students have developed through discussion about the displays. The teacher may want to add something extra to help make this idea salient. Record on an anchor chart.

- “In this display, we can see the center clump more clearly than in this display because of the way the measurements are grouped together. “
- So this display makes it harder to notice the individual values, whereas this one makes each value clear.”
- “I think the point we’re agreeing on is that if we worked really hard, we could see that in each graph. But the question is: Do we want to have to work that hard? Or do we want the displays to make it easy for us to see?”

