Discourse Moves for Unit 7: Inference
Making Decisions about New Measurements

Eliciting a hypothesis:
Ask a student to make a conjecture about one of the claims made. Encourage the use of specific evidence.
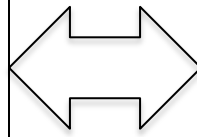
Box 1:Inferences about the two claims

Box 2: Generating evidence for inferences

"What do you think about the claim that the two classes measured a different teacher?"

"Is the second class's method of measurement more precise? Why?"

"Think about whether you agree with Melissa or Henry the most. Tell us why you think that person is right."

"Think about whether you agree with George or Amani the most. Tell us why you think that person is right."

"If you use the divider tool with 2 divisions and turn on percent, how likely is a median of 159 or more?"

"If you use the divider tool, Split Dividers with 2 divisions and turn on percent, how likely is an IQR of 10 or less, according to the model?"

"What is something that the display might show that would convince you that you are right/wrong?"

Building Collective Understanding:
1. Restate that student's hypothesis or have someone else restate the hypothesis to make the hypothesis public (yes-anding/making it public)

- "So you think that _____ ?"
- "_____, can you restate that in your own words? What does _____ use as evidence that *the claim is true/false*?"
- " _____ claims that the model represents a different teacher's arm span because _____."
- "Why does _____ agree/disagree with the claim that _____?"

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

- "What do you mean when you say _____ ?"
- "Can you show us where you see that on the sampling distribution?"
- "_____, can you come point to how the sampling distribution shows us that?"
- "I'm not sure I understand what you mean by _____."
- "Can someone else help us understand how we can see that from the sampling distribution?"

Eliciting a response to the hypothesis:
Ask other students to respond to the hypothesis, making sure they clearly explain or show their reasons for agreement/disagreement.

- "_____, is that something you agree with? Why?"
- "Do you agree with _____'s claim that _____?"
- "Do you agree that the display shows _____?"
- "What do you think about _____'s evidence that <u>this model represents the same teacher</u>?"
- "Who can respond to _____? She thinks that _____."
- "Could we be wrong about that? How likely is it that we are wrong?"

Connective statements/questions (What stays the same/what changes?):
Ask questions or make comments to connect the individual data to larger generalizations about inference and certainty.

- "Can we ever be completely certain that a model represents the same teacher or two different ones?"
- "What information would you look for to confirm or disconfirm your guess?"
- "How does the sampling distribution help us make a decision?"
- "What would make you more confident that one measurement method is more precise than another?"
- What would make you more confident that the measure really is of a different teacher –that the medians of the two samples are not just different by chance?"

Pulling it together:
Make a brief summary statement with a "big idea" that students have come to through discussion. Think of it as a restatement, but you may want to add something extra to help make this idea salient.

- When we make a statistical inference, we need to have a model of what might happen just by chance and we need to run the model enough to give us an idea of sample-to-sample variability that happens by chance. Then we can look at a real sample and think about the claim being made.
- "What I hear you saying is that we can be more and more sure if it is very unlikely that something happens just by chance. But can we ever be totally, absolutely certain? In statistics, we can just be more sure or less sure, but never completely certain."