

Data Assessment Protocol: Additional Tasks

Here are some tasks that can be used in conjunction with, or in addition to, the tasks in the *Data Assessment Protocol* (<https://prek-math-te.stanford.edu/measurement-data/data-assessment-protocol>). Select video examples of assessment items are available in *Data Assessment Videos* (<https://prek-math-te.stanford.edu/measurement-data/data-assessment-videos>).

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Sorting and Categorizing Objects

Make predictions After the objects have been sorted, especially if some groups contain 10 or more objects, say, "Let's make a prediction about which group has the most." Ask the child to make a prediction or make one yourself. Then ask, "How could we find out if that prediction is correct?" The child may suggest counting the objects in each group to find out which has the most or lining up the objects to see which group looks like it has the most. Allow the child to use the suggested strategy. Then ask, "So was the prediction correct? How do you know?" Watch "Danielle: Predict" in *Data Assessment Videos*.

Ask questions about the sorted objects Say, "Now that we have sorted the objects, I have some questions." Here are some examples of questions that could be asked: "Which do we have the most of? Which do we have the least of? How do you know?" and "How many more red cubes are there than blue cubes?" If the child counts the items to justify her answers, pay attention to any strategies the child uses to count (e.g., does the child touch each object? Does she line up the objects or count mentally?). If the child makes an error, either help the child count again or probe to see if the child can recognize her own mistake. And remember, it's almost always useful to ask, "How did you know?"

Creating Graphs

Create a cube graph (guided) If the child has just sorted connecting cubes, provide blank axes (a horizontal and a vertical line crossing one another like in a coordinate grid, but not numbered). Ask the child to place the stacks of cubes along the vertical axis to model a bar graph. It may be challenging for some children to understand that the horizontal axis acts as a baseline for the bars. You can scaffold the task by placing one of the stacks and then asking the child to finish the graph. After the cube graph is created, ask questions, such as "Which color has the most? Which has the least? How does the graph show that?" Watch "Alice: Create a Cube Graph" in *Data Assessment Videos*.

Create a bar graph by shading bars (guided) If the child has sorted connecting cubes, provide grid paper. Have the child use crayons to show on the grid the colors of the cubes that were sorted. Pay attention to the child's strategies as he represents the cube towers on paper. For example, some children will look back and forth between their cube towers and the graph to make sure they are accurate. Other children may place the cubes on squares next to the ones they are shading to keep track. When the bar graph is completed, ask questions such as "Which color has the most? Which has the least? How many more orange cubes do we have than purple?" Watch "Lucy: Create a Bar Graph" in *Data Assessment Videos*.