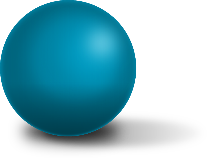
|  |  |
| --- | --- |
| **NC.4.MD.4**  **How High Did it Bounce?** | |
| **Domain** | Measurement and Data |
| **Cluster** | **Represent and interpret data.** |
| **Standard(s)** | **NC.4.MD.4** Represent and interpret data using whole numbers.   * Collect data by asking a question that yields numerical data. * Make a representation of data and interpret data in a frequency table, scaled bar graph, and/or line plot. * Determine whether a survey question will yield categorical or numerical data. |
| **Materials** | paper, pencil, activity sheet |
| **Task** | **How High Did it Bounce?**  A class bounced a ball 18 times and recorded the data in a table.  Make a line plot to display the data.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Height in Meters | | | | | | | 3 | 5 | 1 | 6 | 5 | 6 | | 6 | 5 | 4 | 4 | 2 | 6 | | 5 | 1 | 5 | 6 | 4 | 5 |  1. How many balls bounced 3 meters or higher? (15) 2. How many balls bounced fewer than 3 meters? (3) 3. Based on the data, if we bounced the ball another time, what is the height likely to be? Why? (5 or 6 because in the 18 times we have bounced the ball, it has bounced to 5-6 meters more often than any other distance.) |

|  |  |  |
| --- | --- | --- |
| **Rubric** | | |
| **Level I**  **Not Yet** | 1. **Level II** 2. **Progressing** | **Level III**  **Meets Expectation** |
| Student work exhibits **0-1** of the following characteristics:   * Correct number of data points on the line plot * The X’s are drawn approximately at the same size * Consistent value of the X’s in the line plot * Appropriately spaced numbers on the line plot * Analyzed data is correct | Student work exhibits **2-3** of the following characteristics:   * Correct number of data points on the line plot * The X’s are drawn approximately at the same size * Consistent value of the X’s in the line plot * Appropriately spaced numbers on the line plot * Analyzed data is correct | Student work exhibits **4-5** of the following characteristics:   * Correct number of data points on the line plot * The X’s are drawn approximately at the same size * Consistent value of the X’s in the line plot * Appropriately spaced numbers on the line plot * Analyzed data is correct |

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| **Standards for Mathematical Practice** |
| **1. Makes sense and perseveres in solving problems.** |
| **2. Reasons abstractly and quantitatively.** |
| **3. Constructs viable arguments and critiques the reasoning of others.** |
| 4. Models with mathematics. |
| 5. Uses appropriate tools strategically. |
| **6. Attends to precision.** |
| 7. Looks for and makes use of structure. |
| 8. Looks for and expresses regularity in repeated reasoning. |

**How High Did it Bounce?**

A class bounced a ball 18 times and recorded the data in a table.

Make a line plot to display the data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Height in Meters | | | | | |
| 3 | 5 | 1 | 6 | 5 | 6 |
| 6 | 5 | 4 | 4 | 2 | 6 |
| 5 | 1 | 5 | 6 | 4 | 5 |

**0 1 2 3 4 5 6 7**

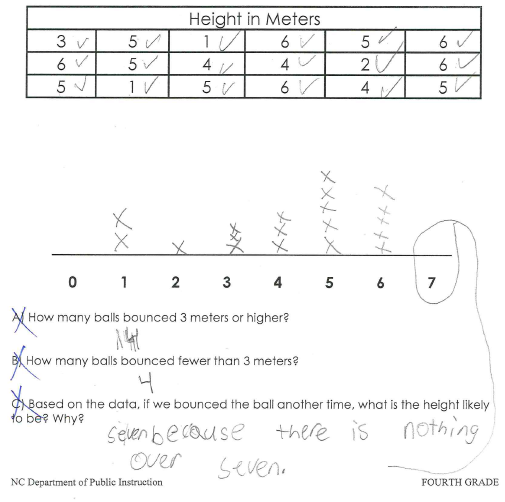
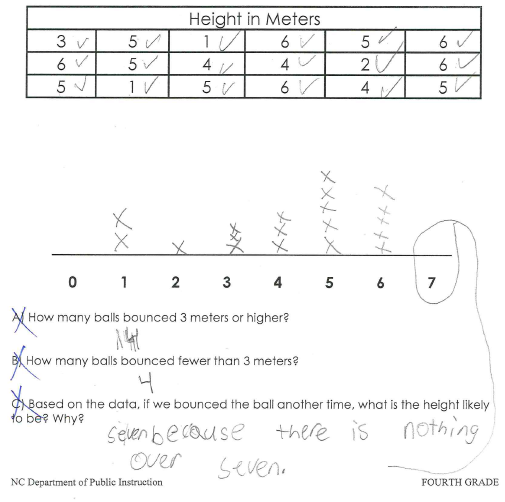
A) How many balls bounced 3 meters or higher?

B) How many balls bounced fewer than 3 meters?

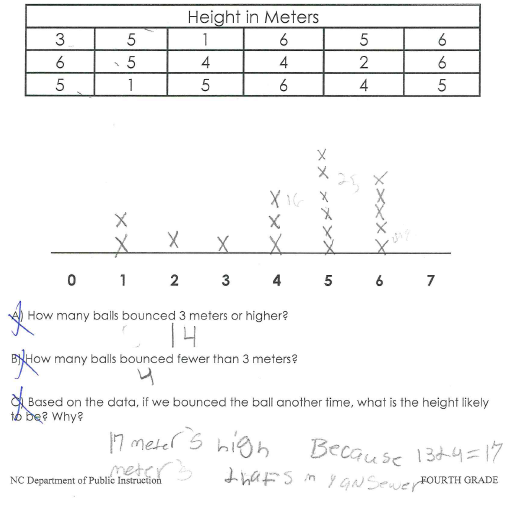
C) Based on the data, if we bounced the ball another time, what is the height likely to be? Why?

**Scoring Examples**

**Not Yet:** The data are incorrectly plotted. The Xs are not consistent or the same size. Calculations and analysis are incorrect and not reasonable.



**Progressing:** The data are plotted correctly on the line plot, but the student incorrectly analyzed the data.



**Meets Expectation:** Data points are plotted correctly. The Xs are consistent and the same size. Analysis of the data is correct and an explanation was offered for Part C.

