|  |  |
| --- | --- |
| **Two Way Table Formative Assessment #1 - Pets and Grade Level** | |
| **Cluster & Content Standards**  *What content standards can be addressed by this formative assessment?*  **NC.8. SP.4 *Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two way table.***   * ***Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.*** * ***~~Use relative frequencies calculated for rows or columns to describe possible association between the two variables.~~*** | **Mathematical Practice Standards**  *What practice standards can be addressed by this formative assessment?*  1. Make sense of problems and persevere in solving them.  6. Attend to precision. |
| **Learning Targets**  *What learning targets will be assessed?*  Complete a two way frequency table using patterns seen in the given data. | |
|
| **Timing:**  After instructional task titled “Pets vs Birthdays” | |
| **Anticipated Solutions**  Successful students will subtract across the first two rows to find the missing numbers. They will then add the columns. Students may try to make up their own numbers. These students should be encouraged to make sure their rows total up correctly. Students may try to add the numbers. Review how find totals. | |
| **Solutions:**   |  |  |  |  | | --- | --- | --- | --- | |  | Has a Pet | Has no Pet | total | | 7th grader | 102 | 48 | 150 | | 8th grader | 107 | 68 | 175 | | total | 209 | 116 | 325 | | |

**Grade Level vs Pets**

Jada surveyed all 7th and 8th graders at her school about whether they had pets. Complete the missing entries in this two-way table.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Has a Pet | Has no Pet | total |
| 7th grader | 102 |  | 150 |
| 8th grader |  | 68 | 175 |
| total |  |  |  |

|  |  |
| --- | --- |
| **Two Way Table Formative Assessment #2 - Music and Sports** | |
| **Cluster & Content Standards**  *What content standards can be addressed by this formative assessment?*  **NC.8. SP.4 *Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two way table.***   * ***Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.*** * ***Use relative frequencies calculated for rows or columns to describe possible association between the two variables.*** | **Mathematical Practice Standards**  *What practice standards can be addressed by this formative assessment?*  1. Make sense of problems and persevere in solving them.  6. Attend to precision.  8. Look for and express repeated regularity in repeated reasoning. |
| **Learning Targets**  *What learning targets will be assessed?*   * Create a two way table with collected data. * Determine if there is an association between bivariate data. | |
|
| **Timing:** During or after instructional tasks | |
| **Anticipated Solutions and Possible Misconceptions (Progression)**  Students may not recognize that they are being asked to create a two way table, and they should be encouraged to do so after they attempt other strategies. They are also finding the percent based on columns. They should have practiced finding the percent in both columns and rows. | |
| **Solutions:**   |  |  |  |  | | --- | --- | --- | --- | |  | Plays a Sport | Does not play a Sport | Total | | Plays a musical instrument | 6 | 7 | 13 | | Does not play a musical instrument | 8 | 3 | 11 | | Total | 14 | 10 | 24 |   2. 43%  3. 70%  4. If a student plays a sport it is more likely that they do not play a musical instrument If a student does not play a sport they are more likely to play a musical instrument. Only 43% of those who play a sport play a musical instrument. 70% of those who do not play a sport play a musical instrument. | |

**Music and Sports Assessment**

Is there an association between whether a student plays a sport and whether he or she plays a musical instrument? To investigate these questions, Jackson asked each student in his math class to answer these two questions. The results of the survey are below.

Do you play a sport? (yes or no)

Do you play a musical instrument? (yes or no)

1. Summarize the data into a clearly organized table.
2. Of those students who play a sport what percent play a musical instrument?
3. Of those students who do not play a sport, what percent play a musical instrument?
4. Based on the class data, do you think there is an association between playing a sport and playing an instrument? Explain.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| student | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| sport | yes | yes | yes | no | no | yes | no | yes | no | yes | yes | yes |
| Musical Instrument | no | no | no | no | yes | yes | yes | no | yes | yes | no | yes |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| student | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| sport | yes | no | no | yes | yes | yes | no | yes | yes | no | no | no |
| Musical Instrument | no | no | yes | yes | no | no | yes | yes | yes | yes | no | yes |

*Adapted from Illustrative Mathematics*