|  |  |
| --- | --- |
| **Learning Target(s):**1. Investigate patterns of association in bivariate data.
* I can use relative frequencies calculated for rows or columns to describe possible association between the two variables.
* I can construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.
* I can use relative frequencies calculated for rows or columns to describe possible association between the two variables.
 | **Pacing:*** 2 Days
 |
| **In previous grades, students have:*** In 7th Grade students draw inferences about populations based upon samples.
* In 6th Grade students write interpret and use expressions and equations.
* In 4th Grade students develop an understanding of fluency with multi-digit multiplication and dividing to find quotients with multi-digit dividends.
* In 2nd Grade students build fluency with addition and subtraction.
 |
| **Success Criteria** (to be able to do this, students must learn and understand…):* Understand how to solve a problem using two linear equations with two variables.
* Understand how to recognizing equivalent expressions.
* Understand how to graph functions and analyze functions from graphs.
* Understand how to assess the relationships shown in a set of related functions.
 | **Performance Task** (students will show they can do this by):* Solving a problem using two linear equations with two variables.
* Interpreting the meaning of algebraic expressions.
* Graph functions and analyze functions from graphs.
* Assess the relationships shown in a set of related functions.
 |
| **Suggested Activity:**In this lesson, students first organize data from a survey on a single categorical variable (i.e., a univariate categorical data) into a one-way frequency table. Some questions review content on random and representative samples that students first encountered in Grade 7. Then, they organize data on two categorical variables (i.e., bivariate categorical data) into two-way frequency tables. This lesson also introduces students to relative frequencies (e.g., row and column relative frequencies). Students then interpret relative frequencies in context.This lesson is structured in the following way: * Before the lesson, students work individually on the task. You then review their work and create questions for students to answer in order to improve their solutions.
* During the lesson, students work alone on a new task involving interpreting graphs of equations in two variables. They discuss their solutions in small groups before producing a joint solution. In the same small groups students evaluate some sample solutions to the task.
* In a whole-class discussion, students explain and compare the alternative solution strategies they have seen and used.
* Finally, in a follow-up lesson, students use what they have learned to revise their work on artifact/solution.

Activity Link: <https://www.engageny.org/resource/grade-8-mathematics-module-6-topic-d-lesson-13>**Re-teaching:**Student Focus Questions and Thinking Guide:* Can you organize your work in a table?
* Would someone unfamiliar with your work easily understand your solution?
* Have you explained how you arrived at your answer?
* How can you check that your answer is correct?

*Try not to make suggestions that move students towards a particular approach to this task. Instead, ask questions that help students to clarify their thinking and encourage checking:* **Extension:*** What was your strategy for solving this problem?
* What do you know now that you did not know before?
* Would you continue to use this strategy on similar problem types?
* Are there any other approaches you could try?

Peer Reflection/Assessment:* If you are visiting another group, read through their work. If their work makes sense, explain it in your own words. If the work does not make sense to you, ask for clarification.
* If you are staying at your desk, either carefully listen to the explanation and check it matches your own thinking or answer the visiting students’ questions.
* You may then want to consider improving your idea/position.
 |
|
|
|
| **EL Accommodations:*** Students must interpret sentences and relate them to equivalent symbolic expressions.
* Students explain their reasoning to other students and listen carefully to the explanations of others.
* Additionally, they must attend to any similarities or differences between methods.
* Peer support.
* Discourse strategies.
* Reading and writing prompts.
 |
| **Vocabulary:*** Linear
* Expression
* Equation
* Functional Notation
* Rate of Change
* Scatter Plot
* Residuals
* Solution Point
 | **Aligned Resources:*** **Lesson Website:** <https://www.engageny.org/resource/grade-8-mathematics-module-6-topic-d-lesson-13>
* **Embedded Lesson PDF:**

[Bi-Variate Data and Two-Way Tables](Alg%208th%20U5A6%20%288th%20Supplemntals%29.pdf) | **Blooms:** Evaluate**DOK:** 3**21st Century Skills:**Learning and Innovation Skills:* Creativity and Innovation
* Critical Thinking and Problem Solving
* Communication
* Collaboration

Information, Media and Technology Skills:* Information Literacy
* Media Literacy
* Technology Skills
 |
| **Test Item Exemplars:**Open Exploration Activity (Ongoing Formative Assessment).  |