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| **Planking- 6.EE.9** | |
| **Domain** | **Expressions and Equations** |
| **Cluster** | **Represent and analyze quantitative relationships between dependent and independent variables.** |
| **Standard(s)** | **6.EE.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time. |
| **Materials** | Activity sheet |
| **Task** | **Planking**  Eduardo and Olivia are both doing planks each day to work on their stomach muscles. Eduardo increases the length of his plank by 15 seconds each day. Olivia increases the length of her plank by 13 seconds each.  Part 1:  Write an equation to find the time that each person planks during the first week in terms of the day.  Part 2:  Make a table to show how long each person planks during the week.  Part 3:  Make two line graphs on the same axes showing the relationships between the length of each plank and the day.  Part 4:  Olivia says to Eduardo, “Today, you planked more than 9 seconds longer than me, but less than 15 seconds longer than me.” On what day(s) could Olivia had said this? |

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| **Rubric** | | |
| **Level I** | 1. **Level II** | **Level III** |
| Developing Proficiency   * Student uses inappropriate solution strategy and does not get the correct answer. | Not Yet Proficient   * There are one or two errors. | Proficient in Performance   * Accurately solves problem. * Part 1: Eduardo: 13 x *D* or 13*D*; Olivia: 15 x *D* or 15*D* * Part 2: The days increase by 1. Eduardo’s time will increase by 13 from 13 to 91. Olivia’s time will increase by 15 from 15 to 105. * Part 3: The lines are correct with each ordered pair correctly written (Day, Time). * Part 4: Olivia could have said this on Days 5, 6, or 7. On Day 5 the difference was 10 seconds. On Day 7 the difference was 14 seconds. |

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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. |

**Planking**

Eduardo and Olivia are both doing planks each day to work on their stomach muscles. Eduardo increases the length of his plank by 15 seconds each day. Olivia increases the length of her plank by 13 seconds each.

Part 1:

Write an equation to find the time that each person planks during the first week in terms of the day.

Part 2:

Make a table to show how long each person planks during the week.

Part 3:

Make two line graphs on the same axes showing the relationships between the length of each plank and the day.

Part 4:

Olivia says to Eduardo, “Today, you planked more than 9 seconds longer than me, but less than 15 seconds longer than me.” On what day(s) could Olivia had said this?