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| **Finding the Perimeter- 6.EE.4** | |
| **Domain** | **Expressions and Equations** |
| **Cluster** | **Apply and extend previous understandings of numbers to the system of rational numbers.** |
| **Standard(s)** | **6.EE.4** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.  **6.EE.3** Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y. |
| **Materials** | Activity sheet |
| **Task** | **Finding the Perimeter**  The students in Mrs. Massey’s class are exploring how to write the formula for the perimeter of a rectangle.  Part 1: For each proposed formula, test the formula with two different examples to see if each formula is correct.   * Mike: 2(*l* +*w*) * Beth: *l* +*w*+ *l* +*w* * Sarah: 2*l* +*w* * Tryone: 2*w*+2 *l* * *Phil: w2+l*2   Part 2: If both dimensions of a rectangle were tripled, what formula in terms of *l* and *w* could represent the perimeter of the new rectangle?    Part 3:  Write an explanation about how you solved Part 2. |

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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: Mike- correct; Beth- correct; Sarah- not correct; Tyrone- correct; Phil- not correct * Part 2: Possible equations: 3 x 2(*l*+w), 6(*l*+*w*), 6*l*+6*w*; 3(2*l*+2*w*) * Part 3: The explanation is clear and accurate. |

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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. |

**Finding the Perimeter**

The students in Mrs. Massey’s class are exploring how to write the formula for the perimeter of a rectangle.

Part 1:  
For each proposed formula, test the formula with two different examples to see if each formula is correct.

* Mike: 2(*l* +*w*)
* Beth: *l* +*w*+ *l* +*w*
* Sarah: 2*l* +*w*
* Tryone: 2*w*+2 *l*
* *Phil: w2+l*2

Part 2:  
If both dimensions of a rectangle were tripled, what formula in terms of *l* and *w* could represent the perimeter of the new rectangle?

Part 3:

Write an explanation about how you solved Part 2.