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| **Tissue Box Crafts- 6.EE.3** | |
| **Domain** | **Expressions and Equations** |
| **Cluster** | **Apply and extend previous understandings of numbers to the system of rational numbers.** |
| **Standard(s)** | **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.  **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. |
| **Materials** | Activity sheet |
| **Task** | **Tissue Box Crafts**  Mr. Gibbs’ class is building crafts out of tissue boxes. They need to determine how much paper they need to cover the sides and bottom of the box. The dimensions of each box are related. The width is three times the length (*L*). The height is 1 and 1/2 times the length.  Part 1:  What are the dimensions of 1 tissue box in terms of the length (*L*)? Write an expression to find how much paper is needed to cover the sides and bottom of the box in terms of the length (*l*). After you write the expression, simplify it.  Part 2:  If you needed paper to cover 5 boxes, write an expression to find how much paper is needed to cover the sides and bottom of the box in terms of the length (*L*). After you write the expression, simplify it.  Part 3:  If you needed paper to cover 25 boxes, write an expression to find how much paper is needed to cover the sides and bottom of the box in terms of the length (*L*). After you write the expression, simplify it.  Part 4:  If the length of each box is 2/3 of a foot how much paper would you need to cover 1 box? 5 boxes? 25 boxes?  Part 5:  Write an explanation about how you solved Part 4. |

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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: Dimensions: *L* by 3*L* by 1 ½ *L*   Amount of paper: (*L x 3L*) + 2(*L* x 1 ½ *L*) + 2(3*L* x 1 ½ *L*). Simplified to 3*L*2+ 3*L*2+ 9*L*2 = 15*L*2   * Part 3: 25 ((*L x 3L*) + 2(*L* x 1 ½ *L*) + 2(3*L* x 1 ½ *L*)) = 225 L2 * Part 4: Amount of paper for 1 box: 15*L*2 = 15 (2/3)2 = 15 x 4/9 = 60/9 = 6 and 6/9 = 6 and 2/3 cubic feet.   5 boxes: 5 ( 15 (2/3)2) = 75 x 4/9 = 300/9 = 33 and 3/9 or 33 and 1/3 cubic feet.  25 boxes: 25 ( 15 (2/3)2) = 375 x 4/9 = 1500/9 = 166 and 6/9 or 166 and 2/3 cubic feet.   * Part 5: 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. |

**Tissue Box Crafts**

Mr. Gibbs’ class is building crafts out of tissue boxes. They need to determine how much paper they need to cover the sides and bottom of the box. The dimensions of each box are related. The width is three times the length (*L*). The height is 1 and 1/2 times the length.

Part 1:

What are the dimensions of 1 tissue box in terms of the length (*L*)? Write an expression to find how much paper is needed to cover the sides and bottom of the box in terms of the length (*l*). After you write the expression, simplify it.

Part 2:

If you needed paper to cover 5 boxes, write an expression to find how much paper is needed to cover the sides and bottom of the box in terms of the length (*L*). After you write the expression, simplify it.

Part 3:

If you needed paper to cover 25 boxes, write an expression to find how much paper is needed to cover the sides and bottom of the box in terms of the length (*L*). After you write the expression, simplify it.

Part 4:

If the length of each box is 2/3 of a foot how much paper would you need to cover 1 box? 5 boxes? 25 boxes?

Part 5:

Write an explanation about how you solved Part 4.