Mathematical Context

Mathematical Goals for the Lesson (from T-1 of Lesson Plan):

The *Interpreting Algebraic Expressions* lesson is designed to assess how well students are able to:

- Recognizing the order of algebraic operations.
- Recognizing equivalent expressions.
- Understanding the distributive laws of multiplication and division over addition (expansion of parentheses).

Discussion Questions to Develop the Big Mathematical Picture[1]

1. What big mathematical relationships, patterns, or principles do we want students to understand in this lesson?
2. What is one or more key mathematical understanding(s) that this lesson builds upon? What is one or more key mathematical understanding(s) that this lesson builds towards? What connects those understandings?
3. How might different representations or solution strategies within the lesson connect to each other in order to deepen our students' mathematical understandings?

Directions for the Mathematical Activity:

Working in groups of two or three, you will recieve cut up copies of *Card Set A: Expressions*, *Card Set B: Words, Card Set C: Tables,* and *Card Set D: Areas*.

When working together, take turns to:

1. Choose an expression and find the words to match it.
2. Place matched cards side by side, prepare to explain the reasoning.
3. If an expression does not have a match, then write your own words using the blank cards provided.
4. Match the tables to the matched sets, writing in missing numbers.
5. Match the area cards to the existing matches. Next to each group of cards, write down why the areas show that different expressions are equivalent.

For the version of these instructions for students, see T-4

Discussion Questions Focusing on the Mathematical Activity

1. What are some different mathematical approaches for completing the task?
2. What is a big mathematical idea present in this lesson?
3. How do the tasks in the lesson provide opportunities for students to productively struggle and make sense of important mathematical ideas?

[1] From: TRU Math Conversation Guide

Mathematical Context Materials

Directions: Cut out the Card Sets on the next four pages to form the cards for the matching activity. Give one set to each group of two or three.

Card Set A: Expressions

E1 $\frac{n+6}{2}$	**E2** $3n^2$
E3 $2n+12$	**E4** $2n+6$
E5 $2(n+3)$	**E6** $\frac{n}{2}+6$
E7 $(3n)^2$	**E8** $(n+6)^2$
E9 $n^2+12n+36$	**E10** $3+\frac{n}{2}$
E11 n^2+6	**E12** n^2+6^2
E13	**E14**

Card Set B: Words

W1 Multiply n by two, then add six.	**W2** Multiply n by three, then square the answer.
W3 Add six to n then multiply by two.	**W4** Add six to n then divide by two.
W5 Add three to n then multiply by two.	**W6** Add six to n then square the answer.
W7 Multiply n by two then add twelve.	**W8** Divide n by two then add six.
W9 Square n, then add six	**W10** Square n, then multiply by nine
W11	**W12**
W13	**W14**

Card Set C: Tables

T1

n	1	2	3	4
Ans	14	16	18	20

T2

n	1	2	3	4
Ans			81	144

T3

n	1	2	3	4
Ans		10	15	22

T4

n	1	2	3	4
Ans	3		27	48

T5

n	1	2	3	4
Ans			81	100

T6

n	1	2	3	4
Ans		10	12	14

T7

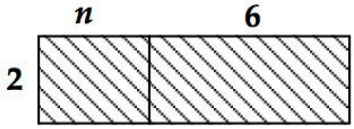
n	1	2	3	4
Ans		4		5

T8

n	1	2	3	4
Ans	6.5	7	7.5	8

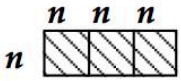
Card Set D: Areas

A1

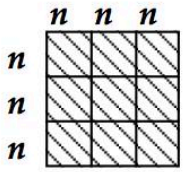


A2

A3



A4



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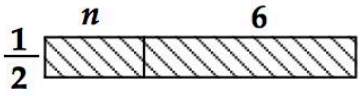

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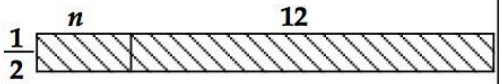
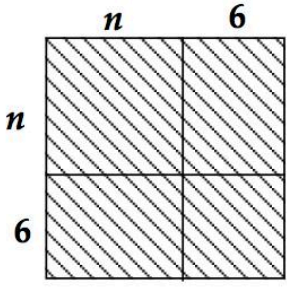


A7



A8