

SD 38 K-12 Mathematics & Numeracy

Grades 6&7: Week Eight

Big Ideas: Number represents and describes quantity. We use patterns to represent identified regularities and to make generalizations.

Curricular Content: algebraic thinking – one-step equations with whole number coefficients and solutions, two-step equations including whole number constants

Curricular Competencies: use reasoning to explore and make connections, develop, demonstrate and apply mathematical understanding through play, inquiry and problem solving, develop mental math strategies, communicate mathematical thinking in many ways, represent mathematical ideas in concrete, pictorial, and symbolic forms

Core Competencies focus: Communication, Creative Thinking

Teachers and Families: The following are five problems/tasks to choose from for this week, based on the above curricular areas of focus.

Choose at least three of these math equations to solve:
 $58 + n = 73$, $214 + \underline{\quad} = 522$, $n + 17 = 144$, $92 - x = 65$, $481 - \underline{\quad} = 297$, $n + 748 = 2020$
Different symbols can be used for the variable (the part that is unknown) such as an x or n (for number). How will you record and share your thinking?

A coefficient is a number used to multiply a variable. In the equation $4n = 24$, $4n$ means 4 times/multiplied by n /the variable. Solve at least three equations, finding the value of the variable (n or x):

$$2n = 36 \quad 75 = 5n \quad 4x = 200 \quad 8n = 1600 \quad 225 = 9x \quad 3n = 141$$

How will you record and share your thinking?

A constant is a fixed number that's value does not change.

The following equations have a constant, coefficient and a variable in them:

$$4n + 2 = 22 \quad 3n - 1 = 20 \quad 24 = 2x + 6 \quad 5 + 2x = 35 \quad 5x - 10 = 50$$

A reminder that the $=$ symbol means that both sides of the equation are equivalent.

Solve and share/show your thinking.

Here is a Splat! problem to solve. There are 22 blue dots altogether.

Each black splat has the same number of blue dots under it.

How many blue dots are under each splat?

Share how you solved this with a drawing or a video.

Create your own Splat! problem for others to solve, using a drawing or technology.



Numeracy Task:

What is the temperature outside each day? Write down the low and high temperatures for each day for three days in a row. How do the temperatures change? How could you describe these changes? Can you generalize a pattern? Record your findings with charts and/or graphs.

Related Instructional Routine: Splat!

created by Steve Wyborney

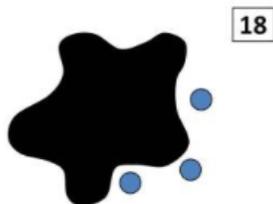
Steve Wyborney has created a digital instructional routine that focuses on algebraic thinking. For those of you that remember Math Their Way from the 1980s and 1990s, this is basically the “bears in the cave” task where you have a collection of counters (call them bears) and you cover some of them with a margarine tub and ask students to figure out how many bears are in the cave. It is solving for the unknown but in a playful, problem solving context that is accessible. In Splat! you first see a collection of blue dots and count how many there are. And then one or more black splats cover some dots and you need to figure out how many are being covered. Splat begins with quantities to 10 but grow in complexity with multiple splats (the same quantity under each splat) or different colours of splats (different quantities under each colour) and fraction splats.

Steve introduces the routine and provides free access to his slides here:
<https://stevewyborney.com/2017/02/splat/>

The slides are available in either Powerpoint or Google slides and include all the transitions and prompts.

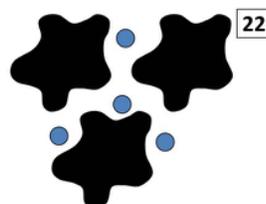
Splat Through 20

How many dots are under the Splat?



Multiple Splats

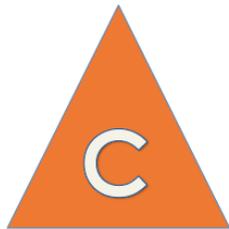
(Note: Splats that are the same color must cover the same number.)



Core Competencies

Reflection and Self-Assessment

As you think about algebraic thinking about how quantities change and solve equations, we have asked you to think about how you will share and present your thinking. This is an important part of developing your competency in Communication.



Communication

How do you present and share your mathematical thinking and learning using different forms, such as pictures, numbers, words and symbols?

Share an example of how you can communicate your understanding of mathematics.

What is an area of communication in your mathematics learning that you would like improve? What could you do to work towards this?