

# Grade 9 Numeracy Learning at Home

ISSUE 2

## Keep the learning going!

The following activities support learning at home and connect to the mathematics that you have been learning. Choose activities that are interesting and challenging. Have fun!

**Patterns and Relations:** Mathematics is about recognizing, describing, and working with numerical and non-numerical patterns.

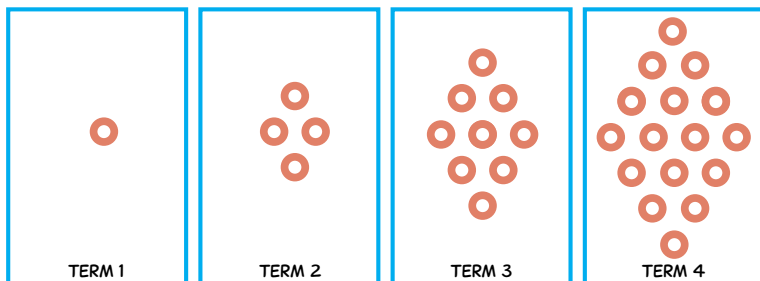
Look at the pattern and answer the questions.

What do you notice about the pattern?

How would you extend this pattern? Draw the next three terms.

Describe how each new term in the pattern is constructed using words.

Describe the pattern using an algebraic equation.



**CREATE A TABLE OF VALUES:** Extend the table to match this pattern for the first 10 terms. Predict how many loops you will need for the 20th term. Can you calculate this value using your equation?

Guess which term would have 529 loops? Use your equation to verify your answer.

Term	1	2	3	4	5	6	7	8	9	10
Loops										

**Splat!** Splat is a thinking game. Some ink has spilled onto the picture. Looking at it, what can we determine?

25% of  
is about  
75% of



## Math Mindset

### Mistakes are valuable.

Our brains learn through our mistakes and make adjustments through trial and error. Try another strategy or examine your work closely to exercise your brain!

### Mathematics help us to think logically and visualize connections.

Can you relate these ideas to previous lessons or topics? How does this connect to other activities or events in the world around you?

## LAUGH OF THE DAY

What do you call friends who love math?

algebros

Which one of King Arthur's knights built the round table?

Sir Cumference

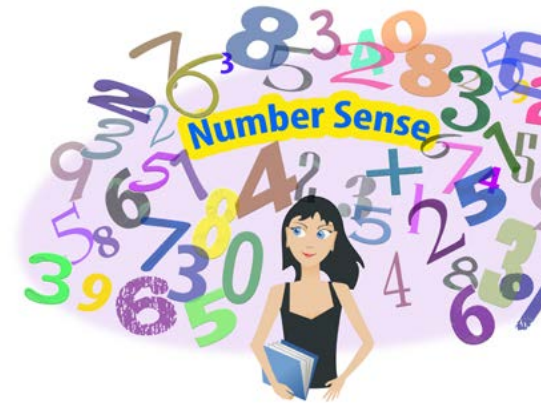


Manitoba



# Building Number Sense

Number sense is an awareness and understanding of numbers. Number sense involves knowing different ways of representing numbers, understanding the relationships among numbers, and using numbers flexibly to reason, estimate, and compute.



## Mental Math

Mental mathematics strategies foster flexible thinking about numbers and operations, and help you see how relationships exist between numbers. Learning about mental math strategies helps build an awareness of numbers and makes you question if an answer does not “look” or “sound” right. Developing good mental math strategies is important because mental math strategies are a valuable life skill.



If you are in a car that is travelling at 100km/hr, how long will it take to travel from Portage la Prairie to Winnipeg (around 75 km)?

At the same speed, how long will it take to travel from Killarney to Gimli (around 250 km)?

How long would it take to travel from MacGregor to Churchill, if you didn't need to stop? (1020 km)?

Determine how long it would take to travel from St. Claude to Gretna (91 km).

Likewise, determine how long it would take to travel from Winkler to Dauphin (265 km).

**Hint:** Use proportions!

We know **100 km** is traveled in **60 minutes** (one hour). So, use fractions of distance to help you find the fraction of time.

**Example:** Driving **25 km =  $\frac{1}{4}$  of 100 km** and therefore would take  $\frac{1}{4}$  of an hour, or **15 minutes**.

Every **10 km driven =  $\frac{1}{10}$  of the 100 km** distance and would take  $\frac{1}{10}$  of an hour, or **6 minutes**.

## Mathematical Games

Have fun trying to figure out a winning strategy for the game of Nim!

This is a two-player game, but you can try to figure out the winning strategy before you challenge a friend. There are 20 toothpicks. Players take turns removing 1, 2, or 3 toothpicks without moving the others. The player who takes the last toothpick wins.

Do you want to go first or second?

What if the rules changed to remove only 1 or 2 toothpicks?

What if there are 21 toothpicks?

