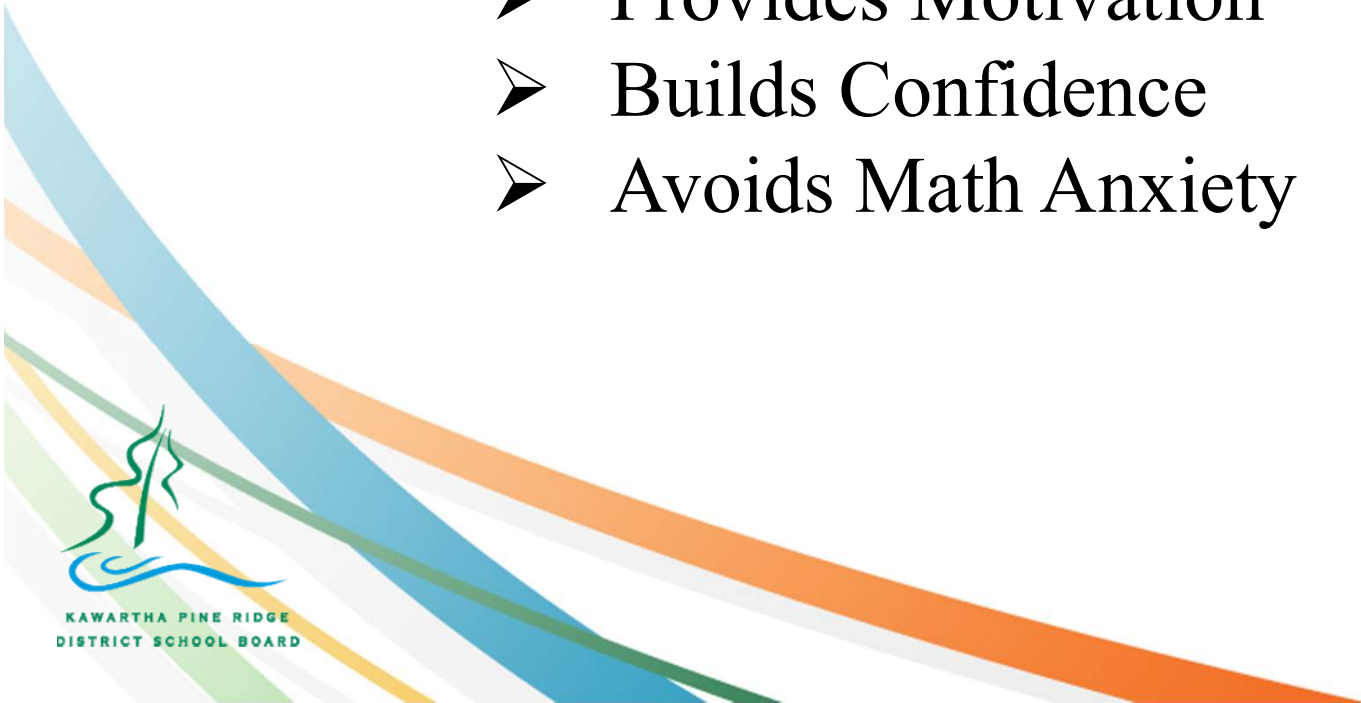


# Helping Your Child Learn Math Facts Through Games

**As a Parent:** Building Positive Attitudes Towards Math is Important

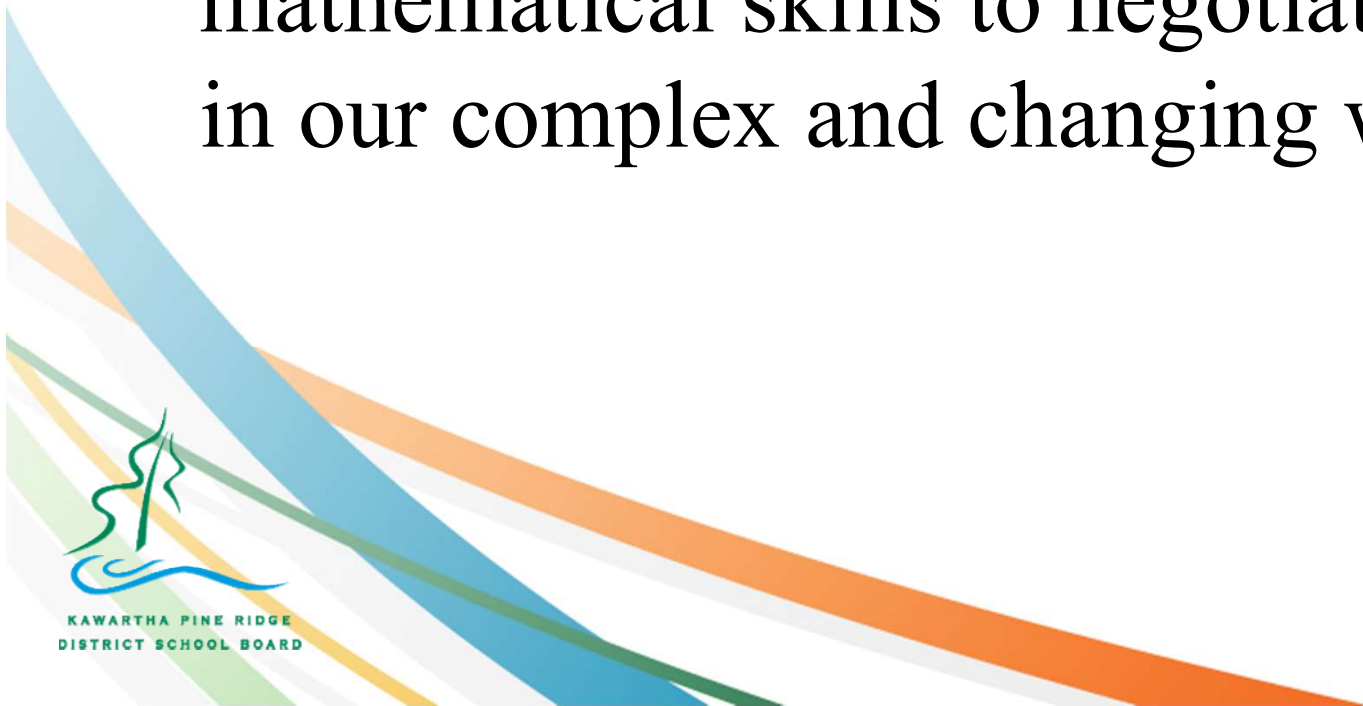
- Provides Motivation
- Builds Confidence
- Avoids Math Anxiety

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# Vision for Mathematics Learning in Kawartha Pine Ridge

We are developing flexible thinkers who are prepared and have the mathematical skills to negotiate living in our complex and changing world.



*Educating for Success!*

# Focusing on the Fundamentals: Knowing Math Facts is Important

- Facts are things like  $4 + 8 = 12$   
or  $7 \times 4 = 28$  or  $12 - 3 = 9$  or  $40 \div 5 = 8$ .
- They involve small numbers.
- Facts are important because they are fundamental both to estimation and doing any other calculations.

Marian Small, Leading Change in Mathematics 2014

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# Focusing on the Fundamentals: Knowing Math Facts is Important

What does this look like in our  
daily lives?



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# Focusing on the Fundamentals: Knowing Math Facts is Important

We used to believe...

- The best way to learn facts is to sit down and memorize them by saying them over and over.
- And that being super fast with them is really important.

Marian Small, Leading Change in Mathematics 2014

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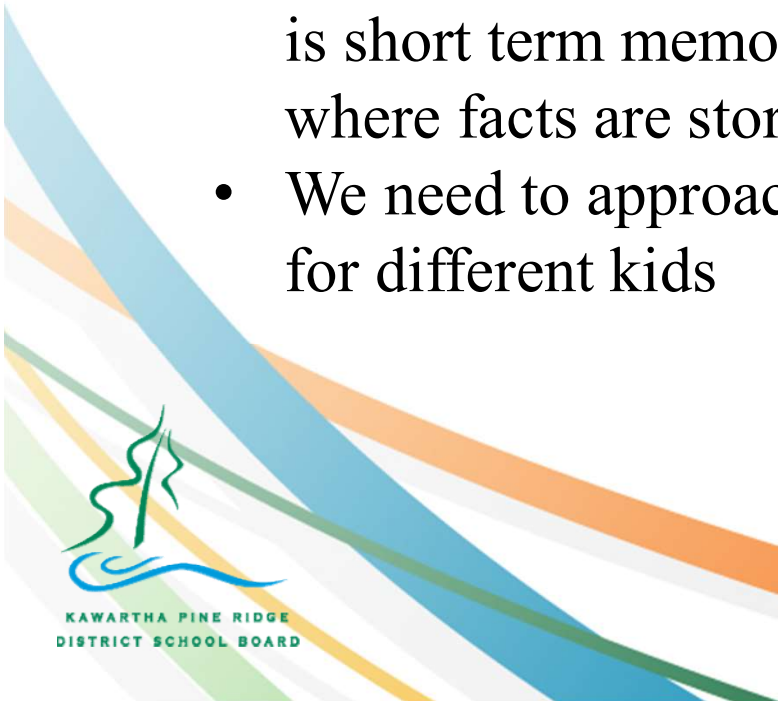
# Focusing on the Fundamentals: Knowing Math Facts is Important

There is now research that shows...

- That even though some kids memorize well, for kids who are anxious about math or get nervous having to be quick, old strategies don't work
- Brain research shows that when you are anxious, it is short term memory that is impacted and that is where facts are stored. (Sian Beilock, 2017)
- We need to approach fact learning in different ways for different kids

Jo Boaler  
Marian Small

*Educating for Success!*



# Focusing on the Fundamentals: Knowing Math Facts is Important

## What we are thinking now...

- Strategies are important
- Practice comes with use in many different situations
- Fast does not mean instant
- Understanding facts is key to math development
- Children benefit from having tools (strategies) to recall something they have memorized but may forget

Focusing on The Fundamentals of Mathematics, 2018  
Marian Small, Leading Change in Mathematics, 2014

*Educating for Success!*



# In addition to memorizing some facts we teach strategies.....

- For Example since  $8 + 5$  is the same as  $5 + 8$ , we only have to learn half of the addition facts
- Whenever you add something to 9, you can make a 10 and add one less –

$$(9 + 7 = 10 + 6) - \text{Later } (599 + 38 = 600 + 37)$$

**Many students learn doubles quickly so...**

$5 + 4$  is just one more than  $4 + 4$

$6 \times 6$  is 36 so  $6 \times 7$  is just one more group of 6

Marian Small

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# In addition to memorizing some facts we teach strategies.....



For example, since 4 groups of 5 can be seen as 5 groups of 4, we only need to memorize half of the multiplication facts

# Board Focus: Computational Fluency

**As a Parent:** Working with Numbers in a Meaningful Way – Let's have some fun....as you play keep track of the number of math facts you practice.

*Card Games!*



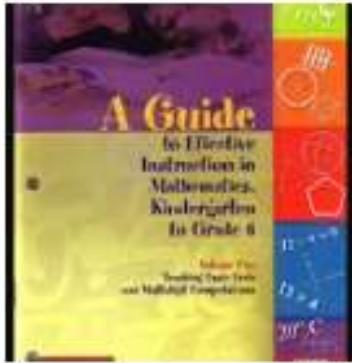
*Dice Games!*



*As students work on meaningful number activities they will commit math facts to heart at the same time as understanding numbers and math.*

*Educating for Success!*

# Resources



Teaching Basic  
Facts and  
Multidigit  
Computation

## Appendix 10-2: Instructions for Games and Activities

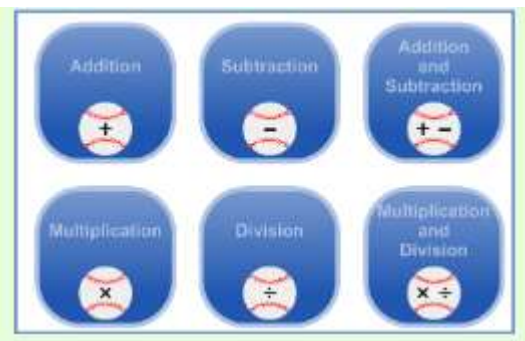
$$9 \times 5 =$$

I know  $10 \times 5$  is 50 so I took  
one 5 away to get 45

$$5 \times 5 = 25 \text{ and } 4 \times 5 = 20$$

so  $25 + 20 = 45$

[http://www.edugains.ca/newsite/math/guides\\_effective\\_instruction.html](http://www.edugains.ca/newsite/math/guides_effective_instruction.html)



<https://www.mathies.ca/index.html>

*Educating for Success!*



# Parent Engagement: Math



## New and innovative resources to support parent engagement in their children's mathematics learning

When students understand mathematics, they are equipped with knowledge they can bring to every aspect of their lives.

[http://www.ontariodirectors.ca/parent\\_engagement-math/en](http://www.ontariodirectors.ca/parent_engagement-math/en)

### Module Three

#### Primary (Grades 1, 2, 3) - Making it Count



Download Video (mp4)

Resource Guide (pdf)

Implementation Guide (pdf)

Fact Sheets (pdf)

Additional support materials (zip)

**Handy math facts for the junior division**

**Characteristics of children in junior division**

Children in Junior division tend to be:

- Independent. They do not want to be treated like a child.
- Developing interests and hobbies.
- Social.
- Competitive.
- Comparing themselves to their peers in terms of appearance, achievement, and friends.
- Self-conscious about their academic, social, and athletic abilities.
- Likely to be physically animated and restless.

**Most children in junior division enjoy:**

- Learning.
- Talking.
- Contemplating abstract concepts and ideas. They have a good aftertongue.
- Reading and watching cartoons. They have a sense of humor that often escapes adults around them.

**Math milestones for children in junior division**

It is important to remember that not all children learn the same way or on the same day. Milestones, or learning expectations, are meant to broadly describe what your child should know, based on the curriculum, by the end of junior division.

Always remember to talk to your child's teacher or teaching team (including educational assistants, special resource teachers, and the school principal) if you have any concerns about your child's development.

**By the end of grade 6, your child should be able to:**

- Add and subtract decimal amounts to the thousandths.
- Multiply and divide four-digit and two-digit whole numbers by two-digit whole numbers.
- Multiply and divide fractions.
- Calculate rates, ratios and proportions.
- Explain the relationship between single fractions, decimals, and percentages.
- Convert large metric units to small metric units (for example, metres to centimetres).
- Develop and apply geometric formulas to find perimeter, area, and volume.
- Predict the frequency of an outcome in a probability game (such as rolling dice) by calculating and using the theoretical probability of that outcome.

Parents and caregivers are not expected to be math experts. It will never be your responsibility to teach a specific math lesson. But you can help your child to stay motivated and develop a positive attitude!

# Final Thought From Jo Boaler.....

*Teachers should help students develop math facts, not by emphasizing facts for the sake of facts or using 'timed tests' but by encouraging students to use, work with and explore numbers. As students work on meaningful number activities they will commit math facts to heart at the same time as understanding numbers and math. They will enjoy and learn important mathematics rather than memorize, dread and fear mathematics.*

Fluency Without Fear, Jo Boaler

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