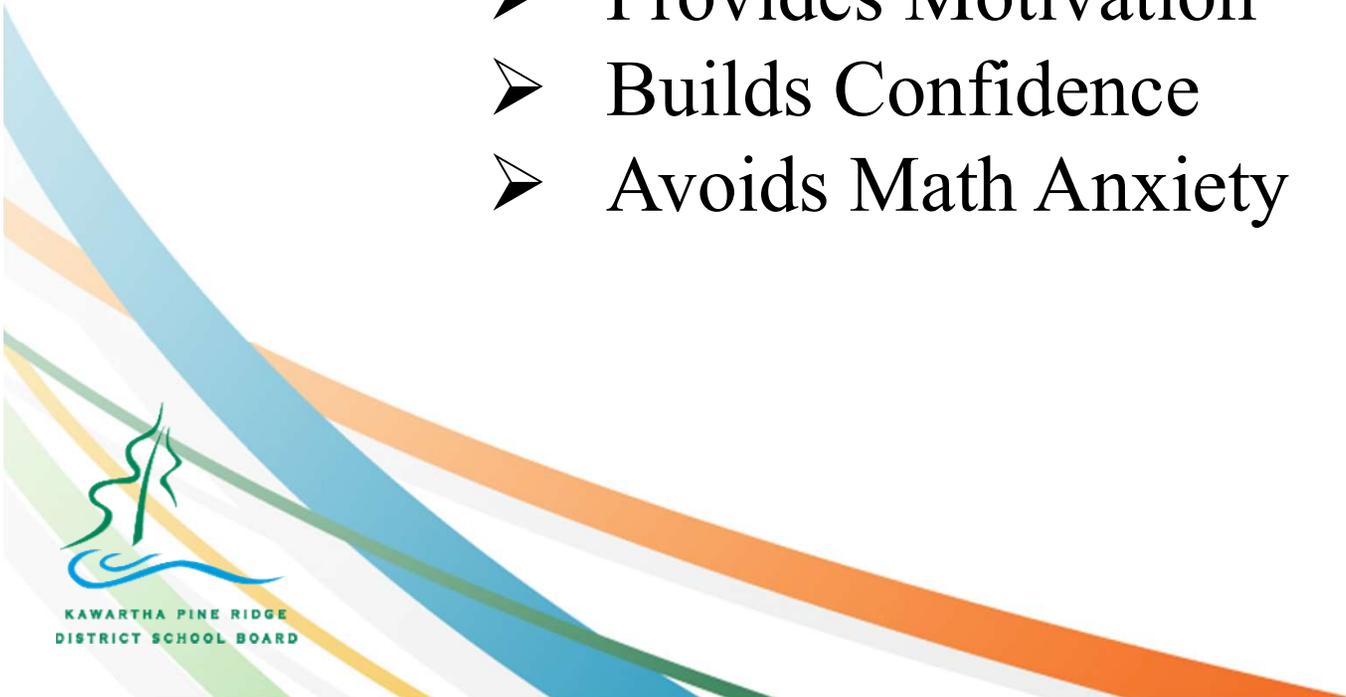


Helping Your Child Learn Math Facts Through Games

As a Parent: Building Positive Attitudes Towards Math is Important

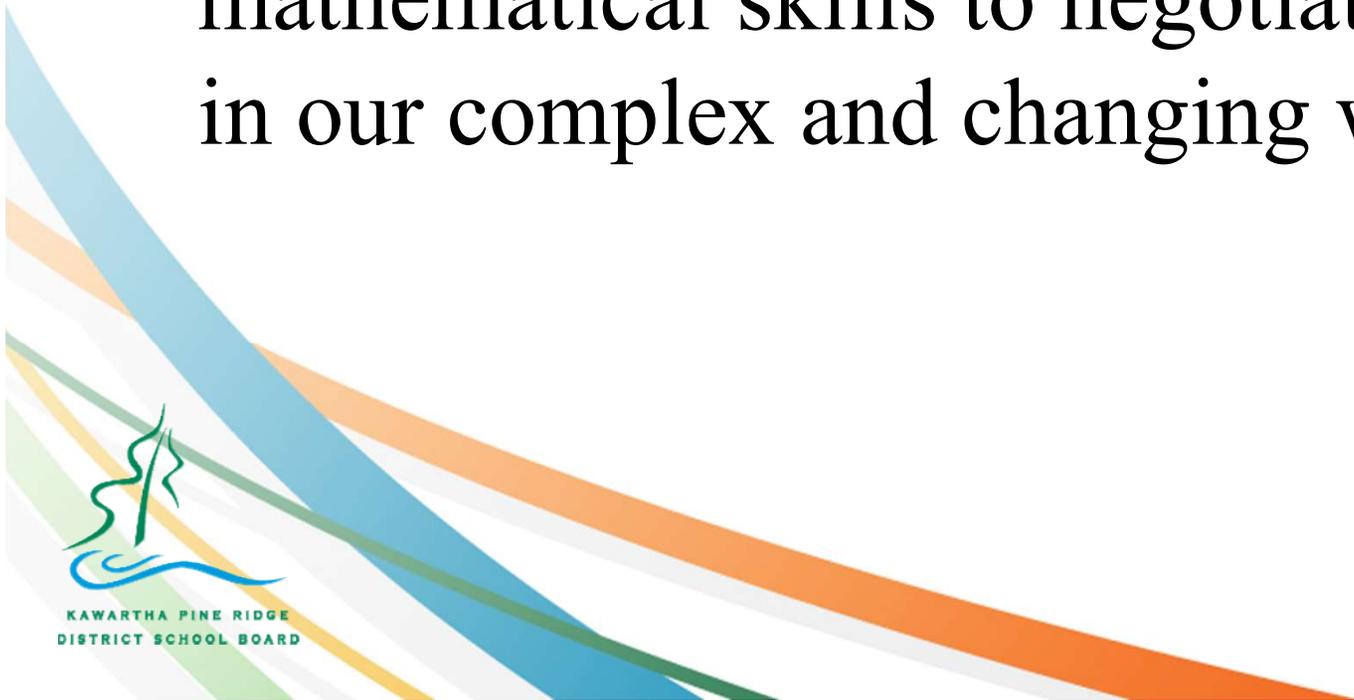
- Provides Motivation
- Builds Confidence
- Avoids Math Anxiety



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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.



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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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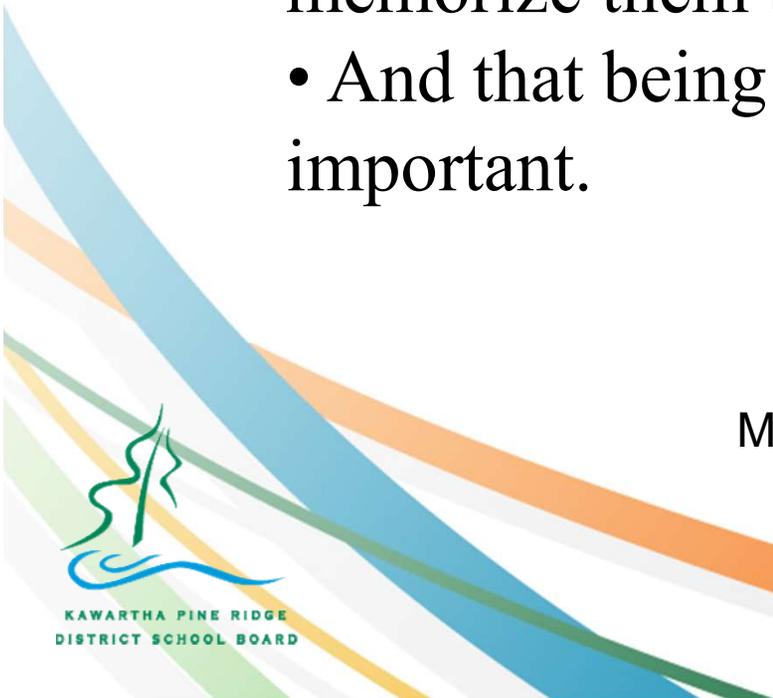
Focusing on the Fundamentals: Knowing Math Facts is Important

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

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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 –
($9 + 7 = 10 + 6$) - Later ($599 + 38 = 600 + 37$)

Many students learn doubles quickly so...

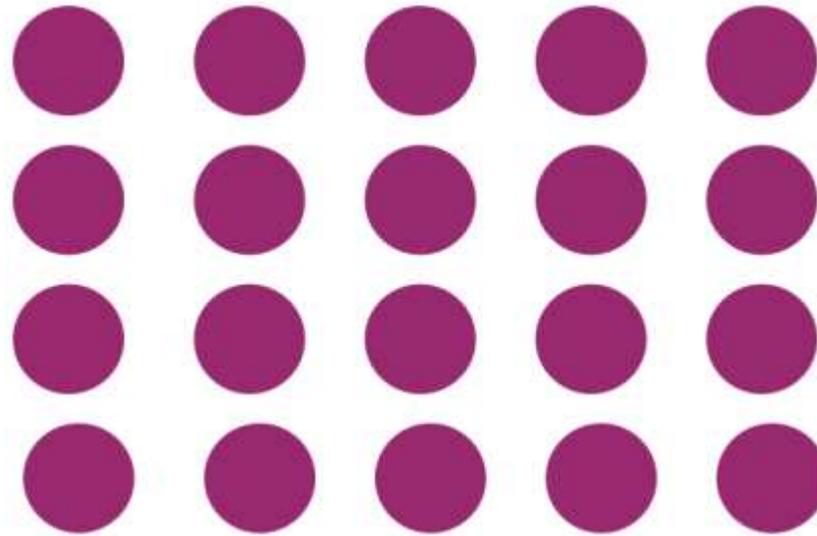
$5 + 4$ is just one more than $4 + 4$

6×6 is 36 so 6×7 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!



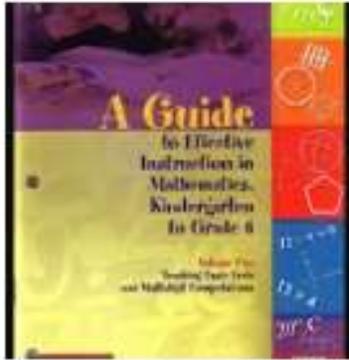
Dice Games!



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

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Resources



Teaching Basic
Facts and
Multidigit
Computation

Appendix 10-2: Instructions for Games and Activities

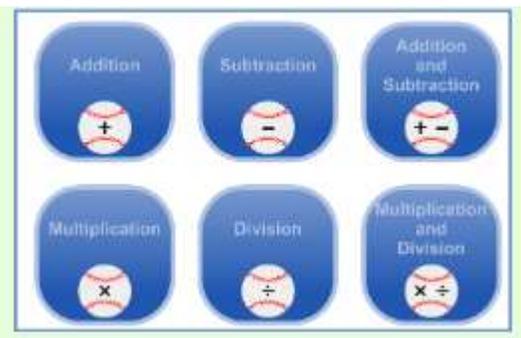
$$9 \times 5 =$$

I know 10×5 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



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

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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

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.
- Explore 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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