peel District School Board

NUMERACY & Beyond
Parent Numeracy Conference 2015

LEGO©-matics

A fresh approach to real-life math at home

For parents of students in the primary grades

Change is never easy. It takes commitment to decide to make a significant change in your life. This can also be true in math. There are many people who feel math is not something they are good at, well that is not necessarily true. If we approach math with a growth mindset we may be able to change that belief. So how do we change our attitudes towards math - change a fixed mindset (a belief you either are or aren't good at something, based on your inherent nature, and your abilities, intelligence and talents are fixed traits) to a growth mindset (a belief anyone can be good at anything, because your abilities are entirely due to your actions and can grow overtime).

It begins with an awareness of our attitude towards math. Jo Boaler has developed the ***Seven Positive Norms*** for the math class (and every day) which can be applied to the everyday use of math:

1. everyone can learn math to the highest level
2. mistakes are valuable
3. questions are really important
4. math is about creativity and making sense
5. math about connections and communicating
6. math class is about learning not performing
7. depth is more important than speed

How can you support your child's learning?
As a parent you are a key part of your child's learning and their attitude towards math. Finding ways to engage and encourage your child in doing, thinking and talking about math is a fundamental way to promote that growth mindset and to build your child's confidence towards mathematics.

In today's world it is essential to have solid skills in critical thinking, problem solving, an ability to communicate, and to have an ability to reason within context mathematically. These mathematical process are foundational for mathematics and are often seen during play when you are engaging your child in everyday activities, or tasks.

How can you start?
Begin by building a strong, positive attitude towards math. When children feel positively engaged and successful they tend to stick with an activity, task or problem to find a solution. Begin with activities, tasks, or problems that are within your child's understanding of math. As your child's understanding deepens and their ability increases provide more challenging opportunities.
Use everyday activities or tasks (e.g., setting the table, sorting laundry, dealing with money) to promote communication, reasoning/proving, problem solving, connecting, and representing mathematics.
Communication does not have to be in English. If you and your child are more comfortable using another language to communicate in math don't be afraid to do so.

How can you use LEGO to promote math?
Communication is key!
Help your child use learning stems to talk about their results:

- There are more ____
- There are less of ___
- I know that ___ because ____
- There are ____ than ____
- Why do you think your answer is correct?

Visit "Parents Boost Learning" at **www.peelschools.org** for more *Parent Tip Sheets.*

Number sense using LEGO:

- estimation
- roll and count (tower building)
- number cards (one-to-one correspondence)
- sorting (one attribute or more)
- skip counting (2, 5,10, 25)
- addition and subtraction
- greater than/less than/equal
- math grouping: getting ready for multiplication
- structure value: assign each brick a value (money or points) then challenge to build something worth $1 or 50 points

Measurement using LEGO:

- estimation (length, mass, capacity)
- use to compare, order and measure objects around the home (shoe size, measuring cups)
- time: each block is a minute, create a clock and label

Patterning using LEGO:

- create repeating, growing and shrinking patterns
- one or two attribute patterns (e.g.) create a repeating pattern suing three colours and two shapes (Gr. 3).

Literacy, math and LEGO:

- sorting words by how many syllables are in a word (reading)
- graphing how many books have been read
- graphing how many sight words are known
- using Lego to print a letter or spell a word (reading)
- write about what you did in a specific activity (e.g., recount what you did, write instructions for how to play or do an activity) (writing)
- talk about how you were using math (oral)

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