

# Exploratory lessons

## **I. First we observed Block Play:**

Not much math language or specific math concepts featured by the students in free block play

- Testing and prediction of structures
- Always a familiar structure
- Difference between males and females
- Dominance where one person controlled – not as collaborative in some observations
- Not communicating – parallel play (especially boys)
- Learning happened when the teacher was there, not just playing on their own, but using that language

WITH students



## **6 Ways to “Play” with Block Play to Enhance Mathematical Thinking**

After observing students at free play with blocks in JK to Grade 2 classrooms, the Northumberland team concluded that the children did not engage in explicit math thinking, but rather implicit understandings. We could see math thought went into their building, but didn't always hear their thinking, - not much math talk. Children's block play seems to be full of informal understanding of geometry and math, but more can be done to “pull out” the meaning from these natural understandings and make it explicit. The team generated 6 scenarios for setting parameters on block play that might encourage students to “play with math ideas more fully during block play”. The following scenarios, based on observations, may encourage MORE math thinking and use of math language:

Scenario 1: to focus on balance, weight, measurement and problem solving

**You structure must have a moving part**

Scenario 2: to focus on stability and problem solving

**Make a tower using this bucket of materials only**

Scenario 3: to focus on fit, spatial relationships, stability and problem solving

**Design one garage/stable for each truck/horse** (provide two horses or trucks of very different sizes).

Scenario 4: focus on stability and measurement and problem solving

**Make a bridge / tower with a base of cylinders and then a second one with a base of pyramids.**

Make some comparisons, using the different figures and testing them.  
Is one tower / bridge more stable?

Scenario 5: to focus on math language of positions and spatial sense

**Follow the blueprint to build your structure** (provide a map and appropriate assorted blocks including those needed for the blueprint and some extras not needed according to the blueprint).

Scenario 6: Spatial sense and problem solving

**Put away the blocks within the tape lines.**

Put tape on walls and floor as guidelines for the space in which the blocks must fit.

**Key Learning:**

We have observed two types of processing which is also supported in the literature:

Simultaneous Information Processing

Sequential Information Processing

- Simultaneous is being able to see the gestalt and the relationships of parts
  - Sequential is being able to see the parts individually

Many people naturally see 'whole pictures' but don't necessarily use this in their mathematics work.

We need to get students to see the component parts and the whole.

We want students to be flexible users of strategies