

A Typical *Investigations* Lesson

Adapted from Beyond Arithmetic

By Jan Mokros, Susan Jo Russell, Karen Economopoulos, p.14

Mathematics is a way of approaching a problem by using one's own logic and powers of observation. It is not a recipe for problem solving, but rather a collection of ways of using reasoning, models, evidence, examples, and counter examples to discover meaningful patterns in numbers, in 2-D and 3-D space, and in data. Like science, mathematics has standard proof: An argument must be supported by evidence, and conclusions must be logically derived.

An *Investigations* session lasts for about one hour. A typical lesson usually has a warm up, main lesson or choice time and a debriefing time at the end of the session.

Introduction

(warm up)

This part of the lesson will probably take 5-15 minutes. The teacher should be careful not to “give away” any of the mathematics, leaving plenty for the students to discover.

During the first part of the mathematics class, the teacher gathers the class together and ...

- ... poses a problem,
- ... reads a story, or
- ... models a new game.

Exploration

(lesson / choice time stations)

The bulk of the class time is spent here. Teachers may organize the session as “Choice Time” so students can move freely among a variety of activities.

During the Exploration time:

- **Children are actively engaged:**
 - ... solving problems, discussing their strategies with peers followed by making a record of their solution in numbers, words, and/or pictures.
 - ... playing mathematical games, building geometric models, or collecting data.

- **The teacher moves among the groups of children. S(he) may...**

- ... modify an activity to make it more accessible or challenging,
- ... record observations,
- ... interact with students where appropriate.
- ... ask probing questions to gain insight into how the students thinking and mathematical understanding. (see Teacher Checkpoints and Observing the Students for example questions.)

Summary

(Debrief/Sharing)

The teacher pulls the class together to reflect on the mathematics learned during the *Exploration* time.

- Children may...
 - ... share their thinking or approaches
 - ... discuss game strategies
 - ... relate today's lessons to previously taught mathematics concepts.
 - ... ask each other questions.
 - ... restate another student's thinking.

The teacher encourages student sharing by asking thoughtful open-ended questions.