

## Lesson Planning Template

### The Problem-Solving Context

**Key Concepts / Big Ideas**

**Curriculum Expectations**

**Brief Description of the Problem / Task**

**Materials**

## Getting Started

During this phase, the teacher can:

- activate students' prior knowledge;
- engage students in the problem-solving situation by posing a thought-provoking problem;
- gather diagnostic and/or formative assessment data through observation and questioning;
- discuss and clarify the task;
- use literature to introduce the problem;
- ask students to restate the problem in their own words;
- allow students to ask questions;
- demonstrate the use of manipulatives;
- solve a similar/simpler problem with the students;
- provide materials and have manipulatives available.

During this phase, students:

- participate in discussions;
- propose strategies;
- question the teacher and their classmates;
- make connections to and reflect on prior learning.

Describe how you will introduce the learning activity to your students. What key questions will you ask? How will you gather diagnostic or formative data about the students' current levels of understanding? How will students be grouped? How will materials be distributed?

## Working on It

<p>During this phase, the teacher can:</p> <ul style="list-style-type: none"> <li>• ask probing questions;</li> <li>• clarify mathematical misconceptions, as needed, by redirecting students through questioning;</li> <li>• answer students' questions (but avoid providing a solution to the problem);</li> <li>• observe and assess;</li> <li>• encourage students to represent their thinking concretely and/or pictorially;</li> <li>• reconvene the whole group if significant questions arise;</li> <li>• encourage students to clarify ideas and to pose questions to other students;</li> <li>• provide a five- or ten-minute warning before bringing them back for the Reflecting and Connecting phase of the lesson.</li> </ul>	<p>During this phase, students:</p> <ul style="list-style-type: none"> <li>• represent their thinking (using numbers, pictures, words, manipulatives, actions, etc.);</li> <li>• participate actively in whole group, small group, or independent settings;</li> <li>• explain their thinking to the teacher and their classmates;</li> <li>• explore and develop strategies and concepts.</li> </ul>
<p>Describe the problem or task in which your students will be engaged. What misconceptions or difficulties do you think they might experience? How will they demonstrate their understanding of the concept? How will you gather your assessment data (e.g., checklist, anecdotal records)? What extension activities will you provide?</p>	

## Reflecting and Connecting

<p>During this phase, the teacher can:</p> <ul style="list-style-type: none"> <li>• bring students back together to share and analyse solutions;</li> <li>• encourage students to explain a variety of solution strategies;</li> <li>• ensure that mathematical concepts are drawn out of the problem;</li> <li>• ask students to defend their procedures and justify their answers;</li> <li>• clarify misunderstandings;</li> <li>• relate strategies and solutions to similar types of problems in order to help students generalize concepts;</li> <li>• summarize the discussion and emphasize key points or concepts.</li> </ul>	<p>During this phase, students:</p> <ul style="list-style-type: none"> <li>• share their findings;</li> <li>• use a variety of concrete, pictorial, and numerical representations to demonstrate a problem's solution;</li> <li>• listen attentively and respectfully to others;</li> <li>• justify and explain their thinking;</li> <li>• reflect on their learning;</li> <li>• demonstrate their learning using manipulatives, diagrams, numbers, words, actions, etc.</li> </ul>
<p>How will you select the individual students or groups of students who are to share their work with the class (i.e., to demonstrate a variety of strategies, to show different types of representations, to model a specific problem-solving strategy, to illustrate a key concept)? What key questions will you ask during the debriefing?</p>	

**Reflections on the Lesson**

How did students demonstrate their understanding of the key mathematical concepts presented in this lesson?

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How did the three-part lesson structure support student learning?

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What will your next steps be to further develop the key concept(s) of this lesson?

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How will you incorporate problem solving and the three-part lesson into your classroom program?

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