

## **2: LESSON PLAN - Nmbr9**

<b>LEARNING AIMS</b>	<p>Students will:</p> <ul style="list-style-type: none"> <li>● Engage in cooperative play</li> <li>● Reflect on their own logical and spatial reasoning</li> <li>● Gain a basic understanding of game mechanics, rules, fundamental gameplay, scoring, strategies, cooperative principles, increase mental math skills, number sense skills</li> <li>● Logical reasoning: <b>Investigating</b> the game to learn how to create good, legal moves – getting to know the game (W1)</li> <li>● Spatial reasoning: <b>Tactilizing</b> (touching, manipulating, moving around, testing out) with the tiles to figure out how to place tiles and how to fit tiles together – getting to know the game (W1)</li> <li>● Logical reasoning: <b>Analyzing</b> tiles for creating effective table layer (level 0 or base) (W2)</li> <li>● Spatial Reasoning: <b>Fitting</b> tiles in order to effective table layer (level 0 or base) (W2)</li> </ul>
<b>MATERIALS</b>	<ul style="list-style-type: none"> <li>● Enough copies of Nmbr9 for your class (3-4 students per game)</li> <li>● Nmbr9 Scorecard (one per student)</li> <li>● Condensed rules sheet - Nmbr9 How to Play</li> <li>● ½ in grid paper (build game board on it)</li> </ul>
<b>SPECIAL CONSIDERATIONS</b>	<ul style="list-style-type: none"> <li>● Grouping the students in either the same or different groups as last class and reasons for. <a href="#">Encourage discussion and understanding of the game.</a></li> <li>● One round of Nmbr9 gameplay takes approximately 20 minutes.</li> </ul>
<b>LESSON ACTIVITIES</b>	<p>1. Place the students in their groups and hand out games before class begins. They can play in pairs again (to help make legal placements).</p> <p>Last class, you learned how to play Nmbr9! Can you remind me of the rules for putting tiles on higher layers? [Cannot cover a gap/hang-over, <b>must</b> touch other pieces on the same level.]</p> <p>You explored how to put tiles on the board. Some of the harder ones you identified were: 0, 3, 6, and 7. And you noticed some fit together snugly. Let's look at some of your friends' reasoning (<a href="#">Starter images</a>). [students share agree/disagree] Today, we're going to focus on analyzing the tiles to see how they fit together. Let's look at this harder tiles – can you predict which tiles will be good partners (fit well)? (<a href="#">Starter images</a>) [take responses] Then, use the tiles to show us the good partners.</p> <p>Navya and Shona both noticed last week that making a good base (table layer) is important. How do partner tiles help you with a base? (<a href="#">Starter images</a>) Let's analyze two different bases from last week (<a href="#">Starter images</a>). Today, you are encouraged to be more strategic about building</p>

	<p><a href="#">your layers and think about how you plan ahead while fitting pieces together.</a></p> <ol style="list-style-type: none"> <li>2. Divide students into their groups of 3-4.             <ol style="list-style-type: none"> <li>a. Recap rules that come with the game where needed</li> <li>b. One on one group engagement for questions and clarifications</li> <li>c. Once students feel comfortable, they may start an official round.</li> </ol> </li> <li>3. Hand out the reflection sheet so students know what questions to think about. Encourage them to choose one round of the game and answer the questions (could get through 2 rounds in one class).</li> <li>4. Teacher circulates and prompts student discussion of strategies. Encourage students to ask each other the questions listed on the “How to Play” sheet (see below).             <ol style="list-style-type: none"> <li>a. Why did you choose to place that piece there?</li> <li>b. Could you have tried a different strategy?</li> <li>c. How many points did that move equate to?</li> </ol> </li> <li>5. At the end of the game time, encourage students to complete the reflection sheet.</li> </ol>
<p><b>QUESTIONS/ REFLECTIONS</b></p>	<p>Questions for students/prompts:</p> <p><a href="#">Focus for Week 2:</a></p> <ul style="list-style-type: none"> <li>● <a href="#">Which pieces are the best for making your table layer?</a></li> <li>● <a href="#">Which pieces are the worst (least favourite) for making your table layer?</a></li> <li>● <a href="#">What makes a piece good or bad for creating the table layer?</a></li> <li>● <a href="#">There are 20 turns in a game, what turn do you think you <b>must</b> start building your second and third levels to get a good score?</a></li> <li>● <a href="#">Is your strategy for fitting the tiles changing? Did you physically rotate or shift? Did you use the squares to help? Did you visualize?</a></li> <li>● <a href="#">What is your strategy to have the least gaps?</a></li> <li>● <a href="#">Did you have a good hint for another player who wasn't sure where to place his/her piece?</a></li> <li>● <a href="#">How did you decide to start the next level?</a></li> <li>● <a href="#">How many pieces did you have to place on Level 0 (table) before you could add your first Level 1 piece?</a></li> <li>● <a href="#">How would it change the game if the tiles were double sided and you could flip them?</a></li> </ul> <p>“Think about it for next time” Reflection Question:</p> <p>Do you have certain pieces that you hope to see come up in the first few turns? If so, why?</p>

	<p>Other questions to consider:</p> <ul style="list-style-type: none"><li>● How are you going to obtain the most points?</li><li>● Did the player with the highest level get the most points?</li><li>● What strategy did you use to get the most amount of points?</li><li>● How are your individual boards the same? How are they different?</li><li>● What was the most challenging part of this game?</li><li>● If you could make one change to the game, what would it be? Why?</li><li>● How many levels do you think is the maximum someone could get to for this game?</li><li>● BEFORE YOU TALLY POINTS: Compare your game board to your neighbour. Estimate who won.</li><li>● You get to design a new piece for number 10, what would you design?</li></ul>
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