

### **4: LESSON PLAN - Nmbr9**

<p><b>LEARNING AIMS</b></p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>● Engage in cooperative play (W1-5)</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) (W2)</li> <li>● Spatial Reasoning: <b>Fitting</b> tiles in order to effective table layer (level 0) (W2)</li> <li>● Logical reasoning: <b>Modifying</b> earlier strategies to increase points by building higher levels (W3)</li> <li>● Spatial Reasoning: <b>Arranging</b> tiles on discrete (individual) levels but aware of relationship between levels to build higher levels (W3)</li> <li>● Logical reasoning: <b>Analyzing</b> where to best place a tile on a turn and <b>analyzing</b> which tiles are remaining to be played (looking forward) (W4)</li> <li>● Spatial Reasoning: <b>Imagining</b> where to place a tile on a turn and where future tiles will help them gain points (W4)</li> </ul>
<p><b>MATERIALS</b></p>	<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>
<p><b>SPECIAL CONSIDERATIONS</b></p>	<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>
<p><b>LESSON ACTIVITIES</b></p>	<ol style="list-style-type: none"> <li>1. In last class, you were encouraged to think about creating a strategy to win (score points). When to move up to the next level? How much of a base is just enough? Today, we'll continue to <b>analyze</b> our boards to make good moves. What do you think <b>analyzing</b> means? Take a look at these two game boards and analyze them – both players got up to level 3, but why are their scores different? <a href="#">Starter Image</a>.</li> </ol> <p>Today, you are encouraged to keep thinking about those ideas, and push your thinking further. As you play this week, try and pay attention to what numbers are left in the deck, and how those numbers might fit into your board in order to maximize your score. Challenge yourself to</p>

	<p><b>imagine</b> and think ahead to get higher scores.</p> <p>For the reflection sheet today, you'll stop at 2 times during your FIRST game: 1) After you put your 5th tile down, answer #1. 2) When there are 5 cards left, answer #2. You can start to imagine for #3!!</p> <ol style="list-style-type: none"> <li>2. Divide students into their groups.</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 <b>complete the last question on the reflection sheet: creating a new rule!</b></li> <li>6. Save about 10 minutes at the end of class to have "wheel discussions." Lay the spatial reasoning wheel and the logical reasoning wheel on tables (maybe opposite sides of the classroom). Split the class in half and send each half to one wheel. Mona can lead one discussion, Janelle can lead the other. <b>Ask: Which one of these components did you use today? Can you give an example?</b> Let each student give a response.</li> </ol>
<p><b>QUESTIONS/ REFLECTIONS</b></p>	<p>Questions for students/prompts:</p> <p>Focus for Week 4:</p> <ul style="list-style-type: none"> <li>● What turn do you start thinking about scoring more than building your base?</li> <li>● Are there any numbers that really mess up your plan to score by coming up too soon or too late? How do they mess up your plan?</li> <li>● What are your favourite numbers to be in the last three or four rounds? Why those numbers?</li> <li>● When you know the last four numbers left to be played, do you already have an idea of how you want to play them or what order you want them to appear in?</li> <li>● What is the worst number to be played last and why?</li> <li>● What is the best number to be played last and why?</li> </ul> <p>"Think about it for next time" Reflection Question:</p>

If you could predict the order the tiles would appear in, could you picture in your head how you would place them on your board to score the most points?

Other questions to consider:

- What is the earliest turn it becomes a good idea to start moving up levels?
- Are there any tiles that might make you wait less or more turns to start moving up to higher levels?
- What tiles do you not want to see come up in the first five turns, why?
- What tiles would you be excited to see come up in the first five turns, why?
- What is the quickest number of turns you were able to place a tile on level 2 (two levels above the table)?
- Which are the best pieces to place on level one? Are they the best because they score points or let you build higher?
- Which pieces are the best for making your table layer?
- Which pieces are the worst (least favorite) for making your table layer?
- What makes a piece good or bad for creating the table layer?
- There are 20 turns in a game, what turn do you think you **must** start building your second and third levels to get a good score?
- Is your strategy for fitting the tiles changing? Did you physically rotate or shift? Did you use the squares to help? Did you visualize?
- What is your strategy to have the least gaps?
- Did you have a good hint for another player who wasn't sure where to place his/her piece?
- How did you decide to start the next level?
- How many pieces did you have to place on Level 0 (table) before you could add your first Level 1 piece?
- How would it change the game if the tiles were double sided and you could flip them?
- How are you going to obtain the most points?
- Did the player with the highest level get the most points?
- What strategy did you use to get the most amount of points?
- How are your individual boards the same? How are they different?
- What was the most challenging part of this game?
- If you could make one change to the game, what would it be? Why?
- How many levels do you think is the maximum someone could get to for this game?
- BEFORE YOU TALLY POINTS: Compare your game board to your neighbour. Estimate who won.
- You get to design a new piece for number 10, what would you design?

