

5: LESSON PLAN - Nmbr9

LEARNING AIMS	<p>Students will:</p> <ul style="list-style-type: none"> ● Engage in cooperative play (W1-5) ● Reflect on their own logical and spatial reasoning ● Gain a basic understanding of game mechanics, rules, fundamental gameplay, scoring, strategies, cooperative principles, increase mental math skills, number sense skills ● Logical reasoning: Investigating the game to learn how to create good, legal moves – getting to know the game (W1) ● Spatial reasoning: Tactilizing (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) ● Logical reasoning: Analyzing tiles for creating effective table layer (level 0) (W2) ● Spatial Reasoning: Fitting tiles in order to effective table layer (level 0) (W2) ● Logical reasoning: Modifying earlier strategies to increase points by building higher levels (W3) ● Spatial Reasoning: Arranging tiles on discrete (individual) levels but aware of relationship between levels to build higher levels (W3) ● Logical reasoning: Analyzing where to best place a tile on a turn and analyzing which tiles are remaining to be played (looking forward) (W4) ● Spatial Reasoning: Imagining where to place a tile on a turn and where future tiles will help them gain points (W4) ● Logical Reasoning: Justifying strategic play within the game rules and with rule modification for Nmbr9 leading to generalizing strategies (W5) ● Spatial Reasoning: Interpreting the game board board to make good moves, both a given board and emerging boards in play (W5)
MATERIALS	<ul style="list-style-type: none"> ● Enough copies of Nmbr9 for your class (3-4 students per game) ● Nmbr9 Scorecard (one per student) ● Condensed rules sheet - Nmbr9 How to Play ● ½ in grid paper (build game board on it) ● List of new game rules
SPECIAL CONSIDERATIONS	<ul style="list-style-type: none"> ● Grouping the students at game boards. Can play in pairs or individually. ● One round of Nmbr9 game play takes approximately 20 minutes.
LESSON ACTIVITIES	<p>1. This is our last week of playing Nmbr9 together. You will have a chance to use your best strategies and justify why they help you play well at Nmbr9.</p> <p>To start this class, in your groups set up the game board from the sheet. It might not be as easy as it looks – what is hiding on level 0?!? – so you’ll have interpret the board in the picture. Using 3 out of 4 of the tiles 4, 6, 7, 8, test and fit the tiles on for the high score. Discuss with</p>

	<p>your groups and then draw and write your thinking on your reflection sheet.</p> <p>THEN, you get a chance to play with a different rule! You were very creative last class and came up with a lot of great variations. We picked 5 new rules that still kept the challenge of the game but could make for interesting play! Here are the 5 new rules you can try today:</p> <ol style="list-style-type: none"> 1) When you start a new level, you can move one tile (could change levels). 2) You can store one tile (once in the game) and choose when to play it. 3) You can flip tiles and place them face down for the whole game. 4) On level 1 and higher (not table/base), you don't have to place tiles adjacent to another tile. 5) Each person can choose a number once in the game (look through the draw pile and pick the number). <p>Each group will be assigned one variation. Play your first round with the variation. As you play with the new rule, think about which of your strategies are working and which ones you need to adapt. Then tell us about it!</p> <ol style="list-style-type: none"> 2. Divide students into their groups. 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). Their second round can either be with normal rules or one of the other variations. 4. Teacher circulates and prompts student discussion of strategies. Encourage students to ask each other the questions listed on the "How to Play" sheet. <ol style="list-style-type: none"> a. Why did you choose to place that piece there? b. Could you have tried a different strategy? c. How many points did that move equate to? 5. At the end of the game time, encourage students to complete the last 2 questions on the reflection sheet.
<p>QUESTIONS/ REFLECTIONS</p>	<p>Questions for students/prompts:</p> <p>Focus for Week 5:</p> <ul style="list-style-type: none"> ● What modification did you come up with? ● What part of the game do you think your modification will make easier? ● Why did you choose that type of modification and not another (name some alternatives)

- Do you think the game would be better overall if it had your modification? Why?
- Is the game still challenging with your modification?
- Could you combine your own modification with someone else's to make the game even better again?

Other questions to consider:

- What turn do you start thinking about scoring more than building your base?
- 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?
- What are your favourite numbers to be in the last three or four rounds? Why those numbers?
- 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?
- What is the worst number to be played last and why?
- What is the best number to be played last and why?
- 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 favourite) 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?

	<ul style="list-style-type: none">● 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?
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