



Lesson Plan 1b: Whole-Class Introduction to Number Hive (Addition Version)

Use Case: Whole-Class Learning & Building Engagement

Grade Level: Years 3–5 (Adaptable)

Focus: Additive Thinking, Reasoning, Fluency, and Reciprocal Relationships

Duration: 45 minutes

Lesson Objectives

- Reinforce addition fluency through engaging and collaborative gameplay.
 - Develop students' understanding of the inverse relationship between addition and subtraction.
 - Foster strategic decision-making and critical thinking in a mathematical context.
 - Familiarize students with the mechanics of Number Hive and its application to additive reasoning.
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Materials Needed

- A device connected to a projector/screen.
 - Student devices (if available) or printable Number Hive gameboards.
 - Pre-prepared addition grid (optional) for reference (e.g., sums up to 100).
 - Number Hive rules and gameplay video for explanation.
 - Number Hive Discussion Guide (optional, for debrief).
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Lesson Structure

1. Introduction (10 Minutes)

Warm-Up Activity:

- Write two addition problems on the board (e.g., $17 + 8$ vs. $29 + 16$).
- Facilitate a discussion using Number Talks:
 - “What strategies can we use to solve these quickly?”
 - Model different strategies on the board.
 - “Which one is easier to solve and why?”
- Highlight strategies such as:
 - Making friendly numbers (e.g., $17 + 8 = 20 + 5$).
 - Decomposing (e.g., $29 + 16 = (29 + 10) + 6$).
- Emphasize how fluency with addition helps in problem-solving and reduces cognitive load during complex tasks.

Introduction to Number Hive:

- Show the Number Hive interface (digitally or using a printed gameboard).
 - Explain:
 - “This game helps you practice addition while building strategies.”
 - “It’s like chess, where every move involves quick thinking and decision-making.”
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2. Demonstration (10 Minutes)

Model the Game as a Whole Class:

- Project the game onto the screen and explain the goal:
 - “Gain the sums out in the hive by adding the two numbers down the bottom on the number pads.”
 - Play a quick demo game, narrating your thought process:
 - “I’ll choose this cell because it continues my streak and I know $7 + 8 = 15$.”
 - “If I solve this correctly, I block my opponent’s streak.”
 - “This subtraction problem, $12 - 9$, connects to addition because I know $9 + 3 = 12$.”
 - Pause during gameplay to ask:
 - “Why did I pick this number?”
 - “What might be the best move for our next turn?”
 - “How can we use subtraction to double-check this answer?”
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3. Guided Practice (15 Minutes)

Student Gameplay:

- Organize students into pairs (or small groups) with devices or physical gameboards.
- Let them play against each other or a BOT (digital), using addition-based Number Hive.

Encourage Strategic Thinking:

- Prompt discussion around strategy:
 - “Which move helps you build your path faster?”
 - “How can you block your opponent?”
 - “What’s the easiest way to double-check this sum?”
- Highlight inverse operations (e.g., “How does subtraction help you here?”).

Teacher Role:

- Circulate the room to observe, guide, and ask probing questions:
 - “Why did you choose that move?”
 - “What’s another way you could solve that sum?”
 - “Does this move help you win, or is it just a safe move?”
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4. Debrief & Reflection (10 Minutes)

Class Discussion:

- Reflect as a group:
 - “What strategies worked well for attack and for defence?”
 - “Where did addition fluency make a big difference?”
 - “What did you learn about the connection between addition and subtraction?”
- Use the **Number Hive Discussion Guide** to prompt deeper thinking, such as:
 - “What would you do differently next time?”
 - “Was there a moment where a wrong answer cost you a good move?”

Key Takeaways:

- Emphasize:
 - The importance of addition fluency for making quick and confident decisions.
 - The role of strategic thinking in problem-solving.
 - The beauty of seeing addition and subtraction as interconnected processes.

Optional Homework:

- Encourage students to play at home with a friend or family member.
- Assign a few addition and subtraction problems that relate to their gameplay experience.