Teacher's Surname: PAPADOPOULOS	**Name: Panagiotis**
Title: Moving Forward Step-by-Step in Addition	**Time: 45 minutes**
Subject: *Mathematics*	
Aims: To help students understand **addition** by applying the principles of **computational thinking**	
Key CS elements: Decomposition; Pattern Recognition; Abstraction; Algorithm Design.	
Age group: 6-8	
Learning situations: Individual and group work	**Activity type:**
Materials: • Number line (either drawn on the whiteboard or printed for each student) • Whiteboard and markers	**Resources:**

Learning development:

Problem definition:

Introduction

Briefly explain that computational thinking helps us break down problems and solve them step-by-step.

Tell the students: "Today, we'll use computational thinking to add numbers by moving forward on a number line!"

Pre - Assessment Test (optional):

1. **Decomposition**

   Write a simple addition problem on the board, such as 4 + 2.

   Decompose the problem:

   1. Start at 4 on the number line.
   2. Move forward 2 steps to add 2.
   3. Where do you end up? (Answer: 6)

   Discussion: Explain that breaking the problem into small steps helps make it easier to solve.

2. **Pattern Recognition**

   Show a few more examples on the number line:

   3 + 2: Start at 3, move forward 2 steps → land on 5.

   5 + 3: Start at 5, move forward 3 steps → land on 8.

   Pattern: Ask students, "What happens every time we add 2 or 3? What do you notice about moving forward?"

   Discussion: Recognizing the pattern of "moving forward" helps make the addition process faster and more predictable.

3. **Abstraction**

   Explain abstraction: "In addition, we focus on the important numbers and ignore the small details."

   Use the number line to demonstrate that the important parts of the problem are the starting number (e.g., 4) and how many steps to move forward (e.g., 2).

   Ask students to think about just the numbers and not worry about extra things, like how many times they move their hand to point to the next number.

4. **Algorithm design**

   Introduce an algorithm for adding numbers on the number line:

   Step 1: Start at the first number.

   Step 2: Move forward by the second number.

   Step 3: The number you land on is the answer.

Assessment:

Observe students as they use the number line to solve addition problems.

Review their responses to ensure they are following the steps and understanding the addition process

Post - Assessment Test (optional):
Feedback based on Post – Assessment Test (optional):
Expected results: By the end of the lesson, students will: • Understand **addition** by moving forward on a number line. • Apply the four principles of computational thinking: **decomposition**, **pattern recognition**, **abstraction**, and **algorithm design**.
Notes: