

SAMPLE LESSON

Grade: 2

Content Strand: Numbers

Topic: Addition and Subtraction of three digit Numbers

Sub-topic: Addition and subtraction using Number line

Duration: 60 minutes

Standard: Students will demonstrate an understanding of numbers, types of numbers, numeration systems, and the relationship among numbers, and apply number theory concepts to compute fluently and solve problems.

Attainment Target: Use the basic operations with numbers and number patterns.

Benchmark: Compute with whole numbers quickly and accurately; use these skills to find answers in realistic (problem) situations.

Specific Objectives: By the end of the lesson students should be able to:

1. Explain how to use a number line to perform addition
2. Find and identify points on a number line
3. Use an empty number line to do addition and subtraction
4. Write mathematical statements that correctly represents worded problems

Prerequisite Knowledge

Students should already know:

- How to add single and two digit numbers
- Synonyms for addition
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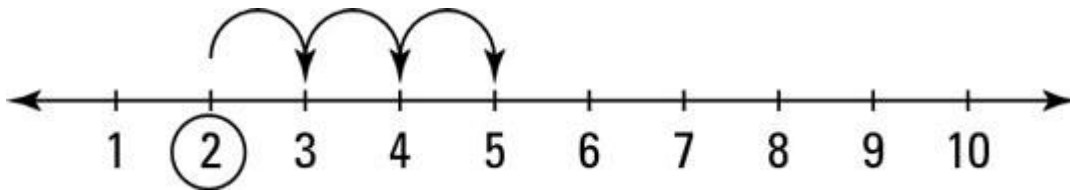
Content outline

An empty number line is a blank number line without numbers or markings which can be used to help students to give a visual representation of their individual computational strategies.

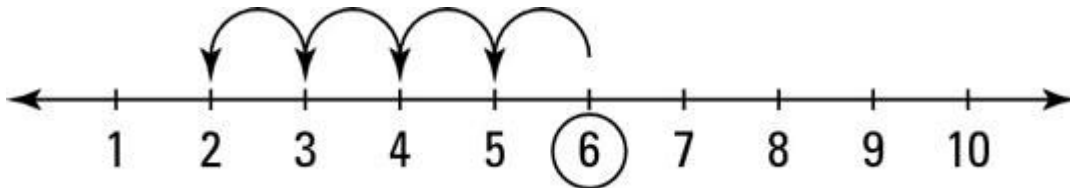
The number line can be used to demonstrate simple addition and subtraction. These first steps in math become a lot more concrete with a visual aid. Here's the main thing to remember:

- As you go right, the numbers increase, which is addition (+).
- As you go left, the numbers decrease, which is subtraction (-).

For example, $2 + 3$ means you start at 2 and jump up 3 spaces to 5, as illustrated in the below figure.



Here is another example, $6 - 4$ means start at 6 and jump down 4 spaces to 2. That is, $6 - 4 = 2$, as shown in the following figure.



You can use these simple up and down rules repeatedly to solve a longer string of added and subtracted numbers. For example, $3 + 1 - 2 + 4 - 3 - 2$ means 3, up 1, down 2, up 4, down 3, and down 2. In this case, the number line would show you that $3 + 1 - 2 + 4 - 3 - 2 = 1$.

Materials/Manipulative

Empty number line, game cards for “I have, who has” game, number cards or pictures of money

Procedure

Engage/communicate/collaborate:

Distribute the cards randomly to a group of students. Select a student to begin by reading his/her card aloud. For example “I have 14, who has $2 + 3$?” The child who has the card with the answer would read next. For example “I have 5 who has $6 + 4$?” and so on.

Encourage students to listen for their number and try not to break the chain. Time the group to complete a full round of the game. Give the cards to another set of students and see if they could beat the previous time set.

Main Activities

Explore/communicate/collaborate

1. The teacher will prepare students for learning by writing a series of numbers on the board and asking them to put in order. They will share, compare, and discuss answers.
2. Tell students they will be learning about a number line, how to use it, and why it is a great tool for mathematicians.

Allow students to practice moving on the number line using jumps of hundreds, tens and ones by drawing and using an empty number line in their books. Students can also be allowed to use the hundred chart to practice addition and subtraction of numbers, also helping students to see how they jump from one number to the next.

Example, $65 + 24$

Start at 65, move down 2 tens, then move over to the right 4 ones, what number did you stop on?

3. Also, allow students to do selected questions on the board. These questions may be

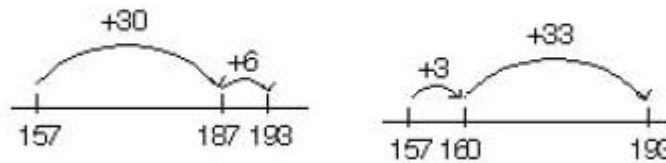
How can we move from 0 to 59 in the least jumps of tens and ones?

How can we go from 189 to 0 in the least number of hundreds, tens and ones?

Encourage students to share their answers and the various ways they used to get them. After this, give students a series of addition and subtraction questions to do. These questions may include:

1. How can we go from 27 to 53 in the least number of jumps? Who has another way?
2. How can we add $34 + 23$?
3. How can we add $37 + 25$?
4. Show the result of $82 - 47$
5. How can we add $157 + 36$?

NB: You will observe that the students have more than one way that they will use to get their answer and as such great care should be taken when examining students' work. For example, to solve $157+36$ one student may begin at 157, add 30 then 6; while another student may start at 157 and break the 36 into 3 and 33.

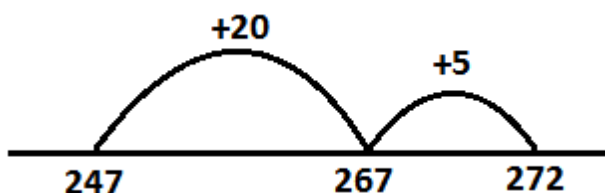


□ Once students are comfortable with this strategy, allow them to solve worded questions using the empty number line.

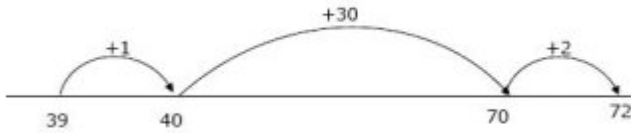
Example:

1. A wall is 247 cm tall and Bob puts decorative blocks that are 25cm tall on top of the wall. How tall is the total structure of the wall along with the decorative blocks?

[Possible attempts]



2. I have \$39 and need \$33 to finish paying for class party. What is the cost of the class party?



Elaboration

3. Jane was given a note to take to her parents informing them of a trip to Seville Heritage Park next week. The cost of the transportation is \$650 and admission is \$275. What is the total cost for the trip?

1. Ask the students to write down a mathematical statement to represent the case.
2. Ask the students to use the number line to represent this statement and find the solution.

Evaluation

Give students various scenarios to solve by first writing down the math statement.

1. Mary has \$150 and her dad gave her \$363. How much money does she have?
2. John ran 165 metres yesterday and 246 metres today. How many metres did he run in all?
3. Mr. Spider used 140m of fencing to fence a part of his yard. He measured the rest and noticed that he needed another 223m. What was the total length of fencing used to completely fence his yard?
4. Mr. Joe went to the market and bought some carrots for \$160 and some June plums for \$200 to make juice for his son and daughter to go to school. How much money did he spend?

Problem Solving Question

Have the students tell you the possible situations which will result in the following:

The answer is 55. What is the question?

"I have... Who has...?" Game cards

I have **10** .
Who has **$7 + 5$** ?

I have **12** .
Who has **$2 + 4$** ?

I have **6** .
Who has **$9 + 2$** ?

I have **9** .
Who has **$1 + 3$** ?

I have **14** .
Who has **$2 + 3$** ?

I have **4** .
Who has **$10 + 3$** ?

I have **13**.

Who has $7 + 7$?

I have **5**.

Who has $6 + 4$?

Evaluation (Teacher):

Were students able to:

	0% - 50%	51% - 80%	81% - 100%
Performed addition with number line accurately			
Performed subtraction with number line accurately			
Write number sentences relating to addition/subtraction			
Work collaboratively			

Comments:*Areas of strengths:*

Areas of weaknesses

Actions to be taken

- Re-teach Concept
- Reinforcement of Concept
- Advance to New Topic

Blank Number Lines

Name _____

Date _____

