

Addition and subtraction

Rationale and Essential Questions:

The lesson is important because learning addition can equip the students with different strategies that they can use to solve real world problems. In our society, our students are always engaging themselves in situations involving quantities. They are always trying to put things together, join them and even break them into pieces while trying to make sense out of it. Exposing them to a variety of word problems involving addition, they will be able to create their own word problems and use the different strategies they learn to understand situations involving quantities that they may find themselves in. This can range from buying things to sharing things with friends and family. The essential questions that will drive this lesson are:

How can I use addition to solve real world problems?

What strategies can I use to solve real world problems?

How are addition and subtraction related?

Content Knowledge:

Different methods and strategies for adding and subtracting numbers e.g. add then tens first then the ones or the hundreds, then the tens then the ones etc.

Materials Needed:

- Math Journals
- Pencils
- “Let’s learn about addition and subtraction” recording sheet
- Manipulatives/cut outs to help students create models for their problems.
- Personal whiteboards
- Whiteboard markers

Prior Knowledge of Students:

1. Students can add numbers using the carrying strategy
2. Students are familiar with the concept of place value
3. Students understand the functions of addition

New Jersey Core Curriculum Standards:

- CCSS.Math.Content.3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Differentiation:

1. Differentiation for the three high level mathematicians: These students will be given an extension activity where they will use their knowledge and addition strategies to solve

real world problems. The following question will be given to them: The four 3rd grade classes sold 527 bracelets for a fundraiser. Each class sold at least 115 bracelets. No class sold the same amount of bracelets. Class 1 sold more bracelets than any other class. What different combinations of bracelets each class could have sold?

2. Differentiation for the two children with ADHD: These students like to move a lot in class. I will have wiggle cushions (ridged seat mats) for them to sit on during instruction time rather than them sitting on the regular rigid chairs. I will also have them help in materials distribution when we set up the group activities. These two will help do duties like erasing the whiteboard as well. One accommodation I have for them is every time they feel they need to move vigorously, they can walk out the door and do star jumps and then come back. Their group is located closer to the exit so that when they exit, it is as least disruptive as possible. The teaching assistant will be supervising these students each time they go out.
3. Differentiation for the student in learning support for English: I will have visuals for this student and also make sure he is in the same group with one of the students who really like to help others understand what is going on.
4. Differentiation for the student with vision impairment: This student sees better when he sits further from the whiteboard. I will have the groups set up in such a way that his table group will be seated the furthest from the whiteboard. I will also have the classroom assistant rotate about his table group to clarify or explain anything the group may not have understood.

Objectives	Assessment
Cognitive: Students will complete word problems using addition by successfully employing at least two strategies to come up with the correct answer.	I will assess word problems in their math journals to see if they have employed at least two strategies to correctly solve them.
Affective: Students will cooperatively work in pairs to help each other solve the math problems.	I will informally assess this through observation. Students will have to demonstrate they are working together when comparing strategies and talking about them.

Activities

1. Hook: 5 minutes

I will tell a story about a young girl called Shabina who had been saving all the coins she was ever given. She had 122 pennies, 97 nickels, 118 dimes and 308 quarters in her piggy bank. Shabina wanted to buy herself a birthday gift but she couldn't afford it. Her parents

told her that if she could sort the coins in her piggy bank and tell them how many coins there was in total, they would buy her the gift. This made her very happy. And she sorted out the coins and she began counting.... And the question is how coins did she sort? This story will make the students start thinking of different strategies to add up the coins....

2. To check students' prior knowledge and understanding of addition, I will give them the following questions. Students will solve them on their personal whiteboards. (10 minutes)
Grouping: This will be individual work at the table groups.

1. $58 + 65 =$
2. $113 + 43 =$
3. $334 + 12 =$
4. $98 + 79 =$

3. Students will explain to each other what strategies they used to solve the questions above. I will ask them the following two questions. Students will use manipulatives and cut outs to create models for their problems and answers if needed.
Q: What was the plan you used when adding?
Q: What was the plan you used when subtracting?
One person from the group will then share with the whole class the group's strategies. (10 minutes)
Grouping: This will be in five groups of four. I have five different table groups already set up for their homeroom session. This arrangement works well for this class for small group activities hence I chose five groups of four.

4. I will then teach the students the strategy of adding numbers by decomposing them. For example $27 + 25 =$ Decompose 27 to $25 + 2$, $25 + 25 = 50 + 2 = 52$
We will do two examples with the whole group and in their original groups of four; each group will be given one problem to solve by decomposing the numbers. In their math journals, students will individually work out the answer to the given problem employing at least two strategies to solve it. (15 minutes)
Grouping: This will be an activity for the whole class for the first part.

5. **Closure:** The students will apply the learned strategy to tell how many coins Shabina had in her piggy bank as part of their assessment. (5 minutes)
Grouping: This will be in their table groups.