

Adding Three Digit Numbers

Upper Primary

Key Inquiry Questions

1. Why are details important?
2. Why are details in math important?

Learning Outcomes

1. Students will be able to create a detailed step by step to a math problem by the end of the lesson.
2. Students will be able to use their instructions on a math problem and find any mistakes by the end of the lesson.
3. Students will be able to find mistakes in detail in the pb and j activity by the end of the lesson.

Overview

In this lesson students will be looking at how to add three-digit numbers using the carrying method as well as observing the importance of detail in writing. Students will begin the lesson with a peanut butter and jelly activity (if peanut butter and jelly is unfamiliar, foods with three ingredients will be used). Students will write down the steps to making a peanut butter and jelly sandwich while the teacher does the exact steps the students say. Next, students will begin the lesson on adding three-digit numbers using smaller examples and a video located on the solarSPELL. After students have completed the lesson on three-digit addition, students will create their own three-digit addition problem and create steps to complete it. Students will partner up and have their partner use these steps to complete the problem. Students will turn in these problems and steps for a grade.

Materials

SolarSPELL Resource:

1. Why Carrying Works (Math -> Addition and Subtraction).

Other:

- Writing Utensil
- Paper
- Three ingredients to chosen food item

Suggested Procedure

Before Lesson:

- Ask students to take out a sheet of paper.
 - On this paper, ask students to write down the steps to making a peanut butter and jelly sandwich.
 - If a peanut butter and jelly sandwich is unfamiliar, please choose a food that only takes three ingredients to make.
- As students are writing down the steps to making a peanut butter and jelly (or selected food) bring out the ingredients to making the item.
- Once students are done writing down steps, call volunteers to tell the steps to make the sandwich (make sure to follow their exact steps).
 - Examples:
 - Student: “Put jelly on the bread”.
 - Teacher: Put the jar of jelly on top of the bread.
 - The statement that the student said was not correct because they made no detail about opening the jar and taking out the jelly with a utensil.
 - Student: “Put the bread on the plate”.
 - Teacher: Put the whole bag of bread on the plate.
 - The statement the student said was incorrect because they made no detail about opening the bag of bread and how many pieces to take out of the bag.
- Continue to do this until students can give specific detail on how to make the peanut butter and jelly sandwich (or selected food).
 - Should be close to:
 1. Take out two pieces of bread out of the bag and place them next to each other on the plate.
 2. Grab the peanut butter jar and take off the lid.
 3. Place a butter knife in the peanut butter jar and take out, close to, one tablespoon of peanut butter from the jar.
 4. Place the tablespoon of peanut butter on one piece of bread and spread till the one side of the bread is covered.
 5. Place a butter knife in the jelly jar and take out, close to, one tablespoon of jelly from the jar.
 6. Place the tablespoon of jelly on the other piece of bread and spread till the one side of the bread is covered.
 7. Put the two slices of bread together with the peanut butter and jelly touching.

During Lesson:

- Ask students to take out a sheet of paper to write notes on.
- Explain to students they will be learning how to add three digit numbers together by “carrying”.
- Start with the example: 58
 $+ \underline{\quad}6$
- Ask students what 8 plus 6 equals.
 - Answer: 14
- Show students when they write 14 it will look like this: $\overset{1}{5}8$



$$\begin{array}{r} + 6 \\ 4 \end{array}$$

- Explain to students the 4 stays in the ones place because in 14, it is in the ones place. The 1 gets carried to the 5 because in 14, the 1 is in the tens place.
- Tell students, now they add the tens, which is now: $5 + 1 = 6$
 - The answer to $58 + 6 = 64$
- Ask students to solve this problem on their own:

$$\begin{array}{r} 24 \\ + 7 \end{array}$$

- Answer:

$$\begin{array}{r} | \\ 24 \\ + 7 \\ \hline 31 \end{array}$$

- Now ask students to solve: $536 + 398$
- Explain to students that even though they are larger numbers, it is the same concept. Go in order from right to left.
 - Give students a few minutes to solve the problem.

- Answer:

$$\begin{array}{r} | | \\ 536 \\ + 398 \\ \hline 934 \end{array}$$

- After students have solved the problem to the best of their abilities, show students the video: “Why Carrying Works” located on the SolarSPELL to give a further explanation.
- Give students these four problems to solve:

$$\begin{array}{r} | \\ 365 \\ + 260 \\ \hline 625 \end{array}$$

$$\begin{array}{r} | | \\ 347 \\ + 463 \\ \hline 810 \end{array}$$

$$\begin{array}{r} | | \\ 124 \\ + 289 \\ \hline 413 \end{array}$$

$$\begin{array}{r} | \\ 692 \\ + 272 \\ \hline 964 \end{array}$$

- Have students check their answers with a partner when they are done.

After Lesson:

- After students have completed the four additional problems, have each student take out a piece of paper.
- Explain to students on this piece of paper they will write down steps to solving a three-digit addition problem.
 - Students will create their own three-digit addition problem.
 - Students will solve the addition problem on a different piece of paper.
 - On another sheet of paper, students will create steps to explain how they solved the addition problem.
 - Remind students of the peanut butter and jelly example: steps need to be specific.
- After students have solved their problem and created steps for their problem, ask students to partner up.
- With their partner they are going to trade their unsolved problem paper and their paper with steps on it.



- Each partner will solve the problem exactly the way the steps says to solve the problem.
- Partners will compare their answer to what the actual answer is.
- Students will take the answer their partner got and use it to see where their directions may have gone wrong.
 - Repeat these steps until the partner gets the right answer using the steps.

Assessment:

- Students will turn in their problem, steps to the problem, and their answer to the problem at the end of the lesson.