

Grade 5: Module 1: Lesson Demonstration

Concept: Addition/Subtraction Algorithm with the Place Value Chart and Number Disks

3 Part Lesson

- Part 1: Fluency Work (10 minutes)
 Part 2: Problem Solving (6 minutes)
 Part 3: Content Lesson with Debrief (34 minutes)

Teacher**Student Accommodations/Comments/Pictures****Part 1: Fluency Focus: Place Value (10 minutes)**

Materials: personal white boards

Fluency Activity #1: Happy Fingers (2 minutes)Teacher projects: $2/10 =$

T: Say 2 tenths as a decimal.

S: 0.2.

T: Let's count by 0.2. When I point up, count up by 0.2. When I point down, count down by 0.2. When I hold my hand sideways, stop and say nothing. Students count as teacher directs them up and down.

Possible sequence: 0.2, 0.4, 0.6, 0.8, 1... (Teacher will stop at random to ask students to say the decimal as a fraction).

Fluency Activity #2: Decimal Numbers (2 minutes)

T: I'll say the numbers in words, and you'll say it as a decimal. For example, if I say 3 tenths, you say 0.3. Ready.

T: 1 tenth.

S: 0.1.

T: 9 tenths.

S: 0.9.

T: 10 tenths.

S: 1.

T: 15 tenths.

To the teacher: React to the students' understanding. Go slower if they're struggling, faster if they need a challenge.

Keep students challenged and focused by cuing them to whisper or talk louder.

If the choral counting becomes disjointed, hold your hand sideways to gain silence.

S: 1.5
T: 25 tenths.
S: 2.5.
T: 35 tenths.
S: 3.5.
T: 95 tenths.
S: 9.5.
T: 100 tenths.
S: 10.
T: 125 tenths.
S: 12.5.
T: 1 hundredth.
S: 0.01.
T: 9 hundredths.
S: 0.09.
T: 10 hundredths.
S: 0.1.
T: 18 hundredths.
S: 0.18.
T: 28 hundredths.
S: 0.28.
T: 38 hundredths.
S: 0.38.
T: 98 hundredths.
S: 0.98.
T: 100 hundredths.
S: 1.
T: 200 hundredths.
S: 2.
T: 700 hundredths.
S: 7.
T: 750 hundredths.
S: 7.5.
T: 758 hundredths.
S: 7.58.
T: 426 hundredths.
S: 4.26.

Fluency Activity #3: Partners to 100, 10, 1, and 0.1 (4 minutes)

Teacher writes:

$$90 + \underline{\hspace{2cm}} = 100$$

T: Show the answer.

Students write:

$$90 + 10 = 100$$

T: 50 + what equals 100?

S: 50.

T: 80 + what equals 100?

S: 20.

Teacher writes:

$$9 + \underline{\hspace{2cm}} = 10$$

T: Show the answer.

Students write:

$$9 + 1 = 10.$$

T: 7 + what equals 10?

S: 3.

T: 6 + what equals 10?

S: 4.

Teacher writes:

$$0.9 + \underline{\hspace{2cm}} = 1$$

T: Show the answer.

Students write:

$$0.9 + 0.1 = 1$$

Teacher writes:

$$0.5 + \underline{\hspace{1cm}} = 1$$

Students write:

$$0.5 + 0.5 = 1$$

T: 0.8 + what equals 1?

S: 0.2.

T: 0.6 + what equals 1?

S: 0.4.

To the teacher: Establish the procedure early on that students must wait for your signal before responding chorally. This enables you to control wait time. A finger snap works well.

Teacher writes:

$$0.09 + \underline{\hspace{2cm}} = 0.1$$

Students write:

$$0.09 + 0.01 = 0.1$$

Teacher writes:

$$0.08 + \underline{\hspace{2cm}} = 0.1$$

Students write:

$$0.08 + 0.02 = 0.1$$

T: $0.05 +$ what equals 0.1 ?

S: 0.05 .

T: $0.07 +$ what equals 0.1 ?

S: 0.03 .

Part 2: Problem Solving (6 minutes)

Teacher Projects:

Sam has 1025 animal stickers. He has 3 times as many plant stickers as animal stickers.

T: Read.

S: Sam has 1025 animal stickers. He has 3 times as many plant stickers as animal stickers.

T: Draw a bar diagram of what you see (pause). Reread the first sentence with me.

S: Sam has 1025 animal stickers.

Teacher writes:

Animal

1025

T: Reread the second sentence.

S: He has 3 times as many plant stickers as animal stickers.

T: What type of sticker does Sam have more of?

S: Plant stickers.

T: How many units are the plant stickers?

S: 3.

T: What is the value of each unit?

S: 1025 stickers.

Teacher writes:

Animal	1025		
Plant	1025	1025	1025

T: If one unit is equal to 1025, we find 3 units by?

S: Multiplying.

Teacher projects:

1. He has _____ plant stickers.
2. He has _____ more plant stickers than animal stickers.
3. He has _____ stickers altogether.

Challenge: If he gives 476 animal stickers to Mandy and 2819 plant stickers to Ken. How many more animal stickers than plant stickers will he have? (DRAW ANOTHER DIAGRAM)

To the teacher: Students who answer all problems correctly can help students who are struggling. If the challenge problem proves too hard for the majority of the students, it's o.k. to skip reviewing it.

T: Raise your hand if you know what 1 unit equals. Ready (signal).

S: One thousand twenty-five.

Teacher writes:

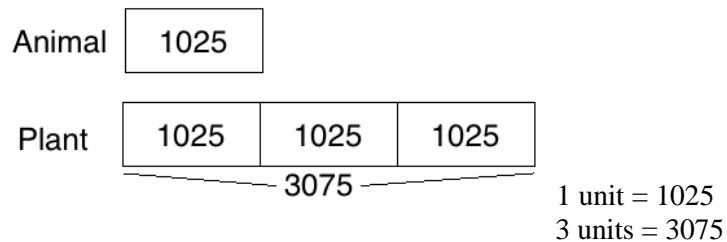
Animal	1025		
Plant	1025	1025	1025

1 unit = 1025

T: Raise your hand if you know the answer to number one. (signal)

S: 3075.

Teacher writes:



T: Read number two. Say blank when you come to the blank.

S: He has blank more plant stickers than animal stickers.

T: How did you solve this problem? Turn and talk.

Student answers might include:

S: I subtracted 1025 from 3075 and got 2050.

S: I knew that the plant stickers are 2 more units than the animal stickers. One unit is 1025. So, I multiplied 1025 times 2 and got 2050.

T: Good. Read number 3.

S: He has blank stickers altogether.

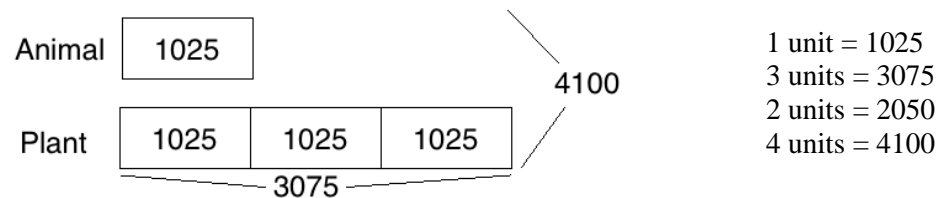
T: How did you solve this problem? Turn and talk.

Student answers might include:

S: I added 1025 and 3075 and got 4100.

S: I knew that one unit was 1025 and there are 4 units altogether. 1025 times 4 equals 4100.

Teacher writes:



T: Good. Read the challenge problem.

S: If he gives 476 animal stickers to Mandy and 2819 plant stickers to Ken. How many more animal stickers than plant stickers does he now have?

T: If he gives the stickers away, we have to?

S: Subtract.

T: Raise your hand if you have the answer. Say the subtraction sentence for animal stickers.

S: $1025 - 476 = 549$.

Teacher writes:

Animal 549

T: Raise your hand if you have the answer. Say the subtraction sentence for plant stickers.

S: $3075 - 2819 = 256$.

Teacher writes:

Animal 549

Plant 256

T: To find the difference between the two stickers, we have to?

S: Subtract.

T: Raise your hand if you have the answer. Say the subtraction sentence.

S: $549 - 256 = 293$.

Teacher writes:

Animal 549

Plant 256 293

Part 3: Content Lesson and Debrief (34 minutes)

Materials: personal whiteboards, decimal place-value mat, number disks, Activity Sheet, Exit Ticket

“We do” (7 minutes)

Teacher projects:

$$9 \text{ ones} + 3 \text{ ones} = \underline{\quad} \text{ ones}$$

S: 12 ones.

T: Say the addition sentence.

S: $9 + 3 = 12$

T: 9 tenths + 3 tenths is?

S: 12 tenths.

T: Say the addition sentence in decimal form.

S: $0.9 + 0.3 = 1.2$

Teacher projects:

19 ones + 3 ones = _____ ones

S: 22 ones.

T: Say the addition sentence.

S: $19 + 3 = 22$

T: 19 tenths + 3 tenths is?

S: 22 tenths.

T: Say the addition sentence in decimal form.

S: $1.9 + 0.3 = 2.2$

Teacher projects:

59 ones + 3 ones = _____ ones

S: 62 ones.

T: Say the addition sentence.

S: $59 + 3 = 62$

T: 59 tenths + 3 tenths is?

S: 62 tenths.

T: Say the addition sentence in decimal form.

S: $5.9 + 0.3 = 6.2$

Teacher projects:

59 ones + 13 ones = _____ ones

S: 72 ones.

T: Say the addition sentence.

S: $59 + 13 = 72$.

T: 59 tenths + 13 tenths is?

S: 72 tenths.

T: Say the addition sentence in decimal form.

S: $5.9 + 1.3 = 7.2$.

Teacher projects:

$$476 \text{ ones} + 348 \text{ ones} = \underline{\hspace{2cm}} \text{ ones}$$

- T: (pause) Why is this harder? Turn and talk.
 S: The computation is hard to do in my head.
 T: Let's draw number disks. Show 476 on your place value chart.
 S: (Teacher models first, then students follow).
 T: Show 348 on your place value chart.
 S: (Teacher models first, then students follow).

Teacher projects:

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
	4	7	6			
	+ 3	4	8			

- T: How many ones are in the one's column?
 S: 14 ones.
 T: 14 ones is same as one ten and how many ones?
 S: 4 ones.
 T: How many tens are in the ten's column now?
 S: 12 tens.
 T: 12 tens is the same as one hundred and how many tens?
 S: 2 tens. (Teacher writes vertically).
 T: How many hundreds are in the hundred's column now?
 S: 8 hundreds. (Teacher writes vertically).
 T: Say the addition sentence.
 S: $476 + 348 = 824$.

Teacher projects:

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
	¹ 4	¹ 7	6			
	+ 3	4	8			
	8	2	4			

T: Raise your hand if you can say 476 hundredths as a decimal. (pause) (signal)

S: 4.76.

T: Say 348 hundredths as a decimal. (pause) (signal)

S: 3.48.

Teacher projects: $4.76 + 3.48$

T: Raise your hand if you know the answer. Turn and talk.

Possible student responses:

S: I know that it's 8.24 because we solve it the same way that we solve using whole numbers. 476 ones plus 348 ones is 824. So, 476 hundredths plus 348 hundredths is 824 hundredths, which is the same as 8.24.

T: Let's model it. Draw 4.76 number disks on your place value chart.

S: (Teacher models first, then students follow).

T: Now Draw 3.48 number disks on your place value chart.

S: (Teacher models first, then students follow).

Teacher projects:

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
			● ● ● ●		●● ●● ●● ●	●● ● ● ●
			● ● ●		● ● ● ●	●● ●● ●● ●

T: How many hundredths are in the hundredth's column?

S: 14 hundredths.

T: 14 hundredths is same as one tenth and how many hundredths?

S: 4 hundredths. (Teacher writes vertically).

T: Turn and explain to your partner.

- S: 1 tenths equal to 10 hundredths. 10 hundredths + 4 hundredths equals to 14 hundredths.
 T: How many tenths are in the tenth's column now?
 S: 12 tenths.
 T: Good. 12 tenths is the same as one 1 and how many tenths?
 S: 2 tenths. (Teacher writes vertically).
 T: How many ones are in the one's column now?
 S: 8 ones. (Teacher writes vertically).
 T: Say the addition sentence.
 S: $4.76 + 3.48 = 8.24$

Teacher projects:

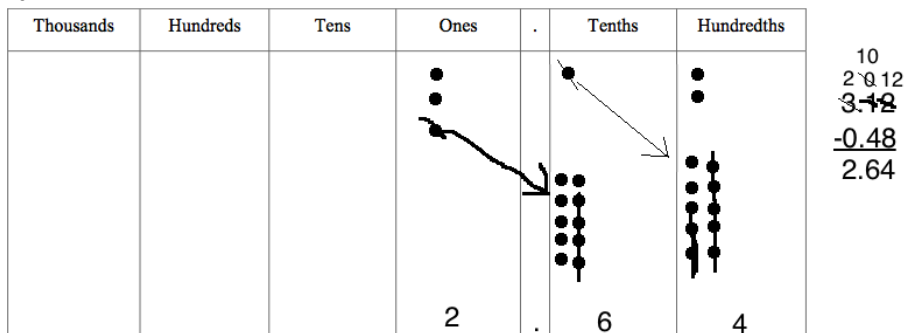
Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
			●●●●		●●●●●●●●	●●●●●●●●
			●●●		●●●●●●●●	●●●●●●●●
			8	.	2	4

“You do” (2 minutes)

- T: Now it's your turn to practice. Solve $23.23 + 6.87$. Draw the number disks on your place value chart and solve it vertically as well.
- T: Raise your hand if you can say 312 hundredths as a decimal. (pause) (signal)
 S: 3.12
 T: Say 48 hundredths as a decimal. (pause) (signal)
 S: 0.48
 Teacher projects: $3.12 - 0.48$
 T: Let's model it. Draw 3.12 number disks on your place value chart.
 S: (Teacher models first, then students follow).
 T: Can we take away 8 hundredths from 2 hundredths?
 S: No.
 T: Good. Now unbundle 1 tenth for 10 hundredths.

- S: (Teacher models first, then students follow).
 T: How many tenths do we have now?
 S: 0 tenths.
 T: How many hundredths do we have now?
 S: 12 hundredths.
 T: Is 12 hundredths the same as 1 tenth + 2 hundredths?
 S: Yes.
 T: Turn and explain to your partner.
 S: 1 tenth equals 10 hundredths. 10 hundredths plus 2 hundredths equals 12 hundredths.
 T: What's 12 hundredths – 8 hundredths?
 S: 4 hundredths. (Teacher writes vertically).
 T: Can we take away 4 tenths from zero tenths?
 S: No.
 T: Good. Now unbundle 1 one for 10 tenths.
 S: (Teacher exchanges, then students follow).
 T: How many ones do we have now?
 S: 2 ones. (Teacher writes vertically).
 T: How many tenths do we have now?
 S: 10 tenths. (Teacher writes vertically).
 T: What's 10 tenths – 4 tenths?
 S: 6 tenths. (Teacher writes vertically).
 T: In the ones column, what's 2 ones – 0 ones?
 S: 2 ones. (Teacher writes vertically).
 T: Say the subtraction number sentence.
 S: $3.12 - 0.48 = 2.64$.

Teacher projects:



“You do” (2 minutes)

T: Now it's your turn to practice. Solve $32 - 0.48$. Draw the number disks on your place value chart and solve it vertically as well.

Students return to their tables.

“You do” (10 minutes)

Pass out the Activity Sheet.

T: Let's get some practice. You have ten minutes. Draw and label the word problems as much as you can and try your best to them.

(Teacher circulates the classroom or works with a small group)

Debrief (6 minutes)

T: Turn to your neighbor and RallyRobin what you learned today. (About 2 minutes.)

T: Who would like to share what they learned today

S: We learned how to add and subtract decimals.

S: Adding and subtracting decimals is just like adding and subtracting whole numbers. When adding, if we have more than ten, we bundle to make a larger unit. When subtracting, if we don't have enough to subtract, then we have to unbundle a larger unit to exchange for 10 smaller unit.

T: You have 3 minutes to finish your Exit Ticket.

Students sit on the rug in a large circle so they're facing each other for discussion.

To the teacher: RallyRobin is an extremely effective tool for debriefing, because instead of only one or two students getting to share their learning, everyone gets to share in an equitable style: Partner A says one statement then Partner B says another, then Partner A says a new statement, back and forth, until time is called. Then, a few students share with the whole class. It's also helpful for English learners because they have more opportunities to practice speaking.