Grade 3/4: Module 1: Lesson Demonstration

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

3 Part Lesson
- Part 1: Fluency Work (6 minutes)
- Part 2: Problem Solving (8 minutes)
- Part 3: Content Lesson with Debrief (36 minutes)

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Student Accommodations/Comments/Pictures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1: Fluency Focus: Number sense</td>
<td>Students work at their tables.</td>
</tr>
<tr>
<td>Materials: Sprint – Adding Common Units</td>
<td></td>
</tr>
</tbody>
</table>

**Fluency Activity #1: Happy Fingers (3 minutes)**
Teacher projects: 3 + 2 =
T: We’re going to play a game called Happy Fingers!
T: Watch my fingers to know whether to count up or down. A closed hand means stop. (Show them the signals as you explain.)
Teacher directs students to count by 7s, 4s, and 3s.

**Fluency Activity #2: Adding & Subtracting common units and compound units (3 minutes)**
Teacher projects: 5 - 3 =
T: Say the addition sentence.
S: 3 + 2 = 5.
T: (pointing at the 3) How many ones?
S: 3 ones.
T: (pointing at the 2) How many ones?
S: 2 ones.
T: Say the addition sentence with the correct units.
S: 3 ones + 2 ones equals 5 ones.
Repeat process and sequence for 30 + 20, 3000 + 2000
Teacher projects: 5 - 3 =
T: Say the subtraction sentence.
S: 5 - 3 = 2.
T: (pointing at the 5) How many ones?
S: 5 ones.
T: (pointing at the 3) How many ones?
S: 3 ones.
T: Say the subtraction sentence with the correct units.
S: 5 ones - 3 ones equals 2 ones.
Repeat process and sequence for 50 - 30, 5000 - 3000.

Teacher projects: 3003 + 2002 =
T: Raise your hand if you think you know the answer. (signal)
S: 5005.
Teacher projects: 4004 + 3003 =
T: Raise your hand if you think you know the answer. (signal)
S: 7007.
Repeat process and sequence for 5005 + 4004 and 3003 + 4004.

Teacher projects: 5005 - 3003 =
T: Raise your hand if you think you know the answer. (signal)
Teacher projects: 7007 - 3003 =
T: Raise your hand if you think you know the answer. (signal)
S: 4004.
Repeat process and sequence for 9009 - 5005 and 8008 - 5005.

Teacher projects: 9 + 3 =
T: Raise your hand if you think you know the answer. (signal)
S: 12.
Teacher projects: 9000 + 3000 =
T: Raise your hand if you know the answer. (signal)
S: 12,000.
Teacher projects: 9009 + 3003 =
T: Raise your hand if you think you know the answer. (signal)
S: 12,012.
Repeat process and sequence for 7 + 4 and 9 + 8.

Teacher projects: 11 - 5 =
T: Raise your hand if you think you know the answer. (signal)
S: 6.
Teacher projects:  11,000 - 5000 = 
S:  6000.
Teacher projects:  11,011 – 5005 = 
T:  Raise your hand if you think you know the answer.  (signal)
S:  6006.
Repeat process and sequence for 12 - 4 and 17 - 9.

**Part 2: Problem Solving (8 minutes)**

Teacher projects:
  435 concert tickets were sold on Saturday.  24 more tickets were sold on Saturday than Friday.

T:  Read.
S:  435 concert tickets were sold on Saturday.  24 more tickets were sold on Saturday than Friday.
T:  Draw a bar diagram of what you see.  (pause).  Reread the first sentence.
S:  435 concert tickets were sold on Saturday.
Teacher draws:

```
  435 tickets
```

S:  Reread the second sentence.
S:  24 more tickets were sold on Saturday than Friday.
T:  Should the bar for Friday be longer or shorter than Saturday’s bar?
S:  Shorter.
Teacher draws:

```
  435 tickets

  24 tickets
```
Teacher projects:
  a. On which day were most of the tickets sold?
  b. How many tickets were sold on Friday?
  c. How many tickets were sold altogether?
  d. Sunday’s total ticket sales were the sum of one-third of Friday’s and two-thirds of Saturday’s. How many tickets were sold on Sunday?
(Draw a new diagram)

Teacher reviews answers.

**Part 3: Content Lesson and Debrief (## minutes)**
Materials: Number disks, personal white board, place-value mat, Dot Array Worksheet, cubes, Activity Sheet, Exit Ticket, Homework

**“I do” (## minutes)**
Teacher projects: 9 + 5 =
T: Say the addition sentence with answer.
S: 9 + 5 = 14.
Teacher projects: 9000 + 5000 =
T: Say the addition sentence with an answer.
S: 9000 + 5000 = 14,000.
Teacher projects 9009 + 5000 =
T: Say the addition sentence with answer.
S: 9009 + 5000 = 14,009.
Teacher projects: 9009 + 5005 =
T: Say the addition sentence with answer.
S: 9009 + 5005 = 14,014.
Teacher projects: 8000 + 4000 =
T: Say the addition sentence with answer.
S: 8000 + 4000 = 12,000.
Teacher projects: 8009 + 4005 =
T: Say the addition sentence with answer.
S: 8009 + 4005 = 12,014.

Teacher projects: 68 + 47 =
T: Say the addition sentence with answer. (pause) Why is this more difficult? Turn and talk to your partner.
S: They’re not as easy to compute mentally.
T: How can we find the answer?
S: The addition algorithm.

Teacher projects:

<table>
<thead>
<tr>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
</table>

T: Show 68 using number disks. My board is your model. Follow along with me if you get confused.

Teacher projects:

<table>
<thead>
<tr>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
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</tr>
</thead>
</table>

T: Add 47 using number disks:
Teacher guides through bundling number disks while writing the algorithm on the side.

<table>
<thead>
<tr>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
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</tr>
</thead>
</table>

T: Say the addition sentence.
S: 68 + 47 = 115.

Teacher projects: 68,000 + 47,000 =
T: If 68 + 47 = 115, 68,000 + 47,000 equals how many thousands?
S: 115 thousands.

Teacher projects: 68,068 + 47,047 =
T: If 68,068 + 47,047 = 115,000, then what does 68,068 + 47,047 equal?
S: 115,115.
Teacher projects: 568,000 + 547,000 =
T: On your place value charts, write in number disks to show this problem. (pause) Show. Students show:

<table>
<thead>
<tr>
<th>Millions</th>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>8</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Teacher guides students through bundling while writing the algorithm in numerals on the side. Teacher projects:

<table>
<thead>
<tr>
<th>Millions</th>
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<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

“We do” (## minutes)
Repeat above process and sequence for 79 + 58, 79,079 + 58,058, and 579,579 + 558,558.

“I do” (## minutes)
Pass out the Dot Array Worksheet.
T: Use the cubes to show each set of partners to 10.

While students work, the teacher can reteach a small group or circulate.

Teacher projects: 12 – 5 =
T: Say the subtraction sentence with answer.
S: 12 – 5 = 7.
Teacher projects: 12,000 - 5000 =
T: Say the subtraction sentence with an answer.
S: 12,000 - 5000 = 7,000.
Teacher projects 12,012 - 5000 =
T: Say the subtraction sentence with answer.
S: 12,012 - 5000 = 70,012.
Teacher projects: 12,012 – 5005 =
T: Say the subtraction sentence with answer.
S: 12,012 - 5005 = 7007.
Teacher projects: 13,000 - 4000 =
T: Say the subtraction sentence with answer.
S: 13,000 - 4000 = 9000.
Teacher projects: 13,013 - 4004 =
T: Say the subtraction sentence with answer.
S: 13,013 - 4004 = 9009.

Teacher projects: 145 - 59 =
T: Say the subtraction sentence with answer. (pause) Why is this more difficult? Turn and talk to your partner.
S: They’re not as easy to compute mentally.
T: How can we find the answer?
S: The subtraction algorithm.
Teacher projects:

<table>
<thead>
<tr>
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</thead>
</table>

T: Show 145 using number disks. My board is your model. Follow along with me if you get confused.
Teacher projects:

<table>
<thead>
<tr>
<th>Millions</th>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
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T: We need to subtract 59 or 5 tens and 9 ones. Do we have 9 ones to take away?
S: No.
T: So we need to?
S: Unbundle a ten.
Teachers and students model:

<table>
<thead>
<tr>
<th>Millions</th>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
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<th>Ones</th>
</tr>
</thead>
</table>

T: How many disks are in our ones column now?
S: 15.
T: Take away ten.
Teachers and students model:

<table>
<thead>
<tr>
<th>Millions</th>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
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<th>Ones</th>
</tr>
</thead>
</table>

T: Do we have 5 tens to take away?
S: No.
T: So we need to?
S: Unbundle our hundred.

Teachers and students model:

<table>
<thead>
<tr>
<th>Millions</th>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

T: Say the subtraction sentence.
S: 145 – 59 = 86.

Teacher projects: 145,000 - 59,000 =
T: If 145 - 59 = 86, 145,000 - 59,000 equals how many thousands?
S: 86 thousands.

Teacher projects: 145,145 – 59,059 =
T: If 145,000 - 59,000 = 86,000, then what does 145,145 – 59,059 equal?
S: 86,086

Teacher projects: 1,145 - 590 =
T: On your place value charts, write in number disks to show this problem. (pause) Show.
Teacher guides students through bundling while writing the algorithm in numerals on the side.

Teacher projects: 1,145,000 – 590,000 =
T: On your place value chart, write in number disks to show this problem. (pause) Show.
Teacher guides students through bundling while writing the algorithm in numerals on the side.
Teacher projects:

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</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

“We do” (## minutes)

“You do” (## minutes)
Distribute Activity sheet.

While students work, the teacher can reteach a small group or circulate.

Debrief (## minutes)
T: What did we learn today?
S: We can use mental addition and subtract to solve numbers with 6 or 7 digits.
S: Subtracting 2-digit numbers is just like subtracting 6 digit numbers.
T: You have 4 minutes to finish your Exit Ticket.