Add and Subtract Friendly Numbers

Fluency

**Topic A: Foundations for Fluency with Sums and Differences Within 100**

- **Lesson 1**: Ten-Frame Flash
- **Lesson 2**: The Value of Tens and Ones
- **Lesson 3**: Draw Tens and Ones
- **Lesson 4**: Make the Next Ten Within 100
- **Lesson 5**: Happy Counting: Say Ten Way
- **Lesson 6**: Put Together/Take Apart

**Topic B: Initiating Fluency with Addition and Subtraction Within 100**

- **Lesson 3**: Make Ten
- **Lesson 4**: One or Two Less
- **Lesson 5**: Take from Ten
- **Lesson 6**: Take Out Ten

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*Zelearn* FLUENCY

Grade 2, Mission 1

Add and Subtract Friendly Numbers

**Fluency**

**Topic A: Foundations for Fluency with Sums and Differences Within 100**

**Lesson 1**

- Ten-Frame Flash
- Happy Counting the Say Ten Way
- Target Practice: Within 10
- Pairs to Ten with Number Bonds

**Lesson 2**

- The Value of Tens and Ones
- Happy Counting the Say Ten Way
- Target Practice: Within 10
- Make the Next Ten

**Topic B: Initiating Fluency with Addition and Subtraction Within 100**

**Lesson 3**

- Draw Tens and Ones
- Make Ten
- Make The Next Ten Within 100
- Take Out One

**Lesson 4**

- Make the Next Ten Within 100
- Take from Ten
- Take Out Ten
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Think of fluency activity as having three goals:

1. **Maintenance**: Staying sharp on previously learned skills
2. **Preparation**: Targeted practice for the current lesson
3. **Anticipation**: Skills that ensure that students will be ready for the in-depth work of upcoming lessons
   a. Example of anticipatory fluency: Students must be secure in working with fractions with the same denominator before they can be expected to work with fractions with unlike denominators.
Topic A: Foundations for Fluency with Sums and Differences Within 100

Topic A’s two lessons are devoted solely to the important practice of fluency, the first lesson working within 20 and the second extending the same fluencies to numbers within 100.

LESSON 1

Ten-Frame Flash
(5 min)

Materials: (T) Ten-frame cards (Fluency Template 1), 5-group column cards (Fluency Template 2)

Note: By alternating between ten-frame and 5-groups column cards, students develop flexible perception of numbers 6–10 in two parts, with one part as 5. This activity practices the core fluency objective from Grade 1, adding and subtracting within 10.

The teacher flashes a ten-frame card for 2-3 seconds and guides students to respond on a signal. Students then generate a number sentence to get to 10.

T: (Flash the 9 ten-frame card. Give the signal.)
S: 9.
T: How much does 9 need to make 10?
S: 1.
T: Say the addition number sentence to make 10, starting with 9.
S: 9 + 1 = 10.
T: (Continue to show the 9 card.) Tell me a related subtraction sentence starting with 10.
S: 10 − 1 = 9. 10 − 9 = 1.

Continue the process, using both ten-frame cards and 5-group column cards in the following suggested sequence: 8, 2, 5, 7, 3, 6, 4, 10, and 0.

Happy Counting the Say Ten Way
(6 min)

Materials: (T) 100-bead Rekenrek (or Slavonic Abacus)

Note: East Asian or Say Ten counting (e.g., 13 is said ten 3) matches the base ten structure of numbers. In contrast, the English language says the ten after the ones (e.g., four-teen). This makes fourteen easily confused with forty. Since Kindergarten, in Zearn Math, students have been counting the Say Ten way, a practice substantiated by research.
Part 1: Happy Counting on the Rekenrek

T: Let’s count the Say Ten way.
T: (Show 10 beads. Move one at a time as students count.)
T: Ten 1. Say it with me. (See image to the right.)
S: Ten 1.
T: (Move the beads and have students count ten 2, ten 3, ten 4, ten 5, ten 6, ten 7, ten 8, ten 9, 2 tens.)
T: (Take one bead away.) Tell me the number the Say Ten way.
S: Ten 9.

Continue to count up and down within 20 as students call out the number the Say Ten way. As students demonstrate proficiency, consider alternating between the Say Ten way and the regular way (e.g., eleven, twelve, thirteen, fourteen, fifteen, sixteen, change to Say Ten counting and go down, ten 5, ten 4).

Part 2: Happy Counting

When Happy Counting, make the motions emphatic so counting is sharp and crisp. As students improve, up the challenge by increasing the speed and the number of direction changes or by using higher numbers. Be careful not to mouth the numbers!

T: Now, let’s do some Happy Counting without the beads. Watch my thumb to know whether to count up or down. A thumb in the middle means pause. (Show signals as you explain.)
T: Let’s count by ones starting at ten 3. Ready? (Rhythmically point up or down depending on if you want students to count up or count down.)
S: Ten 3, ten 4, ten 5, ten 6, (pause) ten 5, ten 4, (pause) ten 5, ten 4, (pause) ten 5, ten 6, ten 7, ten 8, (pause) ten 7, (pause) ten 8, ten 9, 2 tens.

Part 3: Say Ten as Ten Plus Facts

Students say addition sentences for teen numbers when one addend is 10. Alternate between the regular way and the Say Ten way.

T: If I say ten 2, you say 10 + 2 = 12.
T: What do you say if I say thirteen?
S: 10 + 3 = 13.
T: Yes! You guessed the pattern. Here’s another. Ten 5.
S: 10 + 5 = 15.
T: Fourteen.
S: 10 + 4 = 14.

Use the following suggested sequence: ten 6, seventeen, eighteen, ten 5, eleven, ten 8, ten 1, etc.

**Target Practice: Within 10**  
*(10 min)*

Materials: (S) Per set of partners: personal white board, target practice (Fluency Template 3), 1 numeral die

*Note:* Decomposition of single-digit numbers and 10 is a foundational skill for fluency with sums and differences to 20.

Assign Partner A and Partner B. Students write the target number, 10, in the circle at the top right of the target practice template.

Directions:
- Partner A rolls the die.
- Partner A writes the number rolled in one part of the first number bond.
- Partner B makes a bull’s eye by writing the missing part that is needed to make ten.

Adjust the target number as appropriate for each pair of students, focusing on totals of 6, 7, 8, 9, and 10.

*Multiple Means of Action and Representation:* For students who have not yet mastered their pairs to ten, use fingers as models. Have students show the larger addend on their fingers and encourage them to look at their tucked fingers to determine the partner to make ten.

**Pairs to Ten with Number Bonds**  
*(8 min)*

Materials: (S) Personal white board

*Note:* This is a foundational skill for mastery of sums and differences to 20.

T: I’ll show a number bond, and you tell me the missing part to make 10.
T: (Draw the bond shown to the right.)
S: 5.
T: (Erase the 5 and write 8.)
S: 2.

Continue with the following suggested sequence: 9, 7, 3, 6, 4, 1, 10, and 0.
T: With your partner, take turns saying pairs to make 10. Partner A, you will go first for now.

After about 30 seconds, have partners switch roles.

**LESSON 2**

**The Value of Tens and Ones**

*(4 min)*

**Note:** This activity reviews representing two-digit numbers with quick tens and ones in preparation for upcoming work within the module.

T: Tell me the total value of my tens and ones when I give the signal.

(Draw 1 quick ten and 7 ones.)

S: 17.

T: The Say Ten way?

S: 1 ten 7.

T: Say the addition sentence to add the ten and ones.

S: 10 + 7 = 17.

T: (Draw 2 tens and 2 ones. Give the signal.) Tell me the total value.

S: 22.

T: The Say Ten way?

S: 2 tens 2.

T: Say the addition sentence starting with the larger number.

S: 20 + 2 = 22.

Continue the process using the following possible sequence: 29, 32, 38, 61, 64, 72, 81, 99, and 100.

**Happy Counting the Say Ten Way**

*(10 min)*

Materials: (T) 100-bead Rekenrek, Hide Zero cards (Fluency Template)

**Note:** Repeating a similar fluency activity two days in a row gives students confidence and allows them to build proficiency.

**Part 1: Say Ten Counting with the Rekenrek and Hide Zero Cards**

T: (Show 11 with the Hide Zero cards. Pull them apart to show the 10 and the 1. Repeat silently with 15 and 19.)

T: (Show 12 with Hide Zero cards.) Say the number the regular way?

S: 12.
T:  (Pull cards apart.)  The Say Ten way?
S:  Ten 2.
T:  (Show 13.)  The Say Ten way?
S:  Ten 3.
T:  The regular way?
S:  13.
T:  Let’s Say Ten count starting from 15 using the Rekenrek.
    (To show 15, pull to the left a row of ten and a second row of five.)
T:  Count the beads on the left the Say Ten way.  (Show 15 beads.)
S:  Ten 5, ten 6, ten 7, ten 8, ten 9.
T:  2 tens (show two rows of ten beads pulled to the left), and the pattern begins again.
S:  2 tens 1, 2 tens 2, 2 tens 3, 2 tens 4, 2 tens 5.
T:  Let’s start with a new number.  (Move beads to show 47.)
T:  How much do I have?
S:  47.
T:  What is 47 the Say Ten way?  (Pictured to the right.)
S:  4 tens 7.

For about 2 minutes, students count up and down within 100. Each 20 to 30 seconds, begin a new counting sequence starting from a larger decade. While moving up and down, cross over tens frequently (e.g., 38, 39, 40, 41, 40, 39 or 83, 82, 81, 80, 79, 78, 79, 80, 81) as this is more challenging, especially counting down.

**Part 2: Happy Counting**

T:  Follow my hand as we Happy Count. Watch my thumb.
T:  Let’s start at 2 tens 8.  (Stop before students start to lose enthusiasm, after about 1 minute.)
T:  Excellent!  Try it with your partner.  Partner A, you are the teacher today.  I’ll give you 30 seconds.

Ask students to share the number sentences for the following numbers.

T:  Let’s share number sentences that break apart two-digit numbers into tens and ones.
    (Show 28 on the Rekenrek and with Hide Zero cards.)  I say 2 tens 8, and you say 20 + 8 = 28.  (Break apart Hide Zero cards to show 20 and 8.)
T:  2 tens 8.
S:  20 + 8 = 28.
T:  (Write 20 + 8 = 28.)
T:  5 tens 3.
S:  50 + 3 = 53.
T:  (Write 50 + 3 = 53.)

Use the following suggested sequence: 36, 19, 58, 77, 89, 90.
Multiple Means of Action and Expression: For students who are performing significantly below grade level and were unable to work past the first 10 questions in Lesson 1, perhaps let them do “Add a Ten and Some Ones” again today, this time with drawings or materials.

Target Practice: Within 10
(10 min)

Materials: (S) Per set of partners: personal white board, target practice (Lesson 1 Fluency Template 3), 1 numeral die

Note: Decomposition of single-digit numbers and 10 is a foundational skill for fluency with sums and differences to 20.

Assign Partner A and Partner B. Students write their choice of target number in the circle at the top right of the Target Practice template.

- Partner A rolls the die.
- Partner A writes the number rolled in the circle at the end of one of the arrows.
- Partner B makes a bull’s eye by writing the number in the other circle that is needed to make the target.

Adjust the target number as appropriate for each pair of students, focusing on totals of 6, 7, 8, 9, and 10. If the pair demonstrates fluency, challenge them to move into teen numbers!

Make the Next Ten
(8 min)

Note: This is a foundational skill for mastery of sums and differences to 20. If students do not know their partners to 10, do not advance to making multiples of ten.

I’ll say a number, and you tell me what it needs to make the next 10.

S: 2.
T: 28.
S: 2.
T: 58.
S: 2.

Continue the process using the following possible sequence: 7, 27, 67, 87.

T: With your partner, take turns saying pairs to make 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100. It’s your choice. Partner A, you will go first for now.

After about 30 seconds, have partners switch roles. Keep it fun and joyful!
**Topic B: Initiating Fluency with Addition and Subtraction Within 100**

Topic B takes Grade 1’s work to a new level of fluency as students make easier problems to add and subtract within 100 by using the number system’s base ten structure.

**LESSON 3**

No additional fluency activities for this lesson.

**LESSON 4**

**Draw Tens and Ones**

*(3 min)*

Materials: (T) Linking cubes with ten-sticks and extra cubes, place value chart  (S) Personal white board

Note: This fluency activity reviews place value as students analyze two representations of two-digit numbers.

T: Draw the number of cubes I show with quick tens and ones.
T: (Show 2 linking cube ten-sticks and 4 ones.)
S: (Draw as pictured to the right.)
T: Show me your boards. Tell me the number.
S: 24.
T: Draw the number I show with quick tens and ones.
T: (Write the number 42 on the place value chart.)
S: (Draw as pictured to the right.)
T: Tell me the number.
S: 42.

For the next minute, represent 18 and 81, 37 and 73, 29 and 92, alternating between showing the smaller number of each pair with cubes and the larger number with the place value chart.

**Make Ten**

*(3 min)*

Materials: (S) Personal white board

Note: This is a foundational skill for mastery of sums and differences to 20.
T: I’ll say a number, and you say how many more to make ten.
S: 1.
T: Write the addition sentence. (Pause.) Show me your boards.
S: (Show $9 + 1 = 10$.)
T: (Scan each board, and accept $1 + 9 = 10$, $10 = 9 + 1$, etc.)
T: 8. (Pause as students write.) Get ready.
S: 2.
T: Write the addition sentence. (Pause.) Show me your boards.
S: (Show $8 + 2 = 10$.)

Continue with the following possible sequence: 2, 5, 6, 4, 7, and 3.

**Make The Next Ten Within 100**
(*4 min*)

Materials: (T) Rekenrek (S) Personal white board

**Note:** In this fluency activity, students apply their knowledge of partners to ten to find analogous partners to 20, 30, and 40 to prepare for Small Group Lesson 4. Keep them motivated to use the patterns by removing the Rekenrek at times.

T: (Show 19.) Say the number.
S: 19.
T: Write the number sentence, starting with 19, to get to or make the next ten on your personal white board.
S: (Write $19 + 1 = 20$.)
T: (Scan the boards.) Tell me the addition sentence.
S: $19 + 1 = 20$.
T: (Move 1 bead to make 20 as students answer.)
T: (Show 39.) Say the number.
S: 39.
T: Write the number sentence, starting with 39, to make the next ten on your personal white board.
S: (Write $39 + 1 = 40$.)
T: (Scan the boards.) Tell me the addition sentence.
S: $39 + 1 = 40$.
T: (Move 1 bead to make 40 as students answer.)

Continue with the following possible sequence: 15, 35, 85; 18, 48, 68; 12, 52, and 92.

**Multiple Means of Representation:** Once the Rekenrek is removed, encourage students who need support to visualize the beads (ten-frames or 5-groups), or guide them to use fingers to model the number of ones in order to determine how many more make ten.
Take Out One  
(2 min)

Materials: (S) Personal white board

Note: In Small Group Lesson 4, students add 9 and 6 by adding 9 and 1 and 5. They “take out 1” from 5.

Let’s take out 1 from each number. I say 5. You write the number bond and say the two parts, 1 and 4.

T: 5.  
S: (Draw number bond.) 1 and 4.

Continue with the following possible sequence:  3, 10, 4, 7, 9, 8, and 6.

LESSON 5

Happy Counting: Say Ten Way  
(2 min)

Note: Continued work with counting the Say Ten Way gives students confidence and allows them to build proficiency.

T: Let’s Happy Count the Say Ten Way. Let’s start at 6 tens 2. Ready?  
S: 6 tens 2, 6 tens 1, 6 tens, 5 tens 9, 6 tens, 6 tens 1, 6 tens, 5 tens 9, 5 tens 8, 5 tens 9, 6 tens.  
T: Excellent! Try it for 30 seconds with your partner. Partner B, you are the teacher today.

Put Together/Take Apart  
(3 min)

Note: Students remember the relevance of ten-plus facts to larger numbers.

Put Together

T: When I say a ten-plus fact, you say the answer on my signal.  
T: 10 + 5. (Signal)  
S: 15.  
T: 10 + 2.  
S: 12.

Continue with the following possible sequence: 10 + 9, 20 + 1, 20 + 4, 50 + 4, 80 + 4, 30 + 8, 40 + 8, 70 + 8, 90 + 8.
Take Apart

T: Now, when I say 13, you say 10 + 3.
T: 13. (Signal.)
S: 10 + 3.

Continue with the following possible sequence: 17, 11, 16, 28, 78, 14, 34, and 94.

Make the Next Ten Within 100

(5 min)

Materials: (T) Rekenrek  (S) Personal white board

Note: In this fluency activity, students apply their knowledge of partners to ten to find analogous partners to 20, 30, and 40, which prepares them for Small Group Lesson 5.

For 30 seconds, say numbers 0–10. Students say partners to ten at the signal. Then, remove the Rekenrek.

T: (Show 9.) Say the number.
S: 9.
T: Tell me the number sentence to make ten.
S: 9 + 1 = 10.
T: (Move 1 bead to make 10. Show 19.)
T: Say the number.
S: 19.
T: Write the number sentence to make 20.
S: 19 + 1 = 20.

Continue with the following possible sequence: 29, 39; 5, 15, 25, 35; 8, 18, 28, 38; 7, 17, 27, and 37.

LESSON 6

One or Two Less

(5 min)

Note: Students have been counting up and down across the ten in fluency activities such as Happy Counting since Kindergarten. In Small Group Lesson 6, they extend their knowledge about the change in decades to subtract from multiples of ten.

T: (Show 20 beads.) How many beads?
S: 20.
T: (Push one bead back.) 1 less than 20 is ____?
S: 19.
T: 20 – 1 is ____? Tell me the complete number sentence.
S: 20 – 1 = 19.

Continue with the following possible sequence: 30, 40, 50, 60, 70, 80, 90, 100. Repeat with 2 less.

**Multiple Means of Action and Expression:** During Fluency Practice, students build on their prior knowledge of place value from Grade 1. Design math centers that use place value materials such as:

- The Rekenrek: Students make ten, add/subtract across ten, or build numbers 11–100.
- Ten-frames: Students do ten-frame flash (with add or take away 1), two more/less, double it.

**Take from Ten**
*(2 min)*

**Note:** This activity develops the automaticity necessary to subtract fluently from the ten when using the take from ten strategy in Small Group Lessons 6, 7, and 8.

S: 10 – 9 = 1.
T: 10 – 5.
S: 10 – 5 = 5.

Continue with the following sequence: 10 – 2, 10 – 4, 10 – 6, 10 – 7, 10 – 3, and 10 – 8.

S: 9.
T: 2.
S: 8.

Continue with the following sequence: 5, 0, 4, 7, 3, 8, 6, and 10.

**Take Out Ten**
*(3 min)*

Material: (S) Personal white board

**Note:** Taking out 10 prepares students for subtracting a single-digit from a two-digit number where there are not enough ones.

T: Let’s take out 10 from each number. I say 30. You draw a number bond for 30 with parts 20 and 10. Show the ten on the right.
T: 30. Show me your board.
S: (Show number bond).
T: Read the parts from left to right.
S: 20 and 10.

Continue with the following possible sequence: 50, 40, 60, 80, 70, 90, and 100. If time permits, invite partners to take turns giving each other more practice with numbers between 20 and 100.

LESSON 7

Take Out Ten and Subtract
(10 min)

**Note:** Taking out 10 reviews subtracting a single digit from a two-digit multiple of ten ones.

T: Write 30 – 7 on your boards.
T: Let’s take out 10 from 30 using a number bond. Show the ten on the right.
T: Show me your board.
S: (Show number bond.)
T: Read the parts from left to right.
S: 20 and 10.
T: 10 – 7 is ___?
S: 3.
T: 20 + 3 is ___?
S: 23.
T: So, 30 – 7 is ___?
S: 23.

Continue with the following possible sequence: 40 – 7, 50 – 5, 70 – 5, 80 – 8, 90 – 8.

LESSON 8

Take from a Ten or Take from the Ones
(2 min)

**Note:** This fluency activity draws attention to the fact that when there are not enough ones to subtract, students must take from a ten.

T: This time, tell me if I take from a ten or take from the ones. When I say 13 – 2, you say “take from the ones” since 3 ones – 2 ones = 1 one.
T: But if I say 13 – 9, you say “take from a ten” since 3 ones – 9 ones is work for Grade 6 not Grade 2. Ready?
T: 24 – 1.
S: Take from the ones.
T: 24 – 9.
S: Take from a ten.

Continue with the following suggested sequence: 16 – 2, 32 – 1, 21 – 9, 15 – 6, 16 – 6, 18 – 8, 13 – 8.

**Take Out Ten and Subtract**
*(10 min)*

**Note:** Taking out ten reviews subtracting a single-digit from a two-digit multiple of ten ones.

T: Write 30 – 7 on your boards.
T: Let’s take out 10 from 30 using a number bond. Show the ten on the right.
T: Show me your board.
S: (Show number bond.)
T: Read the parts from left to right.
S: 20 and 10.
T: 10 – 7 is ___?
S: 3.
T: 20 + 3 is ___?
S: 23.
T: So, 30 – 7 is ___?
S: 23.

Continue with the following possible sequence: 40 – 7, 50 – 5, 70 – 5, 80 – 8, 90 – 8.
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Lesson 1

Ten-frame cards (Fluency Template 1)
5-group column cards (Fluency Template 2)
Target Practice (Fluency Template 3)

Directions
- Choose a target number, and write it in the middle of the circle on the top of the page.
- Roll a die. Write the number rolled in the circle at the end of one of the arrows.
- Then, make a bull’s eye by writing the number needed to make your target in the other circle.

Target Number:
Lesson 2

Hide zero cards (Fluency Template)

<table>
<thead>
<tr>
<th>1000</th>
<th>1001</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2002</td>
</tr>
<tr>
<td>3000</td>
<td>3003</td>
</tr>
<tr>
<td>4000</td>
<td>4004</td>
</tr>
<tr>
<td>5000</td>
<td>5005</td>
</tr>
<tr>
<td>6000</td>
<td>6006</td>
</tr>
</tbody>
</table>
Lesson 2: Make number bonds through ten with a subtraction focus and apply to one step word problems.

1. A.

2. Hide zero cards.

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