

Sharpening Students Mental Agility

7 Strategies to Help Students Master the Basic Addition Facts

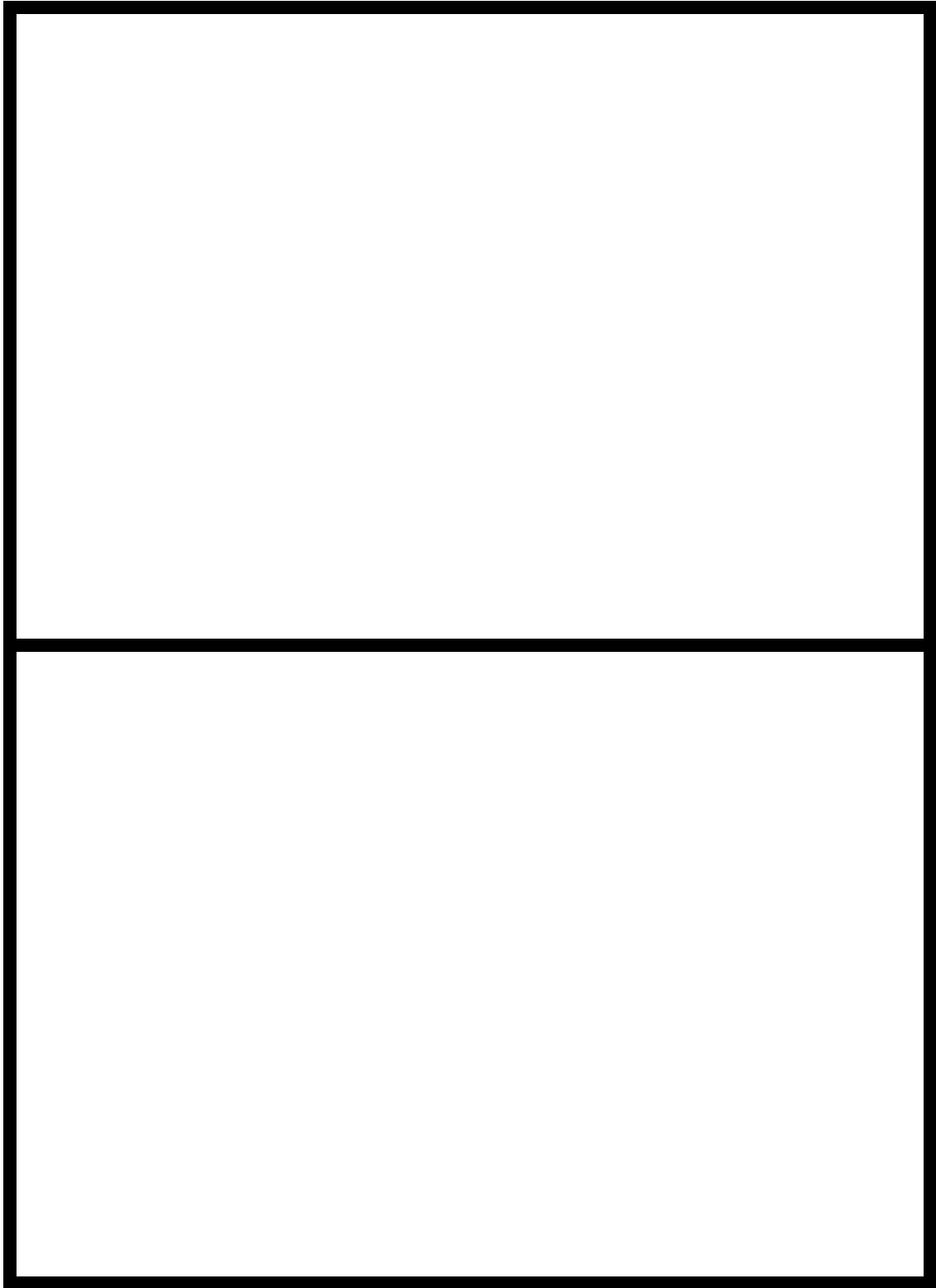
Strategy 1

Adding 1 & 2 Numbers

Activity 1: Adding 1 to Numbers

$1 + 2$	$2 + 1$
$1 + 3$	$3 + 1$
$1 + 4$	$4 + 1$
$1 + 5$	$5 + 1$
$1 + 6$	$6 + 1$
$1 + 7$	$7 + 1$
$1 + 8$	$8 + 1$
$1 + 9$	$9 + 1$

- Issue counters and Mat 1 to each student.
- Begin by guiding students through the process of adding 1 to numbers.
- Instruct students to count 1 counter and place it on one side of the mat.
- Instruct them to place 1 counter on the other side of the mat.
- Display the fact generated: $1 + 1 = 2$. Then, have students say the sentence aloud in unison.
- Next, have them add another counter so that there are 2 counters on the other side of the mat.
- Display the fact generated: $1 + 2 = 3$. Have students say the sentence aloud in unison, with each fact modeled.
- Repeat this process for all problems, ensuring students understand the concept.
- Emphasize the importance of recognizing the reversal of the addends in the addition process.
- Use **Practice Sheet 1: Adding 1 to Numbers** as a review. These are mini practice sheets that should be cut out and used for review of this strategy.



Cut the Problem Sets apart to provide continuous practice.

1 $1 + 2 = \underline{\quad}$	1 $7 + 1 = \underline{\quad}$	1 $\underline{\quad} + 1 = 9$
2 $1 + 5 = \underline{\quad}$	2 $5 + 1 = \underline{\quad}$	2 $5 = \underline{\quad} + 1$
3 $1 + 3 = \underline{\quad}$	3 $3 + 1 = \underline{\quad}$	3 $2 = 1 + \underline{\quad}$
4 $1 + 9 = \underline{\quad}$	4 $9 + 1 = \underline{\quad}$	4 $4 = 1 + \underline{\quad}$
5 $1 + 4 = \underline{\quad}$	5 $2 + 1 = \underline{\quad}$	5 $7 = 1 + \underline{\quad}$
6 $1 + 8 = \underline{\quad}$	6 $6 + 1 = \underline{\quad}$	6 $\underline{\quad} + 1 = 8$
7 $1 + 6 = \underline{\quad}$	7 $4 + 1 = \underline{\quad}$	7 $6 = 1 + \underline{\quad}$
8 $1 + 1 = \underline{\quad}$	8 $1 + 1 = \underline{\quad}$	8 $3 = \underline{\quad} + 1$
9 $1 + 7 = \underline{\quad}$	9 $8 + 1 = \underline{\quad}$	9 $\underline{\quad} + 1 = 10$

Strategy 1

Adding 1 & 2 to Numbers

Adding 2 to Numbers Using Helping Facts

$2 + 3$	$3 + 2$
$2 + 4$	$4 + 2$
$2 + 5$	$5 + 2$
$2 + 6$	$6 + 2$
$2 + 7$	$7 + 2$
$2 + 8$	$8 + 2$
$2 + 9$	$9 + 2$

- Issue counters and Mat 1 found on page 2.
- Begin by guiding students through the process of adding 2 to numbers.
- Instruct students to count three counters and place them on one side of the mat.
- Next, have them add one counter to the other side of the mat.
- Display the fact generated: $3 + 1 = 4$. Instruct students to place another counter on the side with one counter.
- Prompt students to recognize that three was increased by 2, resulting in 5 counters.
- Direct them to write the new fact that was generated $3 + 2 = 5$. Assist them in connecting the concept that adding one can help determine an increase by 2.
- Ask: *Is $2 + 3$ the same as $3 + 2$?*
- Emphasize the importance of recognizing the reversal of the addends in the addition process.
- Repeat this process for all problems, ensuring students understand the concept.
- Assign **Practice Sheets 2 and 3: Adding 2 to Numbers** as a review for adding two to numbers.

Adding 2 to Numbers			
1. $\begin{array}{r} 2 \\ + 3 \\ \hline \end{array}$	2. $\begin{array}{r} 2 \\ + 9 \\ \hline \end{array}$	3. $\begin{array}{r} 2 \\ + 1 \\ \hline \end{array}$	4. $\begin{array}{r} 6 \\ + 2 \\ \hline \end{array}$
5. $\begin{array}{r} 7 \\ + 2 \\ \hline \end{array}$	6. $\begin{array}{r} 5 \\ + 2 \\ \hline \end{array}$	7. $\begin{array}{r} 2 \\ + 8 \\ \hline \end{array}$	8. $\begin{array}{r} 4 \\ + 2 \\ \hline \end{array}$
9. $\begin{array}{r} 2 \\ + 6 \\ \hline \end{array}$	10. $\begin{array}{r} 3 \\ + 2 \\ \hline \end{array}$	11. $\begin{array}{r} 9 \\ + 2 \\ \hline \end{array}$	12. $\begin{array}{r} 1 \\ + 2 \\ \hline \end{array}$
13. $\begin{array}{r} 2 \\ + 7 \\ \hline \end{array}$	14. $\begin{array}{r} 2 \\ + 9 \\ \hline \end{array}$	15. $\begin{array}{r} 8 \\ + 2 \\ \hline \end{array}$	16. $\begin{array}{r} 2 \\ + 6 \\ \hline \end{array}$
17. $\begin{array}{r} 2 \\ + 4 \\ \hline \end{array}$	18. $\begin{array}{r} 2 \\ + 2 \\ \hline \end{array}$	19. $\begin{array}{r} 2 \\ + 5 \\ \hline \end{array}$	20. $\begin{array}{r} 3 \\ + 2 \\ \hline \end{array}$

Adding 2 to Numbers		
1 $2 + 7 = \underline{\quad}$	2 $5 = 2 + \underline{\quad}$	3 $2 + 3 = \underline{\quad}$
4 $2 + 2 = \underline{\quad}$	5 $2 + 8 = \underline{\quad}$	6 $9 + 2 = \underline{\quad}$
7 $2 + 4 = \underline{\quad}$	8 $2 + 6 = \underline{\quad}$	9 $9 + 2 = \underline{\quad}$
10 $2 + 7 = \underline{\quad}$	11 $5 + 2 = \underline{\quad}$	12 $8 + 2 = \underline{\quad}$
13 $11 = \underline{\quad} + 2$	14 $1 + 2 = \underline{\quad}$	15 $6 = 2 + \underline{\quad}$
16 $2 + 5 = \underline{\quad}$	17 $\underline{\quad} + 2 = 8$	18 $3 = 2 + \underline{\quad}$

Strategy 2

Memorizing Sums of 10

1 + 9	9 + 1
2 + 8	8 + 2
3 + 7	7 + 3
4 + 6	6 + 4
5 + 5	5 + 5

Activity 1- Separating 10 Counters into Groups of Two

- Use models to represent these facts.
- Issue 10 counters and the Mat 1 found on page 2 to each student.
- Display number sentence pairs one at a time, e.g., $9 + 1$ and $1 + 9$.
- Instruct students to take the 10 counters and separate them into two groups to represent the number sentence. Have them place one counter in one section of the mat and place the remaining nine counters in the other section.
- Call on various students to say the number sentence aloud (e.g., "One plus nine is equal to ten").
- Call on other students to reverse the sentence and say it aloud (e.g., "Ten is equal to one plus nine").
- Follow the same process, giving similar directions for the other number sentence pairs.

Activity 2-Making 10 With Numbers

- Issue 10 counters to each student.
- Display a number from 1-9.
- Instruct students to show the number of counters needed to make a sum of ten. For example, if the teacher displays the number 9; students show 1 counter.
- After counters are displayed, direct the students to write as many possible number fact sentences after using both numbers on their paper. For example, ($9 + 1 = 10$; $1 + 9 = 10$; $10 = 1 + 9$). Call on volunteers to share what they wrote with the class.
- Repeat the process with the other numbers from one to ten.

Strategy 2

Memorizing Sums of 10

Activity 3-Making 10 With Numbers (No Models)

- Display a number from 1-9. Call on a student to say another number that will create a sum of ten using the number displayed. Instruct the student to say a number fact sentence using both numbers and then have that student call on another student to reverse the sentence using the commutative property.
- Direct students to respond as follows: Nine plus one is equal to ten, and One plus nine is equal to ten.
- Use **Practice Sheet 4: Memorizing Sums of 10** as a review. Cut out problem sets of facts for a 1-minute timed practice session.

Cut out the problem sets apart for 1-minute reviews.

¹ _____ + 5 = 10	¹ 4 + _____ = 10	¹ 9 + _____ = 10
² _____ + 1 = 10	² _____ + 7 = 10	² 4 + _____ = 10
³ _____ + 2 = 10	³ 10 = 6 + _____	³ 2 + _____ = 10
⁴ _____ + 6 = 10	⁴ _____ + 3 = 10	⁴ 6 + _____ = 10
⁵ _____ + 8 = 10	⁵ 2 + _____ = 10	⁵ 8 + _____ = 10
⁶ _____ + 3 = 10	⁶ _____ + 3 = 10	⁶ 3 + _____ = 10
⁷ _____ + 1 = 10	⁷ 10 = 8 + _____	⁷ 5 + _____ = 10
⁸ _____ + 7 = 10	⁸ 10 = 5 + _____	⁸ 1 + _____ = 10
⁹ _____ + 4 = 10	⁹ _____ + 1 = 10	⁹ 7 + _____ = 10
¹⁰ _____ + 2 = 10	¹⁰ _____ + 3 = 10	¹⁰ 4 + _____ = 10

Strategy 3

Making Doubles

$1 + 1$	$6 + 6$
$2 + 2$	$7 + 7$
$3 + 3$	$8 + 8$
$4 + 4$	$9 + 9$
$5 + 5$	$10 + 10$

Activity 1: Connecting Doubles to the 1-20 Chart

- As a whole group activity, have students count in unison by twos aloud up to twenty.
- Initiate a discussion on doubles and why numbers are referred to as doubles.
- Provide each student with a 1-20 chart, 20 cubes, and a two-section Mat on page 2.
- Direct students to shade 2 on the chart. Instruct them to display 2 cubes to show that $1 + 1 = 2$, placing one cube in each section.
- Direct students to shade 4 on the chart. Have them display 2 cubes to show $2 + 2 = 4$, placing two cubes in each section.
- Proceed with the same instructions as students continue modeling and shading in the same manner, progressing to $10 + 10$.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

Activity 2: Matching Doubles With Their Sums

- As a whole group activity, have students count in unison by twos aloud up to twenty.
- Provide each student with a 1-20 chart and 10 cubes.
- Display the doubles facts in order, one at a time beginning with $1 + 1$. Have students place a cube on the sums as double facts are displayed.
- Proceed with the same instructions as students continue placing a cube on the sums in the same manner, progressing to $10 + 10$.
- Display the doubles facts again, this time out of order, one at a time. Have students place a cube on the correct sums.
- Proceed with the same instructions until all doubles have been displayed. Review the activity as needed.

Strategy 3

Making Doubles

Activity 3: Creating a Doubles Practice Sheet

- Display sums from 2 to 20 out of order, one at a time. As each sum is displayed, call on various students to state the corresponding doubles fact. For example, when 4 is displayed students display say in unison, $2 + 2$. Continue until each double fact sum is modeled.
- Next, direct each student to create a doubles facts sheet out of order without providing the sums. After several minutes, instruct students to exchange papers and solve the problems on another student's sheet.
- Use **Practice Sheet 5: Making Doubles** as a review. These are mini practice sheets that can be cut out and used to review this strategy.

Make several copies of this sheet. Cut the charts apart so that each student receives one.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

¹ _____ + 5 = 10	¹ 4 + _____ = 8	¹ ____ + ____ = 20
² _____ + 7 = 14	² _____ + 7 = 14	² ____ + ____ = 14
³ 2 + _____ = 4	³ 12 = 6 + _____	³ ____ + ____ = 6
⁴ _____ + 6 = 12	⁴ _____ + 3 = 6	⁴ ____ + ____ = 16
⁵ 8 = _____ + 4	⁵ 2 + _____ = 4	⁵ ____ + ____ = 2
⁶ _____ + 3 = 6	⁶ _____ + 1 = 2	⁶ ____ + ____ = 12
⁷ 18 = _____ + 9	⁷ 16 = 8 + _____	⁷ ____ + ____ = 8
⁸ 1 + _____ = 2	⁸ 10 = 5 + _____	⁸ ____ + ____ = 18
⁹ 8 + _____ = 16	⁹ _____ + 2 = 4	⁹ ____ + ____ = 10
¹⁰ _____ + 10 = 20	¹⁰ _____ + 9 = 18	¹⁰ ____ + ____ = 4

Strategy 4

Doubles Plus 1

Doubles	Doubles Plus 1	Doubles Plus 1
$1 + 1$	$1 + 2 =$	$2 + 1 =$
$2 + 2$	$2 + 3 =$	$3 + 2 =$
$3 + 3$	$3 + 4 =$	$4 + 3 =$
$4 + 4$	$4 + 5 =$	$5 + 4 =$
$5 + 5$	$5 + 6 =$	$6 + 5 =$
$6 + 6$	$6 + 7 =$	$7 + 6 =$
$7 + 7$	$7 + 8 =$	$8 + 7 =$
$8 + 8$	$8 + 9 =$	$9 + 8 =$
$9 + 9$	$9 + 10 =$	$10 + 9 =$
$10 + 10$	$10 + 11 =$	$11 + 10 =$

Activity 1: Adding Doubles and Doubles Plus 1

- Say the double facts aloud in order, and have students say the number that comes after the sum. Begin with examples such as $1 + 1 = 2$, and have students continue to $10 + 10$.
- After stating each sum, prompt students to say the number after the sum.
- For example:
 - $1 + 1 = 2$...3
 - $2 + 2 = 4$...5
- Continue this pattern up to $10 + 10$...21.
- Next, say the doubles facts out of order, and again, have students say the number after the sum.
- Provide **Practice Sheet 6: Adding Doubles and Doubles Plus 1** as a review. These are mini practice sheets that can be cut out and used to review this strategy.

Strategy 4

Doubles Plus 1

Activity 2: Count the Circles: Adding Doubles Plus 1

Assign students the **Practice Sheet 7: Count the Circles: Adding Doubles Plus 1** as a guided assignment. Follow the steps below:

1. Have students count the number of circles in Column 1.
2. After counting, instruct them to write the total number of circles they counted in the box provided.
3. Next, have students count the circles in Column 2.
4. After the count, direct them to draw an additional circle in Column 2 and write the new total number of circles in Column 2 to include the one they drew. This total is recorded in the box next to Column 2.
5. Ask students to mentally add the doubles plus one to determine the total number of circles in both columns.
6. Have students form two addition facts from the numbers in each column.
For example, $4 + 5 = 9$ and $5 + 4 = 9$.

Strategy 4

Doubles Plus 1

Activity 3: Pairing Up: Adding Doubles Plus 1

1. Guide students through the following activity. Assign students to work in pairs.
2. Cut out the set of **Number Set for Strategy 4** and issue one set to each pair.
3. Each pair is given a set of numbers ranging from 1 to 9. Notably, there are two number eights within the set.
4. Identify one student in the pair as Student A and the other as Student B.
5. Specific numbers are assigned to each student. Student A receives the numbers 1, 2, 3, 4, 5, 6, 7, and 8, whereas Student B receives the numbers 2, 3, 4, 5, 6, 7, 8, and 9.
6. Instruct Student A to arrange their numbers in a horizontal row, ordering them from smallest to the largest.
7. Student B places their numbers beneath Student A's set, creating pairs by aligning #2 underneath #1, #3 underneath #2, #4 underneath #3, #5 underneath #4, and so on.

Student A	1	2	3	4	5	6	7	8
Student B	2	3	4	5	6	7	8	9

















8. The paired students take turns reciting doubles and doubles plus 1 mathematical expressions. Student A states the double and the sum for $1 + 1$ as follows: (one + one = two). Student B follows with a double plus one expression (one + two = three),
9. Student A forms a double with the next number (three + three = six) Student B responds as follows (three + four = seven). The process continues, with each student reciting doubles and doubles plus 1 mathematical expressions until Student A reaches eight and Student B reaches 9.
10. Pairs exchange their sets of numbers and repeat the mental exercise.
11. Assign **Practice Sheet 8: Adding Doubles Plus 1**.

Strategy 4

Activity 1: Practice Sheet 6: Adding Doubles and Doubles Plus 1

Doubles	Doubles Plus 1	Doubles Plus 1
$10 + 10 = \underline{\hspace{2cm}}$	$1 + 2 = \underline{\hspace{2cm}}$	$2 + 1 = \underline{\hspace{2cm}}$
$2 + 2 = \underline{\hspace{2cm}}$	$2 + 3 = \underline{\hspace{2cm}}$	$3 + 2 = \underline{\hspace{2cm}}$
$7 + 7 = \underline{\hspace{2cm}}$	$3 + 4 = \underline{\hspace{2cm}}$	$4 + 3 = \underline{\hspace{2cm}}$
$9 + 9 = \underline{\hspace{2cm}}$	$4 + 5 = \underline{\hspace{2cm}}$	$5 + 4 = \underline{\hspace{2cm}}$
$1 + 1 = \underline{\hspace{2cm}}$	$5 + 6 = \underline{\hspace{2cm}}$	$6 + 5 = \underline{\hspace{2cm}}$
$5 + 5 = \underline{\hspace{2cm}}$	$6 + 7 = \underline{\hspace{2cm}}$	$7 + 6 = \underline{\hspace{2cm}}$
$3 + 3 = \underline{\hspace{2cm}}$	$7 + 8 = \underline{\hspace{2cm}}$	$8 + 7 = \underline{\hspace{2cm}}$
$8 + 8 = \underline{\hspace{2cm}}$	$8 + 9 = \underline{\hspace{2cm}}$	$9 + 8 = \underline{\hspace{2cm}}$
$6 + 6 = \underline{\hspace{2cm}}$	$9 + 10 = \underline{\hspace{2cm}}$	$10 + 9 = \underline{\hspace{2cm}}$
$4 + 4 = \underline{\hspace{2cm}}$	$10 + 11 = \underline{\hspace{2cm}}$	$11 + 10 = \underline{\hspace{2cm}}$

Count the Circles

<ul style="list-style-type: none"> •Write the number of circles are in Column 1. 	<ul style="list-style-type: none"> •Draw 1 more circle in Column 2. •Then write the number of circles are in Column 2. 	<ul style="list-style-type: none"> •Find the sum of the doubles and add 1 to your answer. •Write 2 facts about the circles with the numbers you wrote.
 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	<input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/>
 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	<input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/>
 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	<input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/>
 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	<input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/>
 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	<input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/>
 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	<input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/>
 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	<input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/>
 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	 <input style="width: 60px; height: 40px; margin-top: 10px;" type="text"/>	<input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> + <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/> = <input style="width: 40px; height: 40px; margin-bottom: 5px;" type="text"/>

Strategy 4

Activity 3: Number Set Doubles Plus 1

A	1	2	3	4	5	6	7	8
B	2	3	4	5	6	7	8	9

A	1	2	3	4	5	6	7	8
B	2	3	4	5	6	7	8	9

A	1	2	3	4	5	6	7	8
B	2	3	4	5	6	7	8	9

A	1	2	3	4	5	6	7	8
B	2	3	4	5	6	7	8	9

Add the Doubles Plus 1

1. $6 + 5 =$ _____

10. $5 + 4 =$ _____

2. $10 + 9 =$ _____

11. $9 + 10 =$ _____

3. $2 + 3 =$ _____

12. $9 + 8 =$ _____

4. $8 + 9 =$ _____

13. $4 + 3 =$ _____

5. $7 + 6 =$ _____

14. $8 + 7 =$ _____

6. $4 + 5 =$ _____

15. $6 + 7 =$ _____

7. $7 + 8 =$ _____

16. $3 + 2 =$ _____

8. $2 + 1 =$ _____

17. $5 + 6 =$ _____

9. $3 + 4 =$ _____

18. $2 + 1 =$ _____

Strategy 5

Adding 3 To Numbers

$3 + 4$	$4 + 3$
$3 + 5$	$5 + 3$
$3 + 6$	$6 + 3$
$3 + 7$	$7 + 3$
$3 + 8$	$8 + 3$
$3 + 9$	$9 + 3$

In examining the six facts presented in the table, two distinct relationships prove useful. The first, $(3 + 4)$, relies on the knowledge of doubles plus one, while the other, $(3 + 7)$, involves recognizing sums of ten. Use the $3 + 7$ fact to relate it to $3 + 6$. Use models to point out that the sum of $3 + 6$ is one less than the sum of 3 and 7. Use counters to model these facts: $3 + 7 = 10$



$$3 + 6 = 9$$



Similarly, by representing $3 + 7$ with counters, illustrating it as a sum of ten. Adding one more to the group of 7 can help students in reinforcing these facts $3 + 8 = 11$ and $8 + 3 = 11$.

$$3 + 7 = 10$$

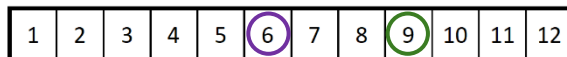


$$3 + 8 = 11$$

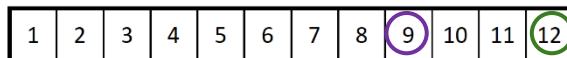


A number (1-12) number strip and 2 counters can be used to solidify the relationship of adding three to numbers like $6 + 3$ and $9 + 3$.

$$6 + 3$$



$$9 + 3 =$$



1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----

Strategy 6

Adding 10 to Single Digit Numbers

Activity 1: Adding 10 to Single Digit Numbers

$10 + 1$	$1 + 10$
$10 + 2$	$2 + 10$
$10 + 3$	$3 + 10$
$10 + 4$	$4 + 10$
$10 + 5$	$5 + 10$
$10 + 6$	$6 + 10$
$10 + 7$	$7 + 10$
$10 + 8$	$8 + 10$
$10 + 9$	$9 + 10$

- Distribute 19 cubes and Mat 2 to each student.
- Introduce the concept of adding single-digit numbers to ten:
- Instruct students to place 10 of the cubes in each blank square, placing one cube per square.
- Explain that students will use cubes and the mat to model mathematical expressions involving the addition of 10 to numbers, like $10 + 1$, $10 + 2$, etc.
- Model each expression by adding cubes to the squares with numbers; for example, if the expression $10 + 1$ is displayed by the teacher, students then place 1 counter in the section of the mat with the number 11, showing that the sum of $10 + 1$ and $1 + 10$ as 11.

11	12	13	14	15
16	17	18	19	20

- Proceed in the same manner until all mathematical expressions in the table above, ranging from $10 + 2$ to $10 + 9$, have been randomly represented with cubes on the mat.

Activity 2: Shading the Sums of Single Digit Numbers and 10

Provide the number strip ranging from 10 to 20. Instruct students to shade the sum corresponding to expressions the teacher displays, such as $10 + 1$, $2 + 10$, $5 + 10$, and so on.

10	11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----	----

Strategy 6

Adding 10 to Single Digit Numbers

Activity 3: Writing Number Sentences That Corresponds With Models

The teacher draws and displays models like the ones shown below and instructs students to write corresponding number sentences on their paper that matches the illustrated models.

$$\begin{array}{cc} | \cdot \cdot \cdot & \cdot \cdot \cdot | \\ 10 + 3 = 13 & 3 + 10 = 13 \end{array}$$

- Divide the class up into 2 groups, Group A and Group B.
- Assign each student in Group A one number from 10 to 19. Instruct them to write the number and the following phrase on their card: The sum is ____.
- For students in Group B, assign each student a number sentence, such as $10 + 1$, $2 + 10$, $5 + 10$. Have them write the following question at the top of their card: What is the sum for _____?
- The teacher alternates from choosing a student from each group to read the statement from their card.
- The student who can correctly match the number sentence with the corresponding sum or vice versa raises their hand and a volunteer is called on to respond.

Strategy 6

Activity 1: Add 10 to Single Digit Numbers

Mat 2

11	12	13	14	15
16	17	18	19	20

Strategy 6

Activity 2: Shading the Sums of Single Digit Numbers and 10
Number Strip 10-20

10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20

Strategy 7

Hard Facts

Nine Hard Facts

Nine facts remain for students to develop a recall strategy for the sums of these numbers. Point out that it is important to observe that the facts highlighted in red are already familiar, representing Doubles Plus 1 and a sum of 10. Emphasize that, since $7 + 3$ equals 10, students can use this knowledge to determine the sum of $7 + 4$.

$9 + 4$	$9 + 5$	$9 + 6$	$9 + 7$	$9 + 8$
$8 + 4$	$8 + 5$	$8 + 6$	$8 + 7$	
$7 + 4$	$7 + 5$	$7 + 6$		
$6 + 4$	$6 + 5$			

Take Away 1, 2, and 3 From Some Numbers

Given that subtraction of 1, 2, and 3 is integral to the process, prepare students by having them promptly subtract 1, 2, and 3 from the numbers in the table.

$17 - 1$	$14 - 2$	$14 - 3$
$16 - 1$	$15 - 2$	$12 - 3$
$15 - 1$	$16 - 2$	
$14 - 1$	$17 - 2$	

Activity 1: Subtract 1, 2, and 3

- A number chart like the one below can be used to find differences. For example, to determine the difference of $14 - 2$ on the number chart, students can begin by placing a counter on the number 14 and then move the counter back two numbers. This method helps students to mentally identify the result.
- Present subtraction expressions in the chart one at a time and instruct students to find the difference on the number chart. After adequate practice, have students put away the number charts. Provide a review of subtracting 1, 2, and 3 from numbers. Give each student an index card. Instruct them to choose three different two digit numbers from the number chart. Direct them to create 3 subtraction expressions. Have them write a subtraction expression subtracting 1, 2, and 3 from the numbers. Instruct them to check their answers using the number chart. Call on volunteers to say their expressions and the differences.

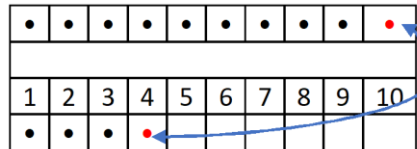
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

Strategy 7

Hard Facts

Activity 2: Make Ten With Cubes Using Number Frames, Then Move 1, 2, or 3 Cubes

- Lead students through the following activity by providing each student with ten cubes and Mat 3.
- Begin by helping students use the Mat to find the sum of $9 + 4$.
- Instruct students to place nine cubes in the top row of the Mat and four cubes in the numbered row placing the first cube in Square 1. Help students discover that three cubes are left because four minus one equals three.
- Demonstrate and explain how moving a cube from the Square 4 to the top row results in ten cubes in the top row, forming 10.
- Explain that students can then add $10 + 3$, which equals 13. Consequently, the sum of $9 + 4$ is 13, and $4 + 9 = 13$. This exercise reinforces adding ten and subtracting 1, 2, or 3.



Strategy 7

Hard Facts

Activity 3: Make Ten on the Number Chart, Then Take Away 1, 2, or 3

When cubes were used, students may have observed that they were consistently moving 1, 2, or 3 cubes. As a reminder, after several examples, emphasize that when finding the sum of nine and a number, add 10 and subtract one from that number. Similarly, when determining the sum of eight and a number, add 10 and subtract two from that number. Lastly, when determining the sum of seven and a number, add 10 and subtract three from that number.

9 + 4	9 + 5	9 + 6	9 + 7	9 + 8
8 + 4	8 + 5	8 + 6	8 + 7	
7 + 4	7 + 5	7 + 6		
6 + 4	6 + 5			

- Distribute the 1- 20 Number Chart and a cube to each student and explain that they will practice mental addition to determine the sums of the nine hard facts mentally by adding ten to one-digit numbers using the chart.
- Discuss the chart's layout, highlighting how each row shows that the numbers increase by ten. Describe the method of adding ten to a number on the number chart using the example $10 + 5$.
- Direct students to place the cube on the five and move it down one square on the number chart to show that the sum of $10 + 5 = 15$; reinforce the commutative property by stating that $5 + 10$ also equals 15.
- Provide other examples for students to add 10 to different numbers, such as $10 + 2$, $10 + 7$, etc.

Explain that to find the sums of the nine specified facts.

1. When a fact is presented, such as $9 + 5$, follow these steps:
2. Place the cube on the smaller number, 5 in this case.
3. Move the cube down one square to add $10 + 5$. The cube is on the 15.
4. Subtract 1 from 15 by moving the cube back one squares on the number chart to find the sum of $9 + 5$.
5. The sum of $9 + 5 = 14$ and $5 + 9 = 14$.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

6. Continue until all sums have been found.
7. Guide students to become less reliant on the number chart and have them practice these sums without it.

Strategy 7

Use with Activities 1 & 3: Number Chart, Subtract 1, 2, 3

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10