Complements to 10: Making Ten & Carry Trade

Addition Strategies to 10 • Standard: CCSS.MATH.1.OA.C.6

---

1. MATHEMATICAL CONCEPT & STACK APPROACH: Determine complements to 10 using Place Value Digit Blocks, Gold [+1] Carry Tokens, and RPN subtraction.

Our base-10 system regroups every collection of 10 ones into 1 ten. Finding a number's complement to 10 (10 - 7 = 3) places the target base (10) on Shelf Y and the current ones digit (7) on Workbench X.

2. MODELING WITH BLOCKS & STUDENT PREDICTION

Published Block Kit: Place Value Studio (Digit Blocks & Gold [+1] Carry Tokens)

Hands-On Setup: Place the [7] Digit Block into the Ones socket of the Place Value Tray and hold a Gold [+1] Carry Token beside the Tens socket.

Student Prediction (Before Calculator): How many more ones must be added to [7] to reach 10 and trigger the Gold [+1] Carry Token? (7 + 3 = 10).

3. CALCULATOR EXECUTION (SC-6 KEYCAPS & 4-LEVEL STACK TRACE)

Keystroke Flow: 1 0 ENTER 7 -

Key Pressed	Screen (X)	Internal 4-Level Stack Effect (T, Z, Y, X)
1	1	Enter 1
0	10	Target ten (10) in X
ENTER	10	10 lifted to Y
7	7	Current Ones digit (7) in X
-	3	10 - 7 = 3: Adding 3 completes 10 and triggers the [+1] Carry!

4. CONTEXT (Making a Ten First (8 + 5 = 10 + 3 = 13) & The 10-for-1 Carry Trade) • From Blocks to the Stack (SC-6 Manual) — Ch. 3: Making a Ten First & Trading 10 Ones + Appendix B: Station F.4

Why is 10 + 3 so much easier for our brains than 8 + 5? Because base-10 place value groups everything into full tens! When a column reaches 10 ones on the Place Value Tray, students trade all 10 ones for a single Gold [+1] Carry Token in the Tens column and leave the remaining ones in the Ones socket.

Core Investigation (Student Warm-Up A):

The Ones socket holds [6]. How many more ones are needed to complete a full 10 and trade for 1 Ten?

Teacher Answer Key: 4 ones (10 - 6 = 4).

Bridging Through 10: The Make-Ten & Carry Strategy

Addition Within 20 • Standard: CCSS.MATH.1.OA.C.6

1. FOLLOW-UP EXTENSION CONCEPT, BLOCKS & PREDICTION

Concept & Stack Approach: Bridging across 10 decomposes the second addend so its first part completes a full ten (8 + 5 = (8 + 2) + 3 = 10 + 3). Completing the ten first turns any teen addition into an easy 10 + n fact.

Blocks & Prediction: Place [8] in Row 1 and [5] in Row 0 of the Ones column on the Place Value Tray. Prediction: Take 2 from the 5 to bring 8 up to 10. Place a Gold [+1] Carry Token in the Tens socket and [3] in the Ones socket: 10 + 3 = 13.

2. EXTENSION CALCULATOR SEQUENCE & STACK TRACE

8 ENTER 2 + 3 +

Key Pressed	Screen (X)	Internal 4-Level Stack Effect
8	8	8 in Ones socket
ENTER	8	8 lifted to Y
2	2	2 borrowed from 5 to make 10
+	10	8 + 2 = 10 (Gold [+1] Carry Token placed in Tens column!)
3	3	Remaining 3 ones
+	13	10 + 3 = 13 total ([1] Ten, [3] Ones)!

3. TARGET MISCONCEPTIONS & HANDS-ON BLOCK REMEDIATIONS

Misconception 1: Counting on by ones across 10 (e.g., 8 + 5 as 9, 10, 11, 12, 13) instead of decomposing 5 into 2 + 3 to complete 10 first.

Hands-On Block Remediation: Have the student bridge [8] to 10 on the Place Value Tray, place a Gold [+1] Carry Token in the Tens socket with [3] in the Ones socket, and key [8] [ENTER] [2] [+] [3] [+].

Misconception 2: Reading teen numbers as two separate single digits (seeing 14 as 1 and 4 rather than 1 Ten plus 4 Ones).

Hands-On Block Remediation: Place [1] in the Tens socket and [4] in the Ones socket of the Place Value Tray and key [10] [ENTER] [4] [+] so students see 14 formed from 10 in Register Y and 4 in Register X.

Extension Challenge (Student Warm-Up B):

Use the Make-Ten strategy on your Place Value Tray to add 9 + 6. What is the sum?

My Paper Answer: _____ **[ ] Verified on SC-6 (Online Key: stackcalc.io/curriculum/answers)**

STUDENT LAB WORKSHEET • UNIT 03 (SC-6)

Complements to 10 & Make-10 Regrouping with Carry Tokens

Name: _____ Date: _____ Class: _____

STUDENT REFERENCE GUIDE: COMPLEMENTS TO 10 & GOLD [+1] CARRY RULES

- The Ones column holds single Digit Blocks [0] through [9]. The moment a column reaches 10, it regroups!
- 10-for-1 Carry Trade: When the Ones column reaches 10, place a Gold [+1] Carry Token into the Tens column and reset the Ones socket to [0].
- Complements to 10: To find how much more is needed to trigger a Gold [+1] carry, enter 10 [ENTER], then the digit, then [-].

Key Sequence: `1` `0` `ENTER` `7` `-`

Investigation 1: You have 4 ones on your tray. How many more ones do you need to make a full 10?

1. Draw Your Blocks on the Tray:



2. Number Bond & Two Quantities:

First Quantity (Top Row): _____

Second Quantity (Bottom Row): _____

Combine (+, −, or ×): _____

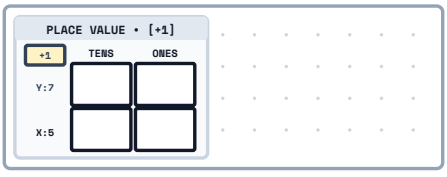
3. My Prediction: _____

Final Verified Answer: _____

[ ] Checked on SC-6

Investigation 2: Solve 7 + 5 by bridging through 10 on your Place Value Tray.

1. Draw Your Blocks on the Tray:



2. Number Bond & Two Quantities:

First Quantity (Top Row): _____

Second Quantity (Bottom Row): _____

Combine (+, −, or ×): _____

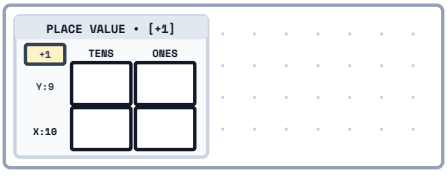
3. My Prediction: _____

Final Verified Answer: _____

[ ] Checked on SC-6

Investigation 3: The Ones socket holds [9]. How many more ones are needed to complete 10 and regroup into 1 Ten?

1. Draw Your Blocks on the Tray:



2. Number Bond & Two Quantities:

First Quantity (Top Row): _____

Second Quantity (Bottom Row): _____

Combine (+, −, or ×): _____

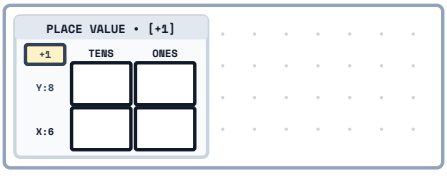
3. My Prediction: _____

Final Verified Answer: _____

[ ] Checked on SC-6

Investigation 4: Solve 8 + 6 by bridging through 10 on your Place Value Tray.

1. Draw Your Blocks on the Tray:



2. Number Bond & Two Quantities:

First Quantity (Top Row): _____

Second Quantity (Bottom Row): _____

Combine (+, −, or ×): _____

3. My Prediction: _____

Final Verified Answer: _____

[ ] Checked on SC-6

UNIT 03 PRACTICE WORKSHEET A • GRADE 1 (SC-6)

Unit 03 Practice A: Core Fluency

Name: _____ Date: _____ Score: _____ / 10

TIER 1 • LEVEL 1: BUILDER FOUNDATION • STUDY THESE 2 WORKED EXAMPLES BEFORE SOLVING PRACTICE A (#1–#10) ON PAPER FIRST

EXAMPLE 1 **Evaluate 8 + 5 by Making 10 first.**

8 needs 2 to make 10. Split 5 into 2 + 3 → (8 + 2) + 3 = 10 + 3 = 13.

Verified Answer: 13

EXAMPLE 2 **Evaluate 7 + 6 by Making 10 first.**

7 needs 3 to make 10. Split 6 into 3 + 3 → (7 + 3) + 3 = 10 + 3 = 13.

Verified Answer: 13

1 Tier 1 • Builder

Complete the 10-bond: 9 + [?] = 10

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:9		

Paper Step: _____ [ ] SC-6 Ans: _____

2 Tier 1 • Builder

Complete the 10-bond: 7 + [?] = 10

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:7		

Paper Step: _____ [ ] SC-6 Ans: _____

3 Tier 1 • Builder

Make 10 to add: 9 + 4 =

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:9		

Paper Step: _____ [ ] SC-6 Ans: _____

4 Tier 1 • Builder

Make 10 to add: 9 + 7 =

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:9		

Paper Step: _____ [ ] SC-6 Ans: _____

5 Tier 1 • Builder

Make 10 to add: 8 + 4 =

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:8		

Paper Step: _____ [ ] SC-6 Ans: _____

6 Tier 1 • Builder

Make 10 to add: 8 + 6 =

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:8		

Paper Step: _____ [ ] SC-6 Ans: _____

7 Tier 1 • Builder

Make 10 to add: 8 + 7 =

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:8		

Paper Step: _____ [ ] SC-6 Ans: _____

8 Tier 1 • Builder

Make 10 to add: 7 + 5 =

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:7		

Paper Step: _____ [ ] SC-6 Ans: _____

9 Tier 1 • Builder

Make 10 to add: 6 + 5 =

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:6		

Paper Step: _____ [ ] SC-6 Ans: _____

10 Tier 1 • Builder

Make 10 to add: 7 + 8 =

PLACE VALUE • [+1]

+1	TENS	ONES
Y:10		
X:7		

Paper Step: _____ [ ] SC-6 Ans: _____