UNIT 04 TEACHER CORE LESSON • BRIDGES IN MATHEMATICS (GRADES 1–2 • SC-6)

Twin-Row Doubles: Adding Two Equal Groups

Doubles & Fact Strategies • Standard: CCSS.MATH.1.OA.C.6

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1. MATHEMATICAL CONCEPT & STACK APPROACH: Model doubles physically using matching digit blocks in Row 1 and Row 0 of the Place Value Tray and connect to equal groups.

Doubling a quantity means adding two identical copies of the same number ($n + n = 2n$). Seeing matching quantities in the top and bottom rows of the tray anchors mental doubles facts.

2. MODELING WITH BLOCKS & STUDENT PREDICTION

Published Block Kit: Place Value Studio (Two-Row Tray & Digit Blocks)

Hands-On Setup: Place a [6] Digit Block in Row 1 (top) and a matching [6] Digit Block in Row 0 (bottom) of the Ones column on the Place Value Tray.

Student Prediction (Before Calculator): Observe the matching rows: 6 + 6 = 12 (1 Ten and 2 Ones on the tray).

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

Keystroke Flow: [6] [ENTER] [+]

Key Pressed	Screen (X)	Internal 4-Level Stack Effect (T, Z, Y, X)
[6]	6	Top row quantity (6) enters register X
[ENTER]	6	ENTER duplicates 6 into register Y! Both rows now on stack
[+]	12	Plus combines top and bottom rows: 6 + 6 = 12!

4. CONTEXT (Symmetry & Twin Rows: Why Doubles Anchor Mental Math) • From Blocks to the Stack (SC-6 Manual) — Ch. 1: Meet Your Math Workbench & Ch. 2: What Happens When You Press [ENTER]?

From two hands of 5 fingers (5 + 5 = 10) to two rows of 6 eggs in a carton (6 + 6 = 12), symmetry makes doubles the fastest facts in human memory. Once a student knows 7 + 7 = 14 by sight on the two-row tray, neighbor facts like 7 + 8 = 15 and 7 + 6 = 13 become instant one-step adjustments.

Core Investigation (Student Warm-Up A):

Place [7] in both rows of your Place Value Tray to build a twin-row double. What is the sum of two 7*s*?

Teacher Answer Key: 14 ([1] Ten and [4] Ones on the tray; 7 + 7 = 14).

Near-Doubles: Doubles Plus One

Fact Fluency & Near Doubles • Standard: CCSS.MATH.2.OA.B.2

1. FOLLOW-UP EXTENSION CONCEPT, BLOCKS & PREDICTION

Concept & Stack Approach: A near-double (such as 7 + 8) is a double plus or minus 1 ((7 + 7) + 1). Evaluating the known double first (14) makes adding the remaining +1 effortless.

Blocks & Prediction: Place [7] in Row 1 (top) and [8] in Row 0 (bottom) of the Place Value Tray. Prediction: 7 and 8 is double 7 plus 1 more: 14 + 1 = 15.

2. EXTENSION CALCULATOR SEQUENCE & STACK TRACE

[7] [ENTER] [+] [1] [+]

Key Pressed	Screen (X)	Internal 4-Level Stack Effect
[7]	7	Enter base number 7
[ENTER]	7	Duplicate 7
[+]	14	Double: 7 + 7 = 14
[1]	1	Near-double difference (1)
[+]	15	14 + 1 = 15!

3. TARGET MISCONCEPTIONS & HANDS-ON BLOCK REMEDIATIONS

Misconception 1: Retyping the number to double it (e.g., [7] [ENTER] [7] [+]) instead of recognizing that [ENTER] duplicates Register X into Register Y.

Hands-On Block Remediation: Place matching [7] Digit Blocks in Row 1 and Row 0 of the Place Value Tray, then press [7] [ENTER] and point to the screen: both Y and X already hold 7, so pressing [+] doubles it immediately.

Misconception 2: Confusing '3 groups of 4' with '3 + 4' when transitioning from repeated addition to multiplication.

Hands-On Block Remediation: Model three groups of [4] on the Place Value Tray; have the student key [4] [ENTER] [4] [+] [4] [+] = 12 first, then compare directly with [4] [ENTER] [3] [×] = 12.

Extension Challenge (Student Warm-Up B):

Use the known double 6 + 6 to solve the near-double 6 + 7.

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

Doubles, Near-Doubles & Equal Groups on the Place Value Tray

Name: _____ Date: _____ Class: _____

STUDENT REFERENCE GUIDE: TWIN-ROW DOUBLES & NEAR-DOUBLES STRATEGIES

- Placing matching Digit Blocks in Row 1 (top) and Row 0 (bottom) of the Place Value Tray models a physical Double (n + n).
- Near-Doubles: When two addends differ by 1 (such as 7 + 8), double the smaller number first (7 + 7 = 14) and add 1 more (14 + 1 = 15).
- On the SC-6, pressing [ENTER] duplicates the number on Line X onto Line Y so pressing [+] checks any double in 3 keystrokes.

Key Sequence: `6` `ENTER` `+`

Investigation 1: Two matching rows on the Place Value Tray each hold 8. What is double 8?

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:

_____

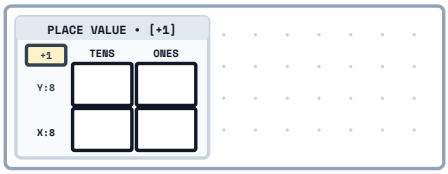
Final Verified Answer:

_____

[ ] Checked on SC-6

Investigation 2: Use the double 8 + 8 to solve the near-double 8 + 9.

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:

_____

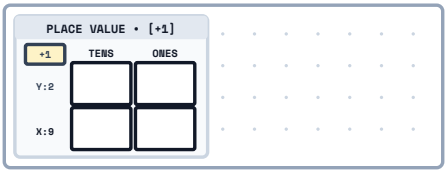
Final Verified Answer:

_____

[ ] Checked on SC-6

Investigation 3: A carton has two equal rows of 9 eggs. How many eggs are in the carton?

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:

_____

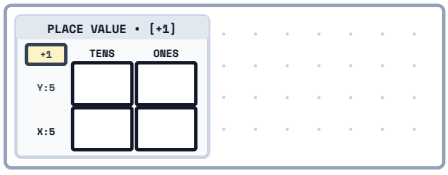
Final Verified Answer:

_____

[ ] Checked on SC-6

Investigation 4: Use the double 5 + 5 to solve the near-double 5 + 6.

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 04 PRACTICE WORKSHEET A • GRADES 1–2 (SC-6)

Unit 04 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 **Clone 7 on the Twin-Row Tray: 7 + 7.**

Row 1 = 7, Row 0 = 7 → 7 + 7 = 14. Key: [7] [ENTER] [+].

Verified Answer: 14

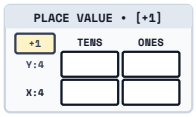
EXAMPLE 2 **Use a Double to solve the Near-Double 7 + 8.**

Think 7 + 7 = 14, plus 1 more = 15. Key: [7] [ENTER] [+] [1] [+].

Verified Answer: 15

1 Tier 1 • Builder

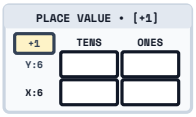
Twin-Row Double: 4 + 4 =



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

2 Tier 1 • Builder

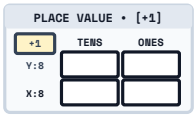
Twin-Row Double: 6 + 6 =



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

3 Tier 1 • Builder

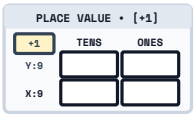
Twin-Row Double: 8 + 8 =



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

4 Tier 1 • Builder

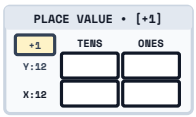
Twin-Row Double: 9 + 9 =



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

5 Tier 1 • Builder

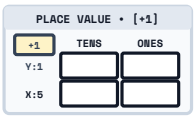
Twin-Row Double: 12 + 12 =



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

6 Tier 1 • Builder

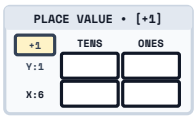
Near-Double (Double + 1): 5 + 6 =



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

7 Tier 1 • Builder

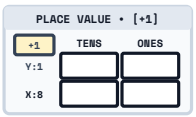
Near-Double (Double + 1): 6 + 7 =



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

8 Tier 1 • Builder

Near-Double (Double + 1): 8 + 9 =



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

9 Tier 1 • Builder

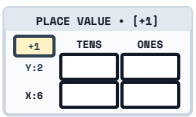
Near-Double (Double - 1): 7 + 6 =



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

10 Tier 1 • Builder

Near-Double (Double + 2): 6 + 8 =



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