

Figure the Facts: Addition Strategies & Near Doubles

Tactile Concrete-Pictorial-Abstract (CPA) Station Guide • CCSS.MATH.2.OA.B.2

Student Name: _____

Date: _____

Model: SC-6

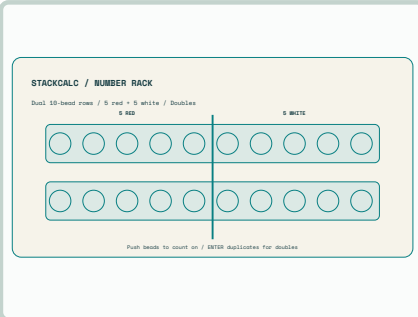
Check Score: ____ / 4

STUDENT SELF-CHECK RULE (NO CHEATING):

Build with blocks and solve on paper first! Use your SC-6 calculator ONLY to verify answers on the 4-line LCD screen.

STATION LAB TUTORIAL: BENCH SCHEMATIC & CPA PROGRESSION

1. 2D Bench Blueprint



Kit: Number Rack

2. Desk Setup (Concrete -> Pictorial)

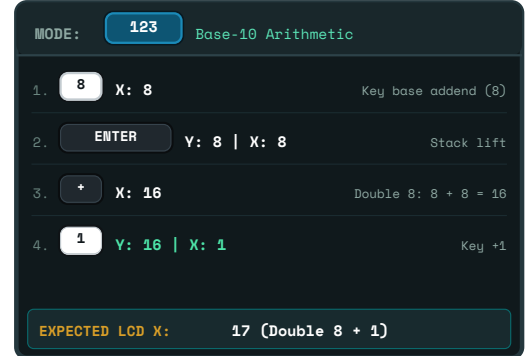
Physical Bench Setup:

Push 7 beads on top wire, 8 beads on bottom wire. Notice double 7 plus 1 white bead.

Sketch Model on Paper:

Draw 7 red on top, 7 red + 1 white on bottom.

3. Step-by-Step LCD Stack Trace (SC-6)



1 Use double 6 to solve $6 + 7$.

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

2 Use double 7 to solve $7 + 8$.

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

3 Use double 9 to solve $9 + 10$.

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

4 What is double 7 minus 1 ($7 + 6$)?

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

Station Diagnostic & Solution Key: Unit 1

Figure the Facts: Addition Strategies & Near Doubles • Manipulative Setup, Diagnostic Rubric & Verification Flow

MANIPULATIVE HARDWARE STATION INVENTORY & 3D PRINT PREPARATION

Station Kit: Number Rack (20-Bead Stand)

CAD Blueprint: number_rack

Target Device: SC-6 Elementary

CAD / STL Source File:

Education/scoad/number_rack_parts.scoad

Standard: Gridfinity 42mm Pitch / 0.6mm Inset Markings

Recommended Filaments:

White Frame with Signal Red & White Beads (PLA)

#	Math Problem Prompt	Expected Math Answer	Self-Check Keystrokes & RPN Stack
1	Use double 6 to solve 6 + 7. Standard: CCSS.MATH.2.OA.B.2	13	[6] [ENTER] [+] [1] [+]
2	Use double 7 to solve 7 + 8. Standard: CCSS.MATH.2.OA.B.2	15	[7] [ENTER] [+] [1] [+]
3	Use double 9 to solve 9 + 10. Standard: CCSS.MATH.2.OA.B.2	19	[9] [ENTER] [+] [1] [+]
4	What is double 7 minus 1 (7 + 6)? Standard: CCSS.MATH.2.OA.B.2	13	[7] [ENTER] [+] [1] [-]

TEACHER DIAGNOSTIC GUIDE: COMMON MISCONCEPTIONS & REMEDIATION

Key Misconception to Target During Station Observation:

Encourage mental partitioning rather than counting each bead from 1.

How the Manipulatives & Calculator Foster Self-Correction:

Students solve with pencil and physical blocks first. When they self-check on the SC-6, any discrepancy between their written answer and the calculator's 4-line LCD immediately prompts them to re-inspect their physical bench model or regrouping, turning errors into productive struggle without teacher intervention.

Station Facilitation & Pacing Tip:

Keep 3D printed trays docked on standard Gridfinity baseplates to prevent loose parts on student desks. Encourage students to articulate their CPA steps: name the block representation (Concrete), point to their drawn tape/bond model (Pictorial), and verify register values (Abstract).

CLASSROOM SCORING & STATION MASTERY RUBRIC

Exemplary (18–20 pts):

Complete, accurate manipulative sketches; exact math answers; independently verified self-check on LCD stack.

Proficient (14–17 pts):

Correct math answers; minor sketch omissions; verified on calculator with minimal teacher prompting.

Developing (10–13 pts):

Understands problem concept but made computational slips; successfully self-corrected using calculator LCD.

Intervention (<10 pts):

Relied on calculator before solving on paper, or struggled with underlying physical manipulative models.