

Integers & The Coordinate Plane: Negative Numbers & Zero Pairs

Tactile Concrete-Pictorial-Abstract (CPA) Station Guide • CCSS.MATH.6.NS.C.6

Student Name: _____

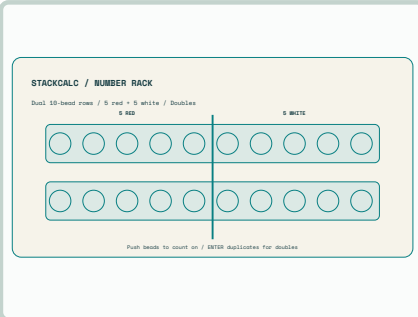
Date: _____

Model: SC-6

Check Score: ____ / 4

STUDENT SELF-CHECK RULE (NO CHEATING):

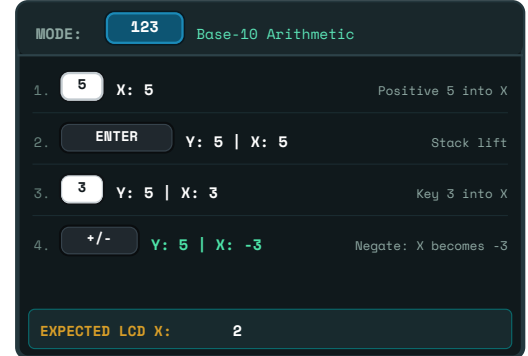
Build with blocks and solve on paper first! Use your SC-6 calculator ONLY to verify answers on the 4-line LCD screen.

STATION LAB TUTORIAL: BENCH SCHEMATIC & CPA PROGRESSION**1. 2D Bench Blueprint****2. Desk Setup (Concrete -> Pictorial)****Physical Bench Setup:**

Pair 5 positive (teal) discs with 3 negative (coral) discs. Remove 3 zero-pairs; 2 remain.

Sketch Model on Paper:

Draw positive + and negative - symbols cancelling in zero pairs.

3. Step-by-Step LCD Stack Trace (SC-6)**1 Solve $7 + (-4)$ on the stack.**

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6**2 Solve $-6 + (-3)$ on the stack.**

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6**3 Solve $4 - 9$ on the stack.**

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6**4 Solve $-8 - (-5)$ on the stack.**

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

Station Diagnostic & Solution Key: Chapter 6

Integers & The Coordinate Plane: Negative Numbers & Zero Pairs • Manipulative Setup, Diagnostic Rubric & Verification Flow

MANIPULATIVE HARDWARE STATION INVENTORY & 3D PRINT PREPARATION

Station Kit: Number Rack & Zero-Pair Color Discs

CAD / STL Source File:

Recommended Filaments:

CAD Blueprint: number_rack

Education/scoad/number_rack_parts.scoad

White Frame with Signal Red & White Beads (PLA)

Target Device: SC-6 / SC-32 Bridge

Standard: Gridfinity 42mm Pitch / 0.6mm Inset Markings

#	Math Problem Prompt	Expected Math Answer	Self-Check Keystrokes & RPN Stack
1	Solve $7 + (-4)$ on the stack. Standard: CCSS.MATH.6.NS.C.6	3	[7] [ENTER] [4] [+/-] [+]
2	Solve $-6 + (-3)$ on the stack. Standard: CCSS.MATH.6.NS.C.6	-9	[6] [+/-] [ENTER] [3] [+/-] [+]
3	Solve $4 - 9$ on the stack. Standard: CCSS.MATH.6.NS.C.6	-5	[4] [ENTER] [9] [-]
4	Solve $-8 - (-5)$ on the stack. Standard: CCSS.MATH.6.NS.C.6	-3	[8] [+/-] [ENTER] [5] [+/-] [-]

TEACHER DIAGNOSTIC GUIDE: COMMON MISCONCEPTIONS & REMEDIATION

Key Misconception to Target During Station Observation:

Watch for students treating subtraction and negative signs as unrelated concepts.

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.