

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

[illegible]

EXPECTED LCD X: $1/6$ (0.1667)

Verified on SC-6

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Station Diagnostic & Solution Key: Unit 4

Measurement & Fractions: Unit Fractions & Tower Heights • Manipulative Setup, Diagnostic Rubric & Verification Flow

MANIPULATIVE HARDWARE STATION INVENTORY & 3D PRINT PREPARATION

Station Kit: Fraction Studio Proportional Towers

CAD / STL Source File:

Recommended Filaments:

CAD Blueprint: fraction_blocks

Education/scad/fraction_studio_parts.scad

Precision Proportional Fraction Blocks (PLA)

Target Device: SC-6 Elementary

Standard: Gridfinity 42mm Pitch / 0.6mm Inset Markings

#	Math Problem Prompt	Expected Math Answer	Self-Check Keystrokes & RPN Stack
1	Enter unit fraction 1/3: [. 1 . 3] Standard: CCSS.MATH.3.NF.A.1	1/3	[. 1 . 3]
2	Enter unit fraction 1/8: [. 1 . 8] Standard: CCSS.MATH.3.NF.A.1	1/8	[. 1 . 8]
3	Add three 1/4 blocks: 1/4 + 1/4 + 1/4. Standard: CCSS.MATH.3.NF.A.1	3/4	[. 1 . 4] [ENTER] [. 1 . 4] [+] [. 1 .
4	How many 1/6 blocks make 1/2? Standard: CCSS.MATH.3.NF.A.1	3	[. 1 . 2] [ENTER] [. 1 . 6] [÷]

TEACHER DIAGNOSTIC GUIDE: COMMON MISCONCEPTIONS & REMEDIATION

Key Misconception to Target During Station Observation:

Larger denominator means smaller unit piece height.

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.