

Place Value & Bundling Tens into Hundreds

Tactile Concrete-Pictorial-Abstract (CPA) Station Guide • CCSS.MATH.2.NBT.A.1

Student Name: _____

Date: _____

Model: SC-6

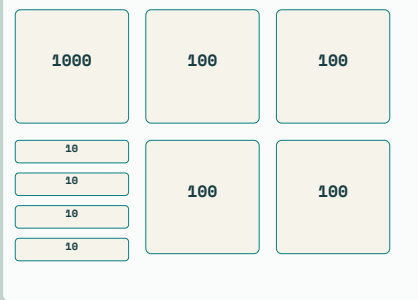
Check Score: ____ / 4

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: Place Value Base Ten

2. Desk Setup (Concrete -> Pictorial)

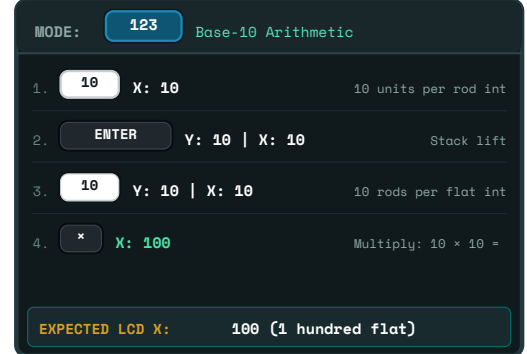
Physical Bench Setup:

Group 10 unit cubes into 1 rod. Group 10 rods into 1 flat (100).

Sketch Model on Paper:

Draw squares for hundreds flats, lines for tens rods, dots for ones.

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



1 Combine 3 hundreds (300) and 4 tens (40).

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

2 Combine 5 hundreds, 2 tens, and 6 ones.

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

3 Subtract 1 ten from 200.

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

4 What is 100 more than 380?

Manipulative Model & Desk Sketch (Show your work):

Final Math Answer:

☐ Verified on SC-6

Station Diagnostic & Solution Key: Unit 2

Place Value & Bundling Tens into Hundreds • Manipulative Setup, Diagnostic Rubric & Verification Flow

MANIPULATIVE HARDWARE STATION INVENTORY & 3D PRINT PREPARATION

Station Kit: Place Value Base-Ten Studio (Blocks & Flats)

CAD / STL Source File:

Recommended Filaments:

CAD Blueprint: place_value_base_ten

Education/scad/lib/place_value_base_ten.scad

100 Yellow Flats & 10 Green Rods (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	Combine 3 hundreds (300) and 4 tens (40). Standard: CCSS.MATH.2.NBT.A.1	340	[3][0][0] [ENTER] [4][0] [+]
2	Combine 5 hundreds, 2 tens, and 6 ones. Standard: CCSS.MATH.2.NBT.A.1	526	[5][0][0] [ENTER] [2][0] [+] [6] [+]
3	Subtract 1 ten from 200. Standard: CCSS.MATH.2.NBT.A.1	190	[2][0][0] [ENTER] [1][0] [-]
4	What is 100 more than 380? Standard: CCSS.MATH.2.NBT.A.1	480	[3][8][0] [ENTER] [1][0][0] [+]

TEACHER DIAGNOSTIC GUIDE: COMMON MISCONCEPTIONS & REMEDIATION

Key Misconception to Target During Station Observation:

Watch for confusing 100 with 10 tens.

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.