

InsightMath
California

Program Overview Guide



MIND
EDUCATION®



Our Vision

At MIND Education, our mission is to ensure all students are mathematically equipped to solve the world's most challenging problems.

MIND Education is the leading curriculum developer creating math programs entirely based on **how the brain naturally learns**. Backed by over 25 years of applied research and classroom experience, we design student-centered programs rooted in visual learning, spatial-temporal reasoning, and structured problem solving.

By focusing on **conceptual understanding from the very beginning**, we help prevent learning gaps before they start—giving every student the opportunity to grow into a **confident, capable mathematical thinker**.

Our belief is simple and powerful: **when we design learning to match how the brain learns, every student can thrive in math.**

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What is InsightMath California?

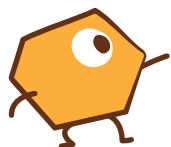
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Welcome to InsightMath California!

You're about to teach math in a whole new way—one that brings learning to life—for your students and for you.

InsightMath California is designed with the brain in mind. That means more visual thinking, more student voice, and more moments where real understanding clicks into place.

What to expect:



Your students will:

- Jump into puzzles that get them thinking right away
- Talk about math—out loud, with each other, and with you
- Build real understanding, as they develop computational fluency and procedures



You will:

- See your students engaged, curious, and persistent
- Facilitate rich conversations using built-in supports
- Get everything you need—organized, clear, and ready to go



Your classroom will:

- Come alive with mathematical thinking
- Support every learner, every day
- Feel like a community where math makes sense

This guide walks you through the year. We're excited for everything you and your students are about to discover.

Let's do this!

—The Team at MIND Education

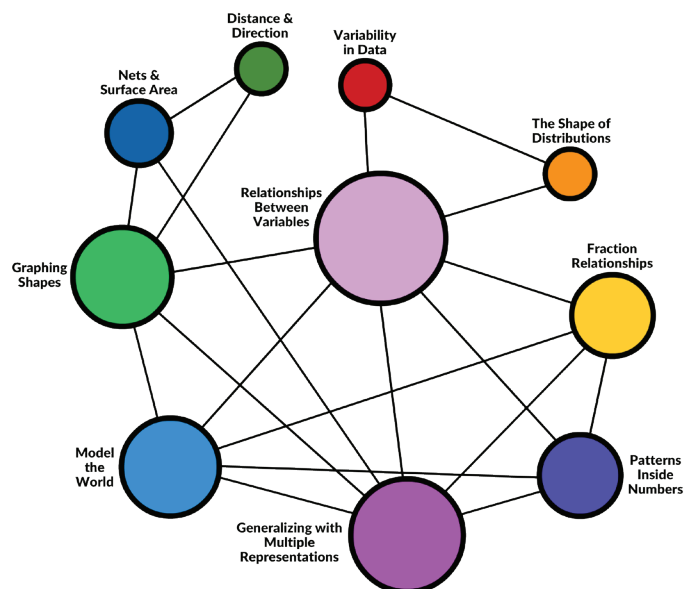
What's in InsightMath California?

InsightMath California is not just aligned with the new California Mathematics framework—it brings its vision to life. Students experience math as a coherent, sense-making journey built on Big Ideas, visual reasoning, and student-driven inquiry. Grounded in neuroscience and designed for all students from the start, InsightMath aligns with the **Five Components of Equitable and Engaging Teaching for All Students**:

- planning around big ideas
- using open and engaging tasks
- teaching for social justice
- inviting student questions and conjectures
- prioritizing reasoning and justification

Our visual-first program supports deep understanding, encourages mathematical discourse, and helps students develop the confidence to persevere through challenging problems.

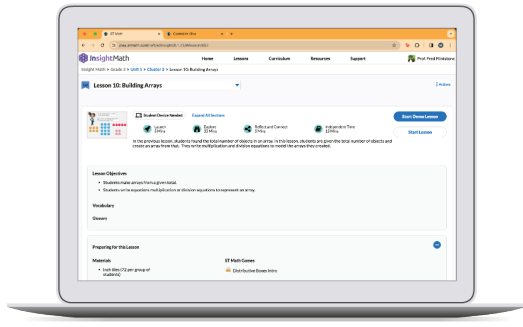
From its rigorous, grade-level curriculum and dynamic problem-solving process to its robust teacher support and inclusive assessments, the program fosters critical thinking, positive math identities, and lasting learning. **InsightMath California** empowers all students to see themselves as mathematical thinkers – ready to tackle the challenges of tomorrow.



Projects

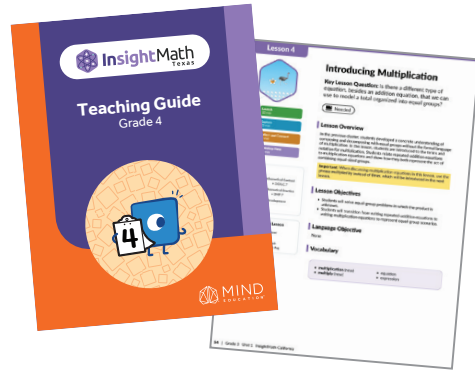
InsightMath California includes projects in each grade level that can be flexibly implemented by teachers at any appropriate time during the school year. The projects focus heavily on interweaving **Data and Statistics** with the **Environmental Principles & Concepts**, helping students explore connections between math, their classroom, and the world around them.

| Grade 4 Program Components



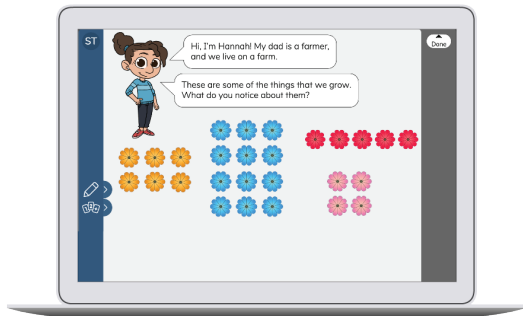
Digital Planning Guide

All Program Resources



Teaching Guide

Digital/Print Resources
for Daily Instruction



Digital Student Edition

Student Portal into
the Lessons



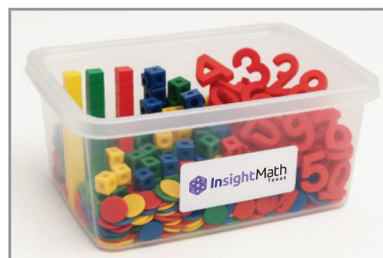
Playbook

Digital/Print Student
Activity Pages



Tools, Tasks, and Templates

Digital/Print Teacher
Blackline Masters



Classroom Manipulative Kit

Grade Level
Manipulative Kit



Practice Book

Digital/Print Daily
Practice Pages



Classroom Poster Pack

Classroom Character
and Strengths Posters

| Grade 4 Scope and Sequence

Unit 0 Doing Mathematics

Big Idea All students are doers, knowers, and sensemakers of mathematics.

Cluster1 Collaborating to Do Mathematics

Cluster2 Persevering to Do Mathematics

Unit 1 Exploring Multiplicative Relationships

Big Idea Multiplication can help to discover, understand, and explain relationships between numbers.

Cluster1 Factors

Cluster2 Multiples and Multiplication

Cluster3 Division with Remainders

Unit 2 Discover Multiplicative Comparison

Big Idea Multiplication can be used to compare quantities and measurements.

Cluster1 Multiplicative Comparison

Cluster2 Measurement Conversions

Unit 3 Extending Place Value and Adding and Subtracting Efficiently

Big Idea Understanding the patterns and regularity of the base-ten place value system helps to compare and compute with multidigit numbers.

Cluster1 Place Value and the Metric System

Cluster2 Exploring Magnitude

Cluster3 Strategies for Addition and Subtraction

Cluster4 Standard Algorithms for Addition and Subtraction

Unit 4 Building Multiplication Strategies

Big Idea Using known facts and place-value properties flexibly is helpful to perform multidigit multiplication strategically and efficiently.

Cluster1 Multiples of Powers of 10

Cluster2 Multiplying 1-Digit Numbers by Multidigit Numbers

Cluster3 Multiplying Two-Digit Numbers

Cluster4 Multistep Problems and Perimeter

Unit 5 Building Division Strategies

Big Idea Multiplication and division models and strategies can be extended and applied to division problems involving multidigit numbers and remainders.

- Cluster1** Two Types of Division
- Cluster2** Division Patterns
- Cluster3** Partial Quotients: Partitioning First
- Cluster4** Partial Quotients: Building Up to the Dividend
- Cluster5** Factors and Multiples

Unit 6 Extending Addition and Subtraction to Fractions

Big Idea Thinking flexibly about how fractions, whole numbers, and mixed numbers are composed can help to add and subtract efficiently.

- Cluster1** Composing and Decomposing Fractions
- Cluster2** Adding and Subtracting Fractions with Common Denominators
- Cluster3** Adding and Subtracting Mixed Numbers with Common Denominators

Unit 7 Exploring Fractional Thinking and Discovering Decimals

Big Idea Any number can be represented in an infinite number of different, but equivalent, ways.

- Cluster1** Fraction Equivalence
- Cluster2** Relating Fractions to Decimals
- Cluster3** Comparing and Ordering Fractions and Decimals

Unit 8 Extending Multiplication to Fractions

Big Idea Equal-groups thinking can help when multiplying and comparing quantities involving fractions.

- Cluster1** Multiplying Fractions by Whole Numbers
- Cluster2** Multiplicative Comparisons with Fractions

Unit 9 Exploring Shapes, Lines, and Angles

Big Idea Properties of 2-D shapes are determined by the parts that make up the shape and the relationships between those parts.

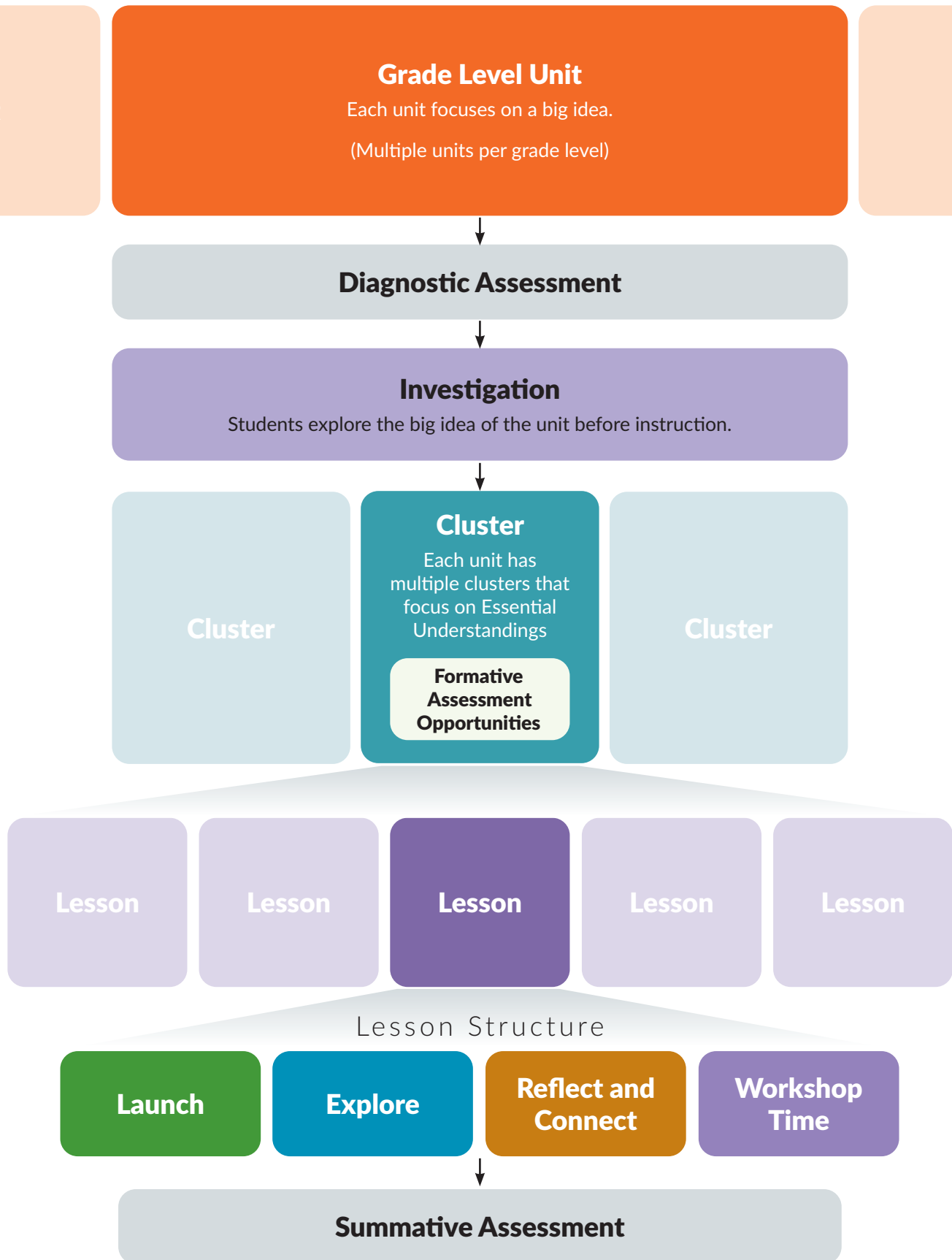
- Cluster1** Lines, Rays, Segments, and Angles
- Cluster2** Two-Dimensional Shapes

Unit 10 Making Connections with Time and Data

Big Idea Time can be represented with a variety of models that can help to solve problems and interpret data.

- Cluster1** Timelines
- Cluster2** Angles on the Clock
- Cluster3** Problem Solving with Time

| Unit Structure



| Grade 4 Pacing Guide

Week

1	Unit 0: Doing Mathematics (5–10 days)
2	
3	Unit 1: Exploring Multiplicative Relationships (13–16 days)
4	
5	
6	
7	Unit 2: Discovering Multiplicative Comparison (11–14 days)
8	
9	Unit 3: Extending Place Value and Adding and Subtracting Efficiently (16–20 days)
10	
11	
12	
13	Unit 4: Building Multiplication Strategies (15–18 days)
14	
15	
16	
17	Unit 5: Building Division Strategies (20–24 days)
18	
19	
20	
21	Unit 6: Extending Addition and Subtraction to Fractions (12–15 days)
22	
23	
24	
25	Unit 7: Exploring Fractional Thinking and Discovering Decimals (15–18 days)
26	
27	
28	Unit 8: Extending Multiplication to Fractions (13–17 days)
29	
30	
31	
32	Unit 9: Exploring Shapes, Lines, and Angles (12–15 days)
33	
34	Unit 10: Making Connections with Time and Data (10–13 days)
35	
36	

A Visual Approach to Math Instruction Based on How the Brain Learns

Changing the Math Story for Every Student

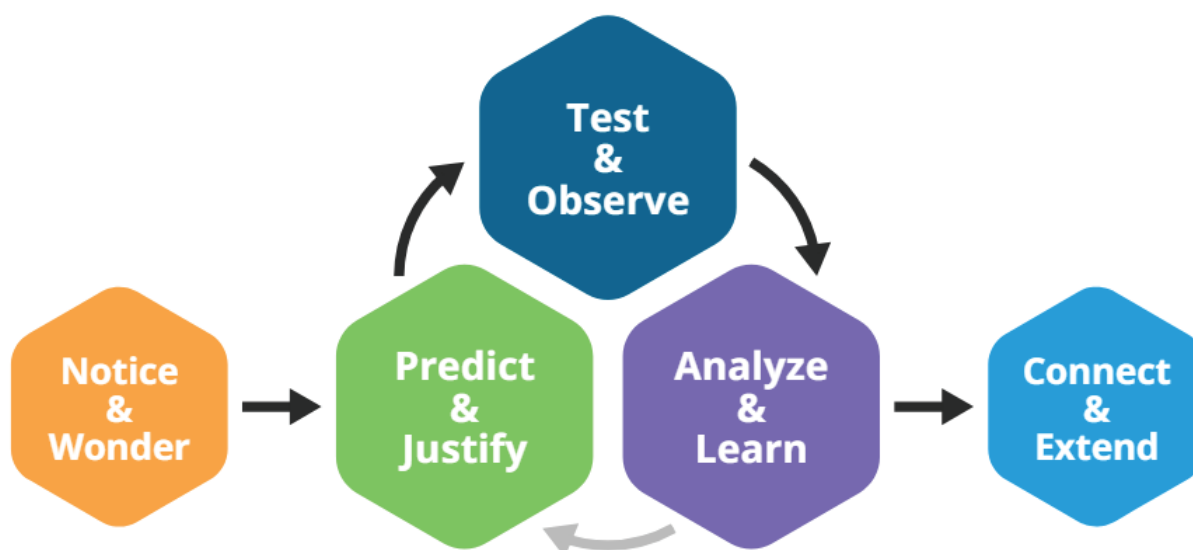
Developed by MIND Education, **InsightMath California** is a core program grounded in how the brain learns. It brings visual-first, spatial-temporal, and problem-based learning into the classroom.

InsightMath California builds deep understanding from the start through visual and manipulative-based activities—helping all students become confident math thinkers. Computation strategies, written language, and procedural fluency are developed on top of this strong foundation.

With digital and optional print formats, **InsightMath California** supports flexible teaching, equipping teachers to prioritize student thinking.

Instruction Designed Around How Students Learn Best

At the center of **InsightMath California** is the MIND Education Problem-Solving Process—a flexible, neuroscience-based routine, that supports open-ended questioning and deep exploration. Teachers guide students to reflect, reason, and connect their thinking with peers—promoting meaningful understanding and growing confident math thinkers.



An Asset-Based Approach

InsightMath California focuses on harnessing students' strengths. By starting with what students know, and giving them a chance to bring themselves and their thinking into the lessons, you will use their ideas as a launchpad for growth.

Every child has mathematical insight—**InsightMath California** helps you uncover and nurture it.



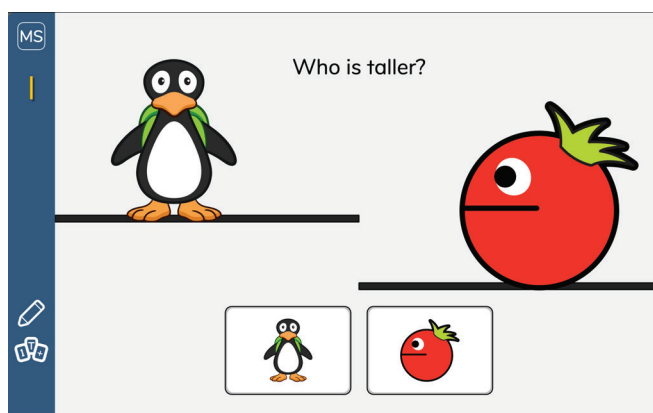
Unit 0 Starts the Year

Unit 0 is a weeklong introduction at the start of each grade level to establish classroom listening, speaking, collaborating and thinking routines to be used throughout the year.

Students are also introduced to a cast of characters who encourage students to bring their experiences into the classroom as they see themselves in the math.

Investigations Build Mathematical Thinkers from the Beginning

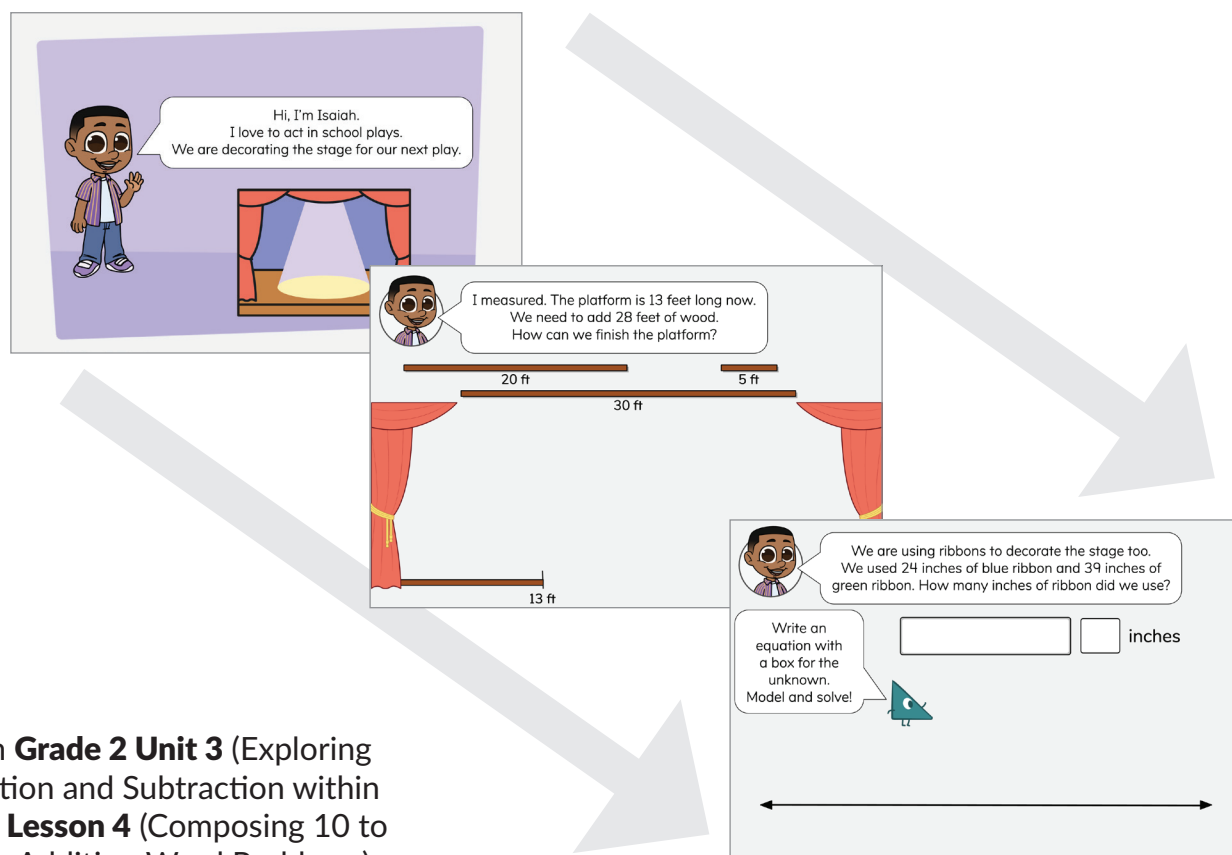
In **InsightMath California** classrooms, students don't just follow steps—they think like mathematicians. Every unit opens with an Investigation where students explore new ideas before the content is formally introduced. Students see patterns, explain ideas, and gain confidence and flexibility as mathematical thinkers.



InsightMath California is built on **Universal Design for Learning (UDL)** principles to ensure all students can access meaningful, engaging math. Units follow **research-based learning progressions** and are rooted in relevant contexts that connect to what students already know, supporting deeper understanding.

Students have choices in tools, models, and strategies, **building confidence and ownership**. Lessons develop conceptual understanding before introducing symbols. Vocabulary is introduced intentionally—students first describe ideas in their own words, then learn the formal math terms.


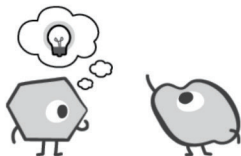



Problem solving is taught through a structured path focused on **real-world meaning**, not just word problem practice. Visual models support understanding and allow students to move between **concrete, representational, and abstract forms**, strengthening both content and language skills.



From **Grade 2 Unit 3** (Exploring Addition and Subtraction within 100) **Lesson 4** (Composing 10 to Solve Addition Word Problems).

The program highlights **connections across big ideas** and includes built-in complexity so all students can access core learning, with optional extensions for deeper exploration. Tools like the **Collaborative Language Tool** encourage discussion and teamwork, helping students learn from one another.

Collaborative Language Tool Cards (1 of 2)

<div><div></div><div>Share</div></div> <div></div> <div>I solved by _____.</div> <div>I tried by _____.</div>	<div><div></div><div>Connect</div></div> <div></div> <div>You said _____. Now I know _____.</div> <div>Your idea helped me understand _____.</div>
<div><div></div><div>Ask</div></div> <div></div> <div>Can you explain _____?</div> <div>What does _____ mean?</div>	<div><div></div><div>Agree and Disagree</div></div> <div><div></div><div>I agree with _____. I agree because _____.</div><div></div><div>I disagree with _____. I disagree because _____.</div></div>

Students are supported in showing what they know in multiple ways. **Academic language scaffolds** help with math vocabulary and text structure. Most importantly, the program is designed with access and opportunity in mind, helping teachers recognize and apply UDL strategies in every lesson.

Differentiation in InsightMath California

InsightMath California is designed with built-in supports to ensure that all students can access rigorous, grade-level math content. These supports help meet the diverse needs of learners—whether a student needs a little extra help to stay engaged or is ready to be challenged with deeper thinking.

The program offers four types of differentiation that can be used flexibly with any student who needs support. These tools are designed to promote meaningful participation and understanding for every learner, right where they are.

Differentiation

Use the suggestions in this section as part of daily instructional practice to tailor the learning experience for all students—not only students with disabilities—by removing barriers and extending opportunities for learning.

Supporting Access

Task Initiation (Exec. Func.)

Before beginning the task, ask students to identify what they know and what they need to determine.

Impulse Control (Exec. Func.)

See **RC1**

Supporting Language

Receptive/Interpretive Language

Provide visual cues or examples for lesson vocabulary as well as for this additional mathematical term:

- equation

Expressive/Productive Language

If students refer to operations using casual language when reading an expression or equation (e.g., “seven and two” or “seven and two makes nine”), rephrase their statement with mathematical terms (e.g., “seven plus two” or “seven plus two equals nine”).

Provide these sentence frames:

- The equation is ___ [plus / minus] ___ equals ___.
- I would use [addition / subtraction] to find the missing number because _____.
- A known addition fact can help me subtract because _____.

Supporting Content

Meaning of Operations

To help students see the relationship between subtraction and addition, provide six sticky notes with these words and symbols: part, part, total, +, -, and =. Ask students to show a word equation for addition. Then, rearrange the sticky notes to show subtraction (i.e., “+ =” becomes “- =”).

Extension

Challenge students to represent their thinking with a number bond to identify the unknown information, and then challenge students to describe how the unknown information can be found using both subtraction and addition.

Meeting the Needs of Special Populations

Many students belong to one or more special populations, and their needs are unique and varied. All students—whether identified as part of a special population or not—will need support at times and enrichment at others. **InsightMath California** is designed with flexibility in mind, using Universal Design for Learning (UDL) and differentiation to help every student engage and grow in math.

Multilingual Learners

All students build language skills, but Multilingual Learners may need extra support. UDL and language differentiation are key tools, offering scaffolded sentence frames that vary in support so students can choose what fits their readiness. Language objectives guide instruction, and lesson-specific supports help students understand and express math ideas.

Students Receiving Special Education Services

InsightMath California provides multiple access points and built-in depth to support varied learning needs. Differentiation tools address content, language, and participation challenges so students can engage in grade-level math with meaningful support.

Gifted and Talented (GT) Students

Students ready for more advanced work benefit from layered complexity and built-in extensions. These provide deeper challenges and opportunities to apply thinking in new ways.

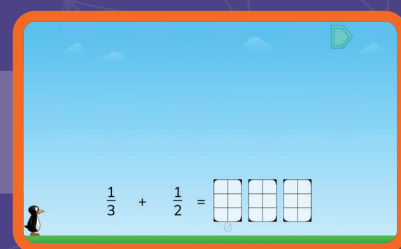
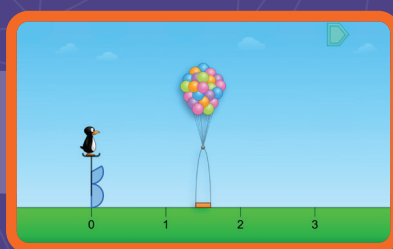
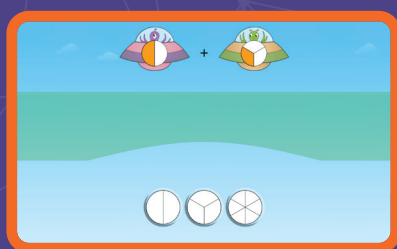
Students with Unfinished Learning

Some students have learning gaps for various reasons. Low-floor, high-ceiling activities allow access to grade-level content while targeted supports address unfinished learning. Formative assessments include guidance to help teachers support students struggling with specific concepts.

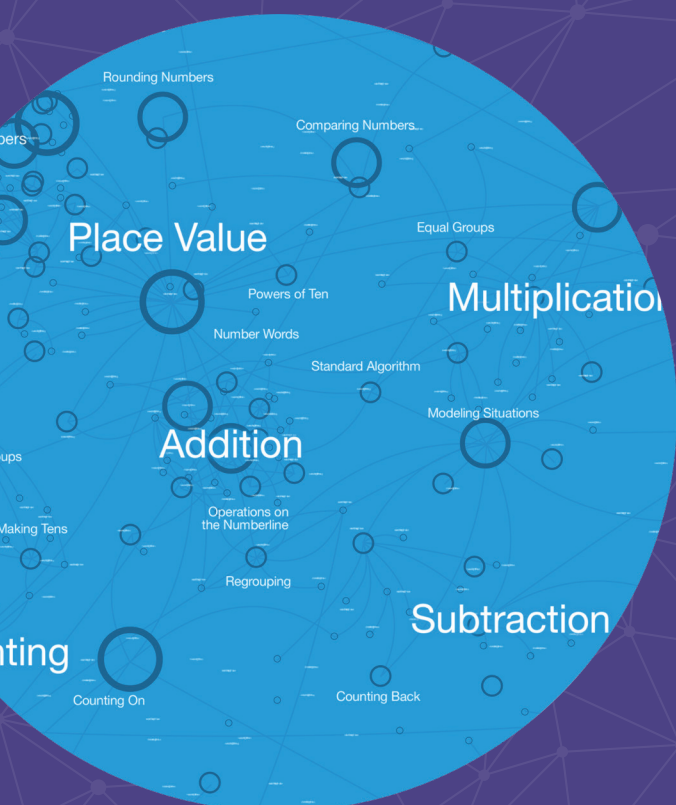
Building Mathematical Progressions Within and Across Grade Levels

Visual-First Learning That Makes Math Click

InsightMath California is built around a patented visual-first approach that helps students see and understand math. Interactive visuals activate students' spatial-temporal reasoning, building deep understanding even before introducing formal language or procedures.



Multiple models for every concept within a grade level

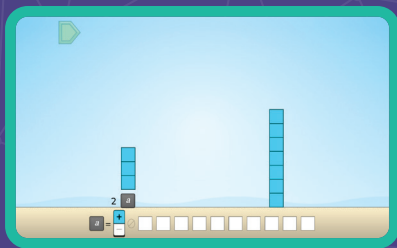


These scaffolded models support problem-solving, strategy sharing, and big-picture thinking—making math feel coherent and connected across and within grade levels.

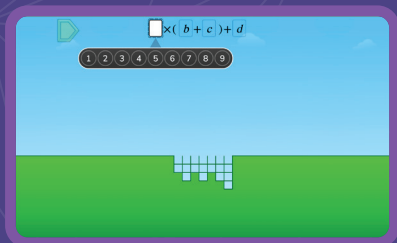
To deepen learning, lessons use multiple representations—visuals, numbers, words, and symbols—helping students form a rich network of ideas they can apply to new problems.

With **InsightMath California** students go beyond memorization. They develop a connected understanding of math concepts, apply their learning flexibly, and build lasting confidence.

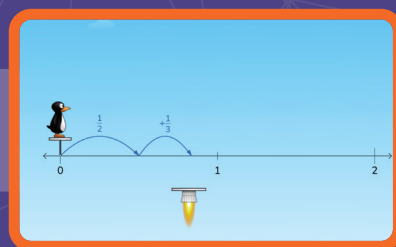
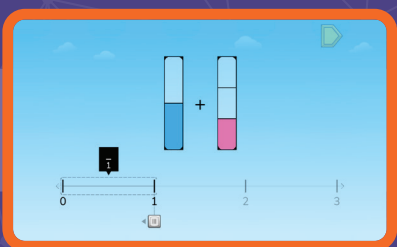
Equations
Grade 6



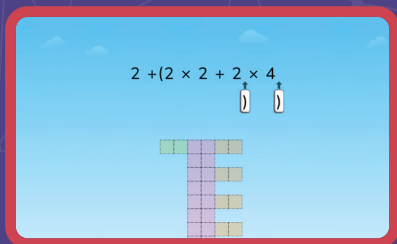
Expressions
Grade 5



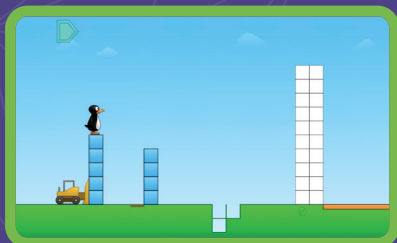
Fractions
Grade 4



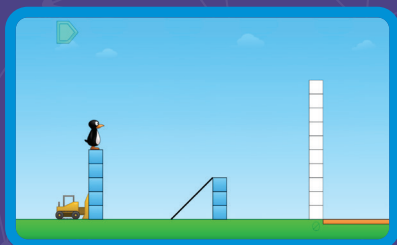
Multiplication
Grade 3



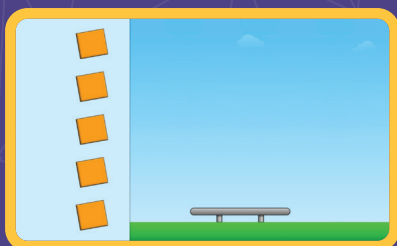
Subtraction
Grade 2



Addition
Grade 1



Counting
Grade K



Connected visual
models build in
complexity across
grade levels

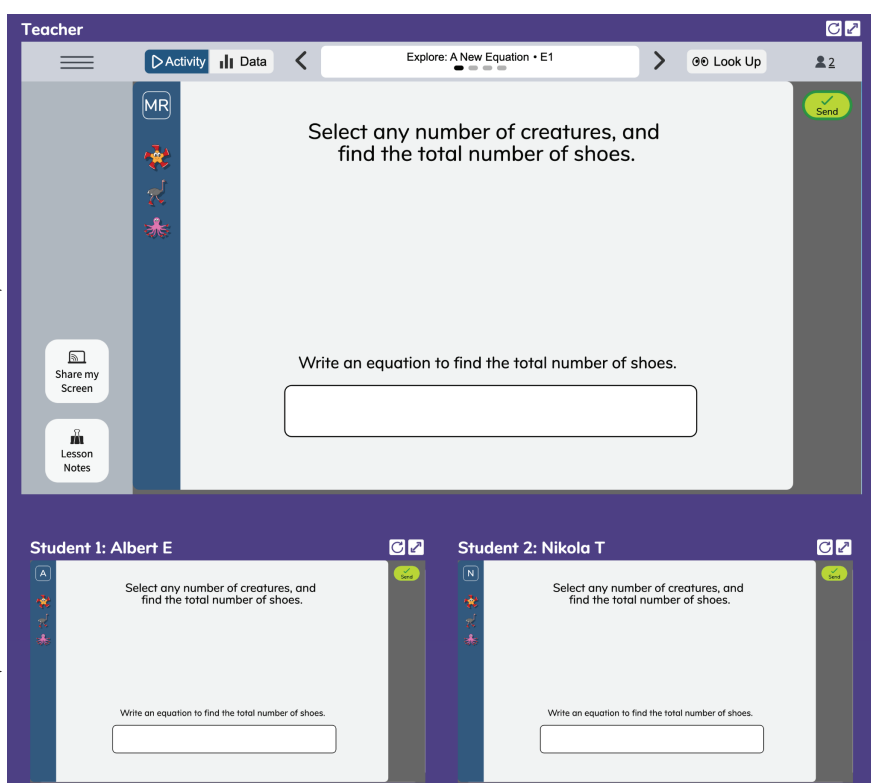
Insight into Student Thinking with Digital Planning Guide

InsightMath California lessons contain whole class activities that equip elementary educators with tools to teach math with confidence and clarity. The program blends technology, high quality mathematical content and practical support to make every teaching moment count.

1 Launch the interactive activity from the Digital Planning Guide.

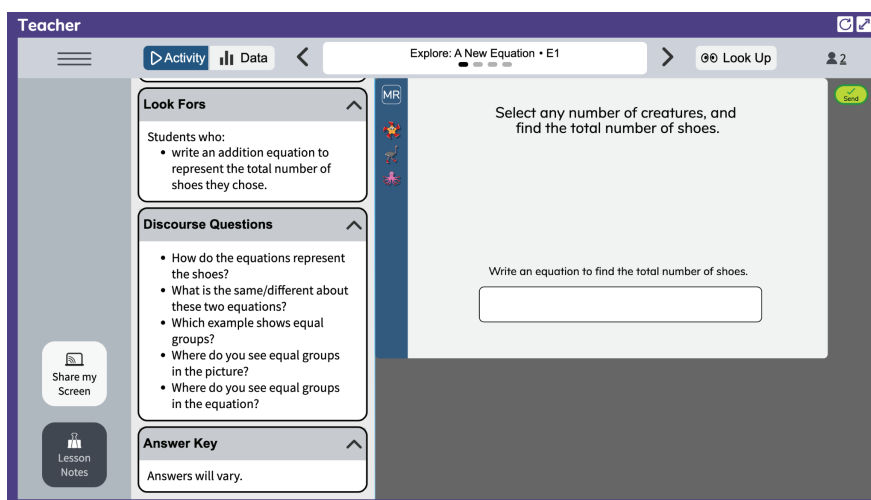
Teacher console →

Student screens →



2 Teachers access detailed notes including insights, “look fors,” and discourse prompts.

Support is available for every stage at point of use—unit, cluster, and lesson. These tools help create a classroom where students are seen, heard, and eager to engage with math.



3 Students submit responses, visible to teachers in real time.

The built-in data dashboard shows real-time student progress, making it easy to adjust instruction and keep every learner moving forward.

Teachers can project student work, and compare and contrast up to four different solution paths for whole-class discussion.

The screenshot shows the Teacher interface with a top navigation bar including 'Activity', 'Data', and 'Look Up' buttons. The main workspace displays two student workspaces side-by-side. On the left, 'Student 1: Albert E' has selected three red creatures and entered the equation $5 + 5 + 5 = 15$. On the right, 'Student 2: Nikola T' has selected two red creatures, one purple creature, and one ostrich, and entered the equation $5 + 8 + 2 = 15$. A 'Send' button is visible in the top right corner.

4 Teachers guide class discussion using selected student responses or Argumenteers.

In-Lesson Argumenteers

Argumenteers are sample student responses that can be used to spark discussion, inspire curiosity, showcase varied problem-solving approaches and highlight common misconceptions.

Look Up

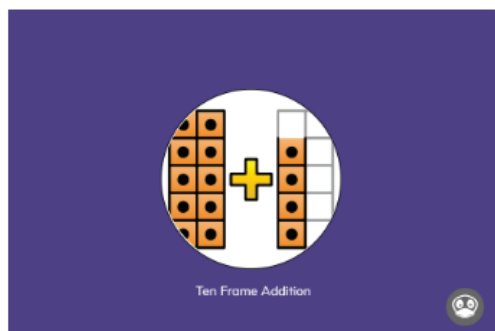
The “look up” button allows teachers to instantly direct student attention to the main screen—ideal for focusing during key moments.

This screenshot shows the Teacher interface with the 'Look Up' button highlighted in the top navigation bar. The main workspace displays two student workspaces side-by-side, labeled 'A' and 'B'. Both workspaces show the same problem: 'Select any number of creatures, and find the total number of shoes.' Workspace A shows three red creatures and the equation $5 + 5 + 5 = 15$. Workspace B shows two red creatures, one purple creature, and one ostrich, with the equation $5 + 8 + 2 = 15$. Below the student workspaces, there are two panels, each labeled 'Look Up' and featuring a penguin character sitting at a desk with a laptop.

Puzzle-Based Learning and Practice

Personalized Learning Through Game-Based Puzzles

In **InsightMath California**, personalized instruction is powered by **game-based puzzles** built on patented Spatial-Temporal (ST) models. These puzzles present non-routine problems that promote deep thinking and offer visual, immediate feedback—supporting reflection, productive struggle and helping students revise their thinking in real time.



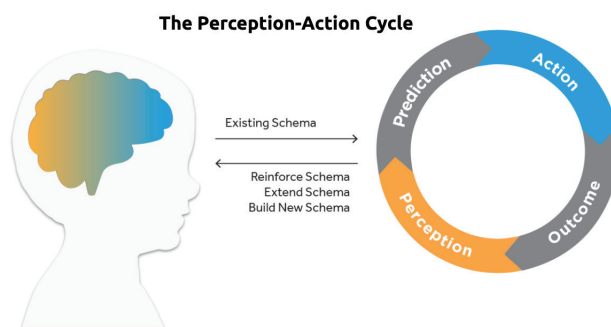
Ten Frame Addition

Students engage with puzzles independently during lessons or practice, applying learning in new contexts and extending their thinking. Because puzzles use visual models, they offer **language-free access**—making them especially effective for diverse learners before mathematical vocabulary is introduced.

Integrated into lessons, the visual interactive puzzles help students build **conceptual understanding** and **perseverance**. Teachers also gain real-time performance data, offering insight into student thinking and guiding targeted support.

Immediate Formative Feedback for Students

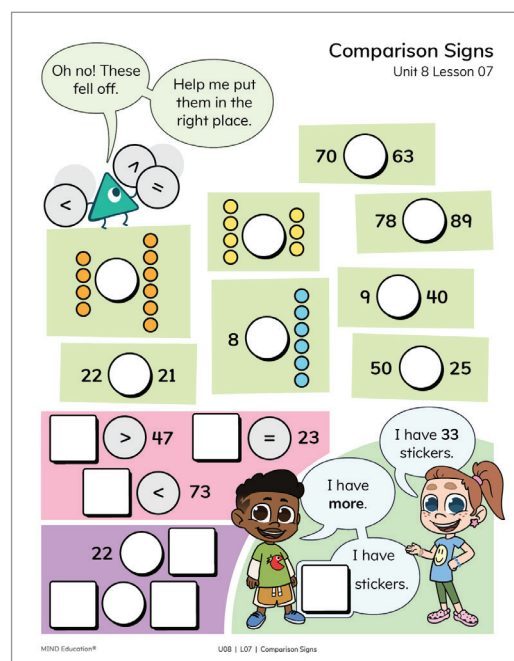
The game-based puzzles provide instant, visual feedback, engaging students' **Perception-Action Cycle**, the brain's natural mechanism active when learning-by-doing.



Student Playbooks: A Playground for Math Thinking

In addition to puzzle-based games, **InsightMath California** features a printed student **Playbook**—a hands-on space where students explore and extend their math thinking. It’s a creative “math playground” that deepens understanding and encourages ownership.

Playbook activities connect the visual models from puzzles to lesson concepts, helping students test strategies, build connections, and grow their reasoning skills in a student-friendly format.



Name: _____ Date: _____

Unit 2 Lesson 11 Practice Page

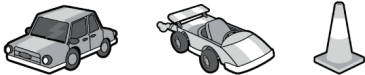
① How many stars? Color in the squares to match.

☆☆☆☆ _____ stars

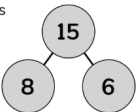
☆☆☆☆

□ □ □ □ □ □ □ □ □ □

② Circle the item that is in the middle.



③ Write or tell a story about dogs and cats that matches the number bond.



MIND Education® U02 | L11

Student Practice Books

Each lesson includes a student **Practice Page** with a balanced mix of:

- **Spiral review** to strengthen prior learning
- **Targeted practice** aligned to the day’s focus
- **Real-world word problems** for application in varied contexts

This structure ensures students consistently practice, reflect, and transfer learning—building confidence and fluency over time.

Assessments and Formative Feedback

Assessment That Supports and Celebrates Learning

InsightMath California features a comprehensive, embedded assessment system that informs instruction and celebrates growth, making ongoing assessments a seamless part of teaching and learning. Tools include **diagnostic**, **formative**, and **summative** assessments, all aligned to grade-level standards.







Name: _____ Date: _____

Unit 1 Diagnostic Assessment

1 Fill in the missing numbers on the number path.

1	3		6	8	
12	14	15			19

2 Write the number for how many.

	_____		_____
	_____		_____
	_____		_____

Item Map and Supports

Item Number	Texas Standard	Supporting Students with Emerging Skills
1	1.5.A	Rote Counting <ul style="list-style-type: none"> Rote count with students while dragging a finger along the number path in order to memorize the sounds of number words and match them to numerals. Show numerals out of order and have students think, then say the name of the number on a silent signal. Ongoing Differentiation: Provide number paths for students to use while calculating throughout the unit.
2	Prepares students for 1.2.A	Counting and Subitizing Objects <ul style="list-style-type: none"> Provide students with bags that contain up to 20 items (e.g., 13 bears or 9 erasers). Students count the items with a partner, then repeat with a new bag. Show a number of fingers on one or both hands. Have students think, then say the number on a silent signal and explain how they knew. Emphasize groups of 5 and some more.


Diagnostic Assessments at the start of each unit quickly check key prerequisite skills to see what students already know and what they may need help with.

The **Assessment Guide** connects each question to helpful routines and activities teachers can use to build those skills as students begin the new unit.

Name: _____ Date: _____

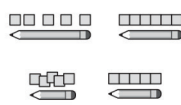

Unit 3 Summative Assessment

1 How many tiles long is the toy bus?



The toy bus is tiles long.

2 Circle the pencil that is 5 tiles long.

Summative Assessments at the end of each unit check for mastery through both skill and problem-solving tasks. In grades K–2, they are read aloud and look like regular class activities. Kindergarten uses one-on-one interviews with manipulatives and pictures, gradually adding more writing as students grow.

Formative Assessment in Action

InsightMath California includes built-in formative assessment opportunities in every lesson. Each activity features “Look Fors” to help teachers spot how students are thinking and support their learning. Teachers can check student work in real time or review it later to give feedback and plan next steps.

- Lesson 1 Activity E3 - (Different Pies)
- Lesson 2 Activity E6 - (Pies for Sale)
- Lesson 3 Activity RC1 - (Complete the Equation)
- Lesson 4 Activity E4 - (Using Doubles)

How-To-Guide: Formative Assessment Recording Log

Use this recording log while students are working.

- Listen to student discussion and pay attention to student reasoning. Ask questions as needed.
- Record evidence of mastery of the Cluster Outcome (CO), and circle the appropriate indicator.
- Pay attention to students' strengths and barriers to success.
- Determine if support is needed. Make notes about specific barriers and the type of support provided or needed in the future.
Act = Activity; Lang = Language; Con = Concept; Ext = Extension.
- It is not necessary to record something for every student in your class every time, take notes that are useful to you.

Formative Assessment Recording Log

Grade 2 Unit 2 Cluster 3

Cluster outcome (CO): Students can use a number line to model and solve additive

Class Williams

comparison situations and word problems within 20.

Date October 3rd

Student Name	CO Met?		Notes about Student Strengths and Barriers to Success	Support Provided (P) / Needed (N)			
	Yes	Not Yet		Act	Lang	Con	Ext
Jiji	<input checked="" type="radio"/>	<input type="radio"/>	Difficulty with pen tool. Provided hands on manipulatives to show thinking.	<input checked="" type="radio"/> P	Lang	Con	Ext
Vivi	<input checked="" type="radio"/>	<input type="radio"/>	Had a breakthrough understanding comparison word problems.	Act	Lang	Con	Ext
Leilah	<input type="radio"/>	<input checked="" type="radio"/>	Not confident modeling on the number line. Small-group support needed?	Act	Lang	<input checked="" type="radio"/> N	Ext
Paco	<input type="radio"/>	<input type="radio"/>	Slower to speak in groups. Using peers to understand activity, but seems to be grasping for content-specific language when explaining thinking.	Act	<input checked="" type="radio"/> N	Con	<input checked="" type="radio"/> Ext
Miles	<input checked="" type="radio"/>	<input type="radio"/>	Worked through activity very quickly. Challenged to think about if his method always works.	Act	Lang	Con	<input checked="" type="radio"/> Ext
Isaiah	<input type="radio"/>	<input type="radio"/>	Asking great questions!	Act	Lang	Con	Ext

Remember: Every time a student does or says anything is an opportunity for formative assessment!

TIP: You are unlikely to hear evidence of mastery one way or the other for every student during every activity. In subsequent opportunities, adjust your time and attention such that you check in with students for whom you do not yet have enough evidence to make a determination, as well as those students who have not yet met the CO.

How-To-Guide: Formative Assessment Recording Log

MIND Education


The **Supporting Students After This Unit** resource offers follow-up activities and routines to help students strengthen and maintain their skills.

Student Metacognition and Self-Assessment

Students use the **Thinking Path** to reflect on conceptual understandings and skills that they've gained across each unit.

Our Unit 5 Thinking Path A
Date:

☐ Does order matter when you subtract? Why or why not?
☐ How can memorizing addition and subtraction facts help you as a math student?
☐ How many addends can be in an addition equation? Why?



Our Unit 2 Goal
Date:

☐ We start by observing what is happening in the problem.
☐ We explain our thinking.

What will you do each day to achieve your goal?

Each day, I will

Our **Unit Goal** supports the class in noticing their growing strengths in thinking like mathematicians.

Each **InsightMath California** unit includes a bilingual English/Spanish Family Guide with activities to support and extend student learning at home

InsightMath
Counting in Groups
Family Guide | Grade 2 | Unit 8

Your student is exploring how counting, structured, equal groups supports visualizing numbers and efficient counting.

Key Math Ideas

Before this unit, your student learned that multiples of two represent groups of two and that doubles are two equal parts. They also have learned addition, noting that counting is useful with equal groups for identifying patterns. This unit will build on the understanding by exploring even and odd numbers, models for counting with groups, and also counting for larger even sets. Students will share and explain to one another how to count evenly and use models called arrays to represent how two equal groups. They then shift their understanding of arrays to explore finding area by counting rectangles with small squares called square units.

→ At the beginning of the unit, your student will learn to

- add and model even and odd numbers by creating two equal rows or two of two with and without a reference (as shown to the right)
- write equations to represent an even number as the sum of the same two numbers, such as $4 = 2 + 2$
- recognize and describe number patterns to identify even and odd numbers, such as even numbers ending in 0, 2, 4, 6, and 8 and odd numbers ending in 1, 3, 5, 7, and 9.

→ In the middle of the unit, your student will learn to

- understand how an area model is an efficient way to organize and count by equal groups
- use skip counting by 2s, 5s, and 10s as an efficient strategy for finding area in arrays and to solve equations or word problems
- compare the area of two rectangles and determine the area of a rectangle using square units

→ By the end of the unit, your student will learn to

- organize data into a pictograph and bar graph with a scale greater than 1, such as the total for the right when the bar graph is labeled by 2s and each bar on the pictograph represents 2
- interpret a pictograph and bar graph with a scale greater than 1.

Helpful Hints

Encourage and support your student to continue using their models and place to determine if numbers are even or odd until they can confidently use the patterns in the digits.

InsightMath

Contando en grupos
Guía Familiar | Grado 2 | Unidad 8

Idiomas matemáticos clave

Antes de esta unidad, su estudiante aprendió que los múltiplos de dos representan grupos de dos y que los dobles son dos partes iguales. También han aprendido contar, notando que contar es más rápido con grupos iguales y al identificar patrones. Esta unidad profundiza en comprender explorando números pares e impares, modelos para contar con grupos y representaciones de datos para comprender más granular. Los estudiantes compararán y describirán los números pares e impares, así como los patrones de los números pares e impares, como números pares que terminan en 0, 2, 4, 6 y 8 y números impares que terminan en 1, 3, 5, 7 y 9.

→ Al comienzo de la unidad, su estudiante aprenderá a

- definir y modelar números pares e impares creando dos filas iguales o filas de dos con y sin un rectángulo de referencia (se muestra a la derecha)
- escribir ecuaciones para representar un número par como la suma de los mismos dos números, como por ejemplo $4 = 2 + 2$
- reconocer y describir patrones numéricos para identificar números pares e impares, como números pares que terminan en 0, 2, 4, 6 y 8 y números impares que terminan en 1, 3, 5, 7 y 9.

→ A mitad de la unidad, su estudiante aprenderá a

- comprender cómo un modelo de área es una forma eficiente de organizar y contar por grupos iguales
- utilizar el conteo de 2s, 5s y 10s de 10 en 10 como una estrategia eficiente para encontrar áreas en rectángulos
- comparar el área de dos rectángulos y determinar el área de un rectángulo usando unidades cuadradas

→ Al final de la unidad, su estudiante aprenderá a

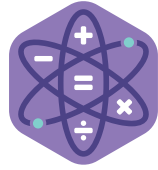
- organizar los datos en un pictograma y un gráfico de barras con una escala mayor que 1, como el ejemplo visual a la derecha al gráfico de barras está etiquetado por 2s cada barra en el pictograma representa 2
- interpretar un pictograma y un gráfico de barras con una escala mayor que 1.

Consejo útil

Anime y apoye a su estudiante a seguir usando modelos visuales y place para determinar si los números son pares e impares hasta que pueda usar con confianza los patrones en los dígitos.



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