



# Hands-On Standards<sup>®</sup>

Step-by-step lesson plans  
target key concepts



Grades  
**K-8**

**K-8**

# Hands-On Standards®

TEACHING MATH WITH MANIPULATIVES

Grades  
**K-2**

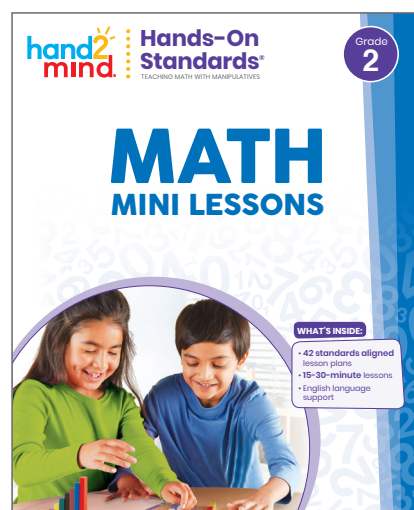
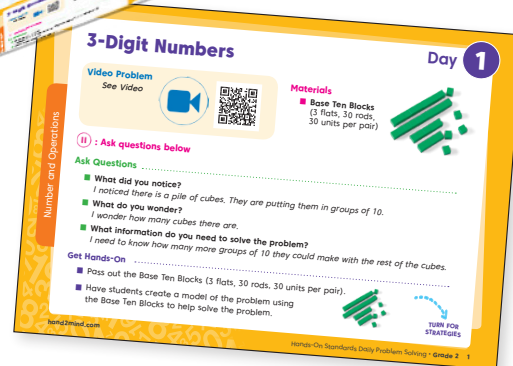
## Build Problem Solving Skills by Teaching Math with Manipulatives

Our Hands-On Standards offerings are designed to deepen understanding of key math concepts by using manipulatives and scaffolded lessons to help students learn how to construct their own cognitive models for abstract mathematical ideas and processes. You can purchase each of the 4 components separately or as a bundle that also includes a classroom manipulative kit.

### Daily Problem Solving

**What is it?** A year-long daily routine focused on problem solving and critical thinking skills. Each week students solve a progressing series of problem types aligned to key math skills. Includes 180 word problems and 36 corresponding student activities. Additional digital content is included at purchase and then available on a subscription basis.

**Why It Works:** Develops problem-solving skills that allow students to successfully solve and understand multistep problems in any situation.



### Math Mini-Lessons

**What is it?** Supplemental 15–30 minute, hands-on lessons that easily incorporate the use of manipulatives. Includes embedded support, formative assessment questions, and student pages for each lesson.

42 lessons per grade. Limited eBook license is included.

**Why It Works:** Students build a deeper understanding of key math concepts by using manipulatives as they progress through Concrete-Representational-Abstract lessons.



## Math Intervention

**What is it?** Targeted, scaffolded lessons that mirror the layout of Math Mini-Lessons and focus on the use of manipulatives. Includes unit assessments and progress monitoring tool. Limited eBook license is included.

**Why It Works:** Teachers can easily reinforce concepts with lessons designed to deepen understanding and increase proficiency for students at any ability level.



## Learning at Home Math Kits

**What is it?** 6 weeks of daily practice and games aligned to grade-level concepts. Includes activity book with embedded parent support and manipulatives.

**Why It Works:** Hands-on activities engage learners in quality skills practice that reinforces key concepts and bridges the gap between school and home. Keep families engaged in learning!

## Hands-On Standards® Teaching Math With Manipulatives Bundles

This easy-to-use, supplemental resource helps integrate hands-on learning into all areas of the math block. Each grade-level bundle includes Daily Problem Solving, Math Mini-Lessons, Math Intervention: Number & Operations, Math Intervention: Geometry, Measurement & Data, a Classroom Manipulatives Kit, and 24 Learning at Home Math Kits. ⚠️ SMALL PARTS. (†) Not for < 3 yrs.

93890	Kindergarten Bundle
93891	Grade 1 Bundle
93892	Grade 2 Bundle



### From Skip Fennel Ph.D.; D.H.L.

Hands-On Standards is a classroom necessity that supplements curriculum by using manipulative materials as an everyday instructional tool with connection to mathematics concepts, procedures, and problem solving.

*Skip Fennel is an industry-leading author, speaker, and educator who has dedicated his professional life to mathematics and has greatly influenced what math is taught and how it is taught in today's classroom.*

# Hands-On Standards® Daily Problem Solving

Grades  
**K-2**

## Develop critical thinking and problem solving skills

Helps students learn how to reason through and solve different types of word problems (multisolution, numberless, and single solution) and then create their own word problems while reinforcing key grade-level math skills.

- **Covers a full school year** using 180 Problem Solving Cards grouped into sets that focus on reinforcing key grade-level math skills.
- Each problem includes detailed instructional support and incorporates a manipulative for a **completely hands-on experience**.
- Students record their answers on **Activity Pages** (blackline masters are included).
- **Additional digital content** (videos and digital word problems) is included at purchase and then available on a subscription basis.

## Hands-On Standards® Daily Problem Solving

93570	Grade K
93571	Grade 1
93572	Grade 2

### Solve and Share

**SAMPLE STRATEGY 1**

I know there are 142 cubes because I traded 10 groups of tens to make a hundred. Then I had 4 tens and 2 units left.

**SAMPLE STRATEGY 2**

I know there are 142 cubes because I made 14 groups of ten and had 2 units left.

**SAMPLE STRATEGY 3**

I know there are 142 cubes because I traded 10 groups of ten units to make a hundred. I had 42 units left.

### Discuss the Strategies

**Day 1**

- How can the Base Ten Blocks be used to model the problem? Different amounts of Base Ten Blocks can be used to show numbers of the same value.
- Why are there many ways to represent the solution? Place value can be represented in multiple ways.

**Look Out!**

- For students who need a starting point: Ask students what the problem is about and what they are looking to solve.
- For students finding an incorrect number of cubes: As students make groups, have them write the number the group represents. Have students find the sum of the numbers.

2 - Grade 2 • Hands-On Standards Daily Problem Solving

### 3-Digit Numbers

**Day 1**

**Video Problem**  
See Video

**Materials**

- Base Ten Blocks (3 flats, 30 rods, 30 units per pair)

**Ask Questions**

- What did you notice?  
I noticed there is a pile of cubes. They are putting them in groups of 10.
- What do you wonder?  
I wonder how many cubes there are.
- What information do you need to solve the problem?  
I need to know how many more groups of 10 they could make with the rest of the cubes.

**Get Hands-On**

- Pass out the Base Ten Blocks (3 flats, 30 rods, 30 units per pair).
- Have students create a model of the problem using the Base Ten Blocks to help solve the problem.

**TURN FOR STRATEGIES**

hand2mind.com

Number and Operations: 3-Digit Numbers

Name \_\_\_\_\_ Date \_\_\_\_\_

**Day 1 — Video**

What did you notice?

Information needed to solve:

What did you wonder?

**Day 2 —** Chris has 260 gray horses and less than 300 brown horses. If Chris has more brown horses than gray horses, how many brown horses could Chris have?

Information needed to solve:

**Day 3 —** Marcus and Julia both have a collection of stamps. They each have \_\_\_\_\_ stamps. Marcus arranged his stamps into \_\_\_\_\_ groups of hundreds, \_\_\_\_\_ groups of tens, and \_\_\_\_\_ groups of ones. Julia arranged hers into \_\_\_\_\_ groups of tens and \_\_\_\_\_ groups of ones.

What question could be asked?

hand2mind.com

Number and Operations: 3-Digit Numbers

Name \_\_\_\_\_ Date \_\_\_\_\_

**Day 4 —** Jordyn is counting a group of beads she is going to use to make bracelets. She needs 268 beads. She says she has 25 packs of 10 beads and 18 loose beads. Does she have enough? Why or why not?

Information needed to solve:

**Day 5 — Create a Problem**

Who or what is the problem about?

What information will you need to give in the problem?

What question could you ask?

2 - Grade 2 • Hands-On Standards Daily Problem Solving

Sample Lessons  
hand2mind.com/hos



# Hands-On Standards® Mini-Lessons

Grades  
PreK-2

## Develop critical thinking and problem solving skills

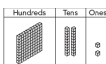
Deepen student understanding of 42 key, grade-specific math concepts using manipulatives.

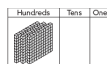
Photo-illustrated Teacher Guides include 42 detailed, standards-aligned lesson plans. Each lesson includes a reproducible, student-facing activity page; a formative assessment question; and support for English Language Learners. Limited eBook license is included.

93449	Grade PreK
93450	Grade K
93451	Grade 1
93452	Grade 2

Number and Operations  
Lesson 7 Three-Digit Numbers Name \_\_\_\_\_

Use Base Ten Blocks. Build each number. Write the number.

1.  \_\_\_\_\_ hundreds \_\_\_\_\_ tens \_\_\_\_\_ ones

2.  \_\_\_\_\_ hundreds \_\_\_\_\_ tens \_\_\_\_\_ ones

Use Base Ten Blocks. Build each number. Draw the model.

3. 235 

Hundreds	Tens	Ones

 \_\_\_\_\_ hundreds \_\_\_\_\_ tens \_\_\_\_\_ ones

4. 203 

Hundreds	Tens	Ones

 \_\_\_\_\_ hundreds \_\_\_\_\_ tens \_\_\_\_\_ ones

Write the number.

5. 7 hundreds 8 tens 4 ones \_\_\_\_\_

**Challenge!** The library had 850 books. They bought 100 more books. How many books does the library have now? Use Base Ten Blocks. Build the numbers. Draw the blocks. Write how many in all.

Sample Lessons  
[hand2mind.com/hos](http://hand2mind.com/hos)

### Lesson 7 Three-Digit Numbers

**Objective**  
Understand a three-digit number in terms of hundreds, tens, and ones.

**Materials**

- Base Ten Blocks (5 flats, 20 rods, and 10 units per pair)
- Place Value Chart (Multi-Lesson BLM 2, page 155, 1 per pair)
- pencils (1 per pair)

**EL Support**

- Review vocabulary: hundreds, tens, ones.
- Call attention to the term *pack*. Explain that when used in this context, it is a group of the same item. In the problem, a pack is a group of 10 cards.
- When using the manipulative terms *flat*, *rod*, and *unit*, make sure students understand the value of each manipulative term.

To work with three-digit numbers and to find three-digit sums, students need to extend their understanding of place value to the hundreds place. They must understand the idea that 10 tens make 1 hundred, and they should learn to think flexibly about a hundred as either a single entity or 10 separate tens, depending on the situation. With this understanding, students are prepared to learn further that a three-digit number can have 1, 2, 3, 4, 5, 6, 7, 8, or 9 hundreds.

**Try It!** Perform the Try It! activity on the next page.

**Talk About It**  
Discuss the Try It! activity.

- Ask:** How many rods are equal to one flat? How many tens are equal to 1 hundred? **Say:** 100 can be thought of as a bundle of 10 tens. Write the number 106 and point to the three digits. Discuss how the digits represent the place values on the place-value chart and how the zero in 106 shows that there are no tens.
- Ask:** If Nate bought a second pack of 10 cards, how many cards would he have? Discuss how another 10 cards would make a total of 116 cards.
- Ask:** If Nate bought 10 more packs of cards, how many cards would he have? Discuss how another 10 tens would make another hundred, for a total of 216 cards.

**Solve It**  
With students, reread the problem. Have students draw the Base Ten Blocks for 96, for another 10, and for the total, exchanging 10 rods for a flat. Have students write the number sentence for the problem,  $96 + 10 = 106$ .

**More Ideas**  
For other ways to teach place value in three-digit numbers—


- Have pairs use a spinner to spin three numerals. Have them write the three numerals as a three-digit number and build the number using Base Ten Blocks. Have them identify the value of each digit.
- Have students use Base Ten Blocks to build the numbers 100, 200, 300, 400, 500, 600, 700, 800, and 900. Have them explain these numbers as different amounts of hundreds.
- For more practice, use Lesson 7 student page 107.


### Activity

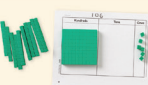
Here is a problem about place value in three-digit numbers. 20 minutes Pairs

**Nate collects trading cards. He had 96 trading cards. Then he bought another pack of 10 cards. How many trading cards does Nate have now?**

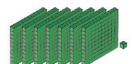
Introduce the problem. Then have students do the activity to solve the problem. Distribute Base Ten Blocks and a Place Value Chart (Multi-Lesson BLM 2, page 155) to students.

**1**  **Say:** Nate had 96 trading cards. **Ask:** How can you show 96 using Base Ten Blocks? How many tens are in 96? How many ones are in 96? Have students count out 9 rods and 6 units and place them in the Tens and Ones columns on their charts.

**2**  **Say:** Nate bought another pack of 10 cards. **Ask:** What should you add to your blocks to show the new pack of 10? How many rods do you have now? **Say:** Push your 10 rods together and compare them to a hundred flat. Elicit that the 10 rods are the same as a flat.

**3**  **Have students exchange 10 rods for one flat and place the flat in the Hundreds column of their chart. Ask:** How many flats do you have? How many rods do you have? How many units do you have? **Say:** We can write this number as 1 hundred, 0 tens, 6 ones.

**Look Out!**  
Watch for students who aren't making the connection between the sizes of the Base Ten Blocks and the place-value positions in the numbers. Remind them that the bigger blocks go on the left and that the blocks get smaller going to the right, just like the numbers when we read them.

**Formative Assessment**  
Have students try the following problem. What number is shown with the blocks?  


# Hands-On Standards® Intervention: Number & Operations

Grades  
**K-2**

## Target topics students find challenging

Focus is on specific, grade-level number and operations concepts students often find challenging.

Photo-illustrated Teacher Guides include 20 detailed, standards-aligned lesson plans. Each lesson incorporates a manipulative and includes reproducible pages for student-facing activities and assessment along with support for English Language Learners and areproducible progress monitoring sheet. Limited eBook license is included.

93460	Grade K
93461	Grade 1
93462	Grade 2

Grade 2 Assessment Student Progress Report

Name \_\_\_\_\_

Use this sheet to record assessment results for each student.

Item No.	Lesson No.	Concept	Result/ %
<b>Set 1: Adding and Subtracting Within 100</b>			
1.	2	Solve addition within 100	
2.	1	Use strategies to add and subtract basic facts	
3.	1	Use strategies to add and subtract basic facts	
4.	2	Explain strategies to add and subtract	
5.	2	Explain strategies to add and subtract	
6.	2	Solve addition within 100	
7.	4	Solve subtraction within 100	
8.	5	Solve subtraction word problems	
9.	4	Solve subtraction within 100	
10.	5	Solve two-step word problems	
<b>Set 2: Place Value, Counting, and Comparing</b>			
1.	1	Represent 3-digit numbers	
2.	4	Use place value to compare numbers	
3.	1	Write numbers in different forms	
4.	4	Use place value to compare numbers	
5.	1	Decompose numbers	
6.	1	Write numbers in different forms	
7.	2	Decompose numbers	
8.	1	Represent 3-digit numbers	
9.	2	Decompose numbers	
10.	4	Use place value to compare numbers	

Hands-On Standards Math Intervention: Number & Operations

hand2mind.com

### Lesson 2 Explore Three-Digit Numbers

**Objective**  
Explore different ways to represent three-digit numbers.

**Materials**

- Base Ten Blocks (1 set per pair)
- blank paper (1 per student)
- pencils (1 per student)

**EL Support**

- Encourage reading the number name aloud. This helps students make the connection to the number's place value.
- Write the following sentence frame to be used during the Try It! I know that there are \_\_\_\_\_ tens, and \_\_\_\_\_ ones in the number \_\_\_\_\_.
- Provide the written English words for numbers used in this lesson for easy reference.

Students previously have used Base Ten Blocks to explore the different ways to build a given number. Students will now use reasoning when building numbers. They will use concrete objects to demonstrate each part of the number; explain how each hundred, ten, or one represents each place value; and write the number in different forms.

**Try It!** Perform the Try It! activity on the next page.

**Talk About It**  
Discuss the Try It! activity.

- Ask:** If you had used only ones to build your number, how many would you need?
- Ask:** Why is it incorrect to write 142 as  $100 + 4 + 2$ ?
- Ask:** Can you think of other ways to write this number?

**Solve It**  
With students, reread the problem. **Ask:** What different ways can blocks be used to show the number 142? What different ways can 142 be written?

**More Ideas**  
For other ways to teach exploring three-digit numbers—

- Have students create a list of all the possible ways to model 453. Use a Place-Value Chart (Multi-Lesson BLM 3, page 76) to begin as they write the number of hundreds, tens, and ones. Through further discussion and thinking, try their ideas.
- Supply other manipulatives, such as Color Tiles, for students to make numbers. For example, when looking at ways to show 40 other than 4 tens, students might begin with 4 stacks of Color Tiles and move them into rows or groups to show different numbers of tens and ones.
- For more practice, use Lesson 2 student page 60.

### Try It! Activity

Here is a problem about exploring three-digit numbers.

**Anson read 142 pages in his book. Using Base Ten Blocks, what are a few different ways you can build the number 142? What different ways can you write the number 142?**

Introduce the problem. Then have students do the activity to solve the problem. Distribute Base Ten Blocks, paper, and pencils to students.

**1**

Explain that students will decide how to use the blocks to show the number in as many ways as they can. **Say:** Use the fewest blocks to show 142. Guide them to use 1 flat, 4 rods, and 2 units to show 142. **Ask:** Will we always use hundreds, tens, and ones blocks to make 142 in different ways? Elicit that there are multiple ways to show and write the number.

**2**

Encourage students to think about how many tens and ones represent 1 hundred as they seek to represent 142 without using a hundred flat. **Say:** Use only rods and units to show 142. Guide students to use 14 rods and 2 units to show 142. **Ask:** How can we write this number in a different way? Prompt students to write the number of tens and the number of ones shown with the blocks.

**3**

**Ask:** What is another way we can use the blocks to show the number of pages that Anson read? Suggest using fewer rods and more units. Students may also wish to use 1 flat and 42 units. **Ask:** What is another way we can write the number of pages Anson read? Prompt students to consider using written words to represent 142.

**Look Out!**  
Some students may write  $142 = 1 + 4 + 2$ . Model for students what this would look like with the Base Ten Blocks. Help them notice that if they write it as  $1 + 4 + 2$  the number they composed is really 7.

**Formative Assessment**  
Have students try the following problem.  
**Write the number 367 in two different ways.**

# Hands-On Standards® Intervention: Geometry, Measurement & Data

Grades  
**K-2**

## Target topics students find challenging

Focus is on specific, grade-level geometry, measurement, and data concepts students often find challenging.

Photo-illustrated Teacher Guides include 20 detailed, standards-aligned lesson plans. Each lesson incorporates a manipulative and includes reproducible pages for student-facing activities and assessment along with support for English Language Learners and a reproducible progress monitoring sheet. Limited eBook license is included.

93490	Grade K
93491	Grade 1
93492	Grade 2

**Sample Lessons**  
[hand2mind.com/hos](http://hand2mind.com/hos)

**Grade 2 Assessment Student Progress Report**

Name \_\_\_\_\_

Use this sheet to record assessment results for each student.

Unit 1: Geometry		Measure 1/3N	
Item No.	Lesson No.	Concept	Score
1.	1	Classify a shape	
2.	1	Classify a shape	
3.	1	Partition a circle into equal fourths	
4.	1	Find total squares	
5.	1	Identify halves	
6.	1	Write a repeated addition sentence	
7.	1	Partition a rectangle	
8.	2	Attributes of shapes	
9.	3	Name partitioned parts	
10.	4	Write a repeated addition sentence	

Unit 2: Measurement		Measure 2/3N	
Item No.	Lesson No.	Concept	Score
1.	1	Estimate length	
2.	2	Measure an object	
3.	4	Compare lengths	
4.	5	Represent sums as lengths	
5.	5	Represent sums as lengths	
6.	7	Time to the minute	
7.	8	Money	
8.	9	Money	
9.	4	Time to 5 minutes	
10.	8	Money	

Hands-On Standards Math Intervention: Geometry, Measurement & Data [hand2mind.com](http://hand2mind.com) 97

### Lesson 4 Solve Problems by Partitioning Rectangles

#### Objective

Solve problems by partitioning a rectangle into rows and columns.

#### Materials

- Color Tiles (30 per student)
- paper (1 sheet per student)
- pencils (1 per student)

#### EL Support

- Review vocabulary: rows, columns.
- Write the following sentence frame to be used during the Try It! When using tiles to make rows and columns, I notice \_\_\_\_\_.
- Allow time for students to discuss the process of placing tiles in rows and columns before determining the answer to the problem.

Students at this stage have placed Color Tiles in rows and columns and counted the total number of tiles. In this lesson, they apply the knowledge of covering rectangular spaces with tiles to identify the total number of tiles using addition.



Perform the Try It! activity on the next page.



#### Talk About It

Discuss the Try It! activity.

- Ask: Why do we add 6 four times?
- Ask: Why is it important that the squares are equal in size?
- Ask: What would be the same and different if there were 6 rows with 4 bars in each row?



#### Solve It

With students, reread the problem. Ask: How many square bars are in the pan?



#### More Ideas

For other ways to teach solving problems by partitioning rectangles—

- Have students work in pairs. Give each pair a Geoboard and bands. Have one student choose the number of rows from 2–4 and the other student choose the number of columns from 2–4. Then have the students make the rectangle on the Geoboard and write an addition sentence for the rectangle. Have each pair repeat the activity for several different numbers of rows and columns.
- Give students a sheet of 1-inch grid paper (Multi-Lesson BLM 1, page 86), markers, scissors, and a number cube labeled 1–6. Tell them to roll the number cube once for the number of rows and again for the number of columns. Have students color a rectangle using the two numbers rolled. Then have them cut out the rectangle and write an addition sentence for the rectangle.
- For more practice, use Lesson 4 student page 56.



### Activity

Here is a problem about solving problems by partitioning rectangles.



20 minutes



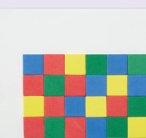
Pairs

Morgan is cutting a pan of bars into equal squares. There are 4 rows with 6 bars in each row. How many square bars are in the pan?

Introduce the problem. Then have students do the activity to solve the problem. Distribute Color Tiles, paper, and pencils to students.

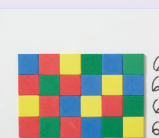
1

Say: Let's use tiles to represent the pan of bars. Ask: How many rows of tiles are there? Ask: How many columns of tiles are there?



2

Ask: How many tiles are in the top row? Say: Write the number of tiles next to the top row. Watch that students place a 6 next to the top row. Say: Now count the tiles in each row and write the number of tiles next to each row.



3

Say: Now we will write an addition number sentence to find out how many bars are in the pan. Guide students to write a horizontal addition equation to show the number of tiles in each row. Ask: How many bars are in the pan?

$$6 + 6 + 6 + 6 = 24$$



#### Look Out!

Make sure students do not add the number of rows to the number of columns. Remind students that the number of tiles in each row is the same. So, the numbers added are also the same.



#### Formative Assessment

Have students try the following problem.

A rectangle is covered with 9 rows and 3 columns of tiles. How many tiles are there in all?



# Hands-On Standards® Manipulative Kits

- Encourage students to **work cooperatively**.
- **Simplify the management** of classroom materials.
- Packed in **sturdy plastic totes**.

## Small Group Kits

Include enough manipulatives for 6 students working cooperatively. Packed in 1 plastic storage tote.

## Hands-On Standards Teaching Math with Manipulatives

<b>93469</b>	Grade PreK
<b>93470</b>	Grade K
<b>93471</b>	Grade 1
<b>93472</b>	Grade 2

**Grades  
PreK-2**

## Math Intervention: Geometry, Measurement & Data

<b>93500</b>	Grade K
<b>93501</b>	Grade 1
<b>93502</b>	Grade 2

## Math Intervention: Number Operations

<b>93480</b>	Grade K
<b>93481</b>	Grade 1
<b>93482</b>	Grade 2



## Hands-on Standards Classroom Kits

Include all the manipulatives needed for 24 students working cooperatively to complete the lessons in all 4 classroom-based components of Hands-on Standards Teaching Math With Manipulatives. Packed in 4 plastic storage totes.

<b>93519</b>	Grade PreK
<b>93520</b>	Grade K
<b>93521</b>	Grade 1
<b>93522</b>	Grade 2

# Hands-On Standards® Learning at Home Math Kits

## Extend learning and make math accessible for all students

These kits provide fun, accessible math practice that reinforces key grade-level math concepts with hands-on manipulatives and activities. They feature 54 hands-on math activities, 6 engaging games, and all necessary manipulatives.

The Learning at Home Math Kits help meet each individual student's needs for on-level review, challenge, or remediation. Use the current grade level as a base and easily differentiate to meet a student's needs by moving up or down a grade level as needed.

**Grades  
K-5**



<b>93530</b>	Grade K
<b>93531</b>	Grade 1
<b>93532</b>	Grade 2

<b>93533</b>	Grade 3
<b>93534</b>	Grade 4
<b>93535</b>	Grade 5

800.445.5985  
hand2mind.com



P0221XX15

Order today  
at [hand2mind.com/hos](https://hand2mind.com/hos)