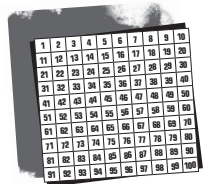


## HUNDRED BOARD BOOK

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## Author's Introduction

A major focus of mathematics education is the study and recognition of patterns. In the primary grades this study greatly concerns number. The National Research Council stated in 2009 that “mathematics experiences in early childhood settings should concentrate on (1) number (which includes whole numbers, operations, and relations) and (2) geometry, spatial relations, and measurement, with more mathematics learning time devoted to number than to other topics.”

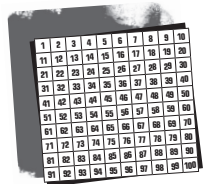
Both conceptual knowledge and procedural knowledge are essential if students are to truly understand mathematics. Children who do not fully understand a topic may rely on the memorization of “steps” and “rules.” Often, memorizing procedures is the vehicle to achieve a correct response instead of understanding the content. Consequently, if forgotten, these procedures cannot be recreated when necessary because very little understanding of the content exists.

In the new Common Core State Standards, the Standards for Mathematical Content provide for a balanced combination of procedure and understanding. Integrating appropriate concrete materials and tools to model the mathematics content will help students accomplish this objective. The Hundred Board is a valuable tool for helping students construct and visualize number patterns, expand the counting sequence, develop place value understanding, and begin to build bridges between multiplication and addition. Activities similar to those in the *Hundred Board Book* are essential if one is to help children develop a greater understanding of the mathematical content of the primary grades. Additionally, these activities help provide a strong foundation for the mathematical content of the ensuing grades and enable students to construct the relationships among the operations of addition, subtraction, multiplication, and division.

The activities in the *Hundred Board Book* can be experienced individually, in pairs, and in groups. Encourage children to work together. Student interactions and discussions result in a fuller comprehension of the content. As a result, understanding and joy begin to replace students' anxiety and fear of mathematics. Working with small groups allows the teacher to observe students and identify problems they may be having with the concepts.

Let us know about your students' reactions to specific activities. Please share your discoveries with us. We look forward to hearing from you.

— Vincent Altamuro and Sandra Clarkson



# Connections to the Common Core Standards

<b>STANDARD</b>	<b>ACTIVITY</b>
<b>Grade K</b>	
<b>Counting and Cardinality (K.CC)</b>	
Know number names and the count sequence.	1–60
Count to tell the number of objects.	48–49, 52–54
Compare numbers.	4–6, 8
<b>Operations and Algebraic Thinking (K.OA)</b>	
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	48–60
<b>Number and Operations in Base Ten (K.NBT)</b>	
Work with numbers 11–19 to gain foundations for place value.	2–5
<b>Grade 1</b>	
<b>Operations &amp; Algebraic Thinking (1.OA)</b>	
Understand and apply properties of operations and the relationship between addition and subtraction.	57–60
Add and subtract within 20.	48–56
Work with addition and subtraction equations.	48–56
<b>Number and Operations in Base Ten (1.NBT)</b>	
Extend the counting sequence.	6–28
Understand place value (up to 100).	29–33
Use place value understanding and properties of operations to add and subtract.	34–47
<b>Grade 2</b>	
<b>Operations and Algebraic Thinking (2.OA)</b>	
Add and subtract within 20.	48–56
Work with equal groups of objects to gain foundations for multiplication.	16–19, 22–28



## From One to Ten

Explorations: Counting/Ordering Numbers



### Activity Focus:

Ordering numbers 1–10

### Individual Activity

### Materials:

- Hundred Board
- “From One to Ten” activity sheet



### Completing the Activity:

1. Give each student a Hundred Board. Have students count the numbers from 1 to 10 in the first row. Students can read the numbers aloud or to themselves. Then have them recite the numbers 1 to 10 forwards and backwards.
2. Have students put their finger on a number. Ask:
  - Which number comes before?
  - Which number comes after?
  - Which number is one more? One less?
3. Have students put one finger on 6 (for example) and another finger on 8 and ask:
  - Which number is *between* 6 and 8?
4. After providing guidance, distribute the “From One to Ten” activity sheet for practice.



### From One to Ten

Name: \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

### Getting Ready:

Take out your Hundred Board.

Find these numbers on your board.

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Now fill in the blank spaces. Which number ...

- A. is after 4? 5      B. is before 7? 6
- C. is before 10? 9      D. is after 3? 4
- E. is between 7 and 9? 8      F. is between 6 and 8? 7
- G. is one more than 9? 10      H. is one less than 3? 2
- I. is one more than 8? 9      J. is one less than 6? 5
- K. is one more than 2? 3      L. is between 3 and 5? 4

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Hundred Board Book 3



# From One to Ten

Name: \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

## Getting Ready:

Take out your Hundred Board.

Find these numbers on your board.

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Now fill in the blank spaces. Which number ...

A. is after 4? \_\_\_\_\_

B. is before 7? \_\_\_\_\_

C. is before 10? \_\_\_\_\_

D. is after 3? \_\_\_\_\_

E. is between 7 and 9? \_\_\_\_\_

F. is between 6 and 8? \_\_\_\_\_

G. is one more than 9? \_\_\_\_\_

H. is one less than 3? \_\_\_\_\_

I. is one more than 8? \_\_\_\_\_

J. is one less than 6? \_\_\_\_\_

K. is one more than 2? \_\_\_\_\_

L. is between 3 and 5? \_\_\_\_\_

# 2

## Teacher's Corner

### Made to Order

Explorations: Counting/Ordering Numbers



#### Activity Focus:

Ordering numbers 1–12

#### Activity for 2

#### Materials:

- Number tiles 1–12
- “Made to Order” activity sheet for each pair of students



#### How to Play:

1. The goal of the game is to have the most points when the game ends.
2. Place the tiles *face down in any order* on the 4-by-3 array. Then place one tile face up on the playing area.
3. The player who has the longer last name plays first.
4. Taking turns, players turn up one tile in the array and place it next to the tile in the playing area *only* if it is the number that comes before or after the number already face up. If the number cannot be played, the player turns the tile face down in its place in the array.
5. Players try to remember the numbers on the tiles in the array, as in a game of Concentration.
6. Players get one point for each tile they place on the playing area and use the scoreboard on the activity sheet to keep track.
7. Players continue until all tiles from the array have been placed on the playing area.
8. Players tally their points to determine the winner.



#### Extension:

The game is played with any sequence of 16 or 20 number tiles, with the tiles placed in a 4-by-4 or 4-by-5 array.

2

Made to Order

Name: \_\_\_\_\_

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81
82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99
100								

Getting Ready:

1. Place the tiles face down, in any order, on the array below.
2. Listen carefully as your teacher explains how to play the game.


SCOREBOARD

PLAYER 1	PLAYER 2

1

→

PLAYING AREA

→

→

PLAYING AREA

→

12

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# 2

# Made to Order

Name: \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

### Getting Ready:

1. Place the tiles face down, in any order, on the array below.
2. Listen carefully as your teacher explains how to play the game.

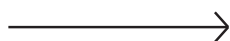
### SCOREBOARD

PLAYER 1	PLAYER 2


1



PLAYING AREA



PLAYING AREA



12