

Lesson 2: Patterns in Numbers (3 Days)

Getting Started

? Questions to Explore

- What patterns can we identify in numbers?
- How do patterns help us in math?

• Skills

- Count within 1000; skip-count by 5s, 10s, and 100s
- Model with mathematics
- Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, etc.

✂ Materials

- colored pencils or markers
- fine point dry-erase marker (kit)
- Interactive Notebook
- laminated number grids (kit)
- laminated number line (kit)
- scissors
- snack foods* (Activity 4 - optional)
- stapler
- whiteboard (kit)

Introduction

This lesson reviews and extends counting by 2s, 5s, and 10s using both a number line and a number grid and focusing on the patterns these numbers create. Much of the work in this lesson will be built upon in coming lessons.

Ask your child to restate the definition of a pattern. Give her the whiteboard and a dry-erase marker, and ask her to create a color pattern. Also ask if she thinks that there are patterns in numbers and, if so, what some examples of these might be.

Activities

Activity 1: Number Line Practice

Say, "1, 2, 3, 4, 5...what comes next? How do you know this? Do numbers have patterns? Let's review counting by 2s." Tell your child to sit down and stand up or raise a hand for every other number: Sit for 1, stand/raise hand for 2, sit for 3, stand/raise hand for 4 and so forth as long as she wants to count.

Show your child the laminated number line. Ask her to point to each number as you count by 2s together (2, 4, 6, 8, 10, 12, 14, 16, 18, 20). If needed, model pointing to and skipping every other number.

Ask: "Can you show how to count by 5s on this number line? What numbers do you come to when you count by 5s?" Direct your child to use a dry-erase marker to circle the numbers as she counts by 5. (5, 10, 15, 20)

Ask: "What other numbers can you count by on this number line?" Clean the number line and allow your child to play with counting by different numbers. Be sure she is pointing to and circling the correct numbers while doing so. (answers will vary)

Activity 2: Connecting Number Lines and Number Grids

Show your child one of the laminated number grids. Ask: "How is this like a number line? How is it different?" Direct your child to cut out rows along the dotted lines from the "1-100 Number Grid" activity page and place them end-to-end to create a number line showing 1 to 100. Note how long the number line is. Pose the questions again: "How is a number grid like a number line? How is it different? Do you have any new ideas about number lines and number grids? Do you think we can count number patterns on a number grid just like we did on the number line?"

Using a laminated number grid and a dry-erase marker, ask your child to color every number she comes to when counting by 2. Observe to make sure she colors the correct numbers. Ask, "What do you notice about the numbers you colored?" (Accept all answers. Listen for responses like "They all end in 2, 4, 6, 8, 0." "They're in rows going up and down/columns." "They line up.")

Day 2

Activity 3: Finding Patterns on a Number Grid

There are two options for this activity. Option 2 is slightly more challenging than Option 1 because it asks your child to figure out a way to show two patterns at once rather than showing only one pattern at a time. This increases the complexity and problem solving of the task.

- Option 1: Using 2 laminated number grids, your child will show counting by 5s on one grid and counting by 10s on the other. She can use different colors on each grid.
- Option 2: Using one laminated number grid, ask your child to figure out a way to show counting by 5s and 10s so that it's clear which number you come to when counting by each. Ask: "How can you show which numbers you come to when counting by 5s, which numbers you come to when counting by 10s, and which numbers you come to when counting by both 5s and 10s?"

Once she has completed one of the options, pose and discuss the following questions:

- What do you notice about the numbers you colored? Were you expecting this? Why?
- Which numbers did you come to when you were counting by both 5s and 10s? Why were some numbers shared and not others?
- Did you color more numbers when you were counting by 5s or 10s? Why do you think this is?

Next, challenge your child to practice counting by other numbers and finding overlaps when doing so using the following web link. For example, ask her to use one color to count by 2s and another to count by 6s. Which numbers does she come to when counting by these numbers and when does she "land" on the same numbers when doing so?



Interactive Number Chart

www.beyondthepage.com/link/6961/

This tool allows your child to practice counting by any number to 100, and she can show how to count by multiple numbers at the same time by using different colors. This is great practice for children needing more experience with counting on a number grid.

Activity 4: A Snack of Patterns (optional)

Invite your child to create a snack that follows a particular number pattern. For example, she might include 2 pieces of cheese, 4 apple slices, and 6 crackers. This activity would be good to use as a break when she is working on her number pattern book for the next activity.

Day 3

Activity 5: My Number Pattern Book

Using the "My Number Pattern Book" sheets provided, your child will make a book of grids that show different number patterns. She will color patterns on the grids for the following numbers: 5, 10, 4, 6, and another number less than 10 of her choosing (not 1). She should also color the title page for her book. When she is finished, she will cut out the pages for her book along the dotted lines and staple them together. Store the book in your child's Interactive Notebook.

Wrapping Up

Ask your child to count by 5s while bouncing a ball to the beat of counting. Ask her to repeat this process while counting by 2s.

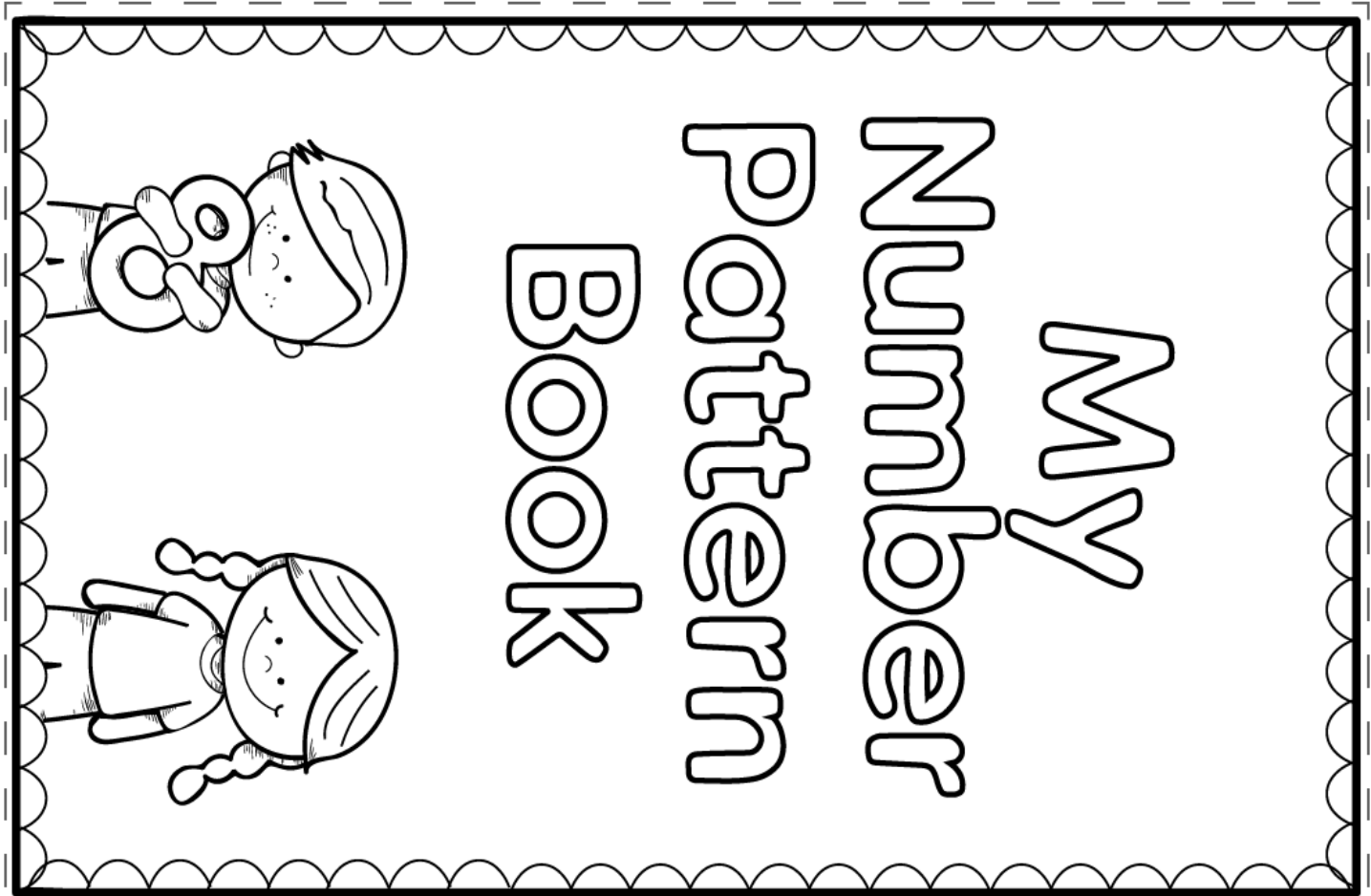
To ensure that your child knows how to spell the numbers she is studying, call out each of the following numbers to your child, and ask her to write the words on a sheet of paper: one, two, three, four, five. Keep track of any numbers she misspells. Next, for any misspelled words, have her copy the correct spelling and practice writing it.

Learning Gates

Have your child take the [Learning Gates quiz](#) for this lesson.

1 - 100 Number Grid

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
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