



Topic F

Duplicating and Extending Patterns

PK.OA.2, PK.CC.1, PK.CC.3c

Focus Standards:	PK.OA.2	Duplicate and extend (e.g., what comes next?) simple patterns using concrete objects.
	PK.CC.1	Count to 20.
Instructional Days:	5	
Coherence -Links to:	GK–M1	Numbers to 10

Throughout their math experiences, students will look for and make use of structure (**MP.7**). In Topic F, children model repeating and growth patterns using objects, sounds, and movements.

In Lessons 24 and 25, children work with repeated patterns, learning to see the repeating part of the pattern, i.e., repetend, and repeat it consistently. They use concrete objects to identify a pattern in Lesson 24. For example, they talk about the pattern of day/night using sun and star cards (sun, stars, sun, stars...) and find patterns in daily activities like snack time where each student gets three square crackers and three round crackers. In Lesson 25, children follow the teacher's lead to make sound and movement patterns. In order to record the sound/movement pattern, students represent it using concrete objects such as linking cube trains (**PK.OA.2**).



In Lesson 26, students identify the repeating part of the teacher's pattern, duplicate it, and then extend it by predicting the next part (**PK.OA.2**). For example, they will copy the teacher's cube pattern, red, red, blue, blue, red, red, blue, blue, and then independently find the next four cubes (red, red, blue, blue).

Students have already worked with growth patterns as they explored the *1 more* pattern in the counting sequence using number stairs. They will take another look at this pattern in Lesson 27 and play with another type of growth pattern, *2 more*. For example, students create growth patterns with linking cubes to represent pairs of shoes being left by the front door when various family members come home.

The Pre-K curriculum culminates with the Children's Math Theater performance, whereby students create drawings and act out addition and subtraction stories to solve. This is an opportunity to celebrate the students' learning with the larger community.

In Topic F Fluency Practice, students continue to read written numbers and use strategies to count a set of objects (pennies) within 10, a core fluency goal. Students will explore patterns through games. In the What's Missing activity, the teacher leaves out one object/sound/movement in the pattern string, and students identify the missing part. They will also practice rote counting to 20 (**PK.CC.1**) in such activities as Dribble and Pass/Shoot. The students' movements follow an AB pattern (dribble, shoot, dribble, shoot, etc.). Finally, students practice simple decompositions, such as sharing four apple slices, which lays the foundation for thinking about part-whole relationships and anticipates work with the number bond.

A Teaching Sequence Toward Mastery of Duplicating and Extending Patterns

Objective 1: Identify patterns using objects.
(Lesson 24)

Objective 2: Identify and duplicate patterns using sounds and movement. Represent those patterns with objects.
(Lesson 25)

Objective 3: Duplicate and extend patterns with movement and objects.
(Lesson 26)

Objective 4: Identify a growth pattern using objects.
(Lesson 27)

Objective 5: Culminating task – create a story problem and act it out in the Children's Math Theater.
(Lesson 28)