Just in Time Quick Check

Standard of Learning 2.PFA.1

Strand: Patterns, Functions, and Algebra

Standard of Learning 2.PFA.1

The student will describe, extend, create, and transfer repeating and increasing patterns (limited to addition of whole numbers) using various representations.

Students will demonstrate the following Knowledge and Skills:

a) Identify and describe repeating and increasing patterns.

b) Analyze a repeating or increasing pattern and generalize the change to extend the pattern using objects, pictures, and numbers.

c) Create a repeating or increasing pattern using various representations (e.g., objects, pictures, numbers).

d) Transfer a given repeating or increasing pattern from one form to another (e.g., objects, pictures, numbers) and explain the connection between the two patterns.

Just in Time Quick Check

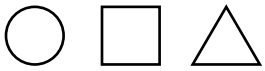
Just in Time Quick Check Teacher Notes

Supporting and Prerequisite SOL: 1.PFA.1

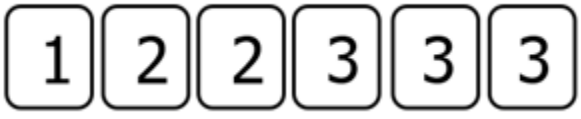
Just in Time Quick Check 2.PFA.1

1. Create a repeating pattern using the shapes shown below.
    - You do not have to use all the shapes.
    - You may use a shape more than one time.

2. Create an increasing pattern using the shapes shown below.
    - You do not have to use all the shapes.
    - You may use a shape more than one time.

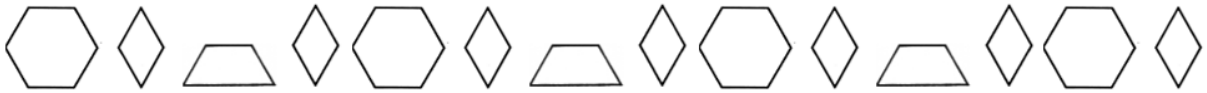


3. Carson used number cards to make this increasing pattern. Extend Carson's pattern to show how it is growing.



___ ___ ___ ___ ___ ___

4. Look at this pattern.



a) Circle the core of this pattern.

b) Use letters instead of shapes to show the core of this pattern.

5. Create this same repeating pattern using numbers.

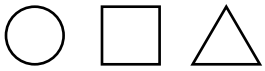
2.PFA.1 Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

1. Create a repeating pattern using the shapes shown below.
    - You do not have to use all the shapes.
    - You may use a shape more than one time.

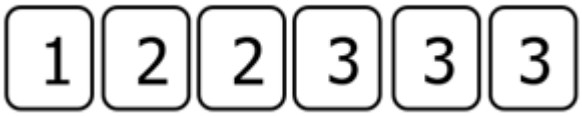
Some students may confuse repeating and increasing patterns and create an increasing pattern. These students may benefit from opportunities to compare repeating and increasing patterns. Classroom discourse about examples of repeating patterns and practice extending them will be helpful.

2. Create an increasing pattern using the shapes shown below.
    - You do not have to use all the shapes.
    - You may use a shape more than one time.



Some students may confuse repeating and increasing patterns and create a repeating pattern. These students may benefit from opportunities to compare repeating and increasing patterns. Classroom discourse about examples of increasing patterns and identifying what part grows or increases in the pattern will be helpful.

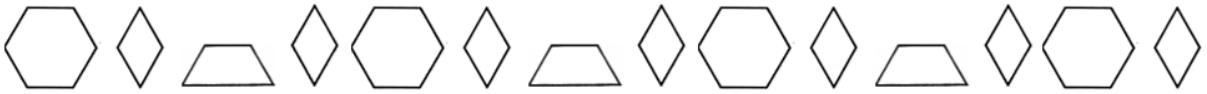
3. Carson used number cards to make this growing pattern. Extend Carson's pattern to show how it is growing.



____ ____ ____ ____ ____ ____

Students may write 4, or 4, 5 or 4, 5, 6. Others may fill in all the blanks with 4s. These errors may indicate that students recognize this is an increasing pattern but do not understand how the pattern is increasing or how to extend it. Students may benefit from instruction that includes analyzing increasing patterns, discussing what stays the same and what changes in the increasing pattern, and extending those patterns.

4. Look at this pattern.



a) Circle the core of this pattern.

b) Use letters instead of shapes to show the core of this pattern.

Some students may not understand what it means to find the core of a pattern. These students would benefit from instruction that requires them to find the core of different patterns. Teachers are encouraged to use the terminology associated with patterns in everyday class discussions to help students acquire this vocabulary in a meaningful context.

Some students may understand what it means to find the core of a pattern but have difficulty doing so. For example, they may circle the first three shapes as the core, believing that because the rhombus repeats as the fourth shape, it signals the start of the second repetition of the core. It may be helpful for students to identify the first shape in the core (hexagon), as this must be the first shape in all repetitions of the core.

5. Create this same repeating pattern using numbers.

____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Students may copy the pattern because they do not know how to transfer a pattern into a different form, or this may indicate students are unable to identify the core of the repeating pattern. These students need more opportunities to identify and describe the core of a repeating pattern and use the description to transfer the pattern into a different form. All students may benefit from sharing different numbers that students selected to represent the same pattern.