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| **Grade 4** |
| **Grade: 4 Subject: Math**  **Unit: Patterns and Relations** **Representing Patterns** |
| **Learning Target: Students will identify, extend and create patterns to solve problems.** |
| **Curriculum Outcomes**: PR03 – Students will be expected to represent, describe, and extend patterns and relationships, using charts and tables to solve problems.PR03.01 – Translate the information in a given problem into a table or chart.PR03.02 – Identify, describe and extend the patterns in a table or chart to solve a given problem. |
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| **Resources/AT Tips:** Pattern shapes ShowbieColor Tiles by Brainingcamp  |
| **Lesson Procedure** |
| **I do:** * Activate prior knowledge (warm up activity) - Have students identify the pattern rule of the following decreasing patterns and extend the pattern three more terms.

25, 22, 19, 16, ...24, 20, 16, 14, 10, 6, ...83, 78, 73, 68, 63, ...* Give an example of a concrete growing pattern on the smartboard using Pattern shapes app or color tiles app write the corresponding chart beside it.

|  |  |
| --- | --- |
| Figure | # of Blocks in a Figure |
| 1 | 2 |
| 2 | 4 |
| 3 | 6 |
| 4 | 8 |
| 5 | 10 |

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| **We do:** * Have students collaborate with a tablemate to figure out how many blocks will be in the 12th figure? Is there another way to solve the problem? Have students explain their thinking on how they figured it out. Have them identify the pattern rule.
* Handout group work for students to collaborate together on. Reiterate the three read strategy as they try to solve the problems together. Circulate the room offering support and guidance on how they may figure these out.
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| **You do:** * Have students work on the individual assignment. This can be pushed out using the app showbie and passed in the same way.
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| **We share:*** At the end of the class have students return their attention to the front of the room. Talk about the group assignment. Correct together on the Smartboard. Make sure to ask students how they arrived at the answer. How did they figure it out? Look for multiple ways in which students solved the problems.

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| **Differentiation** |
| **Adaptations:** Students may use concrete manipulatives or ipad manipulatives whenever necessary. Students still experiencing difficulty should work with smaller patterns extending it 2-3 terms. | **Enrichment:** Have students create their own patterns and allow them to have other students how are complete try to solve their patterns.  |
| **Assessment:*** Continuous assessment should be taking place throughout the class. Support provided for students struggling with the concepts.
* Students will pass in the individual work, which will be corrected and returned with feedback.
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| **Notes:** |

Patterns and Relations – Partner work –You may use your Ipad an access  or 

1. Roberto was making trains using linking cubes.

First Train Second Train Third Train

If he continues to build trains this way, how many blocks will he use in the seventh train?

 Look for the pattern and make a chart to display your answers.

2. Dennis was trying out for the swimming team. He had to be able to swim 30 laps in one day by the end of the second week. He was not able to swim on the weekends. On the first day, Dennis swam one lap. On the second day, he swam five laps. On the third day, he swam nine laps. If he continues with this pattern, will he be able to swim enough laps by the end of the second week to make the team?

Use a table to represent and solve the problem

Individual work you may use  or .

1. Look at the following pattern. How many squares would be in the 5thstep? The 7th, the 9th?

|  |  |
| --- | --- |
| Design # | Number of squares |
| 1 | 1 |
| 2 | 4 |
| 3 | 9 |
| 4 | 16 |

#4

#3

#2

#1

2. a) Use counters to build this pattern. You may use the color tiles app on your iPad.

|  |  |
| --- | --- |
| **Figure** | **Counters in a Figure** |
| 1 | 1 |
| 2 | 4 |
| 3 | 7 |
| 4 | 10 |

b) Write a pattern rule for the number of counters.

c) How many counters are in Figure 10? How do you know?

 d) Does any figure have 24 counters? How do you know?