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| **Lesson name/number**: Repeating and growing patterns, using materials from C3:Growing and shrinking patterns **Unit**:Patterns**Textbook** (publisher and publication date): Math Expressions, 2006**Date taught**: March 14**Grade level**: 3 | **Instructional resources and materials** used to engage children in the learning experiences:Pattern blocksDividersCupsSample patternsActivity sheets 188 |
| **Standards addressed in the lesson**: CCSS of the corresponding grade level N/A |
| **Learning objectives**: What specific things should children know and be able to do (children will...).Children will build and extend repeating and growing patterns.Children will analyze growing patterns by counting the number of pattern blocks it takes to make each step of a growing patternFind and explain the rule that describes how the number patterns grow (eg. How the number of pattern blocks grows from one step to the next) |
| **Lesson Description:**Your plans should be detailed enough that a substitute or other teacher could understand them well enough to use them.On the smart board:* Show 2 repeating patterns. Ask how many shapes there are that make the pattern for each pattern (2 and 3 respectively)
* With an example, show different amounts of a pattern and ask how much of a pattern someone would need to see to be confident they knew what the pattern was (2 repeats)
* Give an example of a repeating pattern where part of the pattern is hidden under cups and discuss good questions to ask about the hidden pattern. Discuss different ways that children could use to predict what is hidden under the cups.

Activity:Pass out paper clips and folders to make dividers to hide patterns.Pass out pattern blocks to make patterns and paper cups to hide parts of patterns.Tell students to: Build a repeating pattern. Show at least 2 repeats and then hide more of the pattern under cups. Pass out example patterns so that each partner has different examples. Tell students they can use the example patterns or make up a repeating pattern of their own.Tell students that after they make a pattern, they should show it to their partner and ask their partner questions to predict the hidden shapes.*Assessment*: Teacher notes on what patterns each child makes: do they use the examples or make their own? What type of pattern do they make if they use their own? What sorts of questions do they ask their partners?On the Smart Board: * Show a growing pattern. All build the next step of the pattern. Ask: how can we describe how the pattern grows? How can we see what is changing with each step?
* Show how to use a table to analyze how the number of shapes at each step grows.

Support: Make sure children are paired with partners they work well with (especially students who need support). While other children start working, visit the groups with students who need support and ask them to start with the example patterns before making up their own patterns. Check back with these groups if possible when they are sharing their patterns and remind students that they can repeat the pattern out loud as they touch the blocks and the cups to make a prediction.Activity:Repeat the activity with repeating patterns where children build a repeating pattern with growing patterns. Pass out a 5x8 card to cover the last step so that partners can predict what comes next and then check. (Children should still have dividers, pattern blocks and example problems)*Assessment:* Walk around and make notes on how children are figuring out how their partner’s patterns grow. Are they noticing number patterns or geometry patterns or both?Discuss: two of the example problems with the whole class. Ask: how can you see the pattern growing? How does the number of pattern blocks used grow from one step to the next?Support: Check in with students who need support. Explain that they can build the pattern sheet patterns by copying the picture on the page. Ask the supportive partners to build the patterns on their sheet in order, with the easiest first. Assessment: Assign and collect lesson page 188. |