

Curriculum Parent Overview (Grade 4)

MATHEMATICS

UNIT #8: PENNY JARS AND TOWERS (ANALYZING PATTERNS AND RULES)

CONTENT FOCUS:

Students work with two contexts (Penny Jars and Windows and Towers) that each have a starting amount and a constant amount of increase. Students use tables, arithmetic expressions, and symbolic notation to represent, describe, and compare the relationships between the two quantities in each context.

UNIT FOCUS:

- Modeling situations with mathematics: In this unit, students work with two contexts - Penny Jars and Windows and Towers. In these situations, there is a starting amount (which may be 0) and a constant amount of increase. Students model these situations with their own representations, with tables, and with equations.
- Generating and analyzing patterns: Students generate number patterns in both the Penny Jars and Windows and Towers situations. These patterns are revealed in tables. Students inspect and analyze these number patterns in order to solve problems involving comparison between two sequences. Students' work with patterns leads them to articulate a general rule for the situation.
- Solving multi-step problems: Solving multi-step problems requires students to think through what information is given in the problem, how the given quantities are related, what additional quantities they need to find, and what operations they need to use in each part of their solution, all while keeping in mind the context of the question they are answering. The problems in this unit give students the opportunity to apply what they know about computation strategies, arithmetic facts, and properties and meaning of the operations in order to carry out their solution strategies.

MATHEMATICAL PRACTICES:

MP4: Model with mathematics.

MP8: Look for and express regularity in repeated reasoning.

CONNECTIONS TO PREVIOUS CONTENT:

This unit builds on work students have done in Grade 3 in the multiplication and division units in which they analyzed number sequences derived from repeating patterns and from stories of children collecting magic marbles at different rates. Students used tables to record how one quantity changes in relation to another. They articulated rules and used equations to describe the relationship. Students have also had experience from Kindergarten to Grade 3 in modeling with mathematics. The work in this unit assumes students are able to identify patterns, use information from tables, and describe rules for these patterns using words and arithmetic expressions.

CONNECTIONS TO FUTURE CONTENT:

In Grade 5, students work in new contexts to extend their understanding of mathematical modeling, adding coordinate graphs to their repertoire. They gain more experience in using symbolic notation to express rules between varying quantities.

MATH AT HOME:

- Identify and analyze patterns at home. Look at calendars, listen to music, or study the patterns in your flooring, walls, or decor.
- Review the Math Words and Ideas videos for this unit on SavvasRealize site.