

**Content Standard A4
Eighth Grade Level
Function and Relationship**

Students understand mathematical facts, concepts, principles and theories. They represent, analyze, and use mathematical patterns, relations, and functions using a variety of representations including tables, equations, and graphs

State Mathematics Performance Standards 6 th -8 th	KGBSD Performance Standards	State Grade Level Expectations (GLE's)
<p>M4.3.1 Identify numeric and geometric patterns to find the next term and predict the nth term.</p> <p>M4.3.2 Identify and describe how a change in one variable in a function affects the remaining variables (e.g., how changing the length affects the area and volume of a rectangular prism).</p> <p>M4.3.3 Use a calculator to find a missing item in an arithmetic and a geometric sequence; predict the graph of each function.</p> <p>M4.3.4 Translate among and use table or ordered pairs, graphs on coordinate planes, and linear equations as tools to represent and analyze patterns.</p> <p>M4.3.5 Find the value of a variable by evaluating formulas and algebraic expressions for given values.</p>	<p>1.1 Use patterns and functions to solve problems involving patterns and sequences and predict the nth term</p> <p>2.1 Identify and describe how a change in a function effects the remaining variables</p> <p>3.1 Use a calculator to find missing terms in geometric sequences and graph the sequences. Predict the graph of each function</p> <p>4.1 Plot points on any quadrant coordinate plane from ordered pairs Graph an equation using a table of ordered pairs</p> <p>5.1 Evaluate formulas and algebraic expressions for given values</p>	<p><u>Functions and Relationships: Describing Patterns and Functions</u> The student demonstrates conceptual understanding of functions, patterns, or sequences including those represented in real-world situations, by</p> <p>[8] F&R-1 describing or extending patterns (linear), up to the <u>nth term</u>, represented in, tables, sequences, graphs, or in problem situations (M4.3.1)</p> <p>[8] F&R-2 generalizing relationships (linear) using a table of ordered pairs, a <u>graph</u>, or an equation (M4.3.4)</p> <p>[8] F&R-3 describing in words how a change in one variable in a formula affects the remaining variables (how changing the length affects the area of quadrilaterals or <u>volume of a rectangular prism</u>) (M4.3.2)</p> <p>[8] F&R-4 [using a calculator as a tool when describing, extending, or representing patterns L] (M4.3.3)</p> <p><u>Functions and Relationships: Modeling and Solving Equations and Inequalities</u> The student demonstrates algebraic thinking by</p> <p>[8] F&R-5 translating a written phrase to an algebraic expression (M4.3.5)</p> <p>[8] F&R-6 solving two-step linear equations of the form $ax \pm b = c$, where a, b and c are rational numbers, and $a \neq 0$ or translating a story problem into an equation of similar form and solving it (M4.3.5)</p>