

Define, evaluate, and compare functions (8.F.1-3)	
Standard 8.F.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in grade 8.)	
Concepts and Skills to Master (This is the students first exposure to function in the Utah Core)	
<ul style="list-style-type: none"> Understand that functions describe relationships where for each input there is exactly one output. Recognize a graph of a function as the set of ordered pairs consisting of an input and its corresponding output. 	
Related Standards: Current Course	Related Standards: Future Courses
8.F.2 , 8.F.3 , 8.F.5	F.IF.1 , F.IF.2 , F.IF.3 , Functions: All interpreting functions (IF), building functions (BF), linear and exponential functions (LE), and Trigonometry (TF)

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> Graph ordered pairs on the coordinate plane (6.EE.9) Evaluate expressions for a given value (6.EE.2c) Represent proportional relationships using multiple representations, such as tables, graphs, equations, and context (7.RP.2)
Academic Vocabulary
function, input, output, dependent, independent
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5180#71433

Define, evaluate, and compare functions (8.F.1-3)	
Standard 8.F.2: Compare properties of two functions, each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>Forexample, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Identify properties of functions from any given representation (algebraically, graphically, numerically in tables, or by verbal descriptions). Compare two linear functions each represented a different way and describe similarities and differences. 	
Related Standards: Current Course	Related Standards: Future Courses
8.EE.5 , 8.EE.6 , 8.F.4 , 8.SP.1	F.IF.9 , F.IF.4 , F.IF.7

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> Identify unit rate in tables, graphs, equations, diagrams, and verbal descriptions (7.RP.2b) Understand the definition of function (8.F.1)
Academic Vocabulary
slope, intercept, rate of change, function, linear, non-linear
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5180#71433

Define, evaluate, and compare functions (8.F.1-3)	
<p>Standard 8.F.3: Interpret the equation $y = mx + b$ as defining a linear function whose graph is a straight line; give examples of functions that are not linear. <i>For example, the function $A = s^2$, giving the area of a square as a function of its side length, is not because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.</i></p>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Distinguish between linear and non-linear functions given their algebraic expression, a table, a verbal description, or a graph. • Recognize functions written in the form $y = mx + b$ are linear and that every linear function can be written in the form $y = mx + b$. • Understand the slope of a linear function as a constant rate of change, whose graph is a straight line. 	
Related Standards: Current Course	Related Standards: Future Courses
8.EE.5 , 8.EE.6 , 8.F.1 , 8.F.4 , 8.SP.2 , 8.SP.3	F.IF.7 , F.BF.3 , F.LE.1 , F.LE.2 , F.LE.3 , and F.LE.5

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> • Connect proportional relationships to linear functions and recognize the unit rate as the slope (7.RP.2, 8.EE.5, and 8.EE.6) • Generate and plot ordered pairs from an equation (6.EE.2c and 8.F.1)
Academic Vocabulary
collinear, linear, nonlinear, slope
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5180#71433

Use functions to model relationships between quantities (8.F.4-5)	
Standard 8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Determine and interpret the initial value and rate of change given two points, a graph, a table of values, a geometric representation (visual model), or a verbal description of a linear relationship. Write the equation of a line given two points, a graph, a table of values, a geometric representation (visual model), or a verbal description of a linear relationship. 	
Related Standards: Current Course	Related Standards: Future Courses
8.SP.2 , 8.SP.3 , 8.F.2 , 8.F.5 , 8.EE.5 , 8.EE.6	F.IF.4 , F.IF.7 , F.BF.1 , F.BF.2 , F.BF.3 , F.LE.1 , F.LE.2 , F.LE.3 , F.LE.5 , A.CED.2

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> Understand linear functions and their characteristics (8.F.3) Represent proportional relationships using equations, given various representations (7.RP.2c)
Academic Vocabulary
linear relationship, y -intercept, slope
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5180#71433

Use functions to model relationships between quantities (8.F.4-5)	
Standard 8.F.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Describe attributes of a function by analyzing a graph. Create a graphical representation given the description of the relationship between two quantities. 	
Related Standards: Current Course	Related Standards: Future Courses
8.F.4 , 8.SP.1 , 8.SP.2 , 8.SP.3	F.IF.4 , F.IF.5 , F.IF.6

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> Plot points on the coordinate plane (6.EE.2) Interpret graphical relationships (7.RP.2)
Academic Vocabulary
Increasing and decreasing rates of change, zero rate of change (constant function), undefined slope, linear, nonlinear, initial value.
Resources
Curriculum Resources : http://www.uen.org/core/core.do?courseNum=5180#71433