Unit 5: Functions and Volume			
Open Up Family Resource Link			
Lesson	Skill	Online Resources	Standard
1	Write rules when I know input-output pairs. Know how an input-output diagram represents a rule.	https://www.youtube.com/watch?v=VUTXsPFx-qQ https://www.mathplayground.com/functionmachine.html https://www.youtube.com/watch?v=gvr1WyIo7ro https://www.youtube.com/watch?v=ZnkkRUceBK0	8.F.A.1
2	Know that a function is a rule with exactly one output for each allowable input. Know that if a rule has exactly one output for each allowable input, then the output depends on the input.	https://www.youtube.com/watch?v=52tpYl2tTqk https://www.ixl.com/math/grade-8/identify-functions	8.F.A.1
3	Find the output of a function when I know the input. Name the independent and dependent variables for a given function and represent the function with an equation.	https://www.youtube.com/watch?v=VBFSdyN4xTc https://www.ixl.com/math/grade-8/identify-independent-and-dependent-variables https://www.ixl.com/math/grade-8/evaluate-a-linear-function https://www.khanacademy.org/math/algebra/introduction-to-algebra/alg1-dependent-independent/v/dependent-and-independent-variables-exercise-example-1	8.F.A, 8.F.A.1
4	Use a graph of a function to find the output for a given input and to find the input(s) for a given output. Identify graphs that do, and do not, represent functions.	https://www.youtube.com/watch?v=MXV65i9g1Xg https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-functions-and-function-notation/v/understanding-function-notation-example-2 https://www.ixl.com/math/grade-8/find-values-using-function-graphs https://www.ixl.com/math/grade-8/interpret-the-graph-of-a-linear-function-word-problems	8.F.A.1, 8.F.A.3
5	Explain the story told by the graph of a function.	https://www.ixl.com/math/grade-8/interpret-linear-functions http://www.graphingstories.com/	8.F.A.1, 8.F.B.5
6	Draw the graph of a function that represents a	https://learnzillion.com/lesson_plans/5303-sketch-graphs-by-interpreting-situations/	8.F.B.5

	real-world situation.	https://www.ixl.com/math/grade-8/write-linear-functions-word-problems	
7	Compare inputs and outputs of functions that are represented in different ways.	https://www.khanacademy.org/math/algebra/linear-word-problems/comparing-linear-functions/v/comparing-features-of-functions-1 https://www.khanacademy.org/math/algebra/linear-word-problems/comparing-linear-functions/v/comparing-features-of-functions-3 https://www.ixl.com/math/grade-8/complete-a-table-for-a-linear-function https://www.ixl.com/math/grade-8/compare-linear-functions-graphs-tables-and-equations https://www.ixl.com/math/grade-8/complete-a-table-and-graph-a-linear-function	8.F.A.2, 8.F.A.3
8	Explain how the graph of a linear function relates to its rate of change and initial value. Determine whether a function is increasing or decreasing based on whether its rate of change is positive or negative.	https://www.ixl.com/math/grade-8/constant-rate-of-change https://www.khanacademy.org/math/algebra/algebra-functions/functions-average-rate-of-change/v/average-rate-of-change-example-1 https://www.khanacademy.org/math/algebra/algebra-functions/positive-negative-increasing-decreasing-intervals/v/increasing-decreasing-positive-and-negative-intervals	8.F.A.2, 8.F.A.3, 8.F.B.4
9	Decide when a linear function is a good model for data and when it is not. Use data points to model a linear function.	https://www.khanacademy.org/math/algebra/algebra-functions/interpreting-features-of-graphs/v/interpreting-function-graphs-word-problems https://www.khanacademy.org/math/algebra/algebra-functions/interpreting-features-of-graphs/e/interpret-features-func-2 https://www.ixl.com/math/grade-8/does-x-y-satisfy-the-linear-function	8.F.B.4
10	Create graphs of non-linear functions with pieces of linear functions.	https://www.khanacademy.org/math/algebra/absolute-value-equations-functions/piecewise-functions/v/piecewise-function-example	8.F.B, 8.F.B.4, 8.F.B.5
11	Describe the graph of a function in words. Collect data about a function and represent it as a graph.	https://www.youtube.com/watch?v=qGK0nA4YVNU https://www.ixl.com/math/grade-8/identify-linear-and-nonlinear-functions	8.F.B, 8.F.B.4
12	Recognize cylinders, cones, rectangular prisms, and spheres. Know that volume is the amount of space	https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa/volume-rect-prism/v/how-we-measure-volume	8.G.C

	contained inside a three-dimensional figure.	https://www.khanacademy.org/math/basic-geo/basic-geometry-shapes/basic-geo-geometric-solids/v/recognizing-common-3d-shapes	
13	Find the volume of a cylinder in mathematical and real-world situations. Know the formula for volume of a cylinder.	https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa/volume-cones/v/cylinder-volume-and-surface-area https://www.ixl.com/math/grade-8/volume-of-cylinders https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa/volume-cones/e/volume-of-cylinders--spheres--and-cones-word-problems	8.G.C.9
14	Find missing information about a cylinder when its volume and some other information is known.	https://www.youtube.com/watch?v=R_E-RObMJ0Q https://www.ck12.org/geometry/heights-of-cylinders-given-surface-area-or-volume/lesson/Heights-of-Cylinders-Given-Volume-MSM7/	8.G.C.9
15	Know the formula for the volume of a cone. Find the volume of a cone in mathematical and real-world situations.	https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa/volume-cones/v/volume-cone-example https://www.ixl.com/math/grade-8/volume-of-cones https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa/volume-cones/e/volume-of-cylinders--spheres--and-cones-word-problems	8.G.C.9
16	Find missing information of about a cone when its volume and some other information is known.	https://www.youtube.com/watch?v=_K1OVZpycqo https://www.youtube.com/watch?v=2T7YxFVCVwI https://www.youtube.com/watch?v=BrcIrHp2MZw https://mathbitsnotebook.com/Geometry/3DShapes/3DPyramidConePractice.html	8.G.C.9
17	Explain why changing the height of a figure by a scale factor changes the volume by the same scale factor. Create a graph of the relationship between volume and height for all cylinders (or cones) with a fixed radius.	https://www.geogebra.org/m/QexEeFRS https://www.geogebra.org/m/GSBWZBYT https://www.geogebra.org/m/M7p55V7v	8.F.A.1, 8.F.B, 8.G.C, 8.G.C.9
18	Explain why changing the radius by a scale factor changes the volume by the scale factor squared. Create a graph representing the relationship	https://www.youtube.com/watch?v=L3W_aLgRN6I https://www.youtube.com/watch?v=fyPL3ToiDJ4	8.F.A.3, 8.F.B,

	between volume and radius for all cylinders (or cones) with a fixed height.	https://www.geogebra.org/m/GSBWZBYT https://www.geogebra.org/m/M7p55V7v	8.G.C.9
19	Estimate the volume of a hemisphere by calculating the volume of shape I know is larger and the volume of a shape I know is smaller.	https://www.youtube.com/watch?v=gSoMMnQn6MM https://math.tutorvista.com/geometry/volume-of-a-hemisphere.html https://www.ditutor.com/solid_gometry/volume_hemisphere.html	8.G.C, 8.G.C.9
20	Find the volume of a sphere when I know the radius	https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa/volume-cones/v/volume-of-a-sphere https://www.ixl.com/math/grade-8/volume-of-spheres https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa/volume-cones/e/volume-of-cylinders--spheres--and-cones-word-problems	8.G.C, 8.G.C.9
21	Solve mathematical and real-world problems about the volume of cylinders, cones, and spheres. Find the radius of a sphere if its volume in known.	https://www.youtube.com/watch?v=MBniqMKBEWY https://www.youtube.com/watch?v=bpPT3dubKc8 https://www.varsitytutors.com/intermediate_geometry-help/how-to-find-the-radius-of-a-sphere	8.G.C.9