Unit #5: Parent Functions

Content Area: **Math**
Course(s):
Time Period:
Length: **8 Days**
Status: **Published**

State Mandated Topics Addressed in this Unit

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N/A	N/A

Parent Functions

Learning Objectives

- Experiment with cases and illustrate an explanation of the effects on the graph using technology.
- For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.
- Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
- Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
- Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs.
- Include recognizing even and odd functions from their graphs and algebraic expressions for them.
- Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

Essential Skills

- Essential Skill 1 - Artists will be able to Sketch a graph using the key features of a function.
- Essential Skill 2 - Artists will be able to Interpret key features from a graph or a table of values.
- Essential Skill 3 - Artists will be able to Interpret key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.
- Essential Skill 4 - Artists will be able to Identify the effect on a graph of f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k.
- Essential Skill 5 - Artists will be able to Find the values of k given a graph.

- Essential Skill 6 - Artists will be able to Experiment with cases using technology.
- Essential Skill 7 - Artists will be able to Graph square roots, cube root, absolute value, and piecewise functions showing key features of the graph.
- Essential Skill 8 - Artists will be able to Show key features include intercepts and extrema.

Standards

MATH.9-12.F.BF.B.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\ f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k(both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.
MATH.9-12.F.IF.B.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.
MATH.9-12.F.IF.C.7.b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

Instructional Tasks/Activities

- Academic games
- Group work
- Independent practice
- Ladder activity
- Notes
- Ti-Nspire activities
- Worksheets

Assessment Procedure

- Class discussions
- Classroom Total Participation Technique
- Classwork/homework
- DBQ
- Electronic active responders
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- Identify the error problems
- Journal / Student Reflection
- Kahoot
- Other named in lesson
- Peer Review

- Performance
- Problem Correction
- Project
- Quiz
- Quiz review
- Quizzes/tests
- Response and analysis questions
- Rubric
- Teacher Collected Data
- Teacher observations
- Test
- Test review
- Worksheet
- Worksheet on different parent functions
- Worksheet on transformations

Recommended Technology Activities

- Appropriate Content Specific Online Resource
- Chromebook
- Copy/Paste Content Specific Link Here
- Copy/Paste Content Specific Link Here
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Forms
- Google Slides
- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Power Point
- Quizizz
- Screencastify
- TI-Nspire CX-Cas activities throughout the unit as appropriate

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Special Education

Modifications and accommodations to this unit will be based on individual IEP needs and through the collaboration of the classroom teacher and the special education teacher under the direction of the Supervisor of Special Education.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- large print
- modified quiz
- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally

- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- https://curriculum.newvisions.org/math/course/algebra-ii/
- www.Khanacademy.com