08_Radicals

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **4 weeks (14-16 blocks)**
Status: **Published**

General Overview, Course Description or Course Philosophy

This unit will focus on strengthening the prerequisite skills and conceptual understanding needed to simplify radicals and graph radical functions. Lesson activities will reinforce new content and address common misconceptions and errors to support students' progress toward simplifying radical expressions and graphing radical functions.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Objectives/Enduring Understandings:

Students will understand that:

- A square root function contains a square root symbol with with independent variable in the radicand
- Key features of a function can be used to identify, compare, and translate functions

Essential Questions:

- What key features are shared among the square root function and translations of the square function?

CONTENT AREA STANDARDS

MA.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.
MA.F-IF.C.7b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.7	Look for and make use of structure.
MA.N-RN.A.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.
MA.A-REI.A.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will understand that:

- Some arithmetic rules can be used to simplify radical expressions
- Specific situations can produce extraneous solutions
- Key features of radical functions are related to the graph

Procedural Knowledge

Students will be able to:

- Use radical form to rewrite, simplify, or evaluate problems invovling radicals
- Determine the domain for radical equations
- Determine the solutions to simple radical equations in one variable by combining, maniplulating, and rewriting expressions
- Determine whether a solution is valid or extraneous
- Graph square root functions using key features and transformations of the parent function
- Complete the steps of the mathematical modeling cycle

EVIDENCE OF LEARNING

Formative Assessments

- Student daily participation

- Student self-assessment
- Skills checklist
- Student-friendly proficiency scales
- Teacher feedback

Summative Assessments

- Assessment Reflection

RESOURCES (Instructional, Supplemental, Intervention Materials)

- Kuta Software
- Quizizz
- Desmos
- Delta Math
- Nearpod
- Khan Academy
- Assessment Reflection

INTERDISCIPLINARY CONNECTIONS

- Radicals can be used in a variety of real-world applications as related to various scientific disciplines

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.