2017-2018 WCSD Algebra 2 Program Evaluation Rubric

Evaluator Number

5

Program Number

6

Name of Text

Big Ideas Math Algebra 2

Publisher

Big Ideas Learning

Rate This Text Overall

☐ **High** ☑ **Mid** ☐ **Low**

Focus: Evaluate the table of contents and any pacing guides. Do not stop there; also evaluate units, chapters, and lessons. (Both student and teacher materials)

Functions - Graphing Transformations

Translating, stretching, shrinking and reflecting the graphs
Absolute Value, Quadratics, Exponential, Rational, Radical, Piecewise and Step Functions

Quadratic Functions with Complex Solutions

Graph Vertex, Standard and Intercept Forms
Solve in Vertex, Standard (quadratic formula, complete square) and Intercept Form
Write equations in 3 unknowns to write a quadratic given three points

Polynomials and Polynomial Functions

Add, subtract, multiply and divide – include property of closure
Graph polynomial functions
Solve polynomial equations
Model using polynomial functions

Rational Functions

Add, subtract, multiply and divide – include property of closure
Graph rational functions
Solve rational equations (extraneous solutions)
Model using rational functions

Radical Functions (Rational Exponents)

Add, subtract, multiply and divide – include property of closure
Graph radical functions
Solve equations with radicals (extraneous solutions)
Model using radical functions

Inverse Functions

Explore inverse functions
Use composition to show two functions are inverses
Use function notation, graphs and solving to find inverses

Exponential Functions

Add, subtract, multiply and divide exponential expressions – use properties of exponents
Graph exponential functions
Solve equations with exponential expressions (extraneous solutions)
Model using exponential functions

Logarithmic Functions

Add, subtract, multiply and divide logarithmic expressions – use properties of logs
Graph logarithmic functions
Solve equations with logarithmic expressions (extraneous solutions)
Model using logarithms functions

Statistics

S.ID.A (1-4)

Systems of Equations

A.RET.C.5

3 variable linear
Quad/linear
Poly/linear
Rational/linear

Graphing Form of Functions

Transformations

At least 90% of the topics are in the textbook with reference to topics.
Comments?

Domain and Range treated as review topic, only inequality notation used. No piecewise functions. Transformation sections include horizontal stretch/reflect. Weak on function composition.

- ○ Less than 25%
- ○ Less than 50% but greater than 25%
- ○ Less than 90% but greater than 50%
- ● At least 90%

Student work involves significant work with applications/modeling and problems that use algebra skills.
Comments?

Fewer modeling problems than some other texts, but does have some. Less work with the calculator shown.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

There are problems at a level of sophistication appropriate to Algebra 2 (beyond the mere review of Algebra 1 course topics) that involve the application of knowledge and skills needed.
Comments?

Yes, although a few key topics are missing, especially with domain, range, piecewise.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Do the chapter/units provide for the opportunity to graph the functions, solve for the zeros of the functions and model using applications of the functions?
Comments?

Yes, lots of graphing and looking at graphs.

- ○ Does not occur
- ○ Sometimes occurs
- ○ Frequently occurs
- ● Consistently occurs

Rigor: Examine the instructional materials, student practice and assessments. Look for evidence of where the topics explicitly require students to understand concepts, do the assignments that students work on build that understanding, and do assessment tasks reveal whether students understand the mathematics in question?
Comments?

Quite a bit here, but not as much as there could be. Practice sets are pretty extensive. Assessments provided are somewhat lacking.

- ○ Does not occur
- ○ Sometimes occurs
- ○ Frequently occurs
- ● Consistently occurs

Rigor: Do the materials feature high-quality conceptual problems and conceptual discussion questions? Do they provide opportunities for multiple representations?
Comments?

In some sections the conceptual part is very strong, and in others less so. There are multiple representations presented.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Rigor: Are the materials designed so that students attain the fluency and procedural skills required? Evaluate the lessons, chapter/unit assessments, daily routines, and homework assignments for evidence in the development of fluency and procedural skill supported by conceptual understanding.
Comments?

Generally, yes. Again some sections are very strong and some are weaker. In general students can develop fluency with the skills.

- ○ Does not occur
- ○ Sometimes occurs
- ○ Frequently occurs
- ● Consistently occurs

Rigor: Are the materials designed so that teachers and students spend sufficient time working with applications, without losing focus on the topics defined for the course? Are there single- and multi-step contextual problems that develop the mathematics of the course, afford opportunities for practice, and engage students in problem solving?
Comments?

Generally, yes. Topics are focused, with several application problems in each section.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Coherence: Are the materials coherent in their content, do the topics build on each other in a way that is beneficial to the instruction, student practice and assessments?
Comments?

I like the progression of the quadratic unit, except it brings in focus, directrix ... Could skip it. Except, does not have students rationalize complex numbers and is weak on factoring. Has non-linear systems. Has rational exponents and radical simplification units. Weak on function composition. Refers to examples in problem sets.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Mathematical Practices: Are the mathematical practices addressed in such a way to benefit instruction and expectation of students?
Comments?

Somewhat ... Not all practices are addressed all of the time, but they are addressed.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Standards: Does the instructors text reference the standards in the chapters/units?
Comments?

Yes, at the beginning of each section, standards are referenced but not completely defined.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

Does the textbook meet requirements/rigor for algebra 2 Honors, yet remain appropriate for Algebra 2?
Comments?

Some sections are good for honors, such as the rational unit which does contain complex fractions. Otherwise it may lack rigor for honors students in some sections.

- ○ Does not occur
- ○ Sometimes occurs
- ● Frequently occurs
- ○ Consistently occurs

How do the supplemental materials reflect/extend the material in the textbook?
Comments?

Additional worksheets included with each section. Some more application problems, many of the same types of problems. Included assessments are limited in scope.

- ○ Does not occur
- ● Sometimes occurs
- ○ Frequently occurs
- ○ Consistently occurs