2017-2018 WCSD Algebra 2 Program Evaluation Rubric

Evaluator Number

5

Program Number

2

Name of Text

Algebra 2

Publisher

McGraw Hill

Rate This Text Overall

- [x] **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?

Contains all notations for domain and range, but I cannot find where it introduces the notations (may be assumed). Does not contain linear/ quadratic systems, linear/poly or linear/rational.
Does not contain rational exponents and radical sections on simplifying and changing back and forth. Does not contain changing non-graph form rationals to graph form. Doesn't have sampling techniques.

- ○ 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?

Depends on what problems you select, but there are related application problems that involve the algebra skill being taught. A lot more modeling with calculators (regression). Stats are updated to not use the table.

- ○ 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, problems and topics seem to match the Algebra 2 curriculum appropriately. There are challenge problems that are good for the honors course.

- ○ 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, there is a lot of graphing and writing equations of graphs, except in the rational unit.

- ○ 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?

Large problem sets to choose from that have students demonstrate different skills and understanding. There are practice assessments with each section that include both free response and multiple choice questions. Lots of additional assessment resources for teachers.

- ○ 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?

Yes, although there will of course need to be some supplemental demonstrations of some topics. Some of the conceptual areas are lacking a bit.

- ○ 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?

The routine of the book is consistent and provides good examples, reference to them in the problem sets, and the problems sets allow students to obtain fluency.

- ○ 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?

Yes, particularly if you do the modeling sections of the book there are applications. These seem to be engaging by using technology (graphing calcs) extensively.

- ○ 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?

Some units are out of order (rational unit after exponential), but topics within the units are in a coherent order. Topics generally build on each other well. Quadratic graphing is not great. Rational graphing is not great.

- ○ 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?

There are references to the mathematical practices in the teacher editions, but many of the problems sets contain more procedural problems and fewer problems that require some of the mathematical practices. Care would need to be taken in selecting problems to make sure student use all the mathematical practices.

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

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

Yes, common core standards are referenced in each section of the teacher edition.

- ○ 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?

There are additional topics that are more appropriate for honors students and each section contains challenging and higher level problems that would also be good for honors students. However, there may not be enough of these in the book alone, but the additional resources may contain more.

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

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

A lot of extra materials, worksheets, assessment tools for teachers. Online book is easy to use. Graphing tool is geometry sketch pad instead of Desmos.

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