# 2017 Mathematics Textbooks and Instructional Materials Committee Consensus Form

## Correlation to the 2016 Mathematics Standards of Learning and Curriculum Framework – Geometry

**Text/Instructional Material Title: enVision Virginia Geometry**

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The tables included in this document represent the consensus ratings of 2017 Mathematics Textbook committee members.

**KEY:**

* **X** - rating applicable
* **\*** - rating not applicable

### **Section I. Correlation with the Mathematics 2016 SOL and Curriculum Framework**

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| **G.1**  | **X** | **\*** | **\*** |
| **G.2**  | **X** | **\*** | **\*** |
| **G.3**  | **X** | **\*** | **\*** |
| **G.4** | **\*** | **X** | **\*** |
| **G.5** | **X** | **\*** | **\*** |
| **G.6** | **X** | **\*** | **\*** |
| **G.7**  | **X** | **\*** | **\*** |
| **G.8** | **X** | **\*** | **\*** |
| **G.9**  | **X** | **\*** | **\*** |
| **G.10** | **X** | **\*** | **\*** |
| **G.11** | **X** | **\*** | **\*** |
| **G.12** | **X** | **\*** | **\*** |
| **G.13** | **X** | **\*** | **\*** |
| **G.14**  | **\*** | **X** | **\*** |

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| **Criteria** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| **1.** Materials emphasize the use of effective instructional practices and learning theory. | **n/a** | **n/a** | **n/a** |
| * 1. Students are guided through critical thinking and problem-solving approaches.
 | **X** | **\*** | **\*** |
| * 1. Concepts are introduced through concrete experiences that use manipulatives and other technologies.
 | **X** | **\*** | **\*** |
| * 1. Multiple opportunities are provided for students to develop and apply concepts through the use of calculators, hand held devices, computers, and other technologies.
 | **X** | **\*** | **\*** |
| * 1. Students use the language of mathematics including specialized vocabulary and symbols.
 | **X** | **\*** | **\*** |
| * 1. Students use a variety of representations (graphical, numerical, symbolic, verbal, and physical) to connect mathematical concepts.
 | **X** | **\*** | **\*** |
| 1. The mathematics content is significant and accurate.
 | **n/a** | **n/a** | **n/a** |
| * 1. Materials are presented in an organized, logical manner which represents the current thinking on how students learn mathematics.
 | **X** | **\*** | **\*** |
| * 1. Materials are organized appropriately within and among units of study.
 | **X** | **\*** | **\*** |
| * 1. Format design includes titles, subheadings, and appropriate cross-referencing for ease of use.
 | **X** | **\*** | **\*** |
| * 1. Writing style, length of sentences, vocabulary, graphics, and illustrations are appropriate.
 | **X** | **\*** | **\*** |
| * 1. Level of abstraction is appropriate, and practical examples, including careers, are provided.
 | **X** | **\*** | **\*** |
| * 1. Sufficient applications are provided to promote depth of application.
 | **X** | **\*** | **\*** |
| 1. Materials present content in an accurate, unbiased manner.
 | **X** | **\*** | **\*** |

### **Section II. Additional Criteria: Instructional Planning and Support**

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.1 The student will use deductive reasoning to construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include | n/a | **n/a** | **n/a** |
| a) identifying the converse, inverse, and contrapositive of a conditional statement; | X | **\*** | **\*** |
|  b) translating a short verbal argument into symbolic form; and | \* | **X** | **\*** |
| 1. determining the validity of a logical argument.
 | X | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.2 The student will use the relationships between angles formed by two lines intersected by a transversal to | n/a | **n/a** | **n/a** |
| * 1. prove two or more lines are parallel; and
 | X | **\*** | **\*** |
|  b) solve problems, including practical problems, involving angles formed when parallel lines are intersected by a transversal. | X | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.3 The student will solve problems involving symmetry and transformation. This will include | n/a | **n/a** | **n/a** |
| a) investigating and using formulas for determining distance, midpoint, and slope; | X | **\*** | **\*** |
| b) applying slope to verify and determine whether lines are parallel or perpendicular; | X | **\*** | **\*** |
| 1. investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and
 | \* | **X** | **\*** |
| d) determining whether a figure has been translated, reflected, rotated, or dilated, using coordinate methods. | X | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
|  G.4 The student will construct and justify the constructions of | n/a | **n/a** | **n/a** |
| a) a line segment congruent to a given line segment; | X | **\*** | **\*** |
| b) the perpendicular bisector of a line segment; | X | **\*** | **\*** |
| c) a perpendicular to a given line from a point not on the line; | **\*** | **\*** | **X** |
| d) a perpendicular to a given line at a given point on the line; | **\*** | **\*** | **X** |
| e) the bisector of a given angle, | X | **\*** | **\*** |
| f) an angle congruent to a given angle; | **\*** | **\*** | **\*** |
|  g) a line parallel to a given line through a point not on the line; and | **\*** | **\*** | **X** |
| h) an equilateral triangle, a square, and a regular hexagon inscribed in a circle. | X | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited** **Rating** | **No Evidence****Rating** |
| G.5 The student, given information concerning the lengths of sides and/or  measures of angles in triangles, will solve problems, including practical problems. This willinclude | n/a | **n/a** | **n/a** |
| 1. ordering the sides by length, given angle measures;
 | X | **\*** | **\*** |
| b) ordering the angles by degree measure, given side lengths; | X | **\*** | **\*** |
| c) determining whether a triangle exists; and | X | **\*** | **\*** |
| 1. determining the range in which the length of the third side must lie.
 | X | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.6 The student, given information in the form of a figure or statement, will prove two triangles are congruent.  | X | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.7 The student, given information in the form of a figure or statement, will prove two triangles are similar. | X | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited** **Rating** | **No Evidence****Rating** |
| G.8 The student will solve problems, including practical problems, involving right triangles. This will include applying | n/a | **n/a** | **n/a** |
| 1. the Pythagorean Theorem and its converse;
 | X | **\*** | **\*** |
| 1. properties of special right triangles; and
 | X | **\*** | **\*** |
| c) trigonometric ratios. | X | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.9 The student will verify and use properties of quadrilaterals to solve  problems, including practical problems. | **X** | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.10 The student will solve problems, including practical problems, involving angles of convex polygons. This will include determining the | **n/a** | **n/a** | **n/a** |
| 1. sum of the interior and/or exterior angles;
 | **X** | **\*** | **\*** |
| 1. measure of an interior and/or exterior angle; and
 | **X** | **\*** | **\*** |
| 1. number of sides of a regular polygon.
 | **\*** | **X** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.11 The student will solve problems, including practical problems, by applying properties of circles. This will include determining | **n/a** | **n/a** | **n/a** |
| 1. angle measures formed by intersecting chords, secants, and/or tangents;
 | **X** | **\*** | **\*** |
| 1. lengths of segments formed by intersecting chords, secants, and/or tangents;
 | **X** | **\*** | **\*** |
| 1. arc length; and
 | **X** | **\*** | **\*** |
| 1. area of a sector.
 | **X** | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.12 The student will solve problems involving equations of circles. | **X** | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.13 The student will use surface area and volume of three-dimensional objects to solve practical problems. | **X** | **\*** | **\*** |

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| **Mathematics Standard of Learning** | **Adequate****Rating** | **Limited****Rating** | **No Evidence****Rating** |
| G.14 The student will apply the concepts of similarity to two- or three- dimensional geometric figures. This will include | **n/a** | **n/a** | **n/a** |
| a) comparing ratios between lengths, perimeters, areas, and volumes of similar figures; | **\*** | **X** | **\*** |
| b) determining how changes in one or more dimensions of a figure affect area and/or volume of the figure; | **X** | **\*** | **\*** |
| c) determining how changes in area and/or volume of a figure affect one or more dimensions of the figure; and | **\*** | **X** | **\*** |
| d) solving problems, including practical problems, about similar geometric figures. | **X** | **\*** | **\*** |

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