



Correlation of *Interactive Mathematics Program (IMP)* with West Virginia Specific Criteria for Content and Skills Integrated Math Year One

INTRODUCTION

Integrated Mathematics – Years I, II and III provide a core mathematics curriculum for all students in grades 9–12; year IV continues the preparation of students for college mathematics. The courses are designed to implement the vision of high school mathematics portrayed in the National Council of Teachers of Mathematics Principles and Standards for School Mathematics. These courses feature ‘strands’ of algebra and function, geometry and trigonometry, statistics and probability, and discrete mathematics connected within units by fundamental ideas and across units by mathematical processes.

The evaluation of all mathematics materials is based on separate criteria for three (3) categories:

- Category I: Standards Based Components
- Category II: Technology and Manipulatives
- Category III: Mathematics Content

In order to be approved and listed on the West Virginia Multiple List for Mathematics Materials, each category must be evaluated separately.

- Category I: Standards Based Components must meet 80% (4/5) of the criteria at "In-depth" and/or "Adequate."
- Category II: Technology and Manipulatives must also meet 80% (7/8) of the criteria at "In-depth" and/or "Adequate."
- Category III: Mathematics Content must meet 80% of the criteria at "In-depth" and/or "Adequate" for each grade level or course.



Standard	Expectations	Correlation of <i>IMP</i> Year 1
<p>All materials at this grade level (1) be research based and theory driven; (2) incorporate basic, accurate information that is developmentally appropriate; (3) use interactive activities that actively engage students; (4) provide students with opportunities to model and practice relevant skills; (5) develop higher order thinking opportunities; and (6) be based on national standards. The instructional materials should provide students with opportunities to:</p>	<hr/> <p>1. simplify and evaluate algebraic expressions using grouping symbols, order of operations and properties of real numbers with justification of steps (A1.2.1)</p> <hr/> <p>2. analyze a given set of data for the existence of a pattern numerically, algebraically and graphically; determine the domain and range; and determine if the relation is a function (A1.2.5)</p>	<p>A. ALGEBRA/PRECALCULUS 1</p> <hr/> <p><i>Patterns</i></p> <p>Numbers to Functions: pp. 24-26 Both Positive & Negative: pp. 37-41 Putting It Together: pp. 57-59</p> <p><i>Overland Trail</i></p> <p>Journey Back in Time: pp. 203-204 Setting Out With Variables: pp. 214-219 Calculators on the Trail?: pp. 253-255</p> <p><i>Shadows</i></p> <p>The Lamp & the Sun: pp. 461</p> <hr/> <p><i>Patterns</i></p> <p>Getting Started: pp. 9 Numbers to Functions: pp. 15-16 Investigating Sums: pp. 30 Angle on Patterns: pp. 44, 47, 50 Putting It Together: pp. 56, 60-62</p> <p><i>Overland Trail</i></p> <p>Graph Tells a Story: pp. 230-235 Making Predictions With Graphs: pp. 239-251 Calculators on the Trail?: pp. 253-255, 259-262</p> <p><i>Pit & the Pendulum</i></p> <p>Standard Pendulum: pp. 362-363 Graphs & Equations: pp. 367-368 Measuring & Predicting: pp. 374, 376</p> <p><i>Shadows</i></p> <p>What is a Shadow?: pp. 411-413</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<p>3. determine the slope of a line given an equation of a line, the graph of a line and two points to be identified (A1.2.8)</p> <hr/> <p>4. graph linear equations using slope-intercept, point slope, and x- and y-intercepts (A1.2.9)</p> <hr/> <p>5. write an equation of a line given a graph of a line, two points on the line, the slope and a point, and the slope and y-intercept (A1.2.10)</p>	<p>A. ALGEBRA/PRECALCULUS 1 (<i>continued</i>)</p> <hr/> <p><i>Overland Trail</i></p> <p>Graph Tells a Story: pp. 230-235 Making Predictions With Graphs: pp. 239-241, 244-251 Calculators on the Trail?: pp. 259-262</p> <p><i>Pit & the Pendulum</i></p> <p>Graphs & Equations: p. 370</p> <hr/> <p><i>Overland Trail</i></p> <p>Calculators on the Trail?: pp. 253-257, 261-268, 272-273 How Fast Should You Go?: pp. 275-280 California at Last!: pp. 284</p> <hr/> <p><i>Patterns</i></p> <p>Numbers to Functions: pp. 15-16, Investigating Sums: pp. 30-31 Putting It Together: pp. 60</p> <p><i>Overland Trail</i></p> <p>Graph Tells a Story: pp. 230-233 Making Predictions With Graphs: pp. 239-241, 248-249 Calculators on the Trail?: pp. 259-268, 272-273 How Fast Should You Go?: pp. 275-280</p> <p><i>Pit & the Pendulum</i></p> <p>Graphs & Equations: p. 370</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<p>6. perform a linear regression and use the results to predict specific values of a variable, and identify the equation for the line of regression (A1.2.19)</p> <hr/> <p>7. write equations of lines given various information including parallel and perpendicular lines and vertical and horizontal lines A2.2.1)</p>	<p>A. ALGEBRA/PRECALCULUS 1 (<i>continued</i>)</p> <hr/> <p><i>Overland Trail</i> Making Predictions With Graphs: pp. 239-251 Calculators on the Trail?: pp. 259-260</p> <p><i>Pit & the Pendulum</i> Graphs & Equations: pp. 367-368 Measuring & Predicting: pp. 374, 376</p> <p><i>Shadows</i> What is a Shadow?: p. 412</p> <hr/> <p><i>Patterns</i> Numbers to Functions: pp. 15-16 Investigating Sums: pp. 30-31</p> <p><i>Overland Trail</i> Graph Tells a Story: pp. 230-232 Making Predictions With Graphs: pp. 239-241, 248-249 Calculators on the Trail?: pp. 259-268 How Fast Should You Go?: pp. 277, 279-280</p> <p><i>Pit & the Pendulum</i> Graphs & Equations: pp. 367-370</p> <p><i>Shadows</i> What is a Shadow?: p. 412</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<p>8. solve problems involving the sum of finite and infinite sequences and series. Sigma (summation) notation will be included (PC.2.6)</p> <hr/> <p>1. represent points, lines, and planes pictorially with proper identification, as well as basic concepts</p> <hr/> <p>2. derived from these undefined terms, such as segments, rays and angles (G.3.1)</p>	<p>A. ALGEBRA/PRECALCULUS 1 (<i>continued</i>)</p> <hr/> <p><i>Patterns</i></p> <p>Investigating Sums: pp. 28-29, 32-34 Angle on Patterns: p. 50 Putting It Together: pp. 56, 61-62</p> <p><i>Game of Pig</i></p> <p>Little Pig: pp. 152-155</p> <p><i>Pit & the Pendulum</i></p> <p>Statistics & the Pendulum: pp. 335-340</p> <p>B. GEOMETRY/TRIGONOMETRY 1</p> <hr/> <p><i>Patterns</i></p> <p>Angle on Patterns: pp. 46, 49-54</p> <p><i>Shadows</i></p> <p>Geometry of Shadows: pp. 420-421 Triangles Galore: pp. 437, 440-443 Lights & Shadows: pp. 447-459 The Lamp & the Sun: pp. 461-463, 468-472</p> <hr/> <p><i>Patterns</i></p> <p>Angle on Patterns: pp. 43, 46, 49-54</p> <p><i>Shadows</i></p> <p>Geometry of Shadows: pp. 417-419 Triangles Galore: pp. 428-429, 431-432, 437, 440-443 Lights & Shadows: pp. 447-451, 453-454, 458</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<p>3. differentiate between inductive and deductive reasoning (G.3.2)</p> <hr/> <p>4. construct logical arguments in formal and informal methods with direct and indirect reasoning (G.3.4)</p> <hr/> <p>5. apply definitions, theorems, and postulates related to such topics as complementary, supplementary, and vertical angles and angles formed by perpendicular lines (G.3.5)</p>	<p>B. GEOMETRY/TRIGONOMETRY 1 (<i>continued</i>)</p> <hr/> <p><i>Patterns</i> Investigating Sums: pp. 28-29, 35 Angle on Patterns: pp. 46, 50-54</p> <p><i>Pit & the Pendulum</i> Statistics & the Pendulum: pp. 347, 350-351 Standard Pendulum: pp. 354-356 Measuring & Predicting: p. 376</p> <p><i>Shadows</i> Geometry of Shadows: pp. 420-423 Triangles Galore: pp. 428-429, 431-432, 437, 440, 442-443</p> <hr/> <p><i>Patterns</i> Investigating Sums: pp. 28-29, 35 Angle on Patterns: pp. 46, 50-54</p> <p><i>Pit & the Pendulum</i> Statistics & the Pendulum: pp. 347, 350-351 Standard Pendulum: pp. 354-356 Measuring & Predicting: p. 376</p> <p><i>Shadows</i> Geometry of Shadows: pp. 420-423 Triangles Galore: pp. 428-429, 431-432, 437, 440, 442-443</p> <hr/> <p><i>Patterns</i> Angle on Patterns: pp. 46, 53</p> <p><i>Shadows</i> Triangles Galore: pp. 437, 440, 442-443 Lights & Shadows: pp. 447-448, 449-451, 458</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<p>6. investigate and verify congruence relationships in triangles (G.3.7)</p> <hr/> <p>7. explore and identify properties of quadrilaterals and verify the properties for parallelograms, rectangles, rhombuses, squares, and trapezoids (G.3.8)</p> <hr/> <p>8. investigate measures of angles and lengths of segments to determine the existence of triangles (triangle</p> <hr/> <p>9. inequality) and the order of sides and unknown side lengths or angles and inaccessible heights and</p> <hr/> <p>10. distances, construct scaled drawings, and derive the basis for the trigonometric ratios (G.3.9)</p>	<p>B. GEOMETRY/TRIGONOMETRY 1 (<i>continued</i>)</p> <hr/> <p><i>Shadows</i> Triangles Galore: pp. 425, 428-429</p> <hr/> <p><i>Patterns</i> Angle on Patterns: pp. 51-52</p> <p><i>Shadows</i> Geometry of Shadows: p. 422 Triangles Galore: pp. 425, 431-432</p> <hr/> <p><i>Shadows</i> Triangles Galore: pp. 431-432, 438-439</p> <hr/> <p><i>Shadows</i> What is a Shadow?: pp. 406, 409-410, 412 Geometry of Shadows: pp. 418-419 Triangles Galore: pp. 426-427, 430 Lights & Shadows: pp. 447-454, 458 The Lamp & the Sun: pp. 462-463, 468-472</p> <hr/> <p><i>Shadows</i> Geometry of Shadows: pp. 415-419, 430 The Lamp & the Sun: pp. 464-467</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<hr/> <p>11. using trigonometric ratios, determine lengths of sides and measures of angles in right triangles (G.3.10)</p> <hr/> <p>12. given a polygon, find angle measures of interior and exterior angles; find length of sides from given</p> <hr/> <p>13. data; and use properties of regular polygons to find missing data (G.3.13)</p> <hr/> <p>14. define the six trigonometric functions in terms of a right triangle and find the values of the functions of an angle in standard position, given a point on the terminal side of the angle (T.3.1)</p> <hr/> <p>15. find the values of the other trigonometric functions, given the value of one trigonometric function (T.3.2)</p>	<p>B. GEOMETRY/TRIGONOMETRY 1 (<i>continued</i>)</p> <hr/> <p><i>Shadows</i></p> <p>What is a Shadow?: pp. 398-413 Geometry of Shadows: pp. 415-423 Triangles Galore: pp. 425-445 Lights & Shadows: pp. 447-459 The Lamp & the Sun: pp. 461-476</p> <hr/> <p><i>Patterns</i></p> <p>Angle on Patterns: pp. 46, 51-54</p> <p><i>Shadows</i></p> <p>Geometry of Shadows: p. 419 Triangles Galore: pp. 426-427, 433-436, 444-445 Lights & Shadows: pp. 450-454 The Lamp & the Sun: pp. 463, 468-472</p> <hr/> <p><i>Patterns</i></p> <p>Angle on Patterns: pp. 50-52, 54</p> <hr/> <p><i>Shadows</i></p> <p>Triangles Galore: pp. 444-445 The Lamp & the Sun: pp. 464-472</p> <hr/> <p><i>Shadows</i></p> <p>The Lamp & the Sun: pp. 473</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<hr/> <p>16. use a calculator to find the values of the trigonometric functions for any angle and to find the measure of an angle given the value of one of its trigonometric functions (T.3.4)</p> <hr/> <p>1. collect, organize, interpret data and predict outcomes using the mean, mode, median, and range (A1.2.18)</p> <hr/> <p>2. predict the outcomes of simple events using the rules of probability (A1.2.20)</p>	<p>B. GEOMETRY/TRIGONOMETRY 1 (<i>continued</i>)</p> <hr/> <p><i>Shadows</i> The Lamp & the Sun: pp. 465-472</p> <p>C. DATA ANALYSIS/STATISTICS 1</p> <hr/> <p><i>Patterns</i> Angle on Patterns: pp. 51-52</p> <p><i>Game of Pig</i> Game of Chance & Strategy: pp. 96-98, 102-103 Flip, Flip: pp. 105-107 Pictures of Probability: pp. 119-120, 122-123 In the Long Run: pp. 136, 145-148</p> <p><i>Pit & the Pendulum</i> Poe – Master of Suspense: pp. 312, 315, 317-321 Statistics & the Pendulum: pp. 327-332, 335-338, 343</p> <p><i>Shadows</i> What is a Shadow?: pp. 404-406, 409-410</p> <hr/> <p><i>Game of Pig</i> Flip, Flip: pp. 110-113 Pictures of Probability: pp. 115-121, 124-126 In the Long Run: pp. 137-138, 144 Little Pig: pp. 152-155</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<p>3. use process (flow) charts and histograms, scatter diagrams and normal distribution curves (A1.2.21)</p> <hr/> <p>4. distinguish between experimental and theoretical probability (PS.5.1)</p>	<p>C. DATA ANALYSIS/STATISTICS 1 (<i>continued</i>)</p> <hr/> <p><i>Game of Pig</i> Flip, Flip: p. 107 Pictures of Probability: p. 123</p> <p><i>Overland Trail</i> Making Predictions With Graphs: pp. 239-241, 244-251 Calculators on the Trail?: pp. 259-260</p> <p><i>Pit & the Pendulum</i> Poe – Master of Suspense: pp. 318-321 Statistics & the Pendulum: pp. 325, 327-329, 333-334, 347 Standard Pendulum: pp. 353-356</p> <hr/> <p><i>Game of Pig</i> Game of Chance & Strategy: pp. 101-103 Flip, Flip: pp. 105-107, 110-111, 113 Pictures of Probability: pp. 119-120, 122-125 In the Long Run: pp. 135-138, 142-143, 145-148 Back to Pig: p. 160</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<p>5. create and interpret data using various methods of displaying circle graphs, histograms, and frequency curves, and make predictions about outliers (PS.5.2)</p> <hr/> <p>6. determine possible outcomes using tree diagrams and the counting principles of permutations and combinations (PS.5.3)</p> <hr/> <p>7. express the chances of events occurring either in terms of a probability or odds (PS.5.4)</p> <hr/> <p>8. use the normal distribution and the binomial distribution including Pascal's triangle, to determine probability of events (PS.5.5)</p>	<p>C. DATA ANALYSIS/STATISTICS 1 (<i>continued</i>)</p> <hr/> <p><i>Game of Pig</i> Flip, Flip: p. 107 Pictures of Probability: p. 123</p> <p><i>Overland Trail</i> Making Predictions With Graphs: pp. 239-241, 244-251 Calculators on the Trail?: pp. 259-260</p> <p><i>Pit & the Pendulum</i> Poe – Master of Suspense: pp. 318-321 Statistics & the Pendulum: pp. 325, 327-329, 333-334, 347 Standard Pendulum: pp. 353-356</p> <hr/> <p><i>Game of Pig</i> Flip, Flip: p. 112 Pictures of Probability: pp. 124-126 In the Long Run: pp. 137-138, 144-146 Little Pig: pp. 153-155</p> <hr/> <p><i>Game of Pig</i> Flip, Flip: pp. 110-113 Pictures of Probability: pp. 115-121, 124-126 In the Long Run: pp. 137-138, 141</p> <hr/> <p><i>Pit & the Pendulum</i> Statistics & the Pendulum: pp. 333-334, 347, 350-351 Standard Pendulum: pp. 353-356, 360</p>



Standard	Expectations	Correlation of <i>IMP</i> Year 1
	<hr/> <p>9. interpret and calculate measures of central tendency (mean, median, and mode) from data presented in a variety of forms such as charts, tables, and graphs or from data created through experimentation (PS.5.6)</p> <hr/> <p>10. interpret and calculate measures of dispersions (range and standard deviation) from data presented in a variety of forms such as charts, tables and graphs or from data created through experimentation (PS.5.7)</p>	<p>C. DATA ANALYSIS/STATISTICS 1 (<i>continued</i>)</p> <hr/> <p><i>Game of Pig</i> Game of Chance & Strategy: pp. 102-103 Flip, Flip: pp. 107 In the Long Run: pp. 135-137</p> <p><i>Pit & the Pendulum</i> Poe – Master of Suspense: pp. 318-321 Statistics & the Pendulum: pp. 330-332, 344-346</p> <hr/> <p><i>Pit & the Pendulum</i> Statistics & the Pendulum: pp. 325, 327-332, 335-347, 350-351 Standard Pendulum: pp. 353-356, 360</p>