

West Virginia Algebra/Geometry Preparation Objectives with CORD Bridges, 2nd Edition

Algebra/Geometry Preparation Objectives

Algebra/Geometry preparation is an elective course designed to be a bridge between the concrete elementary curriculum and the more formal mathematics curriculum ahead. In this course students will explore algebraic concepts in an informal way to build a foundation for subsequent formal study of algebra. Such informal explorations should emphasize physical models, data, graphs, and other mathematical representations rather than facility with formal algebraic manipulations. The study of geometry is to assist students to represent and make sense of the world. Geometric models will provide a perspective from which students are to analyze and solve problems, and geometric interpretations are to help make abstract representations more easily understood. The study of geometry at this level should simply provide increased opportunities for students to engage in more systematic explorations. West Virginia teachers are responsible for analyzing the benefits of technology for learning and for integrating technology appropriately in the students' learning environment. See the related grade-level Technology Standards and Objectives.

Standard 1: Number and Operations (MA.S.1)

Students will:

- demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems;
- demonstrate meanings of operations and how they relate to one another; and compute fluently and make reasonable estimates

through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.

Objectives

Students will:

AGP.1.1 identify and use properties of numbers (commutative, associative, distributive, etc).

Pages or Location: 24-28, 33, 36-41, 48, 58, 96, 114, 140-145, 152, 157, 186-191, 192-197, 198-202, 203-210, 211-216, 217-223, 266-270, 273-277, 278-284, 294-298, 299-303, 304-310

AGP.1.2 add, subtract, multiply, and divide decimals, integers, fractions and mixed numbers.

Pages or Location: 10, 11-15, 42-47, 140-147, 148-153, 162-167, 168-175, 236-240, 241-246, 254-260, 261-265, 266-272, 354-361

**West Virginia Algebra/Geometry Preparation Objectives
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AGP.1.3 use order relations to compare, order, or locate whole numbers, integers, fractions, and decimals on a number line.

Pages or Location: 4-12, 33, 66, 130, 134-138, 154-159,
247-253, 274-277, 278-282, 418, 432, 670

Standard 2: Algebra (MA.S.2)

Students will:

- demonstrate understanding of patterns, relations, and functions;
- represent and analyze mathematical situations and structures using algebraic symbols;
- use mathematical models to represent and understand quantitative relationships; and
- analyze change in various contexts

through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.

Objectives

Students will:

AGP.2.1 substitute values, evaluate expressions involving variables, and calculate formulas to solve application problems.

Pages or Location: 16-21, 24-25, 33, 36-38, 50-51, 56, 66, 75,
79, 90, 113-114, 139, 145, 164, 166, 169, 172, 191,
196, 202, 208, 216, 217-221, 246, 259, 264, 270, 282,
299, 320, 326, 360, 371, 380, 381-385, 447, 472, 500,
549, 605-614, 615-621, 622-629, 650-656, 657-663,
664-670, 671-679

AGP.2.2 solve equations with at least two operations.

Pages or Location: 198-202, 203-210, 211-216, 232-233,
240, 264, 265, 269, 271, 282, 290, 298, 304-310,
320, 336, 344, 353, 366, 371, 380, 410, 418, 425,
447, 478, 529, 556, 590, 598, 614, 649, 670

Standard 3: Geometry (MA.S.3)

Students will:

- analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships;
- specify locations and describe spatial relationships using coordinate geometry and other representational systems;
- apply transformations and use symmetry to analyze mathematical situations; and

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- solve problems using visualization, spatial reasoning, and geometric modeling through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.

Objectives

Students will:

- AGP.3.1 use a compass to construct congruent angles, bisect angles, and bisect line segments.
Pages or Location: 515-517
- AGP.3.2 estimate and find circumference and area of a circle.
Pages or Location: 622-629, 638, 657-663, Practice & Apply and Cumulative Problem Solving throughout Chapter 11
- AGP.3.3 estimate and find the area and perimeter of polygons
Pages or Location: 605-614, 615-621, 649, 650-656, Practice & Apply and Cumulative Problem Solving throughout Chapter 11
- AGP.3.4 estimate and find the surface area and the volume of three-dimensional figures.
Pages or Location: 650-656, 657-663, 664-670, 671-679, 680-686, Practice & Apply and Cumulative Problem Solving throughout Chapter 12, Supplementary Worksheets pages 110-111
- AGP.3.5 identify angle relationships: complementary, supplementary, vertical, and adjacent.
Pages or Location: 466-472, 488-489
- AGP.3.6 identify angle relationships; involving parallel lines and apply in solving problems (corresponding angles, alternate interior angles, and alternate exterior angles).
Pages or Location: 517; Note: alternate interior angles and alternate exterior angles not covered
- AGP.3.7 investigate similar triangles and apply proportions in problem solving situations.
Pages or Location: 584-592, 616, 619-620, 621
- AGP.3.8 develop and explore circle relationships, emphasizing the vocabulary of circles.
Pages or Location: 622-629

West Virginia Algebra/Geometry Preparation Objectives with CORD Bridges, 2nd Edition

Standard 4: Measurement (MA.S.4)

Students will:

- demonstrate understanding of measurable attributes of objects and the units, systems, and processes of measurement; and
- apply appropriate techniques, tools and formulas to determine measurements

through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.

Objectives

Students will:

- AGP.4.1 estimate, measure, and perform operations involving length, mass, and capacity using customary and metric units.

Pages or Location: 50-51, 217-218, 221, 224-226, 233, 551-556, 557-563, 584-592, 605-614, 615-621, 622-629, 638-639, 650-656, 657-663, 664-670, 671-678, 680-687, 687-689, 689-690, 691-692, 693-694, and “Problem Solving: Using the Four Step Plan” pages 103, 165, 200, 258, 306, 377, 425, 476, 546

- AGP.4.2 use a protractor to measure and draw angles.

Pages or Location: 466-472

Standard 5: Data Analysis and Probability (MA.S.5)

Students will:

- formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them;
- select and use appropriate statistical methods to analyze data;
- develop and evaluate inferences and predictions that are based on models; and
- apply and demonstrate an understanding of basic concepts of probability

through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics.

Objectives

Students will:

- AGP.5.1 read, interpret, and construct graphs to solve problems.

Pages or Location: 70-75, 76-79, 80-84, 85-90, 91-99, 100-107, 108-116, 117-118, 118-120, 120-121, 122-125, 128, 133, 159, 160, 167, 191, 221, 246, 265, 309, 357, 358, 359, 385, 396, 614, 627, Supplementary Worksheets

**West Virginia Algebra/Geometry Preparation Objectives
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pages 19, 29, Teacher's Resource Book pages 71, 77,
83, 85, 87, 89, 91, 95, 97, 115

- AGP.5.2 use data to determine mean, median, mode, and range.
Pages or Location: 70-75, 76-79, 80-84, 94-95, 106-107,
118-120, 122-123, 133, 145, 167, 170-171, 172,
176-178, 178-180, 183, 191, 221, 246, 265, 277, 326,
332, 556, 583, 602, 685
- AGP.5.3 find the probability of complementary events and exclusive events.
Pages or Location: 311-315, 316-321, 322-326, 327-332,
333-337, 339-341, 341-343, 344-345, 360, 389-390,
432, 447, 465, 478, 583, 590, 656, 685