

# ALGEBRA I

## College Prep. B

### CURRICULUM GUIDE

**NUMBER:** 303  
**LEVEL;** College Prep. B  
**TEXTBOOK:** ALGEBRA 1 CONCEPTS AND SKILLS, McDougal Littell Inc., 2001  
**LENGTH:** Full year  
**CREDITS:** 5 Credits  
**REVISED:** March 2010

**Midterm Exam Revised:** January 2010

**Final Exam Revised:** June 2010

#### *PREREQUISITE*

There are no prerequisite courses for Algebra 1 CP B. Incoming freshman are scheduled for this course based on their scores on standardized tests and teacher recommendation. Upper classmen may schedule the course with teacher recommendation.

#### *COURSE DESCRIPTION*

Algebra 1 CP B is the first year of college preparatory mathematics at our CP B level. This course is designed for students who, based on test scores and previous mathematical background, would have difficulty in succeeding in our Algebra 1 CP A. course. It covers the same concepts, but applies them to less complex problems.

Topics covered in this course are operations on real numbers, solutions of first degree equations and inequalities, exponents, polynomials, factoring, radicals, functions, probabilities, percents, and data analysis. Problem solving and real-life situations, which apply these concepts, are stressed throughout the course.

HSPA Review problems will also be integrated into the course through teacher prepared worksheets and/or transparencies. Similar problems will appear on tests and quizzes.

Scientific and graphing calculators are required for the course both for exploration and discovery and as an aid to computation in real life problems. The use of a calculator allows students to concentrate on problem solving strategies and enables us to use the types of numbers which occur in real life situations, but may be difficult to work with if a calculator is not available. Students will be given instructions on how to use the calculators efficiently. Estimation and reasonableness of answers will be stressed so that students can recognize calculator errors.

Students are expected to be active participants in the learning process. The teacher will involve them in the introduction and development of material through questioning and class discussions. Understanding of concepts is stressed rather than rote memorization of skills. When appropriate, students are guided in discovering the concept themselves

## Algebra 1 CP B Curriculum Guide

through a study of patterns and by relating the new work to their prior knowledge. Critical thinking is emphasized and students will be asked to draw, label, explain, justify, verify and interpret as they apply the concepts to new situations. Cooperative learning activities will be used throughout the course, both informal activities such as discussing homework or solving a problem from the textbook and formal discovery and problem solving activities. Students will be encouraged to verbalize math concepts and share ideas with each other.

### District Policy: ACADEMIC INTEGRITY

Pupils are expected to be honest in all of their academic work. This means that the students in this course will not engage in any of the following acts:

- Cheating on examinations or other school assignments, including but not limited to, the non-authorized use of books or notes, the use of crib sheets, copying from other students' papers, exchanging information with other students orally, in writing, or by signals, obtaining copies of the examination illegally and other similar activities. Cheating through the use of technology to exchange information on any school assignment, examination, etc. is prohibited. Technology is defined as, but not limited to, computers, telephones, text messaging, palm pilots, calculators, cameras or any other hand held device.
- Plagiarism is not permitted in term papers, themes, essays, reports, images, take-home examinations, and other academic work. Plagiarism is defined as stealing or use without acknowledgment of the ideas, words, formulas, textual materials, on-line services, computer programs, etc. of another person, or in any way presenting the work of another person as one's own.
- Falsifications, including forging signatures, altering answers after they have been graded, inserting answers after the fact, erasing of grader's markings, and other acts that allow for falsely taking credit.

A pupil found guilty of academic dishonesty may be subjected to a full range of penalties including, but not limited to reprimand and loss of credit for all of the work that is plagiarized. Disciplinary action may also be a consequence of such behavior. Additional consequences may apply as defined in specific department policies and guidelines. A teacher who believes that a pupil has been academically dishonest in his/her class should resolve the matter in the following manner:

- Reprimand the student orally and/or in writing. The teacher is also authorized to withhold credit in the work due to academic dishonesty.
- If warranted, the teacher shall file a written complaint against the student with the Administration, requesting a more stringent form of discipline. The complaint must describe in detail the academic dishonesty that is alleged to have taken place, and must request that the matter be reviewed by the Administration.
- The Administration will determine if further discipline of the pupil is appropriate, and will determine the nature of the discipline on a case-by-case basis.
- If the pupil is not in agreement with the disciplinary action of the Administration, he/she may appeal the action first to the Principal and secondly to the Superintendent. If the pupil is dissatisfied with the Superintendent's disposition of the case, he/she may grieve the action in accordance with Policy No. 5710, Pupil Grievance.

## Algebra 1 CP B Curriculum Guide

### District Policy: Equal Opportunity

High Point Regional High School's curriculum and instruction are aligned to the State's Core Curriculum Content Standards and address the elimination of discrimination by narrowing the achievement gap, by providing equity in educational programs and by providing opportunities for students to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socio-economic status.

### ***COURSE OBJECTIVES***

Students will be able to:

1. perform computations with real numbers.
2. solve linear equations and inequalities.
3. solve problems involving ratios, proportions, rates and percents.
4. identify, evaluate and graph functions (linear, absolute value, quadratic, and exponential) and their transformations.
5. solve systems of equations.
6. use concepts of data analysis, probability and discrete mathematics to solve problems.
7. use computation rules for exponents, radicals and polynomials; factor polynomials.
8. apply all concepts to real life problems.

### ***COURSE POLICIES***

Homework will be given almost every day and is an important part of the course, providing students with the opportunity to apply skills learned in class, strengthen their understanding of the concepts, and identify areas they don't understand. It is ***imperative*** that students do homework regularly and conscientiously.

Homework will be reviewed in class and it is the student's responsibility during that time to ask questions about problems he/she doesn't understand, to identify specific mistakes, and to take notes on any further explanations concerning these problems. Students will be responsible to make up any missed class work (tests, quizzes, projects, and homework) in a timely manner and according to teacher established

policies, which will be discussed in class. It is the student's responsibility to obtain material (notes, homework) for any extended absence and meet with the teacher upon return to class.

Students are expected to bring their textbook, homework, and a writing implement to class. They are expected to take notes during class and to keep these notes along with homework, quizzes, and tests, in an organized manner.

## Algebra 1 CP B Curriculum Guide

### *STUDENT EVALUATION*

Quizzes, based on the course proficiencies, will be given about once a week, with a major test, based on the proficiencies, given at the end of each unit. Pop quizzes may also be given at the discretion of the instructor. An exam, covering the semester's work, will be given at the end of the semester.

Homework will be checked daily. It will usually not be graded, but will be considered satisfactory if the work shown indicates the student has made a conscientious effort to complete the assignment. Sometimes an assignment given for homework may be collected and graded as a quiz. This will occur only when the concepts have been thoroughly reviewed.

Grades will be calculated according to the school grading policy and the following guidelines:

#### A. Marking Period

1. Tests and Quizzes 75%
2. Homework and class work 25%

(Each teacher will explain his/her policy to the class)

#### B. Semester Grade

1. Each Marking Period 40%
2. Exam 20%

## Algebra 1 CP Curriculum Guide

### *NOTES TO THE TEACHER*

The proficiencies, not the textbook, are to be used as a guide for this course. Teachers must develop materials for topics not covered in the textbook. At the end of each unit a list of resources and activities are given. The textbook is a major resource and will be listed first. For each unit there are also extensive supplementary materials from which the teacher should select appropriate activities for their class. These materials include:

1. **\*Resource Books** for each unit which include: “Tips for New Teachers”, “Parent Guide for Student Success”, Skill Review, “Strategies for Reading Mathematics,” Practice, Reteaching, Graphing Calculator Activities, “Quick Catch up for Absent Students”, “Interdisciplinary Applications”, “Real-Life Applications”, Quizzes, Review, Math Journal, Cumulative Review.
2. **Warm Up Transparencies and Daily Homework Quiz Book**
3. **Starting Points: Alternative Lesson Opener**
4. **Instant Replay Video Review Games** which contains video clip previews for each chapter as well as video review games
5. **\*Electronic Lesson Presentations** CD Rom
6. **Electronic Teacher Tools, Student Tutor, and Test and Practice Generator** CD ROMs
7. On-line resources at [www.mcdougallittell.com](http://www.mcdougallittell.com) both for teachers and students (access code for teachers: **MCD4852A61HLW**; access code for students: **MCDHJ4CRQDPE7**)
8. **\*Understanding MATH Program:** worksheets are available online at [www.neufeldmath.com](http://www.neufeldmath.com)
9. **HSPA Resource Book**

We will also be using the Geometer’s Sketchpad. Sample activities can be found in the book Exploring **Algebra with the Geometer’s Sketchpad** \*.

The **HSPA Departmental Resource Book** noted in the list of resources contains practice worksheets which should be used at the teacher’s discretion. The worksheets listed in the resources are enrichment worksheets, which extend the concepts and include HSPA activities. These must be included in the course. If time constraints make it impossible to include all these activities, teachers should jointly decide which ones to omit. HSPA sample problems given in the curriculum guide must also be included in the course.

2003-2004 is the first year we will be using this Curriculum Guide. The teacher should note specific activities used from the starred (\*) resources in their lesson plans for inclusion in this guide.

## Algebra 1 CP B Curriculum Guide

### *COURSE PROFICIENCIES*

#### Unit 1: Connections to Algebra

17 Days

**Goals:** Students will be able to use algebraic expressions, equations and inequalities to model real life situations and to solve problems.

**Objectives:** Students will be able to:

1. Evaluate variable expressions and powers.
2. Use the established order of operations.
3. Check solutions of equations and inequalities.
4. Translate words into mathematical symbols.
5. Model and solve real life problems.
6. Organize data using a table or graph.
7. Construct and interpret scatter plots.
8. Construct a line of best fit and identify outliers.
9. Use four different ways to represent functions, emphasizing domain and range.

#### New Jersey Core Curriculum Content Standards (CCCS)

4.1.B.1, 2; 4.1.C.1; 4.2.D.2; 4.3.B.1, 2; 4.3.C.1, 2; 4.5.A. 1- 5; 4.5.B. 1, 2, 4; 4.5.C.1, 3, 4; 4.5.E. 1, 2, 3.

#### References:

1. Textbook, Chapter 1.
2. *Starting Points: Alternative Lesson Opener* transparencies.
3. *Warm Up Transparencies and Homework Quiz* transparencies.
4. *Chapter 1 Resource Book*: “Strategies for Reading Mathematics,” p.7,8; Real Life Applications: “Class Officer Duties” p. 20; “Back to School Shopping” p.44; “Taiwan Vacation” p. 68; “Leasing a Car” p.80; Interdisciplinary Application: “Natatorium”, p. 31; “Drums” p. 57; “Space Exploration” p. 92; “Paul Revere” p. 104; Chapter Review Games and Activities, p. 106.
5. *Electronic Lesson Presentations CD*
6. *Instant Replay Video Review Games* and corresponding black line masters from *Video Resource Book*: “Decoder”, p1, 2.
7. *HSPA* Departmental Resource Book.

## Algebra 1 CP Curriculum Guide

### Unit 2: Properties of Real Numbers

14 Days

**Goals:** Students will be able perform computations with real numbers.

**Objectives:** Students will be able to:

1. Graph, compare and order real numbers; use vectors to show direction on the number line.
2. Use the number line to find the opposite and absolute value of a number.
3. Add real numbers on the number line (using vectors) and identify the commutative and associative properties of addition.
4. Demonstrate an understanding of the reflexive, symmetric and transitive properties. (This is not covered in the text and must be supplemented)
5. Multiply real numbers correctly using the rules for finding the sign of non-zero numbers, use the distributive property.
6. Simplify algebraic expressions by combining like terms.
7. Divide real numbers and simplify algebraic expressions involving division.
8. Add and subtract matrices; do scalar multiplication.
9. Apply these concepts to solving real life problems.

**CCCS:** 4.1.A.1, 2, 3; 4.1.B.1, 2, 3; 4.1.C.1; 4.3.B.1; 4.5.A.1, 2; 4.5.B.1; 4.5.C.3, 4; 4.5.D.1; 4.5.F.1, 2, 3.

#### References:

1. Textbook, Chapter 2.
2. Supplementary worksheets (attached).
3. *Starting Points: Alternative Lesson Opener* transparencies.
4. *Warm Up Transparencies and Homework Quiz* transparencies.
5. *Chapter 2 Resource Book*: “Strategies for Reading Mathematics,” p.7,8; Real Life Applications: “Stockholders” p. 44; “Ballooning” p 69; “Magazine Sales” p. 81; “Cost of Labor” p.93; Interdisciplinary Application: “World War II”, p. 21; “Elevation” p. 57; “Novels” p. 106; Chapter Review Games and Activities, p. 108.
5. *Electronic Lesson Presentations CD*
6. *Exploring Algebra with GSP* “Adding and Subtracting Integers” p. 3 – 8 (worksheets attached).
7. *Instant Replay Video Review Games* and corresponding blackline masters from *Video Resource Book*: “Relay”, p. 17 – 19.
8. Enrichment worksheets 1.5 and 1.6 (worksheets attached).

## Algebra 1 CP B Curriculum Guide

### Unit 3: Solving Linear Equations and Inequalities

14 Days

**Goals:** Students will be able to solve linear equations and inequalities.

**Objectives:** Students will be able to:

1. Solve linear equations using addition, subtraction, multiplication and division.
2. Use two or more steps to solve linear equations.
3. Solve equations with variable on both sides.
4. Solve more complicated equations, including equations with fractions and decimals (it is necessary to supplement the exercises in the book).
5. Solve a formula for one variable.
6. Solve basic inequalities and graph on a number line.
7. Apply these concepts to solving real life problems.

**CCCS:** 4.1.A.2; 4.1.B.1; 4.3.B.2; 4.3.C.1; 4.3.D. 2, 3; 4.5.A.1, 2, 3; 4.5.B.1, 2, 3; 4.5.C.3, 4; 4.5.D.1, 2, 3, 4; 4.5.E.1, 2, 3; 4.5.F.4.

#### References:

1. Textbook, Chapter 3, Chapter 6: 6.1, 6.2, 6.3.
2. Supplementary worksheets (attached).
3. *Starting Points: Alternative Lesson Opener* transparencies.
4. *Warm Up Transparencies and Homework Quiz* transparencies.
5. *Chapter 3 Resource Book*: “Strategies for Reading Mathematics,” p.7, 8; Real Life Applications: “College Football Stadiums” p. 19; “Recycling” p 57; “Tunnels” p. 68; “Skyscrapers” p.105; Interdisciplinary Application: “Pony Express”, p. 30; “Crickets” p. 43; “Swimming” p. 81; “Magnification” p.93; “Markup and Cost” p.116; Chapter Review Games and Activities, p. 108.
5. *Electronic Lesson Presentations CD*
6. *Instant Replay Video Review Games* and corresponding black line masters from *Video Resource Book*: “Bingo”, p. 5 - 8.
6. *HSPA* Resource Book.

## Algebra 1 CP B Curriculum Guide

### Unit 4: Graphing Linear Equations and their Functions

23 Days

**Goals:** Students will be able to graph lines and evaluate functions.

**Objectives:** Students will be able to:

1. Plot and give the coordinates of points in the coordinate plane.
2. Demonstrate an understanding of scatter plots, line of best fit, negative and positive correlation.
3. Demonstrate an understanding of the meaning of slope. (Internet Activity attached)
4. Determine the slope of a line given two points on the graph of an equation.
5. Graph a linear equation using a table of values and the slope-intercept form of an equation ( $y = mx + b$  &  $y = kx$ ).
6. Graph horizontal and vertical lines.
7. Determine the x - and y - intercepts of a line.
8. Use a graphing calculator to graph linear functions and discover parallel and perpendicular lines.
9. Identify functions and use function notation: determine domain and range.
10. Use graphs of linear equations to solve real-life problems.

**CCCS:** 4.2.C.1; 4.3.B.1, 2, 3; 4.3.C.1; 4.5.A.1, 2, 3; 4.5.B.1; 4.5.C.3, 4; 4.5.E.1, 2, 3; 4.5.F.1, 2, 3, 4.

#### References:

1. Textbook, Chapter 4 (omit 4.6), include section 5.6
2. Supplementary worksheets (attached).
3. *Starting Points: Alternative Lesson Opener* transparencies.
4. *Warm Up Transparencies and Homework Quiz* transparencies.
5. *Chapter 4 Resource Book*: “Strategies for Reading Mathematics,” p.7,8; Real Life Applications: “Community Service” p. 31; “Raising Money for a Class Trip” p 54;; Interdisciplinary Application: “Mammals”, p. 20; “Horizontal and Vertical Lines” p. 42; “Minimum Wage” p. 67; “Gasoline Prices” p.78; “Mount Everest” p. 95; “Amelia Earhart’s Journey” p. 106; Chapter Review Games and Activities, p. 108.
5. *Electronic Lesson Presentations CD*
6. *Exploring Algebra with GSP*, “Points Lining Up in the Plane”, p.37-39; “The Slope of a Line” p. 40 –41; “The Slope Game” p. 42; “How Slope is Measured” p.43-44, and other sections on slope in Chapter 2 (attached).
8. *Instant Replay Video Review Games* and corresponding black line masters from *Video Resource Book*: “Math Bowl”, p. 9 - 13.
9. Internet Lesson ([www.exploremath.com](http://www.exploremath.com)) attached.
10. *HSPA Resource Book*, attached problems.
11. Graphing calculator activity on slope.

## Algebra 1 CP B Curriculum Guide

### Unit 5: Linear Equations

14 Days

**Goals:** Students will be able to write linear equations and apply them to real - life situations.

**Objectives:** Students will be able to:

1. Determine the equation of a line given the slope and y-intercept or two points on a line.
2. Write an equation in slope intercept form and standard form.
3. Write and use a linear equation to solve real-life problems.

**CCCS:** 4.3.A.1, 2; 4.3.B.2; 4.3.C.1; 4.5.A.1, 2; 4.5.B.1,2; 4.5.E.1; 4.5.F.3.

#### References:

1. Textbook, Chapter 5 (omit 5.2, 5.6); p.119 – 120.
2. Supplementary worksheets (attached).
3. *Discovering Geometry* pages 52 – 62.
4. *Starting Points: Alternative Lesson Opener* transparencies.
5. *Warm Up Transparencies and Homework Quiz* transparencies.
6. *Chapter 3 Resource Book*: “ Strategies for Reading Mathematics,” p.7,8; Real Life Applications: “The Internet” p. 65; Interdisciplinary Application: “Break Even Analysis”, p. 18; “Bald Eagles” p. 41; Chapter Review Games and Activities, p. 81.
7. *Electronic Lesson Presentations CD*
8. *HSPA* Resource Book, attached problems

## Algebra 1 CP B Curriculum Guide

### Unit 6 (chapter 7 in text book): Systems of Linear Equations

14 days

**Goals:** Students will be able to solve systems of two linear equations using different methods and graph the solutions to the systems of linear.

**Objectives:** Students will be able to:

1. Estimate the solution of a system of linear equations by graphing.
2. Solve systems of linear equations by substitution and linear combinations. (Focus on simple problems with no fractions and limited decimals)
3. Apply and use linear systems to solve real life problems (supplement with HSPA problems).
4. Identify how many solutions a linear system has.

**CCCS:** 4.2.C.1; 4.3.B.2; 4.3.B.3; 4.3.C.1, 2; 4.3.D. 2; 4.5.A.1,2,3; 4.5.B.1,2,3,4; 4.5.C.2,3,4,6; 4.5.D.1,2,3,6; 4.5.E.1,3; 4.5.F.1,2,3,4

#### References:

1. Textbook, Chapter 7 (omit 7.6)
2. Supplementary worksheets (attached).
3. *Starting Points: Alternative Lesson Opener* transparencies.
4. *Warm Up Transparencies and Homework Quiz* transparencies.
5. *Chapter 7 Resource Book:* “Strategies for Reading Mathematics,” p.7,8; Real Life Applications: “Newspaper Routes” p. 19; “Four Corners in Allegheny National Forest” p.66; Interdisciplinary Application: “Biology”, p. 30; “The Juan Fernandez Islands” p. 41; Brass Instruments” p. 54; Chapter Review Games and Activities, p. 82.
6. *Electronic Lesson Presentations CD*
6. *HSPA* Resource Book.

## Algebra 1 CP B Curriculum Guide

### Unit 7 (chapter 8 in textbook): Exponents and Exponential Functions

12 days

**Goals:** Students will be able to simplify expressions involving exponents, graph exponential functions, and model real- life situations using exponents.

**Objectives:** Students will be able to:

1. Use the multiplication properties of exponents.
2. Evaluate powers that have zero and negative exponents.
3. Use division properties of exponents.
4. Read and write numbers in scientific notation.
5. Write and graph exponential growth functions and exponential decay functions. (if time permits)

**CCCS:** 4.1.A.2; 4.1.B.1, 2, 4; 4.3.B.1, 2, 3; 4.3.C. 1, 2; 4.3.D. 2; 4.5.A. 2; 4.5.B. 1, 2, 3; 4.5.C.3, 4; 4.5.D. 1, 2, 3, 4, 5; 4.5.E. 1, 2, 3; 4.5.F.1, 2, 3, 4.

#### References:

1. Textbook, Chapter 8.
2. Supplementary worksheets (attached).
2. *Starting Points: Alternative Lesson Opener* transparencies.
3. *Warm Up Transparencies and Homework Quiz* transparencies.
4. *Chapter 8 Resource Book*: “Strategies for Reading Mathematics,” p.7, 8; Real Life Applications: “Telephone Numbers” p. 18; “Banking” p.30; “Internet Usage” p. 56; “Investing for College” p.84; “Record Albums”, p.99; Interdisciplinary Application: “Carbon-14 Dating”, p. 42; “Sahara Desert” p. 69; Chapter Review Games and Activities, p. 101.
5. *Electronic Lesson Presentations CD*
6. *Instant Replay Video Review Games* and corresponding black line masters from *Video Resource Book*: “Math Bowl”, p. 26, 27.
6. *HSPA Resource Book*.
7. *Understanding Math* computer program.

## Algebra 1 CP B Curriculum Guide

### Unit 8 (chapter 10 in textbook): Polynomials and Factoring

12 Days

**Goals:** Students will be able to identify, compute with, and factor polynomial expressions.

**Objectives:** Students will be able to:

1. Add and subtract polynomials.
2. Multiply polynomials using the distributive property.
3. Use special product patterns to multiply polynomials.
4. Factor trinomials of the form:  
 $x^2 + bx + c$
5. Factor trinomials of the form:  
 $ax^2 + bx + c$
6. Factor special products.

**CCCS:** 4.1.A.2; 4.1.B.1; 4.3.C.1; 4.3.D.1, 2; 4.5.A.1; 4.5.B.3; 4.5.C.3, 4, 6; 4.5.D.2, 3; 4.5.E.1; 4.5.F.1, 2, 3, 4.

#### References:

1. Textbook, Chapter 10, omit sections 10.4 and 10.8
2. *Starting Points: Alternative Lesson Opener* transparencies.
3. *Warm Up Transparencies and Homework Quiz* transparencies.  
*Chapter 10 Resource Book:* “Strategies for Reading Mathematics,” p.7, 8; Real Life Applications: “Cutting the Lawn” p. 32; “Marching Band” p. 68; “The Art of Africa” p. 80; “Manufacturing” p. 95; Interdisciplinary Application: “Stained Glass” p.19; “Pythagoras” p. 44; Chapter Review Games p. 108.
4. *Electronic Lesson Presentations CD*
5. *HSPA Resource Book*.

## Algebra 1 CP B Curriculum Guide

### Unit 9 (chapter 9 in textbook): Quadratic Equations and Absolute Value Functions

12 days

**Goals:** Students will be able to evaluate square roots and radicals, graph quadratic and absolute value functions, and interpret graphs of real life situations.

**Objectives:** Students will be able to:

1. Evaluate and approximate square roots.
2. Solve quadratic equations by finding square roots.
3. Use the graphing calculator to discover the role of  $a$ ,  $b$ ,  $c$  in quadratic and absolute value functions.
4. Identify the domain and range of a function.
5. Identify and graph quadratic, absolute value and exponential functions.
6. Sketch quadratic and absolute value functions without a calculator.
7. Sketch and interpret graphs representing real life situations (must be supplemented with HSPA speed and time graphs) (if time permits).

**CCCS:** 4.3.B.1, 2, 3, 4; 4.3.C.1; 4.5.A.1; 4.5.B. 1, 3; 4.5.C. 3, 4; 4.5.D.2; 4.5.E.1, 3; 4.5.F.3.

#### References:

1. Textbook, Chapter 9 sections 9.1 and 9.2 only.
2. Supplementary worksheets (attached).
3. *Starting Points: Alternative Lesson Opener* transparencies.
4. *Warm Up Transparencies and Homework Quiz* transparencies.  
*Chapter 9 Resource Book:* “Strategies for Reading Mathematics,” p.7; Real Life Applications: “Security and Law Enforcement” p. 19; “Centripetal Acceleration” p.41; Interdisciplinary Application: “Right Circular Cylinder”, p. 30.
5. *Electronic Lesson Presentations CD*
6. *HSPA Resource Book*.

## Algebra 1 CP B Curriculum Guide

### Unit 10: Percents, Discrete Math, Statistics, Probability, and Patterns

16 days

**Goals:** Students will use formulas, ratios and percents. Students will develop an understanding of and be able to apply concepts and techniques of data analysis, probability and discrete mathematics. Students will also be able to recognize patterns and find the  $n$ th term rule for sequences.

**Objectives:** Students will be able to:

1. Use ratio, percents and rates to solve problems (must be supplemented with HSPA problems).
2. Determine the mean, median, mode and range for a set of data (supplement with HSPA problems).
2. Determine the most appropriate measure of central tendency for a problem.
3. Display and interpret data in a variety of formats including frequency distribution, tables, histograms and scatter plots.
4. Use tree diagrams and other systematic forms of listing to solve problems.
5. Use the counting principle to solve problems.
6. Use factorial notation when appropriate.
7. Determine whether or not a sample is biased.
8. Find the probability of a single event, mutually exclusive events, and independent and dependent events.
9. Determine and compare experimental and theoretical probability.
10. Identify a pattern in a table of numbers, a sequence or a diagram.
11. Make predictions by using patterns in number sequences.
12. Find the  $n$ th term rule for sequences, linear and non-linear (see *Discovering Geometry* pages 52 – 62).

**CCCS:** 4.4.A.1, 2,4; 4.4.B.3, 4, 5; 4.4.C. 1; 4.5.A.1, 2, 3; 4.5.B. 1,2,3; 4.4.C. 3. 4.4.E. 1,3.

**References:**

1. *Cord Algebra* (1998), Chapter 7; or Prentice Hall Mathematics *Algebra 1* (2004), pages 210 - 226, pages 118 - 126.
2. Supplementary worksheets (attached).
3. *HSPA* Resource Book

## Algebra 1 CP B Curriculum Guide

### Unit 11: Rational Expressions and Equations (if time is available)

10 Days

**Goals:** Students will be able to solve proportions, simplify operations involving rational expressions, and solve rational equations.

**Objectives:** Students will be able to:

1. Solve proportions using the means and extremes property.
2. Demonstrate an understanding of simplifying rational expressions.
3. Multiply and divide rational expressions.
4. Add and subtract rational expressions with like denominators.
5. Add and subtract rational expressions with unlike denominators.
6. Solve rational equations.

**CCCS:** 4.1.B.1, 4; 4.3.B.1, 3; 4.3.C.1; 4.3.D.1, 2; 4.5.A.2, 5; 4.5.B.3, 4; 4.5.C.3; 4.5.D. 5; 4.5.E. 1, 3; 4.5.F.1, 2, 3,4.

#### References:

1. Textbook, Chapter 11, omit 11.2.
2. *Starting Points: Alternative Lesson Opener* transparencies.
3. *Warm Up Transparencies and Homework Quiz* transparencies.
4. *Chapter 11 Resource Book*: “Strategies for Reading Mathematics,” p.7,8; Real Life Applications: “Map” p. 18; “Back to School Shopping” p.44; “Taiwan Vacation” p. 68; Interdisciplinary Application: “Social Studies”, p. 43; “Health” p. 56; Chapter Review Games and Activities, p. 106.
5. *Electronic Lesson Presentations CD*
6. *Instant Replay Video Review Games* and corresponding black line masters from *Video Resource Book*: “Decoder”, p. 36-37
7. *HSPA Resource Book*.