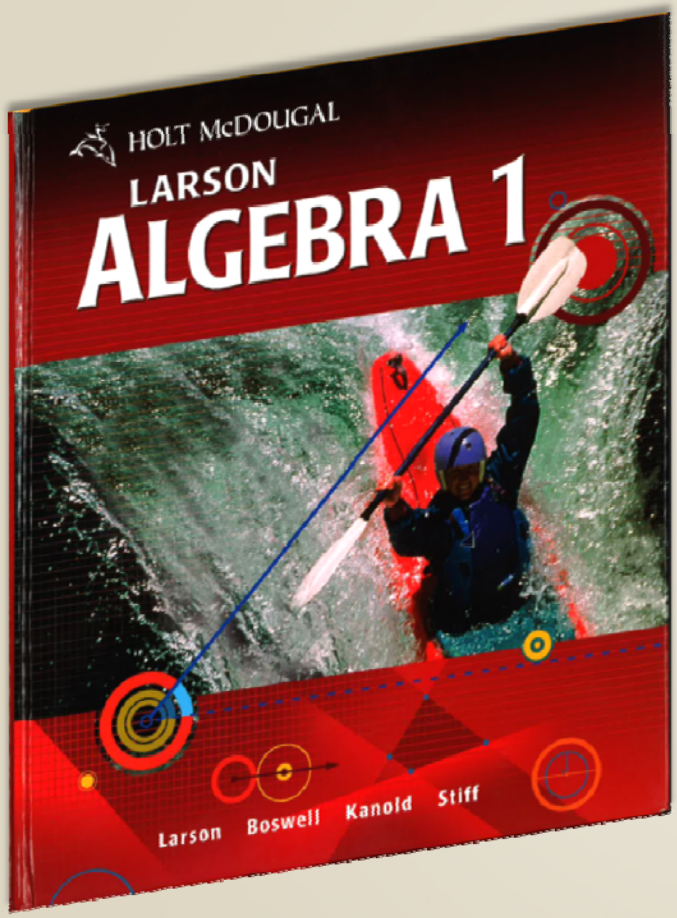
Larson Algebra 1



The activities of this session are designed to familiarize you with the mathematics materials that you will use as primary sources for your mathematics instructional program.

Goals of the Training

- To become familiar with the layout of the teacher resources provided for the program.
- To identify components of the program that will facilitate and enhance your instruction.

Exploration

Course Review for Algebra 1

Part 1: Materials Review

- Review adopted text.
- Explore print course materials.

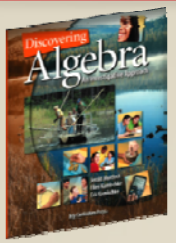
Part 2: Technologies

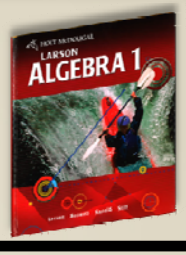
- Delve into the digital resources available.

Part 3: Standards & Planning

- Explore how the new materials support the DoDEA standards with your current teaching assignment.

Compare and Contrast





Teacher Edition of Textbook

Investigating Activity:

How would you use or have used this investigation to enhance instruction in and out of the classroom?

How does this compare to the investigating activities that you have already taught in the course with the Discovering Algebra textbook?

7.1 Solving Linear Systems Using Tables

MATERIALS • pencil and paper

QUESTION How can you use a table to solve a linear system?

A *system of linear equations*, or *linear system*, consists of two or more linear equations in the same variables. A *solution of a linear system* is an ordered pair that satisfies each equation in the system. You can use a table to find a solution to a linear system.

EXPLORE Solve a linear system

Bill and his brother collect comic books. Bill currently has 15 books and adds 2 books to his collection every month. His brother currently has 7 books and adds 4 books to his collection every month. Use the equations below to find the number x of months after which Bill and his brother will have the same number y of comic books in their collections.

$y = 2x + 15$ Number of comic books in Bill's collection

$y = 4x + 7$ Number of comic books in his brother's collection

STEP 1 *Make a table*

Copy and complete the table of values shown.

STEP 2 *Find a solution*

Find an x-value that gives the same y-value for both equations. 4

STEP 3 *Interpret the solution*

Use your answer to Step 2 to find the number of months after which Bill and his brother have the same number of comic books. 4 mo

x	$y = 2x + 15$	$y = 4x + 7$
0	15	7
1	? 17	? 11
2	? 19	? 15
3	? 21	? 19
4	? 23	? 23
5	? 25	? 27

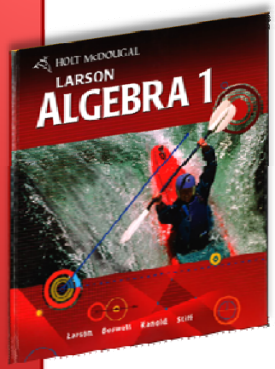
DRAW CONCLUSIONS Use your observations to complete these exercises

1. When Bill and his brother have the same number of books in their collections, how many books will each of them have? 23 books
2. Graph the equations above on the same coordinate plane. What do you notice about the graphs and the solution you found above? See margin for art; the graphs intersect at (4, 23), which is a solution of both equations.

Use a table to solve the linear system.

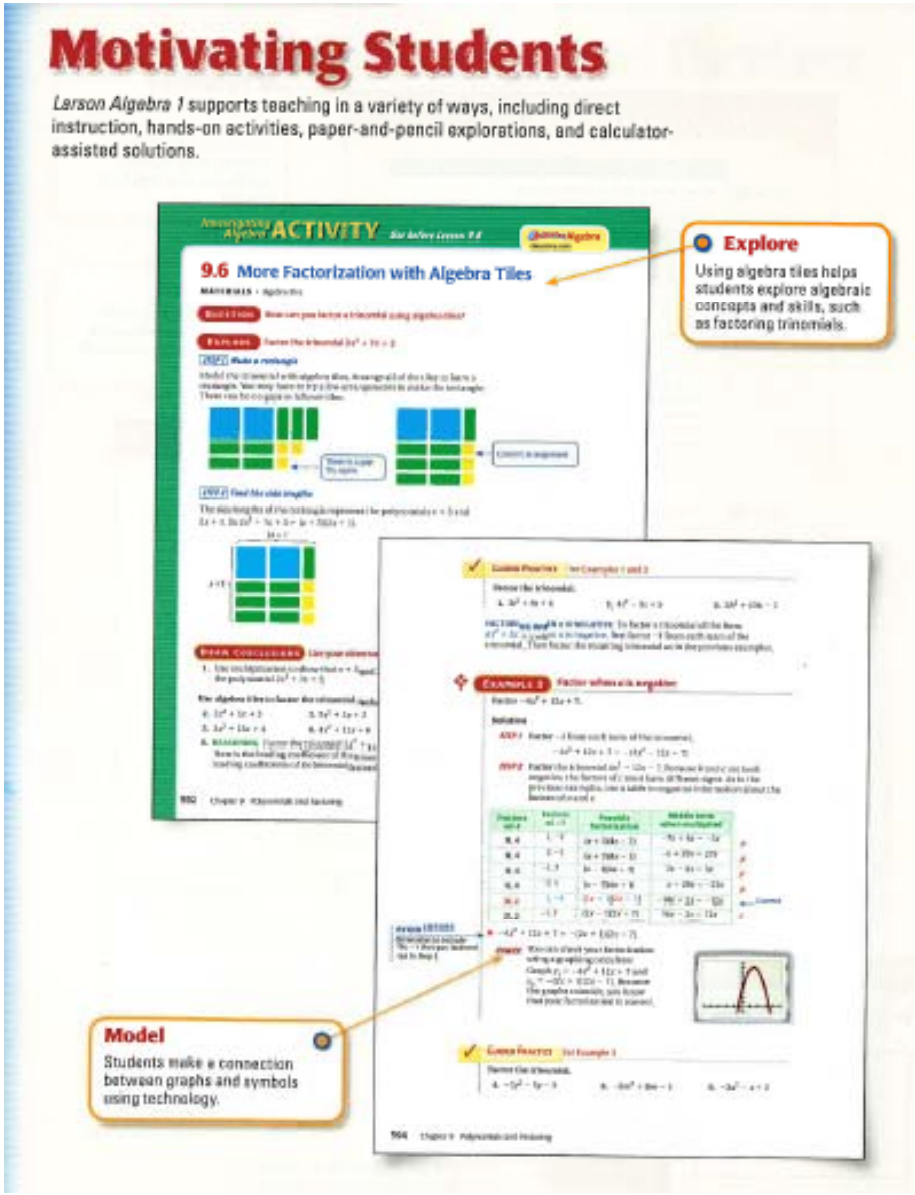
3. $y = 2x + 3$, $y = -3x + 18$ (3, 9)
4. $y = -x + 1$, $y = 2x - 5$ (2, −1)
5. $y = -3x + 1$, $y = 5x - 31$ (4, −11)

Larson Algebra 1

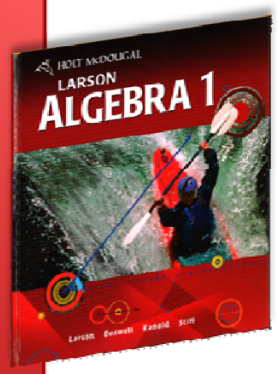


Real-World Examples:

The use of manipulatives aid in conceptual understanding and provide relevance to key mathematical ideas.

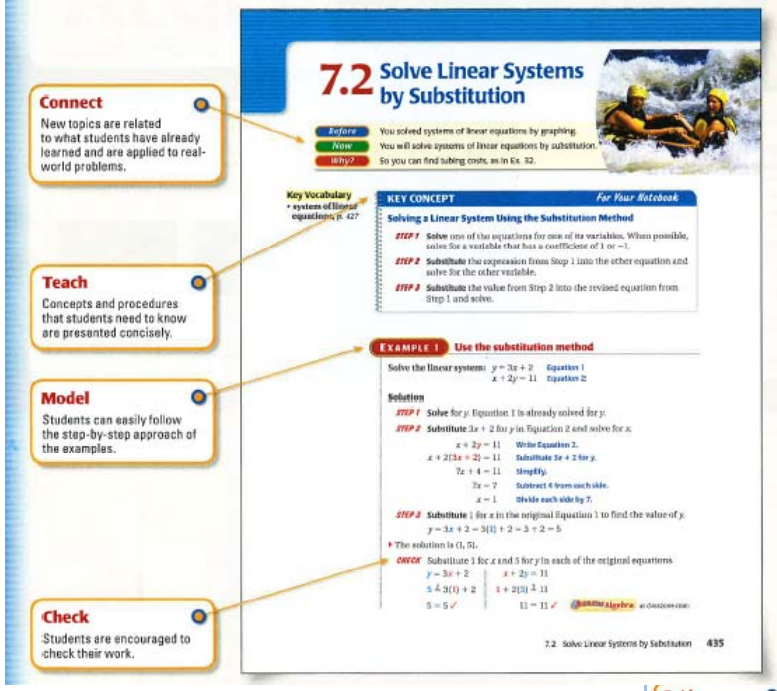


Larson Algebra 1



Clear Instruction

New concepts and methods are presented using clear, student-friendly language and visuals, and examples are carefully stepped out for easier understanding. Vocabulary and key ideas are highlighted.

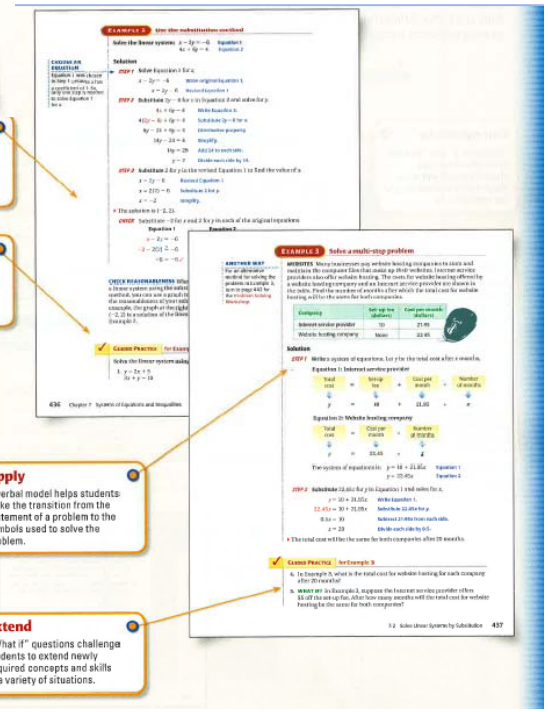


Connect
New topics are related to what students have already learned and are applied to real-world problems.

Teach
Concepts and procedures that students need to know are presented concisely.

Model
Students can easily follow the step-by-step approach of the examples.

Check
Students are encouraged to check their work.



Guide
Margin notes make students aware of reasoning, common errors, other solution methods, and so on.

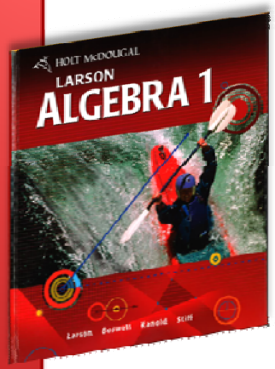
Practice
Students have the opportunity to immediately practice and apply the new skills they are learning.

Apply
A verbal model helps students make the transition from the statement of a problem to the symbols used to solve the problem.

Extend
"What if" questions challenge students to extend newly acquired concepts and skills to a variety of situations.

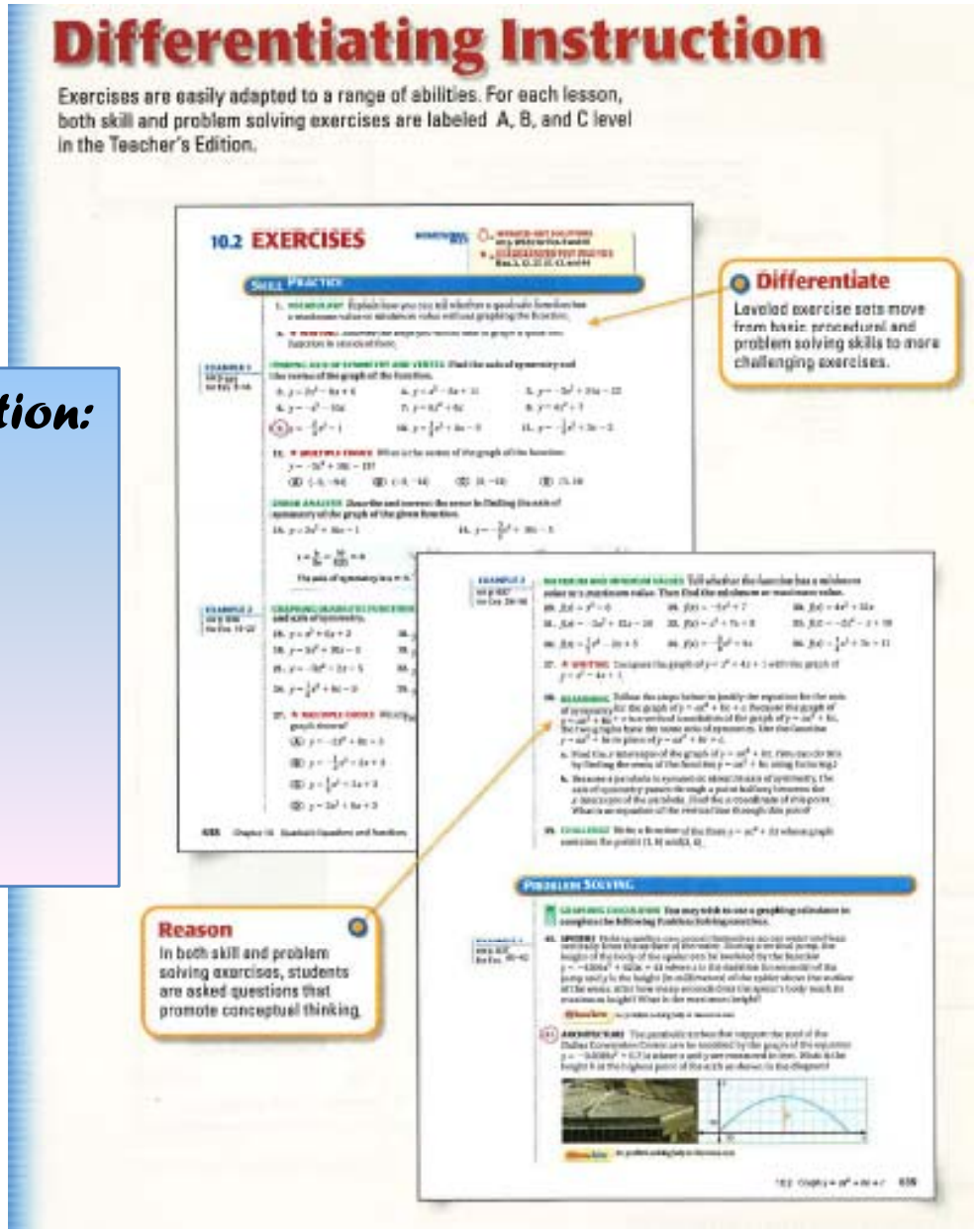
How do these features benefit instruction?

Larson Algebra 1



Differentiated Instruction:

How can students communicate their reasoning using these leveled exercises?



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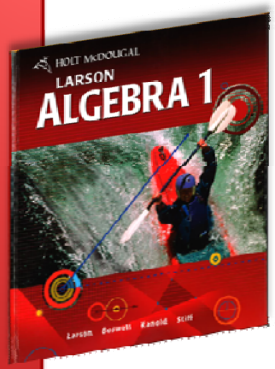
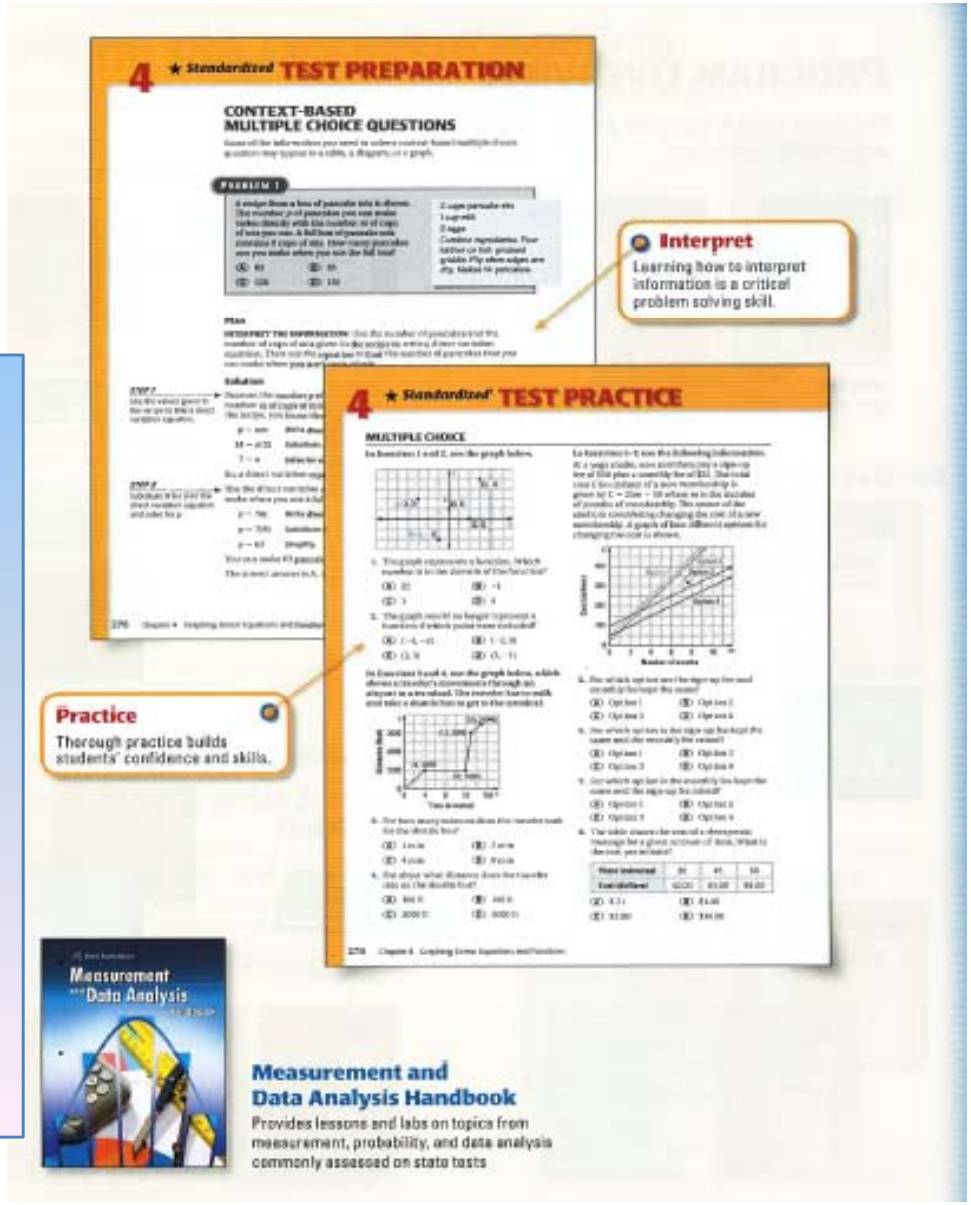


Assessments:

How can you use these features of your textbook to differentiate classroom instruction?

Can student choice be incorporated into this activity?



Technology

Mathematics-Algebra I

STUDENT MATERIALS FOR ALGEBRA I

CLIN	ISBN	SUPPLIES/SERVICES
A001	9780547315157	Algebra 1, Student Edition, 2011
A002	9780618736911	Algebra 1, Notetaking Guide
A003	9780618736942	Algebra 1, Practice Workbook
A004	9780547370040	Student @HomeTutor CD
A005	9780547315294	Algebra 1, eEdition Online

Digital Resources

TEACHER MATERIALS FOR ALGEBRA I

CLIN	ISBN	SUPPLIES/SERVICES
B001	9780547315393	Algebra I Teacher's Edition
B002	9780547315270	Algebra 1, EasyPlanner DVD-ROM
B003	9780547353548	Algebra 1, Worked-Out Solutions Key
B004	9780618736874	Notetaking Guide Teacher's Edition
B005	9780547353142	ExamView Assessment Suite CD-ROM
B006	9780618656196	High School Activity Generator CD-ROM
B007	9780547370019	Power Presentations: The Electronic Classroom CD-ROM
B008	9780547235677	Video Tutor with Practice DVD-ROM

Self-registration Blackboard Community – Curriculum Cycle

Online Resources

Go to Classzone.com.
YOU WILL NOT NEED TO LOG IN!

Subject: High School Math State: Virginia

Online Resources

Select the appropriate textbook.

Online Resources

Take some time to investigate the online resources available.

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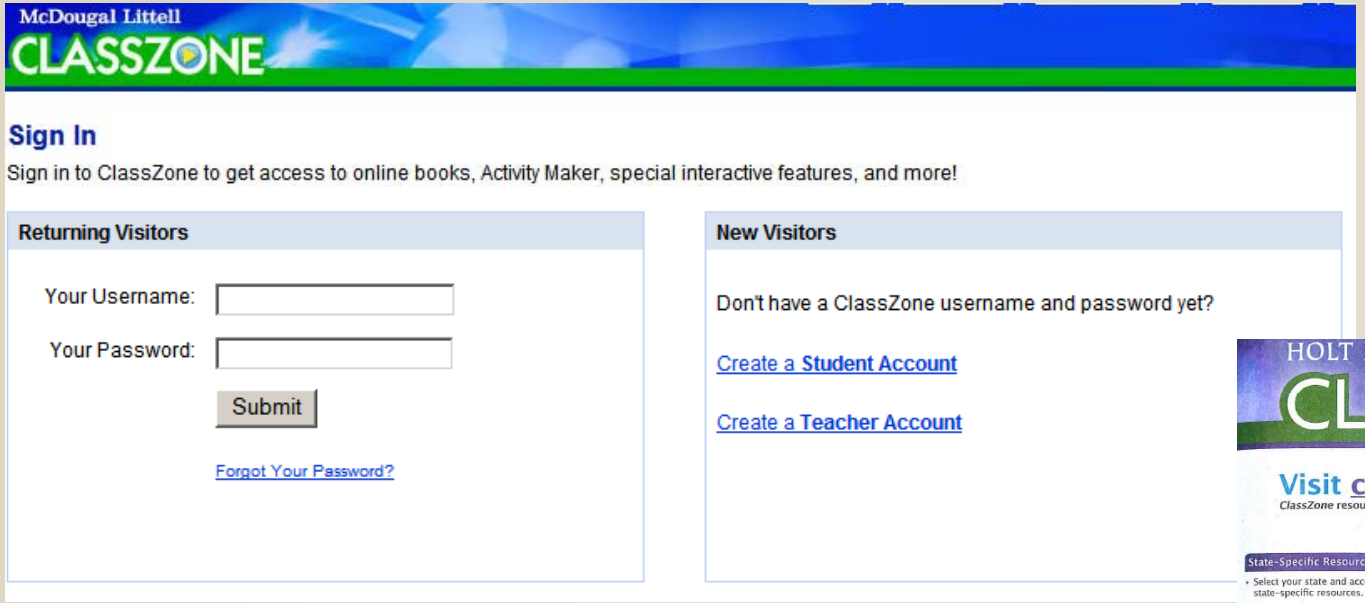
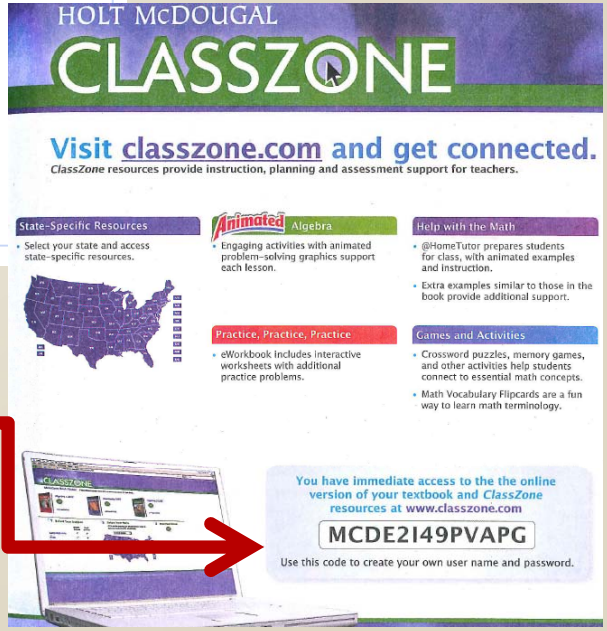


The code for registration is inside the front cover of your Teacher Edition.



Digital Resources

For Teachers:

- High School Activity Generator CD-ROM
- PowerPoint Presentations CD-ROM
- Video Tutor with Practice
- ExamView Assessment Suite

For Students:

- Student@HomeTutor
- eEdition

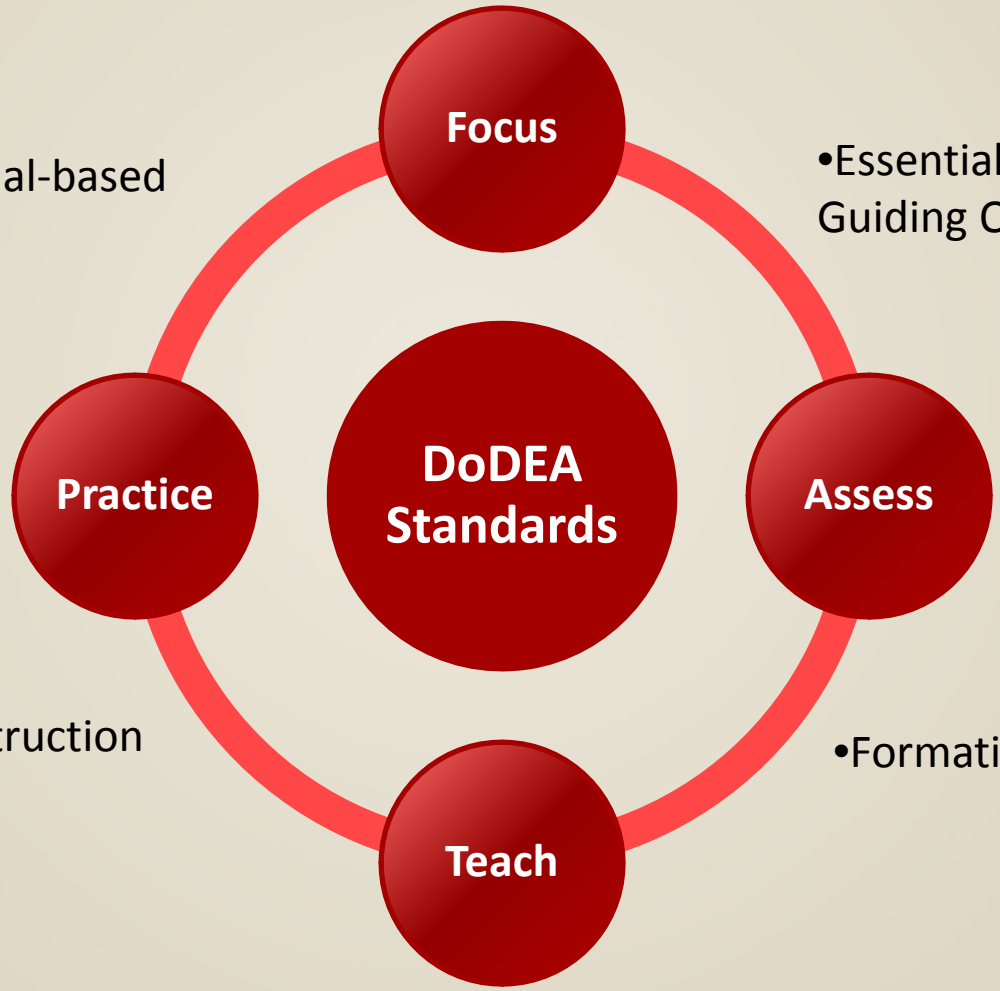
Both of these can be accessed online or from the CD-ROM.

Standards and Planning

Unpacking the Standards

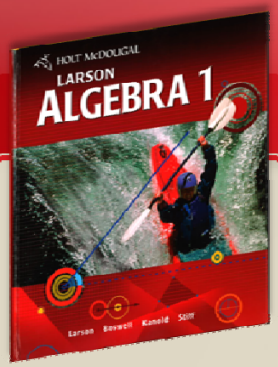
•Inquiry & Conceptual-based Learning

•Essential Understanding & Guiding Questions



•Differentiated Instruction

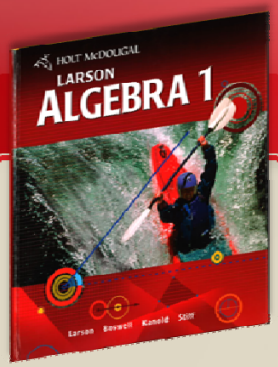
•Formative and Summative.



Standards and Planning

Use this standard…

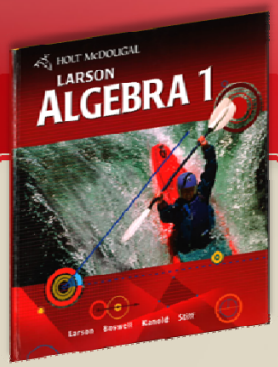
A1.3.12
Represent and solve problems that can be modeled using a system of linear equations and/or inequalities in two variables, sketch the solution sets, and interpret the results within the context of the problem.



Standards and Planning

…along with the Essential Understandings & Guiding Questions…

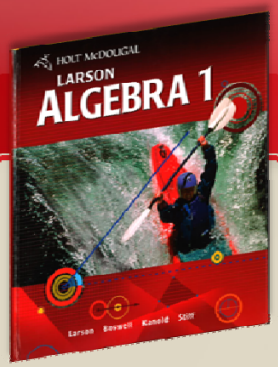
1. Represent and solve real-world and mathematical problems that can be modeled using systems of linear equations or inequalities with algebraic methods, using technology when appropriate.
   - Why are systems needed for some real-world problems?
   - When is technology appropriate for use?
2. Determine an approximate solution of a system of linear equations using the graphs of the corresponding lines.
   - How many solutions can a system of linear equations have?
3. Interpret the results of a solution of a system of equations or inequalities.
   - How is the solution related to contextual understanding of a real-life model?



Standards and Planning

…to write a sample lesson plan.

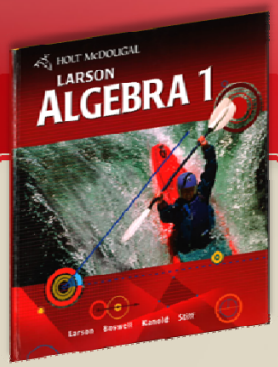
DoDEA Standard	Lesson and Objective	Essential Understanding	Activity	Assessment	Strengths and Challenges



Standards and Planning

Here's an example.

DoDEA Standard	Lesson and Objective	Essential Understanding	Activity	Assessment	Strengths and Challenges
Linear Equations and Inequalities: A1.3.6 Represent linear relationships graphically, algebraically (including the slope-intercept form) and verbally and relate a change in the slope or the y-intercept to its effect on the various representations;	**Lesson 5.1:** Write Linear Equations in Slope-Intercept Form (page 283-289) **Objectives:** *BEFORE*-you graphed equations of lines *NOW*-you will write equations of a line *WHY*-so you can model distances in sports, as in Ex. 52	**Essential Question:** How do you write an equation of a line in slope-intercept form? *Students will learn how to answer this question by using the slope and y-intercept or two points to write an equation of the line.*	**Investigating Algebra Activity:** Modeling Linear Relationships (page 282) *-students model a linear relationship using the perimeter formula* **Warm Up Exercises (page 283)** **Motivating the Lesson (page 284)**-Real World Connection **classzone.com** -interactive instructor -video tutor -animated algebra **Differentiated Instruction (page 285)** – readiness level **Graphing Calculator Activity (page 290-291)**-Investigating Families of Lines	**Formative:** **Investigating Algebra Activity:** Key Questions pg. 282 **Closing the Lesson (page 285)** – summarizing **Practice Worksheets** **Summative:** **Section Quiz** (classzone.com) **Exam View** **Practice Worksheets**	**Strengths:** **Standardized Test Prep:** embedded in examples and in lesson practice **Extra Examples**: additional support for struggling students ***Limited* Leveled Homework Assignments** **Avoiding Common Error Suggestions** **Teaching Strategy** **Challenges:** **Numerous Resources**-What is the best option for individual learner? **Limited Differentiation**



Closing

Two Stars and a Wish

- Write down two things that you learned or liked about the new Algebra 1.
- Something that you would like to learn more about.