Spotlight on Algebra is a Web-based course to help teachers of middle and high school algebra to improve their content knowledge and teaching strategies so that all students can learn successfully.

Spotlight on Algebra is complete and ready to use! SREB is ready to test the Web-based course for professional development and for pre-service teacher education.

Spotlight on Algebra, funded by the AT& T Foundation and SREB, was developed by a team of classroom teachers, university faculty and a graphic design specialist. This team understood what is needed for students to learn algebra. The team also developed a facilitator’s guide to support delivery of the online course.

Spotlight on Algebra involves substantial interaction between the facilitators and the teachers and among the teachers taking the course. The facilitators are qualified algebra teachers who have experience with teaching online. Facilitators have several responsibilities: managing the technology included in the course; creating a setting in which teachers ask questions to fully understand the content; managing and tracking the progress of the class; and helping teachers learn to teach algebra and algebra concepts more effectively.

Each lesson in this Web-based course consists of three parts:

- **Thinking about content** — The content of this course consists of topics typically taught in Algebra I courses. Each lesson begins with an overview of the key algebra concepts covered.

- **How do I teach this?** — A main focus of Spotlight on Algebra is to offer suggestions for teaching. In designing problem-solving strategies, this course incorporates the work of mathematics educators who stress the importance of helping students make sense of their tasks and use multiple strategies to solve algebra problems. The instructional strategies combine real-life problems with concrete models. Teachers learn to use pictures, diagrams, charts, tables and graphs in addition to symbolic notation, the traditional way of doing algebra. The course also suggests ways to use reading, writing, talking and listening to build students’ understanding of algebra concepts. Helping students translate mathematical ideas to real-life situations is critical in building their understanding of mathematics.
Helping students — In this portion of the lesson, teachers analyze student work — not only for the right answers but also for the kinds of obstacles that students encounter in trying to solve problems. The ultimate goal is to improve student learning.

Spotlight on Algebra includes quizzes to determine how well teachers have learned the content and teaching skills. The multiple-choice questions on algebra content are selected from algebra end-of-year tests in several SREB states. Scores on these test items are generated automatically. The questions on teaching skills require short responses written by the teacher; these questions are evaluated by course facilitators. Facilitators can review the sample responses in the Online Gradebook to help them in evaluating teachers’ responses.

Spotlight on Algebra is organized into nine “acts,” each of which addresses one or more algebra concepts in two to four “scenes.” The algebra content in the course was selected based on what is taught in most SREB states’ Algebra I courses.

The Web-based algebra course outline

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<thead>
<tr>
<th>Act</th>
<th>Scene</th>
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<tbody>
<tr>
<td>2. Solving First-Degree Equations</td>
<td>1. Solving Equations Involving Addition or Subtraction &lt;br&gt; 2. Solving Equations Involving Multiplication or Division &lt;br&gt; 3. Solving Multistep Equations</td>
</tr>
<tr>
<td>3. Graphing Linear Equations</td>
<td>1. The Rectangular Coordinate System &lt;br&gt; 2. Graphing Linear Equations &lt;br&gt; 3. Writing Linear Equations</td>
</tr>
<tr>
<td>5. Solving Linear Inequalities</td>
<td>1. Linear Inequalities in One Variable &lt;br&gt; 2. Compound Inequalities &lt;br&gt; 3. Absolute Value Equations and Inequalities &lt;br&gt; 4. Linear Inequalities in Two Variables</td>
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Spotlight on Algebra is intended to provide a Web-based course to improve mathematics teachers' algebra skills and knowledge. It also illustrates how the Web can be used to provide professional-development opportunities for veteran teachers and training for future teachers. Web-based courses allow educators to access courses and information that otherwise may not be available to them. For example, many mathematics teachers in the SREB region have not had the mathematics courses they need and have limited access to traditionally delivered courses that would improve their skills. The SREB Web-based algebra course is designed to help these teachers.

You are invited to see how this Web-based course can meet the needs of mathematics teachers. Using your computer browser (such as Internet Explorer, Netscape Navigator or Communicator), go to http://www.spotlight.sreb.org. Click on the Login button. Then type “TEST 001” for user name and “algebra” for password. Under My Courses, click on Spotlight on Algebra to enter the course. Click on the Course Material button to access course content. (For best viewing of the course, the computer screen area should be 1,024 by 768 pixels. This setting is located in the computer Control Panel's Display file under Settings.)

If you have questions about the course, the course development process or implementation of the course, please e-mail Bill Thomas at bthomas@sreb.org.

<table>
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| 6. Working With Systems of Equations | 1. Introduction to Systems of Equations and the Graphing Method  
2. Multiple Representations and the Substitution Method  
3. The Elimination Method |
| 7. Looking at Operations with Polynomials | 1. The Properties of Monomials  
2. Operations with Polynomials  
3. Factoring Polynomials |
| 8. Working With Radicals | 1. Introduction to Radical Expressions  
2. Radical Operations  
3. Pythagorean Theorem |
| 9. Solving Quadratics | 1. Graphing Quadratic Equations  
2. Solving Quadratic Equations  
3. The Quadratic Formula |