

ALGE-BLASTER!

Covers a Full Year of Algebra.

Plus!

♦
The World's
Best Selling
Algebra
Program!
♦



algebra

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Teaching Tools From Teachers

QUICK START

Apple II Family: Insert the program disk in drive 1; turn on the computer; follow screen prompts.

MS-DOS: Boot DOS 2.11 or higher. Insert Program Disk 1 in drive A, Disk 2 in drive B. At the A>, type **algebra**; press <Enter>; follow screen prompts. (Do not try to install to a hard disk using DOS copy commands. See p. 13.)

Macintosh: Boot with System 6.04 or higher. Insert the program disk and double-click the ABP program icon.

Sign In

Enter your name; press <Return>. If prompted, select date; press <Return>.

Select a Level and a Subject

Mouse: Point and click the **Level** menu; drag and release to select a level.

Select a subject from the **Subject** menu in the same way.

Keyboard (Apple II and MS-DOS): Press <Esc> to access the menu bar. Use → to access the **Level** menu and ↓ to select a level; press <Return>. Select a subject from the **Subject** menu in the same way.

Select an Activity

Mouse: Double-click an activity icon (picture) on the Main screen.

Keyboard (Apple II and MS-DOS): Use → to select an icon; press <Return>.

USING THIS MANUAL

- ✓ For a complete description of the program's features and activities, read the Overview on pages 1–10.
- ✓ Directions for using the program are separated into three chapters: (1) for MS-DOS computers, (2) for Macintosh, and (3) for the Apple II Family. See the chapter for your computer.
- ✓ Hard disk installation instructions can be found on page 13 for MS-DOS and page 39 for Macintosh.

EXIT Window
Insert Program
A:\ Enter
Algebra Enter
Follow
Screen

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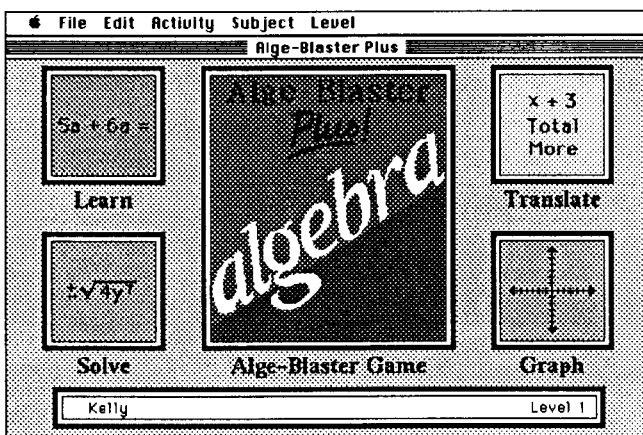
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ALGE-BLASTER PLUS – AN OVERVIEW

Welcome to *Alge-Blaster Plus*, a comprehensive algebra program designed by teachers for pre-algebra and algebra students. The program focuses on understanding the algebraic process and developing skills to solve problems. Specifically, its objectives are:

- ✓ to provide an instructive, interactive, and motivating format for improving algebra skills
- ✓ to help students master the basic steps in solving algebraic equations
- ✓ to prepare students to solve algebraic word problems
- ✓ to offer practice in basic graphing skills.

Main Screen –
Macintosh Version



Five learning activities help students understand the basics of algebra:

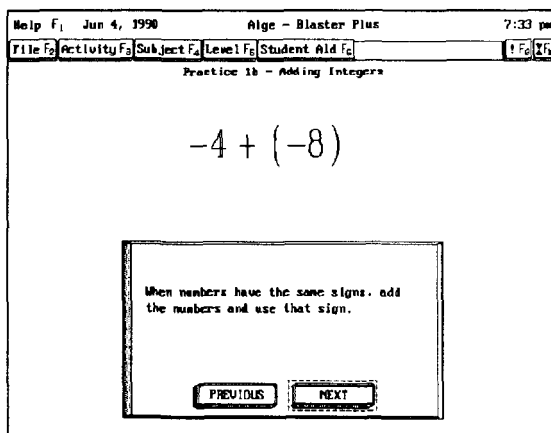
- **Learn** – Learn the steps to solve equations.
- **Solve** – Practice solving equations.
- **Translate** – Convert word expressions to algebraic expressions.
- **Graph** – Practice working with points and slopes.
- **Alge-Blaster Plus Game** – Protect the space station by applying basic graphing skills developed in the **Graph** activity.

Alge-Blaster Plus was designed to supplement classroom instruction and is especially effective in reinforcing material presented in class. It will also serve as an excellent review for students taking a College Board Exam or a higher-level math course. To use *Alge-Blaster Plus* successfully, a student should have already mastered the four basic math operations using whole numbers, fractions, and decimals.

Activity 1 – Learn

The objective of the **Learn** activity is to present a step-by-step approach to solving algebra problems. This interactive tutorial presents the fundamental steps students must learn and then provides guided practice in their application. Key algebraic terms and properties are introduced and defined.

Learn Activity –
MS-DOS Version



An example problem is presented with an explanation of each step and its solution. The student controls the pace of instruction and can review any of the steps. After the example problem is completed, the student can work three similar practice problems by following the program's prompts.

Skills Addressed in Activities 1 and 2

- ✓ Integers – adding, subtracting, multiplying, and dividing
- ✓ Order of Operations – using the rules to solve equations
- ✓ Monomials and Polynomials – combining and simplifying using the four basic operations
- ✓ Factoring – recognizing and applying fundamental forms
- ✓ Equations – evaluating expressions containing positive integral exponents, and linear equations containing integers, fractions, and decimals
- ✓ Systems of Equations – solving systems of linear equations
- ✓ Algebraic Fractions – combining and simplifying using the basic operations
- ✓ Radicals – simplifying and using the basic operations
- ✓ Quadratic Equations – solving by factoring and using the quadratic formula

Activity 2 – Solve

The objective of the **Solve** activity is to provide students an opportunity to reinforce the concepts and skills that they learned in the preceding activity. Students practice applying the steps as they solve problems on their own. In this activity, the student should solve the problems on paper, entering only the final answer for each problem.

Solve Activity –
MS-DOS Version

$$\frac{7a - 12}{4a^2} + \frac{a - 4}{4a^2}$$

$$\frac{8a - 16}{4a^2}$$

Congratulations!

Ctrl-F1 $\frac{\square}{\square}$ Ctrl-F2 $\sqrt{\square}$ Ctrl-F3 \square^\square Ctrl-F4 $\frac{\square}{\square}$ Ctrl-F5 $\frac{\square}{\square}$

If a student needs help with any of the steps, hints can be accessed. The first hint is a worded prompt such as “Combine like terms.” If the student needs more help, the corresponding step will be shown. Hints demonstrate the fundamental steps necessary to solve the problem.

Activity 3 – Translate

The objective of the **Translate** activity is to prepare students for solving algebraic word problems. In this multiple-choice activity, students learn to set up an expression or equation by translating words into an algebraic expression (or an algebraic expression into words). Students will learn the usefulness of variables and strengthen their understanding of the math symbols and vocabulary used in word problems.

Translate Activity –
Apple Version

$$x \div 25 = y \div 28$$

☐ A a number x divided by 25 is the quotient of a number y and 28

☐ B a number x diminished by 25 is 28 less than a number y

☐ C the quotient of 25 and a number x is a number y divided by 28

☐ D a number x divided by 25 is a number y diminished by 28

Great!

Students begin by translating simple phrases and advance to sentences involving multiple variables and operators commonly used in algebraic word problems. Phrases and expressions are presented in three levels of difficulty: Level 1, one operator; Level 2, two operators; and Level 3, an operator on each side of the equal sign.

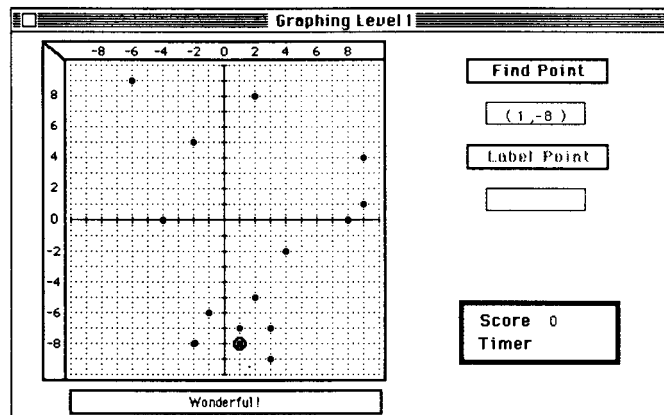
Skills Addressed in Activity 3

- ✓ Setting up algebraic expressions and equations
- ✓ Translating phrases involving worded expressions (such as *more than*, *decreased by*, *product of*, *quotient of*) into algebraic expressions
- ✓ Translating algebraic expressions involving one or two variables into words

Activity 4 – Graph

The objective of the **Graph** activity is to familiarize students with the coordinate system and slopes of lines. As students develop these graphing skills, they learn to better understand and visualize the mathematical relationships that can be illustrated on a graph.

Graph Activity –
Macintosh Version



In Level 1, students become familiar with the coordinate system by locating and labeling points on a graph. They will begin to draw conclusions about the points, realizing for example that $(0, 2)$ is on the y axis and $(-2, -2)$ is in Quadrant III. After students are comfortable with this task, they can challenge themselves by playing against the clock.

In Level 2, students learn to find the slope of a line given two points or find a second point on a line given one point and the slope. When a student correctly identifies the slope or second point, a line is drawn to visually reinforce the concept of slope.

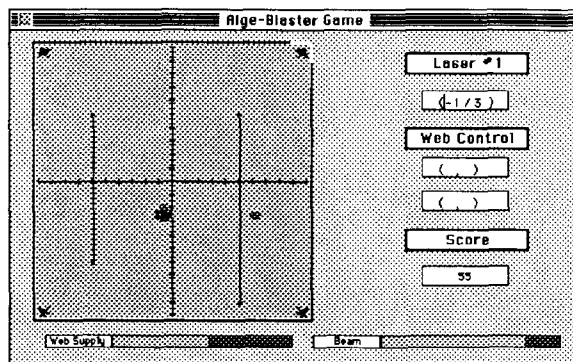
Skills Addressed in Activity 4

- ✓ Locating ordered pairs on a graph
- ✓ Labeling the ordered pair for a point
- ✓ Calculating the slope of a line
- ✓ Determining a point on a line, given one point and the slope

Activity 5 – *Alge-Blaster Plus Game*

The objective of the game is to provide students a fast-paced, motivating format for reinforcing the new graphing skills that they've learned.

*Alge-Blaster Plus Game –
Macintosh Version*



The object of the game is to protect your space station from asteroids. Use a space web to block the path of an asteroid, or blast it with a laser beam. To put up a space web, decide where to place it, quickly estimate coordinates, and enter two ordered pairs for that location. The line drawn between these points will act as a barrier. To aim the laser and blast an asteroid, enter a slope. You must understand the relationship between the slope of a line and its angle to be successful.

The game's level of difficulty automatically increases as the student experiences success. At higher levels, more asteroids threaten the space station. A student can choose to start at any level.

Skills Addressed in Activity 5

- ✓ Estimating the location of coordinates on a graph
- ✓ Estimating and visualizing the slope of a line
- ✓ Developing strategies for protection of the space station

Scoring


After each activity (except the **Learn** activity), a scoreboard will appear. In the **Solve** and **Translate** activities, scores are percentages of problems correct out of those attempted. In **Graph**, 20 points are earned for a correct answer on a first try, 10 points on a retry. When a student plays against the clock, 10 points are earned for each second remaining after the student answers correctly.

In Level 1 of the *Alge-Blaster Plus Game*, a player receives 25 points for exploding an asteroid or bouncing it off a space web. The number of beams remaining in the lasers are awarded as bonus points at the end of the level. As you advance to a higher level, a flying object will cross the screen. To earn additional points, hit the object twice with the laser. Scoring at higher levels increases proportionately.

Options

Sound and Graphics may be switched on or off anytime except during the game. Options in **Translate** and **Graph** can be changed while using those activities by selecting **Options** from the Activity menu.

Help/Student Aid

On-line help is available from the **Student Aid** menu (MS-DOS), the  menu (Macintosh), and the **Help** menu (Apple II):

- ✓ **Info** – information about keystrokes necessary for the current activity (This menu item is called **Help** in the Mac version.)
- ✓ **Terms** – a list of algebraic terms and definitions
- ✓ **Hints** – for **Solve** (**Practice with Help** option)
- ✓ **Grid** – lines like graph paper for **Graph** (In the Macintosh version, Grid can be found in the Activity menu.)

Editor

The *Alge-Blaster Plus* Editor is a valuable teaching tool which greatly expands the range of the program. Complete instructions for using the Editor may be found starting on page 28 for MS-DOS, page 48 for Macintosh, and page 67 for the Apple version.

Printing

Student records, scoreboards and certificates may be printed after completing any activity except the **Learn** activity.

Teaching Tips

Learn and Solve

- Use a number line to introduce addition and subtraction of integers. Once students understand the concept, they will have the background necessary to use the rules introduced in most textbooks and in *Alge-Blaster Plus*.
- Discuss “real world” situations which require the addition and subtraction of integers. Gain and loss of football yardage and deposit and withdrawal of money from a bank account are concrete experiences to which most students can relate. Encourage them to think of additional examples.
- Use a two-sided balance to visually reinforce the Addition Property of Equations. If you add some weight to one side, the same amount of weight must be added to the other side in order for the scale to stay balanced.
- Emphasize the importance of checking answers. Answers can be checked quickly by substituting the solution for the value of the variable into the original equation.
- Relating addition and subtraction of radicals to combining like terms will help students avoid the common error of adding the numbers under the radical sign.

Translate

- Ask students to make a list of key words found in word problems in their textbooks. Have them group the words by operation (e.g., *plus* and *increase* are addition words).
- Review the Commutative Property so that the students will remember that order is not important in addition and multiplication. Emphasize that the Commutative Property does not apply to subtraction and division by having the students see what happens when they switch the order.

- In Level 2, *Alge-Blaster Plus* uses parentheses in those expressions where they are absolutely necessary. Also, optional parentheses are sometimes used for additional clarity. Challenge students to discover which parentheses are necessary by changing the position of the parentheses or by working the problems without parentheses.
- Have students write translation problems for one another. Creating problems and three good distractors (wrong answers) will help students understand the process of translating phrases and expressions.

Graph

- Discuss common uses of graphs and encourage students to think of examples.
- Ask students to create their own graph by gathering data about their classmates (number of people in their families, birthdays, etc.) and plotting this data.
- When working with Level 1 – Find point, have students look at the given coordinate and guess in which quadrant the point will be, then verify their estimates.
- When working with Level 1 – Label point, have students draw conclusions about a selected point, such as whether the x and y values are positive, negative, or zero. Students can use the program to verify their conclusions.
- When working with Level 2, encourage students to make discoveries about slopes. Students may discover that a line with a slope of $\frac{4}{5}$ is the same as $-\frac{4}{-5}$ and $\frac{16}{20}$. They can practice estimating the slope of a line by noticing that its rise is greater or less than its run, then deciding whether its slope is negative, positive, or zero. Have students check the accuracy of their estimates by using the program.

HOW TO USE THE MS-DOS VERSION

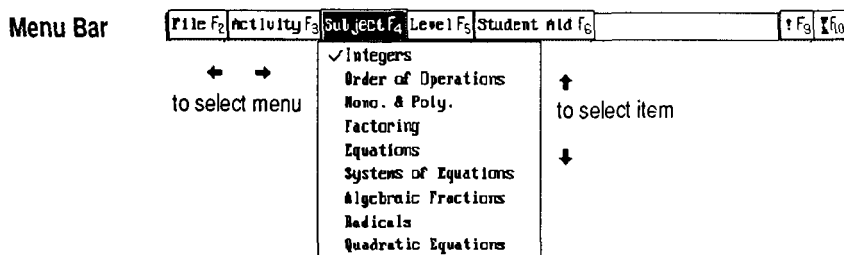
(Do not install on a hard disk using DOS copy commands. See page 13.)

System Requirements

- ✓ IBM/Tandy (or MS-DOS computer) with 512K
- ✓ CGA, EGA, MCGA, VGA, TGA, or Hercules card
- ✓ DOS 2.11 or higher
- ✓ printer, mouse (optional)

Moving Around in the Program

Alge-Blaster Plus utilizes the Tandy DeskMate Interface which allows easy access to all menu items using mouse or keyboard. Menus are located on the menu bar at the top of the Main screen. A grayed item is temporarily unavailable. For example, the **Graph** activity has only two levels, so Levels 3 and 4 appear dim when that activity is selected. For a description of Main screen menus, see pp. 33–34.



Selecting a Menu Item Using the Keyboard

- Press the function key (F2–F6, F10) for the menu title you wish.
- Use ↓ and ↑ to highlight the desired item; press <Enter>.

Selecting a Menu Item Using a Mouse

- Point to a menu title and click; the menu will drop down.
- Hold down the mouse button and drag the pointer downward to highlight an item. Release the button to select it.

Using Accelerator Keys

Some menu items are followed by <Ctrl> and a letter (e.g., <Ctrl>E). These represent keyboard shortcuts. To use the shortcut feature:

- Press <Ctrl> and the letter key at the same time.

Making Other Choices Using the Keyboard

- When options or choices on the screen are boxed, <Tab> between fields (boxes); use ↑ and ↓ to move the cursor within a field; press <Enter> when input is complete.
- When input is required in more than one place on a screen (as in Setup or an activity option box), use ↑ or ↓ to move the cursor and <Tab> between fields. Type in information or press <Space> to mark. Press <Enter> when all input is complete.
- To make button selections (i.e., when choosing Record Keeping options), use ➡ to place the cursor under your selection; press <Space> to activate it. Press <Enter> or click OK.

Making Other Choices Using a Mouse

- When options or choices on the screen are boxed, point and click the box of your choice.

- When input is required in more than one place (as in Setup or an activity option box), point and click to move the cursor or make selections. When all input is complete, click OK.

Installing the Program on a Hard Disk

Do not use DOS commands to install or remove files. Before installing the program on your hard disk, please run the program from the floppy drive. (See pp. 14–16.) After you have verified that the program runs correctly from your floppy drive, follow these directions to install *Alge-Blaster Plus* to your hard disk:

- Start the hard disk as usual.
- Insert the *Alge-Blaster Plus* disk (5 1/4" – use Program Disk 1; 3 1/2" – use Program Disk) into a floppy drive.
- At the prompt, type **a:** or **b:** and press <Enter>. You must log on to the drive that the Program Disk is in.
- At the prompt, type **hinstal c:\algebra** and press <Enter>. You may install to a hard drive of any name or a subdirectory within an existing directory, e.g., **hinstal d:\educ\algebra**.

If you have any problems, see Troubleshooting, pp. 35–36 and 75.

If your computer uses the Tandy DeskMate Desktop interface, see your DeskMate User's Reference to install the program from the Desktop.

To remove the program from your hard disk:

- Put the *Alge-Blaster Plus* Program Disk in drive A.
- At the prompt, type **a:** or **b:** and press <Enter>. You must log on to the drive that the Program Disk is in.
- At the prompt, type **uninstal c:\algebra** and press <Enter>. If you have installed to a hard drive of another letter designation

or to a subdirectory, be sure to type the complete pathname, for example **uninstal d:\educ\algebra**.

Starting the Program

Tandy Note: To run on a Tandy 1000 TL, 1000 SL, or 1000 RL, you will need to run from the DeskMate desktop. Consult your DeskMate User's Reference for detailed information on running an application from the desktop.

From Your Hard Disk

- Start your computer as usual, from the hard disk.
- At the prompt, type **cd algebra** and press <Enter>. This will access the algebra subdirectory.
- At the prompt, type **algebra** and press <Enter> to start the program. Now turn to **Signing In** on page 16.

Using One 5 1/4" Drive

- Start the computer using DOS 2.11 or higher.
- Insert Program Disk 1 into drive A.
- At the A>, type **algebra** and press <Enter>.
- When the screen displays the following message:

*File Not Found
Unable to locate file DMCSR.RRS
Press Enter to search entire system,
or Esc to cancel system search.
<O>k, <C>ancel....*

remove Program Disk 1 from drive A; insert Program Disk 2 into drive A; press <Enter>.

- If the message is repeated, press <Enter> again.
- When the screen displays the File Not Found message:

*Unable to locate file ALGEBRA.PDM
Press Enter to search entire system,
or Esc to cancel system search.,*

remove Disk 2 and insert Disk 1 into drive A; press <Enter>.

- If the message is repeated, press <Enter> again.
- When the screen displays the Insert Disk message:

Please insert the Alge-Blaster Plus Data Disk.,

remove Program Disk 1 from drive A; insert the Data Disk in drive A; press <Enter>. Now turn to **Signing In** on page 16.

Using Two 5 1/4" Drives

- Start the computer using DOS 2.11 or higher.
- Insert Program Disk 1 into drive A.
- Insert Program Disk 2 into drive B.
- At the A>, type **algebra** and press <Enter>.
- If you get the message:

File Not Found

Unable to locate file DMCSR.RRS

*Press Enter to search entire system,
or Esc to cancel system search.*

<O>k, <C>ancel...,

remove Program Disk 2 from drive B and follow the instructions for using one 5 1/4" drive.

- When the screen displays the Insert Data Disk message:

Please insert the Alge-Blaster Plus Data Disk.,

remove Program Disk 2 from drive B; insert the Data Disk into drive B; press <Enter>. Now turn to **Signing In** on page 16.

Using One 3 1/2" Drive

- Start the computer using DOS 2.11 or higher.
- Insert the Program Disk into drive A.
- At the A>, type **algebra** and press <Enter>.
- When the screen displays the Insert Data Disk message:

Please insert the Alge-Blaster Plus Data Disk.,

remove the Program Disk from drive A; insert the Data Disk in drive A; press <Enter>. Now turn to **Signing In** on page 16.

Using Two 3 1/2" Drives

- Start the computer using DOS 2.11 or higher.
- Insert the Program Disk into drive A and the Data Disk into drive B.
- At the prompt, type **algebra** and press <Enter>. Now read **Signing In** below.

Using One 3 1/2" and One 5 1/4" Drive

- Start the computer using DOS 2.11 or higher.
- Insert the 3 1/2" Program Disk and the 5 1/4" Data Disk into the drives.
- If your 3 1/2" drive is drive A, type **a:** and press <Enter>. If it's drive B, type **b:**.
- At the prompt, type **algebra** and press <Enter>. Now read **Signing In** below.

Note: If the program still does not load, there may be an incompatibility between the graphics display mode the program is using and your graphics adaptor. You can correct this manually; see Troubleshooting for Starting the Program, pp. 35–36.

Signing In

Now that the program has been loaded, begin by typing your name into the box that appears.

- Type a name (up to 8 characters); press <Enter>.

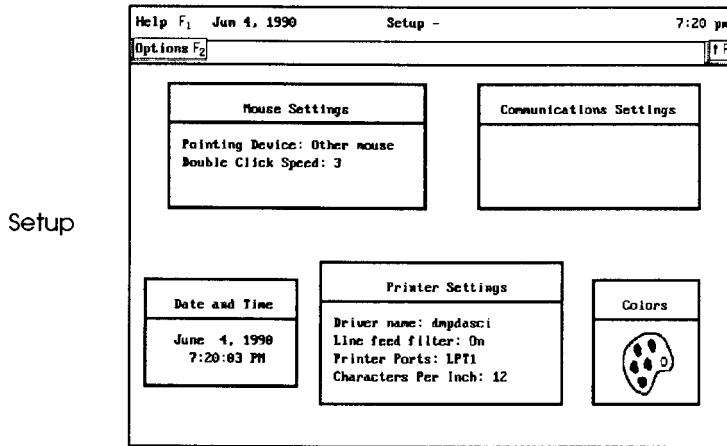
Using Setup and Its Options

The options in Setup allow you to customize your Program Disk:

- Select **F10**. Press **↓** once and then press <Enter>. The Setup screen will appear.

If you wish to change any information on the Setup screen:

- Access the **Options (F2)** menu.
- Select the item you wish to change. A dialog box will appear in which you may indicate your choices.



The Mouse Option allows you to select a type of pointing device and a double-click speed.

- Select a Pointing Device type. (Select a serial mouse port if you chose Serial Mouse.)
- Select a double-click speed; press <Enter> or click OK.

The Printer Option must be set to **ASCII**. This is the only printer driver the program uses. It supports all printers.

- Turn the Line Feed Filter box on or off by highlighting and pressing <Space>.
- Select the number of characters per inch and a Printer Port; press <Enter> or click OK.

The Color Option allows you choices which depend on the type of video card in your computer. (These color changes are temporary and must be reset each time you use the program.)

The Date and Time Option allows you to change the date and time without exiting to DOS.

- Enter the correct date and time; press <Enter> or click OK.

The Communications Settings cannot be changed.

To leave Setup, select **Exit** from the Options menu or press <Esc>.

Using the Activities

The five *Alge-Blaster Plus* activities are represented by icons (pictures) on the Main screen. To access an activity:

- Highlight an icon by using keyboard arrows and pressing <Enter>, or double-click the desired icon with the mouse.

To quit an activity:

- Press <Esc> or select **Stop** from the Activity menu.

Activity 1 – Learn

This activity consists of examples and practice problems.

- Highlight the **Learn** icon on the Main screen.
- Select a **Subject** from the Main screen's Subject menu.
- Select a **Level** from the Level menu.
- Press <Enter> or click the **Learn** icon.

The first example problem will appear on the screen.

- Study the example problem and the text that appears below it. Select **Next** when you are ready to continue.
- Study the first step and the explanation of how this step was reached; select **Next** to continue.
- Continue viewing the demonstration steps in this manner. The

number of steps in each example problem varies. If you want to review any of the steps in the problem, select **Previous**.

After the example problem, the first of three practice problems will be presented along with instructions for the first step.

- Read the practice problem and the instructions for the first step; select **Next**.
- Enter the solution to the first step; press <Enter>. (Use <**Back-space**> to erase.) You have two opportunities to answer correctly. Otherwise, the correct answer will be supplied.

Learn Activity

Help F ₁	Jun 4, 1990	Alge - Blaster Plus	7:46 pm
File F ₂	Activity F ₃	Subject F ₃	Level F ₃
Student Aid F ₃			

Practice 1b, Step 1

$$\frac{7a - 12}{4a^2} + \frac{a - 4}{4a^2}$$

$$\frac{8a - 16}{4a^2}$$

Congratulations!

Ctrl+F1 \pm Ctrl+F2 $\sqrt{}$ Ctrl+F3 $\frac{\Box}{\Box}$ Ctrl+F4 $\frac{1}{2}$ Ctrl+F5 $\frac{1}{3}$

- Press <Enter> when you are ready to go to the next step.
- Study the second step; press <Enter> or click OK.
- Enter or complete the second step solution; press <Enter>.
- Continue completing steps until you solve the problem.

Note: Some answers may require the use of one of the special algebraic characters which you see displayed at the bottom of the screen. See page 32 for complete instructions on how to use these characters.

If you want to review any of the steps, press **<Ctrl> R**. Select **Previous** to continue moving backward through the steps or select **Next** to move forward through the steps of the problem.

A second example problem and three more practice problems will be presented. After completing the practice problems, press any key to return to the Main screen.

Activity 2 – Solve

This activity reinforces the concepts and skills studied in Learn.

- Highlight the **Solve** icon on the Main screen.
- Select a **Subject** from the Subject menu.
- Select a **Level** from the Level menu.
- Select **Start with** from the Activity menu if you want to begin with a particular problem.
- Press **<Enter>** or click the **Solve** icon.
- Select an option for Solve: either **Practice with help** or **Solve on your own**.
- Study the problem at the top of the screen.

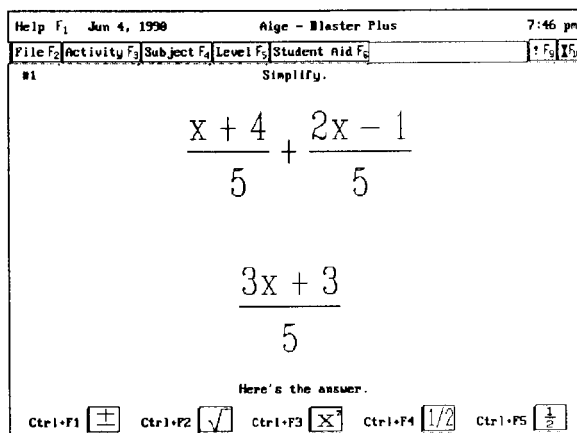
If you selected **Practice with help**, you can ask for a hint.

- Enter the answer if you can; press **<Enter>**.
- If you want help either before or after attempting to answer, select **Hints** from the Student Aid menu or press **<Ctrl>H**. If you'd like more help, select **Next** to see the next hint. You may view a prior hint by selecting **Previous**. To leave the hint box at any time, select **OK**.
- Enter the final answer and press **<Enter>**. You have two opportunities to answer correctly before the answer is supplied for you.
- Press **<Enter>** to go to the next problem.

If you selected **Solve on your own**, hints are not available.

- Solve the problem using pencil and paper if necessary.
- Type in the answer and press <Enter>. You have two opportunities to answer correctly before the answer is supplied.

Solve Activity



- Press <Enter> to go to the next problem.
- There are between 10 and 15 problems in each file. When you finish the problems and the scoreboard appears, press any key to return to the Main screen.

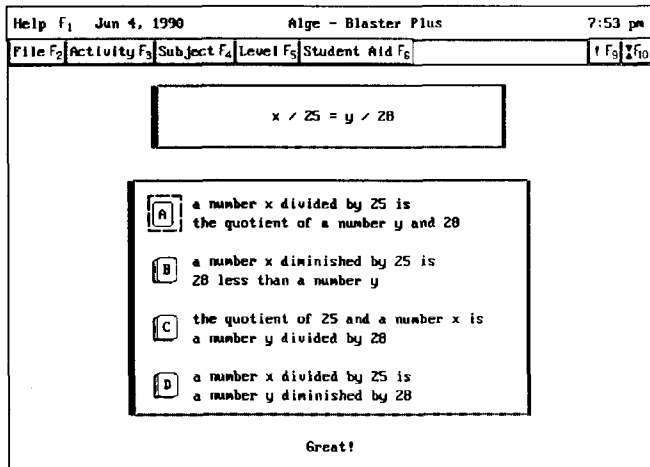
Activity 3 – Translate

In this multiple-choice activity, you will translate words into algebraic expressions or algebraic expressions into words.

- Highlight the **Translate** icon on the Main screen.
- Select a **Level** (1–3) from the Level menu. (**Note:** The Subject menu is not used with this activity.)
- Press <Enter> or click the **Translate** icon.
- Select a format option: **Choose Equation**, **Choose Phrase**, or **Mixed**.
- Read the phrase or equation at the top of the screen; then type or click the letter of the correct answer choice, or select it by

using \uparrow and \downarrow and pressing <Enter>. You have two opportunities to answer correctly before the answer is supplied.

Translate Activity



- Press <Enter> to go to the next problem.
- When you finish and the scoreboard appears, press any key to return to the Main screen.

Activity 4 – Graph

In this activity, you will become familiar with the coordinate system and the slopes of lines.

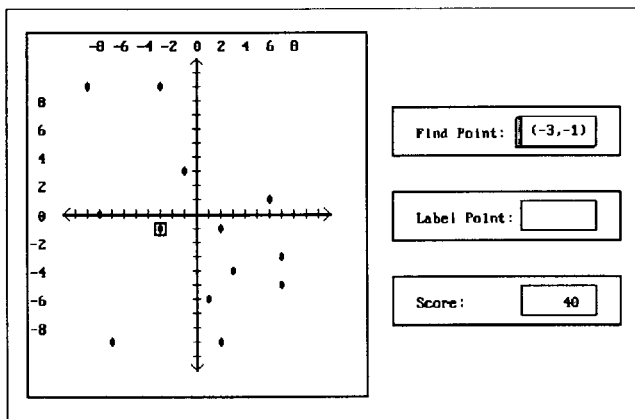
- Highlight the **Graph** icon on the Main screen.
- Select a **Level** (1 or 2) from the Main screen's Level menu.
(Note: The Subject menu is not used with this activity.)
- Press <Enter> or click the **Graph** icon.

Level 1

- Select an option: **Find Point**, **Label Point**, or **Mixed**.
- To turn on the timer, click on the box, or press \uparrow or \downarrow to move to the timer box and <Space> to select.
- Select OK to accept option choice(s).

- If you would like a grid background, select **Grid** from the Student Aid menu.

Graph Activity – Level 1



Find Point

- Look at the ordered pair displayed in the Find Point box at the right. Find the corresponding point on the graph.
- Click or use arrows to move the selection box, then click again or press <Enter> to select the point on the graph which corresponds to the ordered pair in the Find Point box.
- Press <Enter> to go to the next problem.

Label Point

- Look for the boxed point on the graph.
- Enter the corresponding ordered pair in the Label Point box on the right side of the screen; press <Enter>. (The comma will be supplied for you. To enter (3,4), type 3 and then 4.)
- Press <Enter> to go to the next problem.

Mixed

Mixed is a combination of the Find Point and Label Point options.

Level 2

- Select **Find Point**, **Find Slope**, or **Mixed**.
- To turn on the timer, click on the box, or press \uparrow or \downarrow to move to the timer box and **<Space>** to select.
- Press **<Enter>** or click OK to accept option choice(s).
- If you would like a grid background, select **Grid** from the Help menu.

Find Point

- Look at the coordinates shown in the Point and Slope boxes.
- Use the slope and point 1 to find point 2. Use the arrow keys or mouse to move the selection box from point 1 to point 2. For example, if the slope is $4/5$, move the box up 4 points and over 5 points to the right.
- Press **<Enter>** or double-click when the selection box is at the correct point.
- Press **<Enter>** to go to the next problem.

Find Slope

- Find the slope between the two points displayed on the graph.
- Calculate the slope of the line between the two points by using the point slope formula ($\text{slope} = y_2 - y_1 / x_2 - x_1$). For example, if the first point is (3,2) and the second point is (5,4), the slope would be $4 - 2 / 5 - 3 = 2 / 2 = 1$. Enter the slope with a slash (/) between the two numbers (rise/run); press **<Enter>**.
- Press **<Enter>** to go to the next problem.

Mixed

Mixed is a combination of the Find Point and Find Slope options.

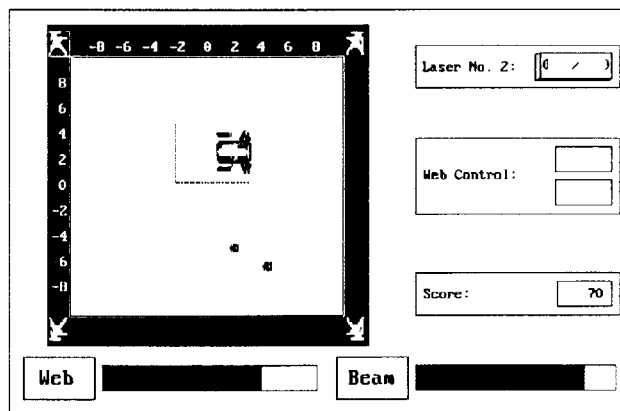
In Graph, you have two opportunities to answer correctly before the answer is supplied. If the timer is on, you have 20 seconds to answer.

Activity 5 – *Alge-Blaster Plus* Game

In this arcade-style game, you will use your graphing knowledge to defend your space station against asteroids.

- Highlight the *Alge-Blaster Plus* Game icon on the Main screen.
- Select a **Level** (1–4) from the Level menu.
- Press <Enter> or click the *Alge-Blaster Plus* Game icon.
- Select **Normal** game speed or **Fast** game speed from the Activity menu; press <Enter>.

Alge-Blaster Plus
Game



Shoot a laser beam to destroy the asteroids before they hit your space station. To blast an asteroid with a laser:

- Select (highlight) a laser using \uparrow and \downarrow . There is a laser in each corner of the space field.
- Enter a slope (e.g., $2/3$); press <Enter>. A laser beam will be launched at an angle equal to the slope you entered. Lasers 1 and 3 require a positive slope, 2 and 4 require a negative slope. Each laser can emit 20 beams. (The amount remaining is shown at the bottom of the screen.) **Hint:** If you are having trouble visualizing the direction of a slope, enter a series of slopes with similar coordinates. For example, enter $5/1$, $5/2$, $5/3$, and $5/9$ and notice how the slope changes in direction.

Space webs can help you protect your space station by blocking the path of the asteroids. To create a space web:

- Press <Tab> to select the **Web Control** box.
- Decide where you want to put the web and enter a coordinate pair for the first point.
- Enter a coordinate pair for the second point; press <Enter>. A line, or space web, will be drawn between these points. Asteroids will bounce off this barrier and explode. The space web is temporary and will disappear after 25 seconds. (Space web remaining is indicated at the bottom of the screen.)

If your space station is destroyed three times, the game is over. If you successfully defend your station, you will advance a level. Levels become increasingly difficult (more asteroids appear at one time).

Bonus

As you advance to a higher level, a laser will be selected for you and an object will cross the screen. To earn bonus points, hit the flying object twice. You'll also earn points for any unused beams and webs.

Using Record Keeping

This feature allows you to save your scores and keep a cumulative record. First, prepare a disk on which to save student records.

- Format a disk using DOS.

Now start the *Alge-Blaster Plus* program and sign in.

- Select **Record Keeping** from the File menu. (A check in front of the item on the menu indicates the feature is **on**. Selecting this item again will turn it off.)
- Insert your records disk into any drive.

- In the options box, use ↑ or ↓ to choose either **Create a new record file** or **Add to an existing record file**.

If you are creating a new file:

- Select **Create a new record file**; press <Enter> or click OK.
- A Save File box will appear. In the **Save as** field, indicate the drive where your records disk is located and the complete pathname for your file (for example, **b:\Leslie**).
- Select **Save**. The file will have an extension (**.abr**). If a file with the same name exists on the disk, you will get a “File already exists, overwrite?” message. If you answer **yes**, the old file will be erased and replaced with the new file.

If you are adding to an existing record file:

- Select **Add to an existing record file**; press <Enter>.
- If the drive displayed above the File box differs from the drive containing your records disk, use ↓ or ↑ in the File box to select the correct drive; press <Enter>.
- Use ↓ or ↑ to select the desired file and press <Enter>.
- The filename will appear in the Open File box. Press <Enter> or click OK. (The program will ask you to insert the records disk at the end of each activity so that the score can be saved.)

Viewing a Record

- Select **See record** from the File menu.
- Insert your records disk.
- If the drive displayed above the File box differs from the drive containing your records disk, use ↓ or ↑ to select the correct drive; press <Enter>.
- When the drive displayed is the one containing your records disk, the record files on the disk will be listed in the File box.
- Use ↑ or ↓ to select the desired file; press <Enter>.

Printing a Record

Make sure that you have entered the information about your printer in Setup and that your printer is turned on.

- Select **Print record** from the File menu.
- Insert your records disk. If the drive displayed above the File box differs from the drive containing your records disk, use ↓ or ↑ in the File box to select the correct drive; press <Enter>.
- When the drive displayed is the one containing your records disk, the record files on the disk will be listed in the File box.
- Use ↑ or ↓ to select a file; press <Enter>.

Using the Editor

The Editor is a valuable teaching tool which expands the range of the *Alge-Blaster Plus* program. Use it to create your own algebra problems to use in the **Solve** activity. First prepare a disk on which to save your new data.

- Format a disk using DOS.

Restart the *Alge-Blaster Plus* program and sign in. When the Main screen appears:

- Select **Run Editor** from the File menu.
- If the File Not Found message box appears displaying the message:

*Unable to locate file EDIT.ABP
Press Enter to search entire system,
or Esc to cancel.
<O>k, <C>ancel...,*

remove the Data Disk.

- Insert Program Disk 1 into the drive that the Data Disk was in and press <Enter>.

- From the File menu, select **New** to create a new data file; select **Open** to edit or add to an existing data file.

Entering a Problem

- ✓ You may enter up to 25 problems per file.
- ✓ Use only the letters **a, b, c, x, y,** and **z** for the variables in your problems.
- ✓ Pressing **D** or **d** creates a division sign.
- ✓ To use any of the special algebraic characters and symbols at the bottom of the Editor screen, press **<Ctrl>** and **F1–F5** at the same time. The symbol will appear where the cursor is placed. See pg. 32.

Step 1 – Enter an expression or equation.

- Enter a problem using the special characters and variables mentioned above.
- Use **<Space>** to center the problem on the screen; press **<Enter>**. The problem will appear on the screen exactly as entered.

Editor Screen –
Step 1

Help F ₁		Jun 4, 1990		ABP Editor - Untitled		8:20 pm	
File F ₂	Problem F ₃	Step F ₄					F ₈ F ₁₀
Problem No. 1		Step No. 1		Number of problems: 1			
$\pm \sqrt{49x^2}$							
Please enter problem. <Return>.							
1							
Simplify.							
Ctrl•F1	\pm	Ctrl•F2	$\sqrt{\quad}$	Ctrl•F3	$\frac{\quad}{\quad}$	Ctrl•F4	$\frac{1}{2}$

Use **↑** and **↓** to choose the instruction you wish to have displayed with this step; press <Enter>. (See Appendix A for a complete list.)

Step 2 – Enter the solution.

- Enter a solution using operators and symbols.
- Use <Space> to center the solution on the screen and press <Enter>.
- Use **↑** or **↓** to select an instruction; press <Enter>. (Select hint number zero if you do not want a hint to appear.)

Step 3 – Enter an alternative solution if applicable.

If the problem does not have a second possible solution, press <Enter>, select hint number zero and press <Enter> again.

Step 4 – Enter the first intermediate step (optional).

Intermediate steps are used as hints in **Practice with help**. If a student asks for help, the written hint is actually displayed first, then the numerical hint (step). There are 10 intermediate steps available. Use as many of these as you need.

- Enter an intermediate numerical step; press <Enter>.
- Select a hint from the list; press <Enter>.

After entering your last intermediate step:

- Select **Next problem** from the Problem menu to add another problem to your file. Repeat the procedure above.
- Select **Save as** from the File menu when you are finished adding problems to your file. (You may wish to review each problem before you close the file.)
- A File box will appear. Insert your custom data disk.
- In the **Save as** box, type the complete pathname of the file without spaces (for example, **b:\Custom**), then select **Save**.

To review, edit, or add to an existing file:

- Select **Open** from the Editor's File menu.
- Insert your custom data disk.
- Use **↑** and **↓** to highlight the letter of the drive the disk is in; press <Enter>.
- Use **↑** and **↓** to select the file you wish to view; press <Enter> or click **Open**.
- Select **Go to #** from the Problem menu to access a specific problem. Be sure to save any changes you make to the file.

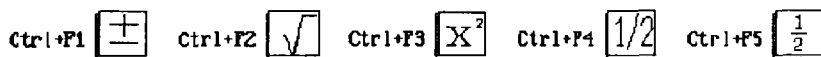
Using Your New File With Solve

You may go directly to the program from the Editor by selecting **Run Alge-Blaster Plus** from the Editor's File menu.

- Highlight the **Solve** icon on the Main screen.
Do not press <Enter>.
- Select **Your file** from the Level menu. (**Your file** is available only after the **Solve** icon has been highlighted.)
- Insert your custom data disk; press <Enter>.
- If the drive displayed above the File box differs from the drive containing your custom data disk, use **↓** or **↑** in the File box to select the correct drive; press <Enter>.
- When the drive displayed corresponds to the drive containing your data files, the files will be listed in the File box. (These files will have the extension **.abd.**)
- Use **↑** or **↓** to highlight the file you want to use; press <Enter>.
- Select the **Solve** icon on the Main screen.

Using Special Algebraic Characters

At times it will be necessary to use the special algebraic characters and symbols displayed at the bottom of the screen.



To use a special character, place the cursor where you want the character to appear, then:

- Press **<Ctrl>** and a numbered function key (**F1–F5**) at the same time, and enter as explained below.

The special character key will remain highlighted on the screen while you are in that mode.

<Ctrl>F1 The plus/minus sign will be displayed on the screen.

<Ctrl>F2 The radical expands as you enter numbers. To exit the radical mode, press the same keys again.

<Ctrl>F3 Enter an exponent. To exit the exponent mode, press **➡**.

<Ctrl>F4 Enter the numerator. Press **➡** to move the cursor to the denominator; enter the denominator. To exit the fraction mode, press the **➡** key again.

<Ctrl>F5 The small fraction key allows you to include small fractions within large fractions. Enter the numerator first. Press **➡** to move the cursor to the denominator; enter the denominator. Press **➡** again to exit the small fraction mode.

Main Screen Menus

File F2

New student . . .	
Record keeping . . .	
See record . . .	
Print record . . .	
Exit	Esc
Run . . .	
Run Editor	Ctrl+E
About ABP . . .	

New student – change student
Record keeping – turn on/off
See record – view student's scores
Print record – print out scores
Exit – exit the entire program
Run – run new DeskMate application
Run Editor – access Editor to create new data
About ABP – about the authors

Activity F3

Start	
Start with . . .	
Stop	
Sound	
Graphics	
Options . . .	Ctrl+O
Review text	Ctrl+R
Normal game speed	
Fast game speed	

Start – begin selected activity
Start with – a specific problem #
Stop – exit from an activity
Sound – turn on/off
Graphics – turn on/off
Options – change within an activity
Review text – see prior explanation
Normal game speed – speed choice
Fast game speed – speed choice

Subject F4

Integers
Order of Operations
Mono. & Poly.
Factoring
Equations
Systems of Equations
Algebraic Fractions
Radicals
Quadratic Equations

These are the subjects available
in the *Alge-Blaster Plus* program.

Level F5

Level 1
Level 2
Level 3
Level 4
Your file . . .

Levels 1–4 are levels of difficulty of the
problems within each subject area.

Your file – use a custom data file

Student Aid F6

Info	Ctrl+I
Terms	Ctrl+T
Hints	Ctrl+H
Show Grid	

Info – activity instructions

Terms – math terms and definitions

Hints – for Solve (Practice with help)

Show Grid – lines for Graph activity

Setup F10

Setup

Setup – See pp. 16–18 of this manual for a complete explanation.

Editor Menus

File (Editor)

New	
Open ...	Ctrl+O
Save	Ctrl+S
Save as	Ctrl+A
Run Alge-Blaster Plus	Ctrl+R
Exit	Esc
About ABP editor ...	

New – create a new file

Open – open an existing file

Save – save file on disk

Save as – name and save a new file

Run Alge-Blaster Plus – return to program

Exit – leave the program

About ABP editor – about the authors

Problem (Editor)

Next problem	Pg-Dn
Previous problem	Pg-Up
Insert problem	
Cut problem	
Copy problem	
Paste problem	
Go to # ...	Ctrl+G

Next problem – go to next problem

Previous problem – move to prior problem

Insert problem – insert a problem

Cut problem – cut to paste elsewhere

Copy problem – copy to paste

Paste problem – place cut or copied problem

Go to # – see a specific problem

Step (Editor)

Next step	Ctrl+Dn Arrow
Previous step	Ctrl+Up Arrow
Insert step	Ctrl+I
Cut step	Ctrl+X
Copy step	Ctrl+C
Paste step	Ctrl+V

Next step – go to next step

Previous step – go back a step

Insert step – insert a step

Cut step – cut to paste elsewhere

Copy step – copy to paste

Paste step – place a cut or copied step

Troubleshooting for Starting the Program

If the program does not load, there may be an incompatibility between the graphics display mode the program is attempting to run and your graphics adaptor. You may control and correct this manually.

Floppy Disk Users

- 5 1/4" – Insert Program Disk 2.
- 3 1/2" – Insert the Program Disk.
- At the A>, type **dmvid**. All of the graphics modes that the program supports will be displayed. Determine the type of video card you have (CGA, EGA, VGA, MCGA, or Herc). If you don't know, try using CGA.
- At the A>, type **dmvid cga** (or whatever mode corresponds to your system).

Hard Disk

- Place the Program Disk (Program Disk 2 if 5 1/4") in drive A.
- Copy the files **dmvid.exe** and **dmcsr.cfg** from the floppy disk to the root directory of your hard disk.
 - Type **copy a:dmvid.exe c:** and press <Enter>.
 - Type **copy a:dmcsr.cfg c:** and press <Enter>.
- Remove the floppy disk and change to the root directory of your hard disk.
 - Type **c:** and press <Enter>.
 - Type **cd** and press <Enter>.
- At the C>, type **dmvid**. All the graphic modes that the program supports will be displayed. Determine the type of video card you have (CGA, EGA, VGA, MCGA, or Herc). If you don't know, try using CGA. At the C>, type **dmvid cga** (or whatever mode corresponds to your system).

Tandy Floppy Disk Users

- If you are running the program on a Tandy 1000SL or Tandy 1000TL, you are not using DeskMate and you get the message “Unable to locate DMVTC16.RRS,” run the program from DeskMate.

All Users

- If the program still doesn't work, type **set dmconfig=c:** (or **a:** or **b:**, depending on the drive you are running the program from). Press <Enter>. Try to run the program again. If you have to do this step to get the program to run, you should put the **set dmconfig=c:** line into your autoexec.bat file, or type it each time you reboot the machine before running the program. Consult your DOS manual for instructions on how to alter your autoexec.bat file.

HOW TO USE THE MACINTOSH VERSION

System Requirements

- ✓ Mac Plus, SE, II, IICx, or IICI with at least 1 meg. of memory
- ✓ System 6.04 or higher

If your Macintosh SE/30 or Macintosh II computer is equipped with 4 bit color video card and color Quick-Draw capable of showing 16 colors or more, set the monitor to 16 colors or more (through the Control Panel). *Alge-Blaster Plus* will run in full color.

Moving Around in the Program

Features of the Macintosh such as the mouse, menu bar, scroll bar and keyboard alternatives are briefly explained here and in the Help menu. If you need additional help, please refer to your Macintosh tutorial disk or the manual that came with your computer.

Mouse Terms

Click – Press the mouse button and release. To double-click, press the mouse button two times.

Click and Drag – Press and hold the mouse button. While holding the mouse button, drag the mouse to highlight text or to move special characters. Release the mouse button when you arrive at the desired location.

Click and Hold – Press and hold the mouse button down.




Menu Bar

A menu bar is located at the top of the screen. To select a menu item, click the menu title in the menu bar, drag through the menu to the item, and release the mouse. If a menu item is dimmed or grayed, it is not accessible at that time.

Scroll Bar

The scroll bar is a rectangular bar along the right or bottom of the window. Clicking or dragging in the scroll bar changes the view of the document. This is necessary since most of the time the screen does not show the entire document.

Keyboard Alternatives

Some menu items are followed by  and a letter (e.g., E). To use, press  and the indicated letter key at the same time.

In the activities and dialog boxes, pressing <Return> is an alternative to clicking an OK or Continue button.

Main Screen

The Main screen consists of five activity icons. Double-click an icon to start an activity. From the Main screen, you can also select a subject and level, access the Editor, and turn Record Keeping on or off.

Making a Backup

It is a good idea to make a backup copy of your *Alge-Blaster Plus* disk right away. Put the original disk in a safe place and use your backup copy for starting the program or installing the program on your hard disk.

Installing the Program on a Hard Disk

Use your backup copy to install *Alge-Blaster Plus* on your hard disk.

- Create a new folder on your hard disk.
- Drag the *Alge-Blaster Plus* program icon and the Data folder icon over and place them into this folder. (**Caution:** Do not drag the *Alge-Blaster Plus* System folder onto your hard disk.)
- Double-click the *Alge-Blaster Plus* icon to start the program.

Starting the Program

Sign In

- Turn on your computer.
- If you used a system startup disk, eject it if necessary and insert your backup copy of *Alge-Blaster Plus*.
- Double-click the *Alge-Blaster Plus* icon.
- Enter your name and click OK. The Main screen will appear displaying the five activity icons.

Using the Activities

Activity 1 – Learn

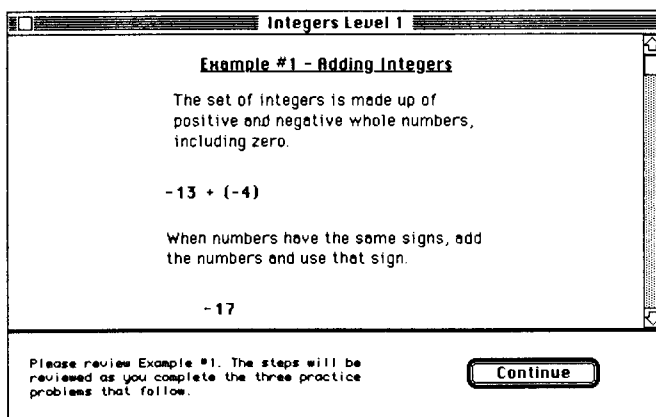
This interactive tutorial activity consists of an example followed by three similar practice problems.

- Click to highlight the **Learn** icon on the Main screen.
- Select a **Subject** from the Subject menu.
- Select a **Level** from the Level menu.
- Click the **Learn** icon again to start the activity.

The first example problem will appear on the screen.

- Study the first part of the example problem and the text that accompanies it.
- Using the vertical scroll bar, click ↓ to scroll and study the rest of the steps and explanations. The number of steps in each example problem varies. If you want to review any of the steps in the problem, scroll ↑.

Learn Activity



- Click **Continue** to view the first of three practice problems.

Practice problems will be presented with instructions for each step.

- Read and complete the solution to each step of the practice problem. (To erase, press <Delete>.)
- Click OK to advance to the next step. If there are no additional steps, click OK to advance to the next problem.

The step you just completed will automatically scroll upward. The directions for the step you are currently working on will always be the text directly above the work area.

- Using the vertical scroll bar, click ↑ or ↓ to review previous steps in the practice problem.

Special Characters Palette

The special characters palette contains algebraic symbols. Click and drag characters from the palette and drop them into an equation. **Note:** The palette can be dragged to any part of the screen. It need not interfere with viewing the problems. For more information about using the special characters palette, see pp. 51–52.

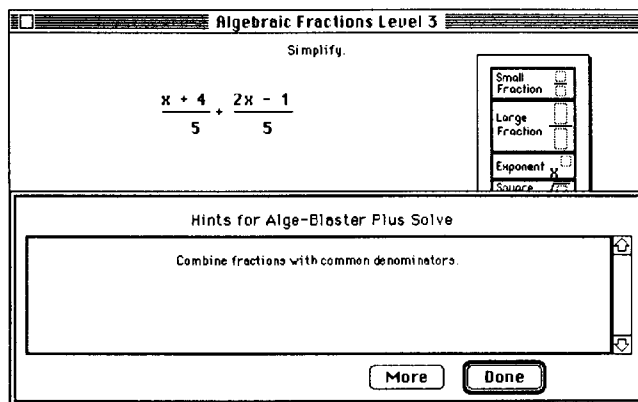
After two more practice problems, a second example with three more practice problems will be presented; click OK when finished.

Activity 2 – Solve



This activity reinforces the concepts and skills that you used in Learn.

- Click to highlight the **Solve** icon on the Main screen.
- Select a **Subject** from the Subject menu.
- Select a **Level** from the Level menu.
- Click the **Solve** icon again to start the activity. (Select **Start With** from the Activity menu only if you want to begin with a particular problem.)
- Select an option for Solve: either **Practice with Help** or **Solve on Your Own**.
- Study the problem at the top of the screen.

Solve Activity –
Practice with Help



If you selected **Practice with Help**, you can ask for a hint.

- Enter the answer and click OK.
- If you want help either before or after attempting to answer, select **Hints** from the  menu. (For more help, select **More** to see the next hint. Scroll  to review hints.)
- To leave the hint box at any time, select **Done**.
- Enter the answer and click OK.
- Click OK again to go to the next problem.

Some of the answers in the **Solve** activity may require one of the special algebraic characters displayed in the special characters palette. Drag the character from the special characters palette and place it into the equation. The palette can be dragged to any part of the screen. It need not interfere with viewing the problems. For more about using the special characters palette, see pp. 51–52.

If you selected **Solve on Your Own**, hints are not available.

- Enter the answer and click OK. You have two opportunities to answer correctly before the answer is supplied.
- Click OK to go to the next problem.

There are between 10 and 15 problems in each file. When the scoreboard appears, press any key to return to the Main screen.

Activity 3 – Translate

In this multiple-choice activity you will translate words into algebraic expressions or algebraic expressions into words.

- Click to highlight the **Translate** icon on the Main screen.
- Select a **Level** (1–3) from the Level menu. (The Subject menu is not used with this activity.)
- Click the **Translate** icon again to select the activity.

Translate Activity

Translations

17 more than a number

☐ A $x / 17$

☒ B $x + 17$

☐ C $x * 17$

☐ D $17 - x$

- Select a format option: **Equation**, **Phrase**, or **Mixed**.
- Read the phrase or equation at the top of the screen.
- Click the letter of the correct answer choice. You have two chances to answer correctly before the answer is supplied.
- Click or press <Return> to go to the next problem.

When you finish the problems and the scoreboard appears, press any key to return to the Main screen.

Activity 4 – Graph

The Graph activity familiarizes students with the coordinate system and slopes of lines.

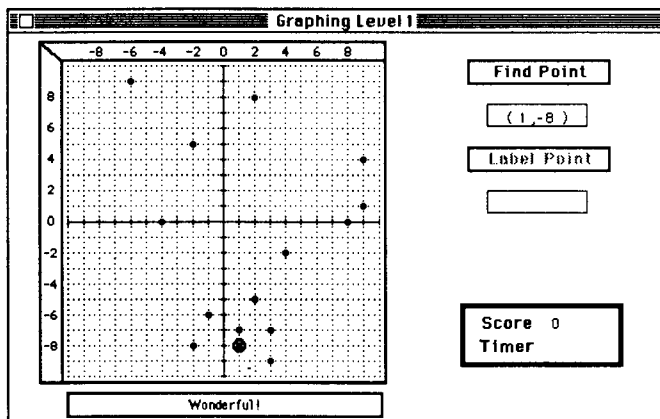
- Click to highlight the **Graph** icon on the Main screen.
- Select a **Level** (1 or 2) from the Level menu. (The Subject menu is not used with this activity.)
- Click the **Graph** icon again to start the activity.

Level 1

In this level, you will find and label points on a graph.

- Select an option: **Find Point**, **Label Point**, or **Mixed**.
- To turn on the timer, click on the timer box.
- Click OK to accept option choice(s).

Graph Activity – Level 1



Find Point

Find the point that corresponds to the ordered pair displayed.

- Click the point or press the arrow keys to move the selection box onto the point. Double-click on the point or press <Return> to select it. The coordinates of the point on the graph will show in the Find Point box.
- Click or press <Return> to go to the next problem.

Label Point

Look for the circled point on the graph.

- Enter the corresponding ordered pair in the Label Point box on the right side of the screen. The comma will be supplied for you. To enter the point (3,4), type only **3** then **4**; click or press <Return>.
- Click or press <Return> to go to the next problem.

Mixed

Mixed is a combination of the Find Point and Label Point options.

Level 2

In this level, you learn to predict and calculate slopes.

- Select **Find Point**, **Find Slope**, or **Mixed**.
- To turn on the timer, click on the timer box.
- Click OK to accept option choice(s).

Find Point

Look at the coordinates displayed in the Point and Slope boxes.

- Use the slope and point 1 to find point 2.
- Use arrow keys or the mouse to move the selection box from point 1 to point 2. For example, if the slope is $4/5$, move the box up 4 points and over 5 points to the right.
- Double-click when the box is at the correct coordinates.
- Click or press <Return> to go to the next problem.

Find Slope

Find the slope of the line between the two points on the graph.

Their coordinates are displayed on the right side of the screen.

- Calculate the slope of the line between the two points by using the point slope formula ($\text{slope} = y_2 - y_1 / x_2 - x_1$). For example, if the first point is (3,2) and the second point is (5,4), the slope would be $4 - 2 / 5 - 3 = 2 / 2 = 1$. Enter the slope with a slash (/) between the two numbers (rise/run); press <Return>.
- Click or press <Return> to go to the next problem.

Mixed

Mixed is a combination of the Find Point and Find Slope options.

In the Graph Activity, you have two opportunities to answer correctly before the answer is supplied. If the timer is on, you have only 20 seconds to answer, but you may have more than two tries.

If you do not wish to have the grid background, select **Grid** from the Activity menu to turn it off.

Activity 5 – *Alge-Blaster Plus* Game

In this arcade-style game, you will use your graphing knowledge to defend your space station against asteroids.

- Click to highlight the *Alge-Blaster Plus* Game icon on the Main screen.
- Select a **Level** (1–4) from the Level menu.
- Select **Game Speed** from the Activity menu; choose either **Normal** or **Fast**.
- Click the game icon again to start the activity.

Asteroids are threatening your space station. Shoot a laser beam to destroy them before they hit the space station. To blast an asteroid:

- Click one of the four lasers in the corners of the space field or use arrows (use the keys A or Z if your keyboard does not have arrow keys) to select a laser.
- Enter a slope (e.g., $2/3$); press <Return>. A laser beam will be launched at an angle equal to the slope you have entered.
- Lasers 1 and 3 require a positive slope, 2 and 4 require a negative slope. (Laser numbers correspond to quadrant numbers.)
- Each laser can emit a maximum of 20 beams. (Beam remaining for the highlighted laser is shown at the bottom of the screen.)

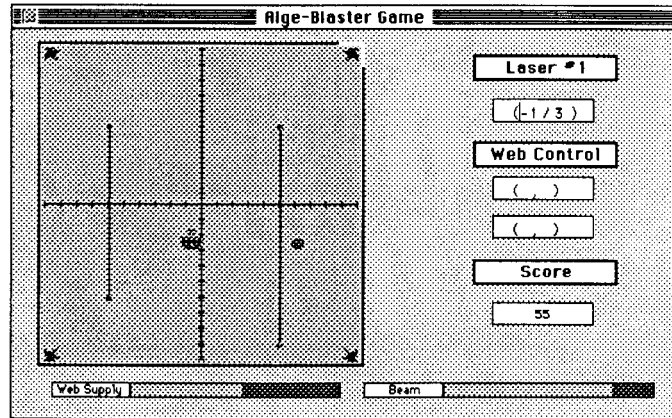
Hint: If you are having trouble visualizing the direction of a slope, enter a few slopes with similar coordinates. For example, enter $5/1$, $5/2$, $5/3$, and $5/9$ and notice the change in direction.

Space webs can help you protect your space station by blocking the paths of asteroids. To create a space web:

- Click or <Tab> to select the **Web Control** box.
- Decide where you want to put the web and enter a coordinate pair for the first point.
- <Tab> and enter a coordinate pair for the second point; press <Return>. A line, or space web, will be drawn between these

points. Asteroids will bounce off this barrier. The web is only temporary and will disappear after 25 seconds. The web supply remaining is indicated at the bottom of the screen.

Alge-Blaster Plus
Game



If your space station is destroyed three times, the game is over. If you successfully defend your station, you will advance a level. Levels become increasingly difficult (more asteroids appear at one time).

Bonus

As you advance to a higher level, a laser will be selected for you and an object will cross the screen. To earn bonus points, hit the flying object twice. You'll also earn points for any unused beams and webs.

Using Record Keeping

Records are automatically saved to your *Alge-Blaster Plus* disk or your hard disk, if your program is hard disk installed. If you wish to save your records to a separate disk, you must indicate this when you save your file.

- Select **Record Keeping** from the File menu. (A ✓ indicates the feature is on. Selecting the item again will turn it off.)
- Select **Create a new file** or **Open an existing file**; click OK.

If you are creating a new file, a file requester box containing your sign-in name will appear.

- Select **Save** or enter another name for your file.

If you are adding to an existing record file, choose the record file you want to use.

Viewing and Printing a Record

- Select **See Record** or **Print Record** from the File menu.
- Double-click the name of the record file you wish.
- If you are printing, indicate the number of copies you wish, then click OK. If you have chosen to see the record, click **Done** when you are finished.

Using the Editor

Use the Editor to create your own algebra problems to use in the **Solve** activity. Custom data is automatically saved to your *Alge-Blaster Plus* disk or your hard disk, if your program is hard disk installed. If you wish to save your custom data to a separate disk, you must indicate this when you save your file.

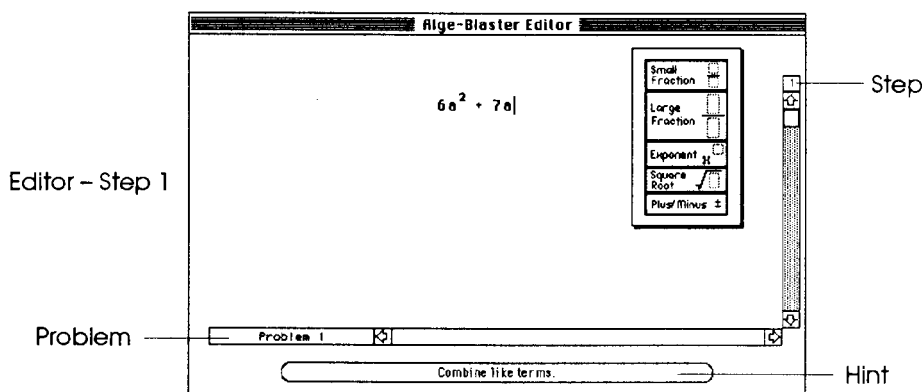
- Select **Editor** from the File menu on the Main screen.
- From the File menu, select **New** to create a new data file; select **Open** to edit or add to an existing data file.

Entering a Problem

- ✓ You may enter up to 25 problems per file.
- ✓ Use only the letters **a, b, c, x, y,** and **z** for the variables in your problems.
- ✓ To use any of the special algebraic characters on the Editor screen, drag the character from the special characters palette and drop it into the equation. See pp. 51–52 for more detailed instructions.

Step 1 – Enter an expression or equation.

- Enter a problem. (Use characters and variables mentioned.)
- On the lower portion of the screen, click to open the instruction box. Scroll \uparrow or \downarrow to find the instruction or hint you want to have displayed with the steps of your problem, then double-click to select. See Appendix A on pp. 73–74 for a complete list of instructions and hints you may use.
- Using the vertical scroll bar, click \downarrow to scroll to another step (the step number is displayed at the top of the scroll bar).



Step 2 – Enter the solution.

- Enter a solution using operators and symbols (and special characters if necessary).
- Open the instruction box and select an instruction to display. If you do not want any hints to appear, it is not necessary to open the instruction box. (None is selected automatically.)
- Using the vertical scroll bar, scroll \downarrow to Step 3.

Step 3 – Enter an alternative solution if applicable.

- If the problem does not have two possible solutions, scroll \downarrow to Step 4 using the vertical scroll bar.

Step 4 – Enter the first intermediate step (optional).

Intermediate steps are used as hints in **Practice with Help**. If a student asks for help, the written hint is actually displayed first, then the numerical hint (step). There are 10 intermediate steps available.

- Enter an intermediate numerical step.
- Select a hint from the list.

After entering your last intermediate step:

- You may review all the steps in the problem; scroll **↑** using the vertical scroll bar.
- Click **Problem Preview** to view how the complete problem will be displayed in the Solve activity.
- Select **Add** from the Problem menu to add another problem to your file. Repeat the procedure above.
- Select **Save as** from the File menu when you are finished. (You may wish to review each problem before you close the file. To review, scroll **←** or **→** using the horizontal scroll bar.)
- Insert the custom data disk if you wish to save to a separate disk.
- Enter a name for your new file and click the **Save** box.

To review, edit, or add to an existing file:

- Select **Open** from the Editor's File menu. Insert your custom data disk if desired; double-click the name of the file.
- To review each step in the problem, scroll **↑** or **↓** using the vertical scroll bar.
- To review each problem, scroll **←** or **→** using the horizontal scroll bar.
- Select **Add** from the Problem menu to add problems to your file.
- Select **Insert** to insert a problem in the middle of the file.
- Select **Go to Problem #** to access a specific problem to edit.
- Select **Delete** to delete an entire problem with all its steps. The problem on the screen is the one that will be deleted.

- Select **Duplicate** to duplicate a problem on the screen.
- Be sure to save any changes you make to the file.

Printing Data Files

- Access the Editor and open the file you wish to print. You may use original or custom files.
- Select **Print** from the File menu.
- Choose the number of copies and pages to print; select OK.

Using Your New File With Solve

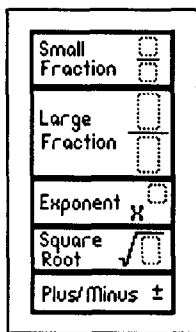
- Select **Main Menu** from the Editor's File menu to go directly to the main program.
- Click to highlight the **Solve** icon on the Main screen. Do not double-click.
- Select **Your File** from the Level menu. (**Your File** is available only after the **Solve** icon has been highlighted.)
- Highlight the file you want to use; click OK.
- Click the **Solve** icon again to start the activity.

Using the Special Characters Palette

Small Fraction

- From the palette, drag the **small fraction** symbol and place it in the equation. A cursor and fraction bar will appear.
- Enter numbers and symbols in the numerator. The fraction bar will grow as numbers and symbols are entered. See next page.

Special Characters
Palette



- Click or press ➡ to move to the denominator; enter numbers and symbols in the denominator. Click or press ➡ to move the cursor outside the fraction when finished.

Large Fraction

This works in the same manner as the small fraction, except that the cursor and the fraction bar are larger.

Exponent

- Drag the **exponent** and place the x on top of the base.
- Enter the exponential number. Click or press ➡ to remove the cursor from the exponent mode when finished.

Square Root

- Drag the **square root** sign and place it in the equation.
- Enter the numbers to appear under the radical; the radical will grow to accommodate them. Click or press ➡ to move the cursor out from under the radical sign when finished.

Plus/Minus Sign

- Drag the **plus/minus** sign and place it in front of a number or variable.

Main Screen Menus



About Alge-Blaster Plus...	
Help...	⌘?
Terms...	⌘T
Hints...	⌘H
Desk Accessories here	

About Alge-Blaster Plus – about the authors

Help – on-screen instructions

Terms – math terms and definitions

Hints – hints for the Solve activity

File

New Student...	
Open	⌘O
Close	
Record Keeping...	
See Record...	
Print Record...	
Editor	
Quit	⌘Q

New Student – change student

Open – open activity

Close – close activity

Record Keeping – turn on/off

See Record – view student's scores

Print Record – print out scores

Editor – enter new algebra problems

Quit – exit the program

Activity

Start	
Start With...	
✓ Sound	
Options	⌘B
✓ Grid	⌘G
Game Speed ▶	
Normal	
✓ Fast	

Start – begin selected activity

Start With – a specific problem in Solve

Sound – turn on/off

Options – change within an activity

Grid – grid background for Graph

Game Speed – choose Normal or Fast

Subject

✓ Integers
Order of Ops.
Mono. & Poly.
Factoring
Equations
Systems of Eqs.
Algebraic Fracs.
Radicals
Quadratic Eqs.

These are the subjects available in the *Alge-Blaster Plus* program.

Level

✓Level 1
Level 2
Level 3
Level 4
Your File

Levels 1–4 are levels of difficulty of the problems within each subject area.

Your File – Use a custom data file

Note: Items on the Edit menu may be accessed only from the Editor even though the menu is visible from the *Alge-Blaster Plus* program.

Editor Menus

File

New...	⌘N
Open...	⌘O
Save...	⌘S
Save as...	
Close	⌘W
Revert...	

Page Setup...	
Print...	⌘P

Main Menu	⌘M
Quit	⌘Q

New – create a new file

Open – open an existing file

Save – save file on disk

Save as – name and save a new file

Close – close an existing file

Revert – go back to original file

Page Setup – set up page for printing

Print – print a complete file

Main Menu – return to main program

Quit – leave the program

Edit

Undo	⌘U
Cut	⌘K
Copy	⌘C
Paste	⌘V

Select All	
Clear	

Undo – reverse last action

Cut – remove to clipboard

Copy – duplicate in memory

Paste – place cut or copied data

Select All – select all items

Clear – cancel

Problem

Insert	⌘I
Add	⌘A
Delete	⌘D
Duplicate	

Goto Problem # ...	⌘G

Insert – insert a problem

Add – add a problem

Delete – delete an entire problem

Duplicate – duplicate a problem

Go to Problem # – find a specific problem

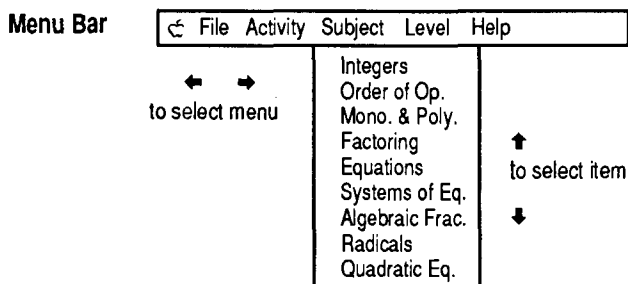
HOW TO USE THE APPLE II FAMILY VERSION

System Requirements

- ✓ Apple IIGS, IIC+, IIC, or IIE with 128K
- ✓ extended 80-column card
- ✓ 1 or 2 drives, monitor (color or monochrome)
- ✓ printer, mouse (optional)

Moving Around in the Program

Alge-Blaster Plus utilizes the Davidson Student Desktop Interface which allows you to move easily from one part of the program to another using mouse or keyboard. Menus are located on the menu bar at the top of the Main screen.



If a menu item appears grayed or dimmed, it is temporarily unavailable and cannot be accessed. For example, because Graph has only two levels, Level 3 and Level 4 will be dim when the Graph activity is highlighted. A description of Main screen menu items is on page 71–72.

Selecting a Menu Item Using the Keyboard

- Press <Esc> to access (or leave) the menu bar. Press ← or → to move to the menu you wish to access.
- Use ↑ or ↓ to select (highlight) a menu item; press <Return>.

Selecting a Menu Item Using a Mouse

- Point to a menu title and click; the menu will drop down.
- Hold down the mouse button and drag the pointer to highlight the item you wish. Release the button to select it.

Using Accelerator Keys

Some menu items have keyboard shortcuts (e.g., ⌘ S for Stop).

- Press ⌘ and the indicated letter key at the same time.

Making Other Choices Using the Keyboard

- On the Main screen, use <Tab> or arrow keys to highlight an activity icon (picture). Press <Return> or select **Start** from the Activity menu to begin the activity.
- When choices on the screen are outlined or boxed, use <Tab> to highlight the item of your choice, then press <Return>.
- When input is required in more than one place on a screen (as in Setup or an options box), use <Tab> to move the cursor. Enter the information or press <Space> to mark. When all input is complete, <Tab> to the OK button and press <Return>.

Making Other Choices Using a Mouse

- Point and double-click the desired icon (picture).
- When options or choices on the screen are outlined or boxed, point and click the box of your choice.
- When input is required in more than one place on a screen (as in Setup or an options box), point and click to move the cursor. When all input is complete, click the OK box.

Starting the Program

Sign In

- Insert the *Alge-Blaster Plus* program disk, label side up, in drive 1 and turn on the computer.
- Enter your name (up to 11 characters). Press <Return>.
- Select the date using the keyboard ← or →, or by clicking the arrows on the screen; press <Return> or click OK.

Select an Activity

The five *Alge-Blaster Plus* activities are represented by colorful icons (pictures) on the Main screen.

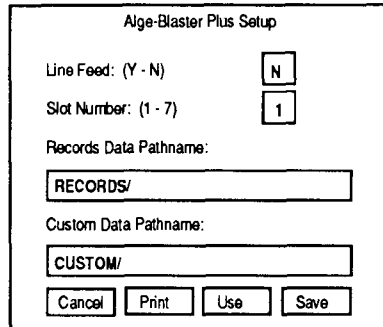
- Double-click an icon, or highlight the icon of your choice using ↑ and ↓ on the keyboard and press <Return>.
- To stop, press ⌘ S or select **Stop** from the Activity menu.

Printing

Before printing a scoreboard, a certificate, or a student's record, you must enter printer and interface information.

- Select **Setup** from the Main screen's File menu.

Apple Setup
Screen

A screenshot of the 'Alge-Blaster Plus Setup' dialog box. It contains four labeled fields: 'Line Feed: (Y - N)' with a button labeled 'N'; 'Slot Number: (1 - 7)' with a button labeled '1'; 'Records Data Pathname:' with a text box containing 'RECORDS/'; and 'Custom Data Pathname:' with a text box containing 'CUSTOM/'. At the bottom are four buttons: 'Cancel', 'Print', 'Use', and 'Save'.

Line Feed: (Y-N)

- Enter **N** (No) if your printer has automatic line feed; otherwise, enter **Y** (Yes). Move the cursor to the next box.

Slot Number: (1-7)

- Enter the slot number for your printer card (usually 1).
(**Note:** You need not enter a pathname for Records or Custom Data at this time. See **Using Record Keeping** and **Using the Editor** for instructions if you choose to use these features.)
- Select **Save** to save this information on the disk.
- Select **Use** to use these new settings temporarily.
- Select **Cancel** to escape from Setup without saving.

To change any information on the Setup screen:

- Press **<Tab>** or use the mouse to access the desired box.
- Enter the new information.
- Select **Save**, **Use**, or **Cancel**.

Using the Activities

Now that you are familiar with the Davidson Student Desktop Interface, you can begin mastering algebra.

Activity 1 – Learn

This activity consists of example problems and practice problems.

- Highlight the **Learn** icon on the Main screen.
- Select a **Subject** from the Main screen's Subject menu.
- Select a **Level** from the Level menu.
- Press <Return> or click the **Learn** icon.

The first example problem will appear on the screen.

- Study the example problem. Press <Return> or click the ↓ when you are ready to continue.
- Study the next step; press <Return> or click the ↓.
- Continue viewing the demonstration steps in this manner.
- To review a previous step, press or click the ↑.

After the example problem, the first of three practice problems will be presented along with instructions for the first step.

Learn Activity

The screenshot shows a window titled "Practice 1a - Order (Integers)". Inside the window, the math expression $4 - 2 \cdot 8 \div 4$ is displayed. Below the expression, a box contains the instruction: "First, multiply and divide, working from left to right." At the bottom of the window, there are two square buttons: one with an upward arrow (↑) on the left and one with a downward arrow (↓) on the right.

- Read carefully, then press <Return> or click the ↓.
- Enter the solution to the first step; press <Return>. (Use <Delete> to erase.) You have two opportunities to answer correctly. Otherwise, the correct answer will be supplied.
- Press <Return> when you are ready to go to the next step.
- Study the second step; press <Return> or click OK.

If you accidentally delete part of a problem that contains a special character, see page 70 for directions on how to reenter it.

- Enter the second step solution; press <Return> or click OK.
- Continue completing steps until you solve the problem.

If you wish to review the previous step, press ⌘ R. Press ↑ to continue backwards or ↓ to move forward through the steps. A second example problem and three more practice problems will be presented. After completing these, press any key to return to the Main screen.

Activity 2 – Solve

This activity reinforces the concepts and skills studied in the Learn activity. In the Solve activity, you will enter only the final answer.

- Highlight the **Solve** icon on the Main screen.
- Select a **Subject** from the Subject menu.
- Select a **Level** from the Level menu.
- Press <Return> or click the **Solve** icon.
- When the option box appears, select either **Practice with Help** or **Solve on Your Own**; press <Return>.
- Study the problem at the top of the screen.

If you selected **Practice with Help**, you can ask for a hint.

- If you want help (before or after typing an answer), select **Hints** from the Help menu or press ⌘ H. If this hint gives you the information you need, press <Return>. (For more help, press or click ↓ to see the next hint while you are still in the hint box. To review previous hints, press or click ↑.)
 - To leave the hint box, press <Return> or click OK.
- Now you can continue solving the steps to the problem.

Solve Activity

The screenshot shows a software window with a menu bar at the top containing 'File', 'Activity', 'Subject', 'Level', and 'Help'. The main area of the window displays the instruction 'Simplify.' followed by the algebraic expression $5(y - 3)$. Below this, a shaded rectangular box contains the instruction 'Use the Distributive Property of Multiplication.' and the resulting expression $5 \cdot y - 5 \cdot 3$. At the bottom of the window, there are three buttons: a left arrow button, an 'OK' button, and a right arrow button.

- Enter the answer; press <Return>. You have two opportunities to answer correctly. Otherwise, the correct answer is supplied.
- Press <Return> to go to the next problem.

Note: Some answers may require the use of a special algebraic symbol or character. See page 70 for instructions on how to type these.

If you selected **Solve on Your Own**, hints are not available.

- Calculate the answer, using paper and pencil if necessary.
- Enter the answer; press <Return>.
- Press <Return> to go to the next problem.
- There are between 10 and 15 problems in each file. When you finish the problems and the scoreboard appears, press any key to return to the Main screen.

Activity 3 – Translate

In this multiple-choice activity you will translate words into an algebraic expression or an algebraic expression into words.

- Highlight the **Translate** icon on the Main screen.
- Select a **Level** (1–3) from the Level menu.
(**Note:** The Subject menu is not used with this activity.)
- Press <Return> or click the **Translate** icon.

- Select **Choose Equation**, **Choose Phrase**, or **Mixed**.
- Read the phrase or equation at the top of the screen; then type or click the letter of the correct answer choice, or select it by using \uparrow or \downarrow and pressing $\langle\text{Return}\rangle$.

Translate Activity

$x \div 25 = y \div 28$

A

a number x divided by 25 is the quotient of a number y and 28

B

a number x diminished by 25 is 28 less than a number y

C

the quotient of 25 and a number x is a number y divided by 28

D

a number x divided by 25 is a number y diminished by 28

Great!

- Press $\langle\text{Return}\rangle$ to go to the next problem.

Activity 4 – Graph

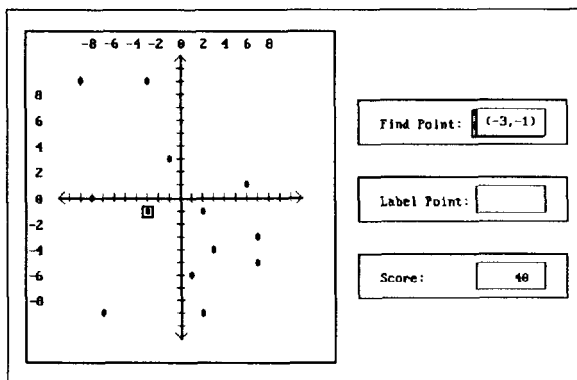
In this activity you will become familiar with the coordinate system and the slopes of lines.

- Highlight the **Graph** icon on the Main screen.
- Select a **Level** (1 or 2) from the Level menu.
(Note: The Subject menu is not used in this activity.)
- Press $\langle\text{Return}\rangle$ or click the **Graph** icon.

Level 1

- Select an option: **Find Point**, **Label Point**, or **Mixed**.
- To turn on the timer, click on the box, or press $\langle\text{Tab}\rangle$ to move to the timer box and press $\langle\text{Space}\rangle$ to select.
- Select **OK** to accept option choice(s).
- For a grid background, select **Grid** from the Help menu.

Graph Activity – Level One



Find Point

- Look at the ordered pair displayed in the Find Point box on the right side of the screen.
- To locate and select the point on the graph, use keyboard arrows or click to move the selection box and press <Return>.

Label Point

- Look for the boxed point on the graph.
- Enter the corresponding ordered pair in the Label Point box on the right side of the screen; press <Return>. (A comma will be supplied. To enter $(3,4)$, type 3 and then 4.)
- Press <Return> to go to the next problem.

Mixed

Mixed is a combination of the Find Point and Label Point options.

Level 2

- Select **Find Point**, **Find Slope**, or **Mixed**.
- To turn on the timer, click on the box, or press <Tab> to move to the timer box and press <Space> to select.
- Select OK to accept option choice(s).
- For a grid background, select **Grid** from the Help menu.

Find Point

- Look at the point coordinates and slope coordinates displayed on the right side of the screen.
- Use the slope and point 1 to find point 2. Use arrow keys or the mouse to move the selection box from point 1 to point 2. For example, if the slope is $4/5$, move the box up 4 points and over 5 points to the right.
- Press <Return> or double-click when the selection box is at the correct point.
- Press <Return> to go to the next problem.

Find Slope

- Calculate the slope of the line between the two points on the graph using the point slope formula ($\text{slope} = y_2 - y_1 / x_2 - x_1$). For example, if the first point is (3,2) and the second is (5,4), the slope would be $4 - 2 / 5 - 3 = 2 / 2 = 1$. Enter the slope with a slash (/) between the two numbers (rise/run); press <Return>.
- Press <Return> to go to the next problem.

Mixed

Mixed is a combination of the Find Point and Label Point options.

You have two opportunities to answer correctly; then the answer will be supplied. If the timer is on, you have 20 seconds to answer.

Activity 5 – *Alge-Blaster Plus* Game

You will use your graphing knowledge to defend your space station.

- Highlight the *Alge-Blaster Plus* Game icon on the Main screen.
- Select a Level (1–4) from the Level menu.
- Select the *Alge-Blaster Plus* Game icon.

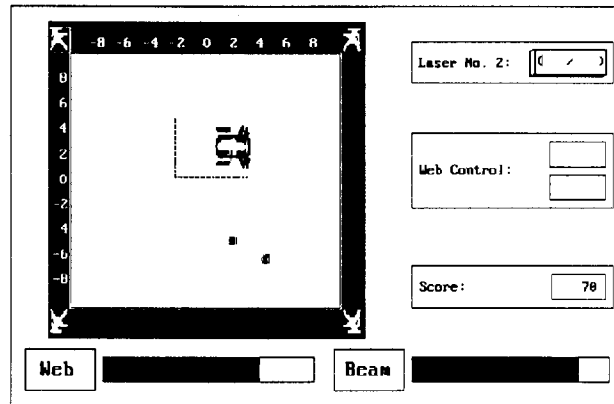
To blast an asteroid with a laser:

- Select (highlight) a laser using the ↑ and ↓ keys.

- Enter a slope (e.g., 2/3); press <Return>. A beam will be launched at an angle equal to the slope you entered. Lasers 1 and 3 require a positive slope, 2 and 4 require a negative slope. Each laser can emit a maximum of twenty beams. (Amount remaining is shown at the bottom of the screen.)

Hint: If you are having trouble visualizing the direction of a slope, enter several slopes with similar coordinates (e.g., enter 5/1, 5/2, 5/3, and 5/9 and notice the change in direction).

*Alge-Blaster Plus
Game*



Space webs can help you protect your space station by blocking the path of the asteroids. To create a space web:

- Press <Tab> to select the **Web Control** box.
- Decide where to put the web and enter a coordinate pair for the first point; do the same for the second point; press <Return>. A line, or space web, will be drawn between the points. Asteroids will bounce off this barrier and explode. The space web is temporary and will disappear after 25 seconds. (The amount of web remaining is indicated at the bottom of the screen.)

If your space station is destroyed three times, the game is over. If you successfully defend your station, you will advance a level. Levels become increasingly difficult (more asteroids appear at one time).

Bonus

As you advance to a higher level, a laser will be selected for you and an object will cross the screen. To earn bonus points, hit the flying object twice. You'll also earn points for any unused beams and webs.

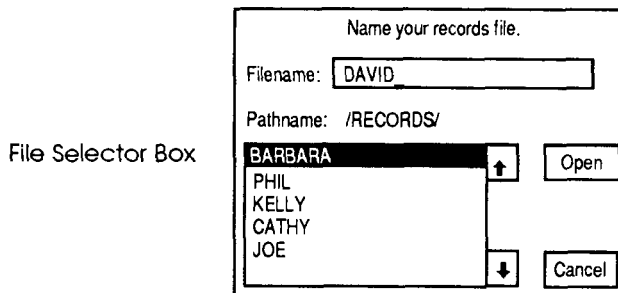
Using Record Keeping

This feature allows you to save your scores and keep a cumulative record. First, prepare a disk on which to save student records.

- Use your System Utilities disk to format a blank disk with ProDOS. Name the volume (disk) **/RECORDS/** (or any name with no more than seven letters/numbers).

Now start the *Alge-Blaster Plus* program and sign in.

- Select **Setup** from the File menu on the Main screen.
- In the Records Data Pathname box, type **/RECORDS/** (or whatever name you chose).
- Select **Save** or **Use**. You will be returned to the Main screen.
- Select **Record Keeping** from the File menu. (A ✓ indicates the feature is **on**; selecting the item again will turn it off.)
- Insert your records disk. A File Selector box will appear.



- Your filename will appear in the box; press <Return> or click **Open** to establish the new file on your records disk.

The program will ask you to insert the records disk at the end of each activity so that your score can be saved.

Viewing a Record

- Select **See Record** from the File menu.
- Insert your records disk.
- When the File Selector box appears, use ↑ or ↓ to select a file.
- Select **Open** or press <Return>.

Printing a Record

- Select **Setup** from the Main screen's File menu. Make sure the information is correct.
- Select **Print Record** from the Main screen's File menu.
- When the File Selector box appears, use ↑ or ↓ to select a file.
- Select **Open** or press <Return>.

Using the Editor

Use the Editor to create your own algebra problems to use in the **Solve** activity. First prepare a disk on which to save your new data.


- Use your System Utilities disk to format a blank disk with ProDOS. Name the volume (disk) **/NEWDATA/** or any name with no more than seven letters/numbers.

Start the program and sign in, then tell the program where to find your newly formatted data disk.



- Select **Setup** from the File menu on the Main screen.
- In the Custom Data Pathname box, type **/NEWDATA** or whatever you named your custom data disk.
- Select **Save** or **Use**. You will be returned to the Main screen.
- Select **Editor** from the File menu on the Main screen.

- Select **New** from the Editor's File menu.
- Insert your custom data disk. Select **OK**.
- Enter the name of your new file in the Filename box (letters and numbers only; begin with a letter).
- Click **Open** or press <Return>.






Entering a Problem

- ✓ You may enter up to 25 problems per file.
- ✓ Use only the letters **a, b, c, x, y, and z** as variables.
- ✓ Pressing **D** or **d** creates a division sign.
- ✓ To use any of the special algebraic characters which appear at the bottom of the Editor screen, press  and the number of the character at the same time. See pg. 70.

Step 1 – Enter an expression or equation.

- Enter a problem.
- Use <Space> to center the problem on the screen; press <Return>. (The problem will appear exactly as entered.)
- Use  and  to select the instruction to be displayed with the problem; press <Return>. (See Appendix A for a list.)

Editor Screen –
Step 2

⏮	File	Problem	Step
File3a			
Problem No. 3	Step No. 2	Number of problems: 3	
$6a - 3 + 3 = 9 + 3$ <p>Use up and down arrows to select an appropriate hint below. <Return>.</p>			
12 To subtract a number, add its opposite.			
⏮ 1		⏮ 2	
⏮ 3		⏮ 4	
⏮ 5			

Step 2 – Enter the solution.

- Enter a solution using operators and symbols.
- Center the solution with <Space>; press <Return>.
- Use ↑ or ↓ to select an instruction. (Select hint number zero if you do not want any hint to appear.) Press <Return>.

Step 3 – Enter an alternative solution if applicable.

If none, press <Return>, select hint number zero, and press <Return>.

Step 4 – Enter the first intermediate step (optional).

Intermediate steps are used as hints in **Practice with Help**. If a student asks for help, the written hint is actually displayed first; the numerical hint (step) is displayed as the second hint. There are ten intermediate steps available. Use as many as you wish.

- Enter an intermediate numerical step; press <Return>.
- Select a hint from the list; press <Return>.

After entering your last intermediate step:

- Select **Next Prob** from the Problem menu to add more problems to your file. Repeat the procedure above.
- Select **Save** from the File menu when you are finished. (You may wish to review each problem before you close the file.)
- Select **Close** to close the file.

To edit or add to an existing file:


- Select **Open** from the Editor's File menu.
- Insert your custom data disk. Select OK.
- Use ↑ or ↓ to select the file; press <Return> or click **Open**.
- Add problems or select **Go to Prob #** from the Problem menu to access a specific problem. Be sure to save any changes you make to the file.
- Select **Insert Prob** or **Delete Prob** from the Problem menu to insert a problem or delete a problem.

Using Your New File With Solve

Select **ABP** from the Editor's File menu to go directly to the program.

- Select **Setup** from the Main screen's File menu.
- <Tab> to the custom data box and enter the name you gave your custom data disk; select **Save** or **Use**.
- Highlight the **Solve** icon but **do not press <Return>**.
- Select **Your File** from the Level menu. (**Your File** is available only after the **Solve** icon has been highlighted.)
- From the File Selector box, select a file and press <Return>.
- Select the **Solve** icon on the Main screen.

Using Special Algebraic Characters

Place the cursor where you want the character to appear, then press  and the number key at the same time. The special character key will remain highlighted on the screen while you are in that mode.

↵ 1 \pm ↵ 2 $\sqrt{}$ ↵ 3 x^2 ↵ 4 $\frac{1}{2}$ ↵ 5 $\frac{2}{3}$

- | | |
|-----|--|
| ↵ 1 | The plus/minus sign will be displayed on the screen. |
| ↵ 2 | The radical expands as you enter numbers. To exit the radical mode, press the same keys again. |
| ↵ 3 | Enter an exponent. To exit the exponent mode, press ➡. |
| ↵ 4 | Enter the numerator. Press ➡ to move the cursor to the denominator; enter the denominator. To exit the fraction mode, press the ➡ key again. |
| ↵ 5 | The small fraction key allows you to include small fractions within large fractions. Enter the numerator. Press ➡ to move the cursor to the denominator; enter the denominator. Press ➡ again to exit this mode. |

Main Screen Menus

File

New Student	
Record Keeping	

See Record	
Print Record	
Setup	
Editor	↵ E
Quit	↵ Q

New Student – change student
Record Keeping – turn on/off
See Record – view student scores
Print Record – print out scores
Setup – printer and pathname information
Editor – access to create new data files
Quit – exit the entire program

Activity

Start	
Start with	
Stop	
Sound	

Options	↵ O
Review Text	↵ R

Start – begin selected activity
Start with – begin on a specific problem
Stop – exit from an activity
Sound – turn on/off
Options – change within an activity
Review Text – see previous explanation

Subject

Integers
Order of Op.
Mono. & Poly.
Factoring
Equations
Systems of Eq.
Algebraic Frac.
Radicals
Quadratic Eq.

These are the subjects available in the *Alge-Blaster Plus* program.

Level

✓ Level 1
Level 2
Level 3
Level 4
Your File

Levels 1–4 are levels of difficulty of the problems within each subject area.

Your File – use a custom data file

Help

Info	↵ ?
Terms	↵ T
Hints	↵ H

Grid	↵ G

Info – activity instructions

Terms – algebraic terms and definitions

Hints – for *Practice with Help* option

Grid – lines for Graph activity

Editor Menus

File (Editor)

New	
Open	↵ O
Save	↵ S
Close	

ABP	↵ R
Quit	↵ Q

New – create a new file

Open – open an existing file

Save – save a file

Close – close a file

ABP – return to Main screen

Quit – exit the program

Problem (Editor)

Next Prob	
Prior Prob	
Insert Prob	
Delete Prob	
Go to Prob #	↵ G

Next Prob – advance to next problem

Prior Prob – move to previous problem

Insert Prob – insert a problem

Delete Prob – delete a problem

Go to Prob # – go to a specific problem

Step (Editor)

Next Step	
Prior Step	
Insert Step	↵ I
Delete Step	↵ D
Undo	↵ U

Next Step – move to the next step

Prior Step – move to the previous step

Insert Step – insert a step

Delete Step – delete a step

Undo – cancel last input or deletion

APPENDIX A – INSTRUCTIONS AND HINTS

Instructions and hints available to use with your own data files:

0. No prompt selected for this step. (For Macintosh users None is the hint.)
 1. Solve.
 2. Factor.
 3. Reduce.
 4. Simplify.
 5. Find the sum.
 6. Find the difference.
 7. Find the product.
 8. Find the quotient.
 9. Find the solution set.
10. Subtract smaller absolute value from larger.
11. Determine sign.
12. To subtract a number, add its opposite.
13. Determine sign and add.
14. Determine sign and subtract.
15. Determine sign and multiply.
16. Determine sign and divide.
17. Express meaning of exponent(s).
18. Evaluate inside parentheses.
19. Evaluate using exponent(s).
20. Multiply or divide from left to right.
21. Add or subtract from left to right.
22. Group coefficients of like terms.
23. Combine coefficients.
24. Distribute negative sign.
25. Regroup coefficients and variables.
26. Multiply where indicated.
27. Multiply coefficients and add exponents of like terms.
28. Raise monomials to indicated powers.
29. Raise coefficients and variables to indicated powers.
30. Use Distributive Property of Multiplication.
31. Use Addition Property of Equations.
32. Use Multiplication Property of Equations.
33. Use the FOIL method.
34. Combine like terms.
35. Use APOE to collect variables on one side.

36. Factor out the GCF.
37. Factor using trinomial method.
38. Determine separation of linear term.
39. Factor GCF out of each binomial.
40. Add equations.
41. Determine remaining variable by substitution.
42. Multiply equation(s) by a constant.
43. Substitute variable expressions.
44. Use APOE to isolate a variable.
45. Rewrite equation to isolate variable.
46. To divide, subtract exponents.
47. Multiply numerators, multiply denominators.
48. Combine fractions with common denominators.
49. Rewrite as fractions with common denominators.
50. Raise each fraction to higher terms.
51. Multiply both sides of the equation by LCD.
52. Factor as squares.
53. Factor the radicand using a perfect square.
54. Write as a single radical.
55. Rationalize the denominator.
56. Combine like radicals.
57. Set each factor equal to zero and solve.
58. Write in standard quadratic form.
59. Identify coefficients a , b , and c .
60. Use quadratic formula to solve.
61. Write ordered pair.
62. Change division to multiplication by reciprocal; factor.
63. Write in simplest radical form.
64. Reduce coefficients.
65. Factor denominators and find LCD.
66. Take square root of perfect squares.
67. Rewrite as a product of two binomial factors.
68. Simplify and write as a solution set.
69. Find square root of first and third terms.
70. Simplify by cancelling common factors.
71. Factor and gather together as one fraction.
72. Factor using general trinomial method.
73. Evaluate numerator and denominator.
74. Rewrite as a product of GCF and binomial factors.

APPENDIX B – TROUBLESHOOTING GUIDE

MS-DOS

If your installed mouse does not work – Go to Setup and select the pointing device that you are using.

If you cannot print, or the following message is displayed: *Unable to locate DMPDIBMM.RRS* – An incorrect printer might be selected. Go to Printing in the Setup menu and select **ASCII** in the Printer box. This is the only printer driver *Alge-Blaster Plus* uses.

If no custom data or record-keeping files are displayed in the File box – The wrong drive may have been selected, or there may be no files on the custom data disk (or records disk). Only the drive letter will show in the box.

If the program is asking for a specific file – Check the disk labels to locate filenames. If the program continues to ask for a file even though you've selected **Cancel**, you must insert the disk with the requested file in order to continue.

Macintosh

If you have sound problems and/or the program crashes – You are using a machine with less than 1 megabyte of memory, or your system disk has not been updated to System 6.04.

If the program will not read your data/records disk – The disk name currently being read is displayed in a box at the top of the screen. Select **Drive** in the file requester box to read a disk in another drive.

If your keyboard does not have arrow keys – In *Alge-Blaster Plus* arrows are used in the game and with the special characters palette

(for Learn, Solve, and the Editor). In the game, use the A and Z keys instead of the up and down arrows to move between lasers. In Learn, Solve, and the Editor, click to move out of a special character mode.

If you cannot view a complete example problem in the Learn activity – You are selecting **Continue** too soon. First press the ↓ on the vertical scroll bar to view all the steps of the example problem. Then select **Continue** to advance to the practice problems.

If the Subject menu is grayed out – It is not available for that activity. (Translate, Graph, and the *Alge-Blaster Plus* Game do not use the Subject menu.)

If you cannot print – Check to make sure your printer is turned on, the paper is not jammed, and the cables are not loose.

Note: Do not rename program data files after installing the program to your hard disk.

Apple

If you get the message “Unable to load ProDOS” – You are using an MS-DOS disk, or your disk is damaged or defective. Return the disk for replacement.

If a menu item is fuzzy or “grayed” – This means that the menu item is not available at this time.

If you cannot print – Check the printer slot in Setup; turn on the printer.

If the program will not accept your data/records disk – The incorrect drive, volume, or pathname information might be entered in Setup, or it might be missing a slash.

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ABOUT THE AUTHORS

Alge-Blaster Plus was developed by a team of educators and programmers. The team was directed by Dr. Jan Davidson, a former teacher and the founder and president of Davidson & Associates, Inc., and Mike Albanese, director of research and development.

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IBM, Mac



Math Blaster™ Mystery

Teaches strategies for solving math word problems and develops pre-algebra and critical thinking skills. Helpful hint screens offer instructions, formulas, and definitions, and the pop-up calculator makes calculating a breeze. Use the editor to customize the program with your own word problems.

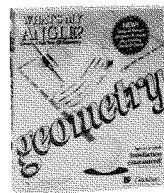
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