READ ME: Licensing and functionality.

About PowerMath Logo and licensing.
PowerMath Logo is a modern version of the Logo computer language licensed under the GNU Public License. Please read and agree to the **key license provisions** before you use or distribute the program.

Key license provisions. As a GNU-licensed product, PowerMath Logo may be freely distributed, but this GNU license summary must remain with it when copies are made and passed to others. **PowerMath Logo should never be sold or used as commercial barter or as any means of financial gain. As free software PowerMath Logo comes with no warranty.**

Beta version. The PowerMath application is stable and adequately functional. On Apple Macintosh computers, keyboard shortcuts using the standard Command and letter keys work as expected. Most File menu items work as expected, so navigation for loading and saving .logo files is functional.
 File>Load Procedures works on Apple Mac OS. If it does not work on non-Apple machines there is a workaround—copying files on the Procedures Window to the buffer, File>OPENing additional files, then pasting buffer contents back to the Procedures Window will work. All content on the Procedures Window may then be File>SavedAs and renamed if desired.

Please note that *The Expert Mathematician* <u>lesson </u>plans for daily mathematics classwork with Logo are a commercial product; per individual purchase, they are only to be used with students in one school building. The PowerMath Logo app is free; the math lessons are purchased separately and are to be used only in one school building per purchase.

Other beta versions.
Skill Games and Teacher Files: most function as intended, several do not and are yet to be updated. These files are all copyright protected. Any additional Skill Games or Teacher Files that may be provided will also be copyright protected and are not to be distributed separately and should never be sold or used as commercial barter or as any means of financial gain.

PowerMath Logo can run on any computer that has **Java OpenJDK** installed.

About Java and OpenJDK.
Java is a computer language used to design many software programs. Java programs can run on any operating system as long as it has a small utility that sits between the software application (such as Logo) and the native operating system. The Logo application will not run without this utility. The utility is free.

Choose the latest "hotspot" version from this URL:
https://adoptopenjdk.net/index.html?variant=openjdk16&jvmVariant=hotspot

From the dropdown menu, choose and install the option for your operating system.

Click-open the PowerMath Universal folder. Double click the PowerMath.jar file to start.

Problem starting Logo on your computer? Confirm Java is installed with OpenJDK.

Apple Mac platform. If PowerMath Logo does not start up after confirming the machine or server is Java enabled, school computers may have a security block on anything not recognized. Operation of PowerMath may require changing a security setting to enable recognition of the software. This can be done on a central server by the ed-tech director or on individual computers in the Preferences > Security pane.

Windows platform.
In your **Start menu,** click **Run...**
At **"Enter command you want to run",** type: **cmd**
This will bring up a **DOS prompt:** Type: **java -version**

If Java is not found, a message box will state that. Refer to the URL above, download and install the correct version for your operating system.

Logo functionality.
Procedures window. Follow the steps explained in the tutorial for creating and operating "procedures" from the Procedures window.

Tutorial and software controls. Please begin by working through the tutorial. It briefly introduces how to use the Logo application and what it can do.

The **Teacher Files** are working copies of all the procedures students build during lessons. They can be used for verification or debugging if you get stuck, or a skill game or other file becomes inoperable. **Skill Games and Teacher Files are currently made available independently of the PowerMath Logo application. They are easily modified by students rendering them inoperable. PLEASE KEEP AT LEAST ONE COMPLETE BACKUP COPY OF ALL FILES IN A SAFE PLACE. These can be used to replace corrupted files.**

When you have activated a skill game, you will be prompted for an answer. Type the correct answer in the Command Center and press return. The skill games comprise the full range of middle grades math skills students should know, including principles of algebra I. They are simply designed, keeping the focus on the math, not on fancy graphics. Most students learn to enjoy doing them as a practice part of the complete program. Lessons prompt practice concurrent with use of the skill in applying concepts being taught.

Why the "power" in PowerMath Logo? In general, it enables mathematical investigations, made easy and leading to a better understanding and appreciation of how mathematical logic works—and how it can used in problem solving.