

Investigations: Student Software: *Shapes*

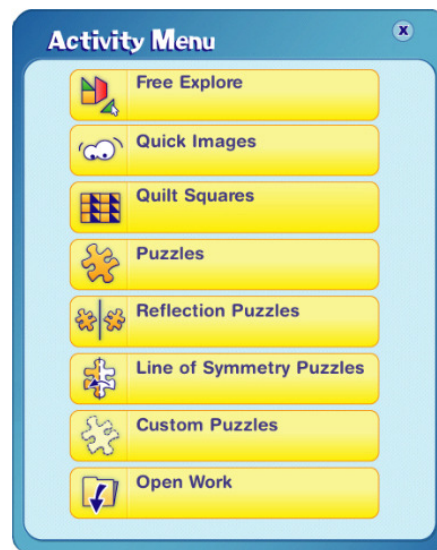
Introduction This tutorial explains how to install and use the Investigations student software *Shapes*.

Shapes is a software program for kindergarten through second grade that helps students learn geometric concepts. *Shapes* is available for use with Investigations or as a fun and powerful learning tool on its own.

Installation To install the software, simply insert the CD-ROM into the disk drive. A welcome screen should appear. Follow the directions on the screen, clicking **Next** until the program is installed. Click **Finish** to complete the process.

To access the program, go to the Start menu, select **All Programs**, then **Investigations**, and finally choose **Shapes**. Notice that a *Shapes* user guide comes with the software. This will provide detailed information about the program. Click **Shapes** to begin.

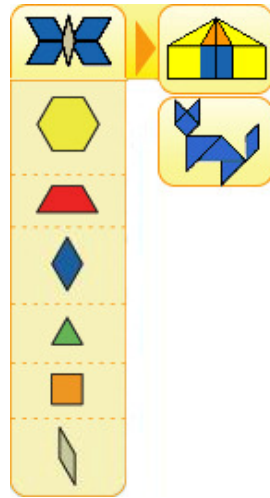
Using Shapes *Shapes* offers an environment in which students learn about geometry using virtual manipulatives. Upon opening the program, the Activity menu appears.



This menu links to the various activities. To learn the basics of the program, start by looking at Free Explore.

Click **Free Explore** to enter the activity. This opens the workspace that is used for each activity. The *Shapes* workspace consists of a large, white area for placing shapes as well as buttons for the different shapes and tools available to the students.





The shape set button indicates which shapes are in use.

Switching to another shape set is easy; just click the orange arrow to the right of the shape set button. Then, click the preferred set to use. There are three available sets:

- Pattern blocks
- Power polygons
- Tangrams

The selection of tangrams provides a button that allows the user to place a complete set of tangram shapes into the workspace rather than individually selecting them.

To individually select a shape, click it. Notice that the cursor turns into the shape chosen. Place the shape anywhere within the white area. The cursor will remain that shape until a different one is selected.

After placing shapes in the work area, there are a variety of ways in which they can be manipulated using the toolbar.



The arrow in the toolbar selects and moves shapes in the workspace. To select more than one shape at a time, click the mouse button in an empty part of the work area and hold it down while highlighting the shapes. To move any selected shape or shapes, click on the selection and hold down the mouse button while dragging the shape to the desired location. When in place, release the mouse button.

Shapes can be flipped horizontally and vertically as well as rotated clockwise and counterclockwise. It is even possible to choose the degree to rotate shapes by clicking the orange arrow.

Clicking a shape after selecting the eraser tool erases the shape. To clear the entire area, switch to the broom tool by clicking the orange arrow.

Another useful tool is the glue tool, which is used to group shapes together. Once shapes are glued together, they will act as a single unit. To undo this, select the hammer tool by clicking the orange arrow.

The pattern tool allows users to record how the shapes behave. Hit the record button, and then select the shapes to pattern. Use the arrow

and rotate tools to change the location and position of the shape. Click the stop button when finished. To apply this to other shapes, simply click the pattern button, and then click the shape or group to manipulate. Only one pattern can be stored at a time.

The magnet icon is the snap button. When this button is active, it will align the nearest corners anytime a shape is placed close to another shape.

The grid button will turn the grid on and off. Use the grid to line up shapes easily.

The mirror buttons allow a reflection of the shape to occur over horizontal and vertical lines.

Feel free to explore other features such as copy, color options, undo, hints, save, print, and help. Detailed information is available in the *Shapes* user guide.

Activities

Other directed activities are available in the software. For all the activities except Free Explore and Quilt Squares, there is a prompt to select a shape set, difficulty level, and puzzle. To return to the main menu at any time, click the X.

Once the activity has started, switching between puzzles within the same difficulty level is easy. Use the arrows on either side of the puzzle number in the header bar.



In the Quick Image activity, two boxes appear inside the workspace. There are eyes above the right-hand box.

Clicking on them will briefly show a shape design. Students will need to remember what the image looks like and recreate it in the box on the left. A tally of how many hints they need is kept beside the eyes. The goal is to recreate the shape design with as few hints as possible. Students advance to the next puzzle by using the arrows in the header bar or going back to the main menu if they've completed all the puzzles in a level.



In Quilt Squares, there is a small box on the left with nine identical boxes on the right. Placing shapes inside the small box will make it appear in the nine-box grid. The result resembles a quilt. Students will have fun seeing the different designs they can create.



In the Puzzles activity, students need to fill in the outline of an object with shapes from the selected shape set. There can be multiple solutions to a puzzle. Students should try to find the one that requires the least amount of shapes.



Reflection Puzzles are similar to the Puzzles activity, except instead of placing the shapes inside the outline of an object, students place shapes on the opposite side of a mirror line to create a reflecting image. Students will need to strategize where to put the shape so the reflection is exact. The grid dots are a helpful tool to assist students. Challenge students by having them turn off the mirror images as they build their shape.



In Line of Symmetry Puzzles, students determine whether or not a design has a line of symmetry by rotating the shape and trying to match it with its reflection so they overlap exactly.



Students can make their own puzzles as well. Click Custom Puzzle, choose the type of puzzle, and select a shape set. Students can make a puzzle in the workspace, and they can save the puzzle to edit at a later time. When they want to solve the puzzle they made, they open the puzzle and place shapes in the outline.

Students will have fun learning about geometric concepts, such as congruency, in a hands-on way.

Review

This guide discussed how to install and use *Shapes* with Investigations in Grades K–2. The software teaches students about geometry, patterns, and relationships. The guide also examined different activities, such as Quilt Squares and Puzzles, that students can use to learn concepts such as symmetry while manipulating shapes.

To learn more about Investigations, please watch the other Investigations tutorials on this Web site.