WELCOME TO INVESTIGATIONS: LOGOPATHS!

Investigations: LogoPaths provides an environment where students can learn about math and computer programming through hands-on exploration. While designed for use in conjunction with Pearson Scott Foresman’s series of Investigations textbooks, LogoPaths is a fun and powerful learning tool in its own right. Please take a moment to read through this guide, so you and your students can take full advantage of all that LogoPaths has to offer.

GETTING STARTED

Minimum CD-ROM System Requirements:

<table>
<thead>
<tr>
<th>Windows</th>
<th>Macintosh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 2000, ME, XP or later</td>
<td>Mac OS X 10.2.8 or later</td>
</tr>
<tr>
<td>Intel Pentium II or higher</td>
<td>Power Macintosh G3 (or higher) or Intel processor</td>
</tr>
<tr>
<td>128 MB or more of installed RAM</td>
<td>128 MB or more of installed RAM</td>
</tr>
<tr>
<td>16 bit color depth or greater</td>
<td>16 bit color depth or greater</td>
</tr>
<tr>
<td>Sound available</td>
<td>Sound available</td>
</tr>
<tr>
<td>50 MB available hard disk space</td>
<td>50 MB available hard disk space</td>
</tr>
<tr>
<td>Adobe(r) Acrobat(r) Reader(r) 7.0 or above</td>
<td>Adobe(r) Acrobat(r) Reader(r) 7.0 or above</td>
</tr>
</tbody>
</table>

Minimum SuccessNet system requirements:

<table>
<thead>
<tr>
<th>Windows</th>
<th>Macintosh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Browser Microsoft® Internet Explorer 6.0 or greater</td>
<td>Internet Browser Safari™ 2.0 or later</td>
</tr>
<tr>
<td>Java script and cookies enabled</td>
<td>Java script and cookies enabled</td>
</tr>
<tr>
<td>Windows® 2000(SP 4), Windows® XP Home or Professional (SP 2), or later</td>
<td>Mac OS X 10.4 or later</td>
</tr>
<tr>
<td>Intel Pentium® 4 or higher</td>
<td>Power Macintosh G4 (or higher) or Intel processor 1ghz or faster</td>
</tr>
<tr>
<td>256 MB or more of installed RAM</td>
<td>512 MB or more of installed RAM</td>
</tr>
<tr>
<td>Monitor resolution 1024 x 768 or higher</td>
<td>Monitor resolution 1024 x 768 or higher</td>
</tr>
<tr>
<td>Sound available</td>
<td>Sound available</td>
</tr>
<tr>
<td>100 MB available hard disk space</td>
<td>100 MB available hard disk space</td>
</tr>
<tr>
<td>Adobe(r) Acrobat(r) Reader(r) 7.0 or above</td>
<td>Adobe(r) Acrobat(r) Reader(r) 7.0 or above</td>
</tr>
</tbody>
</table>
**CD-ROM Installation Instructions:**

**Windows:**

1. Put the LogoPaths CD-ROM in the computer.
2. Follow the onscreen instructions to install the software.

**Macintosh:**

1. Put the LogoPaths CD-ROM in the computer.
2. Double-click the CD-ROM on your desktop.
4. Follow the onscreen instructions to install the software.

**INVESTIGATIONS: LOGOPATHS**

In *LogoPaths*, the user controls a character known as a **turtle** by typing in special **commands**, or instructions, into a window called the **Command Center**. For instance, typing “*forward 50*” will make the turtle move forward 50 steps, while “*left 30*” will make the turtle turn 30 degrees to the left.

As the turtle moves, it draws a line along its path. By entering commands in order, users can draw squares, triangles, stars, and countless other shapes.

In addition to its **Free Explore mode**, *LogoPaths* includes a variety of **activities**, such as “*Feed the Turtle*” and the “*Angle and Turn Game*”. Each of these activities focuses on a particular set of skills and concepts.

**MAIN MENU**

The main menu provides links to the activities available in *Investigations: LogoPaths*. 
The work area for LogoPaths consists of five panels and several buttons. The Drawing panel is where the turtle moves. The Command Center panel is where commands are entered to control the turtle. The others - the Teach panel, Messages panel, and Notes panel - will be discussed in detail later in this guide.

Except for the Drawing panel, which is always fully visible, each of the panels may be expanded or hidden by clicking on the small triangle next to their name (or, in the case of the Messages/Notes panel, above the line separating the two sections).

THE TURTLE

The LogoPaths turtle is shaped like a turtle by default but may be changed to other shapes, such as a spider, dragonfly, or soccer ball. The size and color of the turtle may also be changed.

There are two ways to change the turtle's appearance: either by clicking on the Turtle Features button and selecting a new shape, shape size, and color from the menu; or else by entering the setshape, setshapesize, and setcolor commands into the Command Center panel (more on this later).
‘Turtle Features’

Clicking the Turtle Features button, located above the Drawing panel, will bring up the Features menu:

On this menu, click the radio button next to the desired shape, shape size, and color and then click “Save” to apply the changes. To keep the existing settings, click “Cancel”.

CHANGING TURTLE FEATURES USING COMMANDS

To change the turtle's shape, shape size, or color via the Command Center, click on the white area of the Command Center panel and type the appropriate command plus the name of the desired shape, shape size, or color.

For example, to change the color to red, type the following:

```
setcolor redcolor
```

Then press “Enter.” The turtle’s color will change to red.

Below, find a complete list of valid inputs for each command:

<table>
<thead>
<tr>
<th>Command</th>
<th>Valid Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>setshape</td>
<td>turtleshape, lizardshape, dragonflyshape, airplaneshape, spidershape, birdshape, rocketshape, mouseshape, ballshape, mantashape</td>
</tr>
<tr>
<td>setshapesize</td>
<td>smallshape, mediumshape, largeshape</td>
</tr>
<tr>
<td>setcolor</td>
<td>redcolor, goldcolor, greencolor, bluecolor, purplecolor, silvercolor, blackcolor</td>
</tr>
</tbody>
</table>
MOVING THE TURTLE

To make the turtle move and turn, simply enter the appropriate commands into the Command Center panel.

For instance, typing “forward 20” or simply “fd 20” into the Command Center panel then pressing “Enter” will move the turtle forward 20 steps (“turtle steps” being the basic unit for measuring length in LogoPaths).

The command “left 90” or “lt 90” will turn the turtle 90 degrees to the left (counterclockwise).

Each command may be entered on a separate line or strung together on the same line. For example, entering

```
forward 50 lt 90
fd 100
```

will produce the following result:

The turtle starts facing “up” (towards the top of the screen). It moves forward 50 turtle steps, turns left 90 degrees, and then moves forward 100 turtle steps.

Below is a list of available commands for moving the turtle:

<table>
<thead>
<tr>
<th>Command</th>
<th>Abbreviation</th>
<th>Function</th>
<th>Valid Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>forward</td>
<td>fd</td>
<td>moves the turtle forward X number of steps</td>
<td># of steps</td>
</tr>
<tr>
<td>back</td>
<td>bk</td>
<td>moves the turtle backwards X number of steps</td>
<td># of steps</td>
</tr>
<tr>
<td>left</td>
<td>lt</td>
<td>rotates the turtle to the left X number of degrees</td>
<td># of degrees</td>
</tr>
<tr>
<td>right</td>
<td>rt</td>
<td>rotates the turtle to the right X number of degrees</td>
<td># of degrees</td>
</tr>
<tr>
<td>home</td>
<td></td>
<td>moves the turtle in a straight line back to its starting position</td>
<td></td>
</tr>
<tr>
<td>repeat x [commands]</td>
<td></td>
<td>performs the commands in the brackets X number of times</td>
<td># of repetitions, valid command(s) in the brackets</td>
</tr>
</tbody>
</table>
Examples

\[
\begin{align*}
&\text{fd 50} & \text{lt 30} & \text{repeat 4 [fd 75 rt 90]} & \text{repeat 45 [fd 1 rt 1]} \\
&\text{lt 90} & \text{bk 75} \\
&\text{fd 25} & \text{rt 120} \\
&\text{rt 90} & \text{bk 75} \\
&\text{fd 50} & \text{rt 120} \\
&\text{home} \\
\end{align*}
\]

Operations and Negative Numbers As Input

It is possible to enter negative numbers as input. “fd -100” will have the same end result as “bk 100”; “rt 90” will have the same result as “lt -90”, etc.

It is also possible to enter algebraic operations as input: “+” for addition, “-” for subtraction, “*” for multiplication, “/” for division, “^” for exponents, and parenthesis “()”. Entering “fd 10*5” will move the turtle forward 50 steps. Entering “lt 5^2” will rotate the turtle left 25 degrees. (consider chart here)

Clearing the Command Center Panel

The Command Center panel can be cleared either by manually deleting the text inside it, or else by clicking the Erase All button located in the top right area of the workspace.

ADJUSTING THE PEN

By default, the turtle draws a line wherever it moves. To move the turtle without drawing a line along its path, enter the penup command or “pu” for short. This command will lift the turtle’s pen so it is no longer touching the surface of the Drawing panel. To resume drawing, enter the pendown command or “pd”.

The thickness of the pen may be adjusted via the Turtle Features menu, or else by using the setpensize command. Below, see examples of lines drawn with the pen set to the default (small) pen size, medium pen size, and large pen size:

<table>
<thead>
<tr>
<th>Command</th>
<th>Abbreviation</th>
<th>Function</th>
<th>Valid Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>penup</td>
<td>pu</td>
<td>raises the pen - the turtle will not draw a line as it moves</td>
<td># of steps</td>
</tr>
<tr>
<td>pendown</td>
<td>pd</td>
<td>lowers the pen - the turtle will draw a line as it moves</td>
<td># of steps</td>
</tr>
<tr>
<td>setpensize</td>
<td></td>
<td>changes the thickness of the pen and the lines drawn by the turtle as it moves</td>
<td>smallpen, mediumpen, largepen</td>
</tr>
</tbody>
</table>
THE MESSAGES AND NOTES PANELS

The Notes panel is an area where users may type in notes for their own reference. Nothing entered into the Notes panel will affect the turtle or any of the other panels.

The Messages panel is where LogoPaths displays messages for the user. These may include instructions for an activity, error messages for when a user enters an improper command, or output for print or other special commands like allcolornames (which prints a list of all the available color names for use with the setcolor command).

ERROR MESSAGES

If the user enters a command into the Command Center panel that LogoPaths doesn’t recognize, provides the wrong inputs for a command, or enters a command that the turtle cannot carry out (e.g., instructing it to move through a wall in one of the mazes activities, or to go beyond the limits of the drawing panel), then an error message will appear in the Messages panel. The Messages panel will flash three times to get the user’s attention then turn red, and the last command typed into the Command Center panel before the error message resulted will be highlighted.

Below are some common error messages and an explanation for each of them:

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t know how to “___”</td>
<td>A command was entered that LogoPaths does not recognize. Make sure the proper command was used (e.g., the abbreviation for “forward” is “fd; not “fwd”), and that it was spelled correctly.</td>
</tr>
<tr>
<td>“<em><strong>” doesn’t know what to do with “</strong></em>__”</td>
<td>LogoPaths recognizes the command, but not the variable being used with it (e.g., typing “setcolor orangecolor” will produce this error message, because “orangecolor” isn’t one of the allowed color names)</td>
</tr>
<tr>
<td>“<em><strong>” is not within the acceptable range (-999 to 999) for the command “</strong></em>__”</td>
<td>The number entered as input for a command is too large (e.g., the turtle cannot be moved more than 999 steps or turned more than 999 degrees with a single command)</td>
</tr>
</tbody>
</table>
After receiving an error message, review all the commands in the Command Center panel and think of what could be changed to fix the error. Was something misspelled? Were all of the variables for the command or procedure entered correctly? In the Mazes activity, was a “wrong turn” entered earlier in the list of commands that led to the turtle going down a dead end?

**Clearing the Messages Panel**

The error message will remain in the Messages panel until cleared out by entering the `clearmessages` command into the Command Center, or clicking the Erase All button located in the top right area of the workspace. 

*Note that the Erase All button will also clear out the Command Center, Teach panel, and Drawing panel!*

**THE TEACH PANEL**

The Teach panel is one of the most useful features of *Investigations: LogoPaths*. The Teach panel is where users may enter or edit procedures. Procedures are lists of commands that can be given to the turtle all at once by entering a single word in the Command Center.

For example, a user might type the following commands into the Command Center panel to create an equilateral triangle, with the turtle ending up at its original location and pointing in its original direction:

```
fd 100
rt 120
fd 100
rt 120
fd 100
```

If the user wants to repeat this process, they can save time and effort by creating a procedure containing all of these commands.
There are three ways to create a procedure:

**Method 1 - Creating Procedures Using the Teach Button**

1. Type the commands for the procedure directly into the Command Center panel
2. Click on the **Teach button**, located at the top of the Command Center panel
3. Enter a name for the procedure

So, if a user entered the commands to draw an equilateral triangle into the Command Center, clicked the Teach button, then named the procedure “triangle”, from then on every time the word “triangle” was entered in the Command Center, the turtle would carry out the steps for drawing an equilateral triangle.

After creating a procedure using the Teach button, all of the commands entered into the Command Center panel will appear in the Teach panel, along with some added text.

For example, the “triangle” procedure described above would appear as follows:

```
to triangle
  fd 100
  rt 120
  fd 100
  rt 120
  fd 100
  end
```

This leads to the second method for creating a procedure: typing it directly into the Teach panel.

**Method 2 - Typing Directly into the Teach panel**

1. Click on the Teach panel and type “to [name of procedure]” (in the above example, “to triangle”)
2. Type in the commands for the procedure
3. Type “end”

**Method 3: Using the New Procedure Button**

The **New Procedure button** is a shortcut for entering procedures directly into the Teach panel.

1. Click the New Procedure button, located at the top of the Teach panel
2. Enter a name for the procedure
3. Enter commands between the “to [name of procedure]” line and “end”

After a procedure has been created (regardless of what method was used), the user may go back and edit it in the Teach panel. Commands may be added, removed, or changed, as long as the procedure begins with “to ______” and concludes with “end”.

Clearing the Teach panel

The Teach panel can be cleared either by manually deleting the text inside it, or else by clicking the **Erase All** button located in the top right area of the workspace. *Again, note that the erase all button will also clear out the Command Center panel, Teach panel, and Drawing panel.*

**VARIABLES IN PROCEDURES**

Procedures are very powerful tools for capturing a set of instructions. After a while, however, some students start writing a new procedure for each slight variation of a shape (e.g., “smallsquare”, “mediumsquare”, “teensysquare”, etc.) The next step for these students is to create procedures with **variables**. Variables allow the same set of commands to be performed each time the procedure’s name is entered into the Command Center, but with different inputs for the various commands.

For example, a user wants to create multiple equilateral triangles, but of differing sizes. To do this, they could amend the “triangle” procedure from the previous example as follows:

<table>
<thead>
<tr>
<th>Without Variables</th>
<th>With Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>to triangle</td>
<td>to triangle :sidelength</td>
</tr>
<tr>
<td>rt 30</td>
<td>rt 30</td>
</tr>
<tr>
<td>fd 100</td>
<td>fd :sidelength</td>
</tr>
<tr>
<td>rt 120</td>
<td>rt 120</td>
</tr>
<tr>
<td>fd 100</td>
<td>fd :sidelength</td>
</tr>
<tr>
<td>rt 120</td>
<td>rt 120</td>
</tr>
<tr>
<td>fd 100</td>
<td>fd :sidelength</td>
</tr>
<tr>
<td>rt 90</td>
<td>rt 90</td>
</tr>
<tr>
<td>end</td>
<td>end</td>
</tr>
</tbody>
</table>

In the revised version, the variable “:sidelength” represents the length of the sides of the triangle. Of course, the name given to a variable can be anything: in the above example, “:sidelength” could just as easily be “:penguin” or “:ilovelogo” – the significance would be the same.

Whenever the name of a procedure containing variables is entered into the Command Center, it must be followed by values for each variable, in the order they are listed in the first line of the procedure.
For example, with the “triangle” procedure, the first line is

\[
\text{to triangle :sidelength}
\]

This means that, when entering “triangle” into the Command Center panel, it must be followed with a value for “:sidelength”, such as “to triangle 10” or “to triangle 200”.

Below is a procedure for drawing a rectangle involving two variables — height and width:

\[
\text{to rectangle :height :width}
\]
\[
\text{fd :height}
\]
\[
\text{rt 90}
\]
\[
\text{fd :width}
\]
\[
\text{rt 90}
\]
\[
\text{fd :height}
\]
\[
\text{rt 90}
\]
\[
\text{fd :width}
\]
\[
\text{rt 90}
\]
\[
\text{end}
\]

In this case, it would be necessary to follow the procedure name with two values, one for “:height” and another for “:width”, in that order:

```
rectangle 25 50
rectangle 100 50
```

**ADDITIONAL FEATURES**

*Label Turns and Label Lengths*

Clicking the **Label Turns button** located in the top right area of the workspace, will cause an arrow to appear in the Drawing window at each point where the turtle has made a turn, along with a number indicating the size of the turn in degrees. Clicking the button again will make the arrows and numbers disappear. Note that labels will not appear next to any turns the turtle made with the pen up.
Clicking the **Label Lengths button** , located in the top right area of the workspace, will cause a box to appear next to each line in the Drawing window, with a number giving the line’s length in turtle steps. When the turtle moves forward, boxes are blue and have the letter “F” following the length. When the turtle moves backward, boxes are gold and have the letter “B” following the length. Clicking the button again will make the boxes disappear. Note that labels will not appear next to any turns the turtle made with the pen up.

![Label Lengths](image)

**Ruler and Turtle Turner**

The **Ruler** is used to measure the distance from the turtle’s current position to anywhere in the Drawing Panel, usually to help the turtle move to that position. Clicking the **Ruler button**, located in the top right area of the workspace, will cause a black line to appear connecting the cursor to the center of the turtle. At this point, clicking anywhere in the Drawing panel will cause a blue ruler to appear, marking off the distance from the selected point to the center of the turtle in 10-step increments. Also, a message will appear in the Messages panel giving the distance from the selected point to the center of the turtle.

![Ruler](image)

The **Turtle Turner** is used to measure how much the turtle needs to turn to point towards a specific point in the Drawing Panel. Clicking the **Turtle Turner button**, located in the top right area of the workspace, will cause the **Turtle Turner** to appear. The Turtle Turner is a pair of gray circles with a green line pointing in the direction the turtle is facing and gray lines marking every 30 degrees from the green line. It also has a red arrow that points from the turtle to your cursor. Clicking anywhere in the Drawing panel will cause an arrow to appear showing how the turtle can turn from its current heading to the direction of the selected point. A message will appear in the Messages panel giving the size of the arc in degrees.

![Turtle Turner](image)
STEP MODE

Step Mode is a useful tool for reviewing work and correcting mistakes.

Clicking on the Step button, located above the Command Center, will activate Step Mode. In Step Mode, the turtle returns to its original location and heading, then automatically carries out the first command listed in the Command Center. The cursor will change to a pair of shoes. Each subsequent click of the mouse will cause the turtle to perform the next command listed in the Command Center panel until A) all of the commands have been carried out; B) it encounters an error and cannot go further; or C) the user clicks on the Stop button, also located above the Command Center.

How Step Mode deals with a procedure in the Command Center panel depends on whether “Step Through Procedure” has been toggled on or off in the Preferences menu (which is accessed by clicking on the Preferences button, located in the top right area of the workspace).

When Step Through Teach is “off,” the program will treat a procedure in the Command Center panel as a single command. If there is an error, it will simply highlight the line in the Command Center panel containing the name of the procedure. If there is not an error, it will perform all of the commands for the procedure at once then move on to the next command.

When Step Through Teach is “on,” then whenever the program encounters a procedure while stepping through the lines in the Command Center, it will move down to where the procedure is listed in the Teach panel and go through each line of the procedure, one command at a time. If there is an error, it will highlight the exact command within the procedure that caused it. When the procedure is complete, the program will return to the Command Center panel and step through the rest of the lines.

Code Hints

Clicking either of the Code Hints buttons, located at the top of the Command Center panel and at the top of the Teach panel, will bring up the code hints section of the help menu. Here, the user can select from a list of all available commands, read an explanation of what the command does, and automatically insert the command into the active panel by clicking the “Insert” button. To exit without inserting the command, click the “Cancel” button.
Clicking the “All Codes” tab will show an alphabetical list of all commands, while the “Codes by Topic” tab gives a listing wherein commands with related functions are grouped together.

**Help**

Clicking the **Help button** located in the top right area of the workspace, will bring up the “General Help” section of the **Help menu**. Here, the user can get information on a list of topics related to LogoPaths, with hyperlinks leading to related topics.

**Preferences**

Clicking the **Preferences button**, located in the top right area of the workspace, brings up the **Preferences menu**.

Besides “Step Through Teach” (see Step Mode above), the Preferences menu also presents options for “Turtle Speed,” “Turn Rays,” and “Decimal Places.”
Turtle Speed determines how quickly the turtle moves onscreen. There are two settings: “slow” and “fast.” “Slow” will allow the user to watch the turtle draw lines and make turns, while “fast” will have the turtle draw lines and make turns much more quickly.

Turn Rays are the lines that appear whenever the turtle turns, marking off every 30 degrees that the turtle rotates. They can be set to either “on” (visible) or “off” (invisible).

Setting the number of Decimal Places will determine how accurately the Turtle Turner and Ruler measure angles and distances. It does not affect what numbers are allowed as input for commands.

Stop
If the turtle is in the process of carrying out a command, clicking the Stop button, located at the top of the Command Center, will cause it to stop and return to its location prior to executing the command. If the program is in Step Mode, clicking the stop button will exit Step Mode.

Directions
Clicking the Directions button, located at the top of the Messages panel, will print instructions for the current activity to the Messages panel. It is not available in Free Explore mode.

Hint
Clicking the Hint button, located at the top of the Messages panel, will print a hint for the current activity to the Messages panel. Clicking multiple times will give different hints. It is not available in Free Explore mode.

Undo
Clicking the Undo button, located in the top right area of the workspace, will undo the most recent command entered into the Command Center. Only the most recent command may be undone.

New
Clicking the New button, located in the top right area of the workspace, will clear the workspace and start the activity over. The user will be prompted for confirmation before their progress is erased.

Save and Open
The Save and Open Buttons are only available in the CD-ROM version of LogoPaths. Clicking the Save button, located in the top right area of the workspace, opens the standard “Save” dialog box. Once the contents of the workspace have been saved to a file, the user may click the Open button to open the file and restore the workspace to its saved state.
Print

Clicking the Print button, located in the top right area of the workspace, brings up a menu with several options for printing out the contents of the workspace.

First, the user is prompted for a title for the printout. This will appear on each printed page.

Second, the user may choose whether to print just the active panel or all panels, and whether they want to print only the currently visible area of the Drawing panel or the entire Drawing panel.

Choosing to print all panels will print one or more pages containing all of the text in the Command Center, Teach, Messages, and Notes panels, and then another page with the contents of the Drawing panel. Choosing to print the active panel will only print the contents of whatever panel was last clicked prior to the print button.

Selecting “Print This View” will print only the portion of the Drawing panel that was visible onscreen when the print button was clicked. Selecting “Print The Entire Drawing Area” will print everything in the Drawing panel, scaled down to fit on a single page.

ACTIVITIES

Besides the Free Explore mode, there are also several activities available in LogoPaths:

Get the Toys

In the Get the Toys activity, the user must guide the turtle from an “elevator” in the middle of a maze, to a toy, and back again. Only steps in multiples of 10 and turns of 90 degrees may be taken.

Feed the Turtle

In the Feed the Turtle activity, the user must guide the turtle through a maze filled with pieces of food. The turtle must move over every piece of food before its energy runs out. Only steps in multiples of 10 and turns in multiples of 30 degrees may be taken.
**Mazes**

In the **Mazes** activity, the user must guide the turtle to the various prizes scattered around a maze before its energy runs out.

**Angle and Turn Game**

The **Angle and Turn Game** is an activity for more than one player. The **turtle** is located a certain distance away from a target. The first player turns the **turtle** as far as he or she wants to the left or the right. The second player turns the turtle so it points towards the target.

**Rectangle Pictures**

In the **Rectangle Pictures** activity, the user draws rectangles by using an already-created procedure.

**Polygon Pairs**

In the **Polygon Pairs** activity, the turtle draws two shapes that are either similar or dissimilar, using two different procedures. The user can compare, overlap, and use different tools to determine whether or not the shapes are similar.

**Regular Polygons**

In the **Regular Polygons** activity, the user figures out how to create squares, hexagons, stars, and other shapes using an already-created **procedure** that creates different kinds of shapes where all of the sides and all of the angles are the same.

**ADDITIONAL HELP AND SUPPORT**

You can reach Pearson Scott Foresman **Technical Support** at 1-800-882-3030, from 8:00 AM to 8:00 PM Eastern Time, Monday through Friday. You can also e-mail **Technical Support** at <technical.support@pearson.com> or view the **Technical Support Web site** at <http://www.scottforesman.com/support/techsupport.cfm>.

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