

Name: _____

Date: _____

Class: _____

Activity 3-4

Physical Dexterity Puzzle

Objective

Students will be able to construct a simple puzzle game. Students will demonstrate hyperlink and "mouse over" game features. Students will use a variety of tools to build games. Students will understand the benefits of a physical dexterity training game. Students will be able to test and debug a video game.

Situation

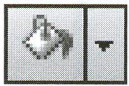
The Really Cool Game Company needs to create a few puzzle games to teach users how to correctly use a stylus (digital pen) on a handheld organizer. Your team will create a sample puzzle to test the concept of a hand-eye coordination training game.

How to Begin

1. Launch Microsoft PowerPoint 2003. Note: if you are using a different version of Microsoft PowerPoint, you will need to adjust the instructions for the tool locations.
2. Start with a blank slide by clicking on any existing text boxes and pressing the [Delete] key.
3. Save the file as **Puzzle** in your working folder or another location as specified by your teacher.
4. Locate and click the **Rectangle** button. Click and drag on the slide to draw a rectangle that covers the entire slide.
5. With the rectangle selected, click the arrow next to the **Fill Color** button. Then, select **More Fill Colors...** in the drop-down menu. In the **Colors** dialog box that is displayed, change the color to red and click the **OK** button.
6. Select **Insert>Picture>Clip Art...** from the pull-down menu to display the **Clip Art** panel.
7. In the **Search for:** text box in the **Clip Art** panel, enter the term **mouse**, **Figure 1**. Make sure **Clip Art** is checked in the **Results should be:** drop-down list. Then, click the **Go** button.
8. Locate an image of a mouse (not a computer mouse). Click on it to place the mouse onto the slide. Then, drag the image to the top-left corner of the slide.
9. Search for a clip art image of cheese. Place the cheese image at the bottom right corner of the slide.
10. If needed, select each clipart image and use the sizing handles to resize the image. Use the corner handles to keep the image proportional.
11. Locate and click the **Text Box** button. Then, drag near the top of the slide to add a text box. In the text box, type: **Use your mouse to trace the path for the mouse to reach the cheese. Click START to start the maze. See Figure 2.**



Rectangle

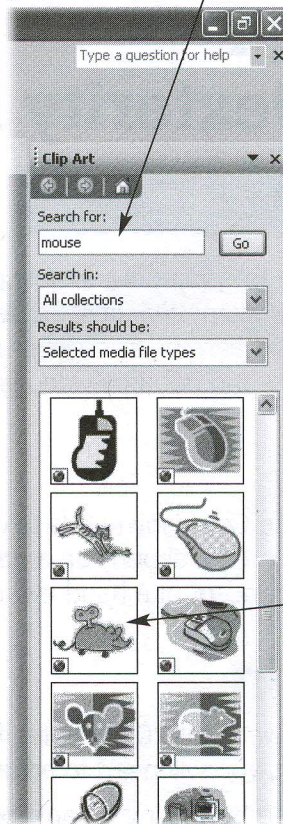


Fill Color



Text Box

Enter the search term



Select a mouse image

Figure 1

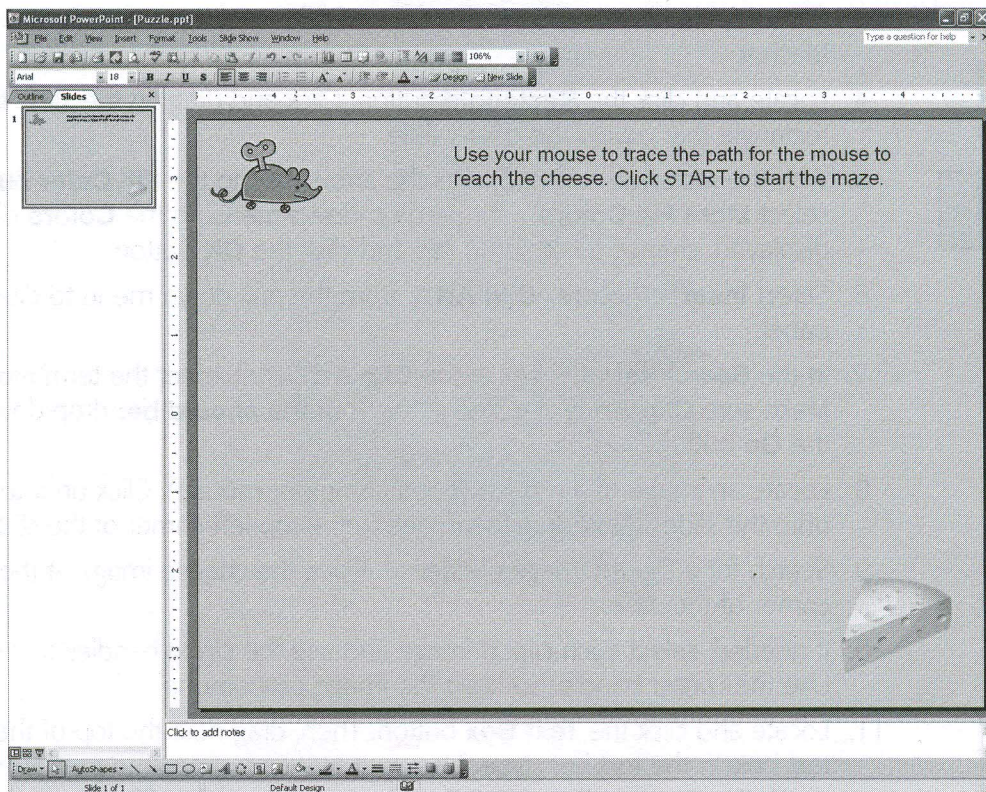
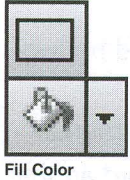


Figure 2

A “Mazing” Path



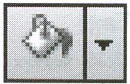
Fill Color



Rectangle



Line Color



Fill Color

12. Select **Insert>Picture>WordArt...** from the pull-down menu. In the **WordArt Gallery** dialog box that appears, select a style and click the **OK** button. In the **Edit WordArt Text** dialog box that appears, type **START** and then click the **OK** button to place the word art. Move the word art between the mouse and the instructions text box.
13. Locate and click the **Rectangle** button. Then, draw a rectangle around the word art.
14. Use the **Fill Color** button to change the color of the rectangle. Choose any color, so long as it contrasts well with the word art.
15. Right-click on the rectangle and select **Order>Send Backward** from the shortcut menu. You may need to do this more than once to place the rectangle behind the word art.
16. Use the **Rectangle** tool to create a series of rectangles to be the path for the mouse. Refer to **Figure 3**. Create your own design, but the path should lead to the cheese. You *must* have the cheese and the start rectangle overlapping the path so the player does not have to touch the red background.
17. Hold the [Shift] key and click on each rectangle in the path so the entire path is selected. Click the arrow next to the **Line Color** button and select **No Line** from the drop-down menu.
18. Use the **Fill Color** button to change the color of all rectangles making up the path. Use a color that contrasts with the background.
19. Right-click on the cheese and select **Order>Bring to Front** from the shortcut menu.
20. Add word art to label the cheese as the finish line.
21. Save your work.

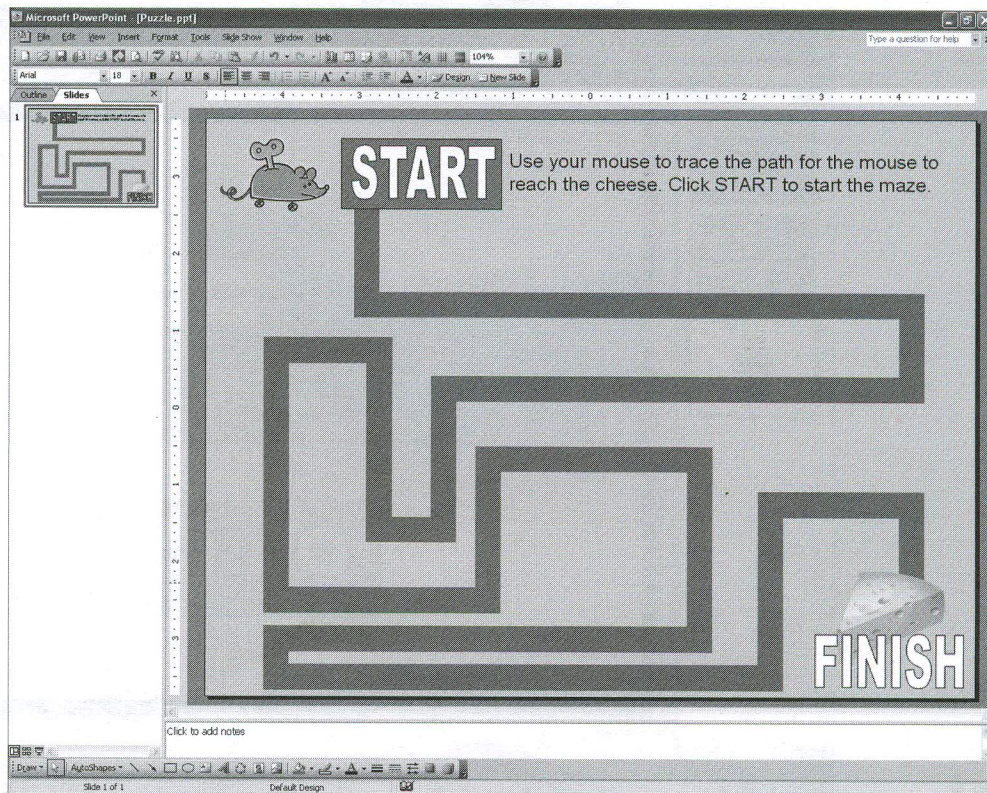


Figure 3

Victory and Defeat

Before programming the victory and defeat conditions for the game, a couple of game frames (slides) need to be added. These will display if the player is a winner or has to try again.

22. Click on the mini slide in the **Slides** panel. Press the [Ctrl][C] key combination to copy the slide.
23. Press the [Ctrl][V] key combination to paste a copy of the slide. There should be two identical mini slides shown in the **Slides** panel.
24. Select the second slide. Then, select **Insert>New Slide** from the pull-down menu.
25. On the third slide, select and delete any existing text boxes. Then, create word art that states **WINNER!** Move the word art to the top of the slide. Refer to **Figure 4**.
26. Use the **Text Box** button to insert a text box below the word art. In the text box, type **Click below to restart or quit**.
27. Use the **Rectangle** button to draw a rectangle below the text box.
28. Insert word art that states **Restart**. Move the word art on top of the rectangle. Resize the rectangle as needed so it is larger than the word art.
29. Create another rectangle and word art that states **Quit**.
30. Click on the **Winner** mini slide (slide 3), copy it, and paste it as the last slide.
31. On the last slide, double-click on the word art **Winner**. In the **Edit WordArt Text** dialog box that is displayed, change the text to **Please Try Again**. Then, click the **OK** button to update the word art.



Text Box



Rectangle

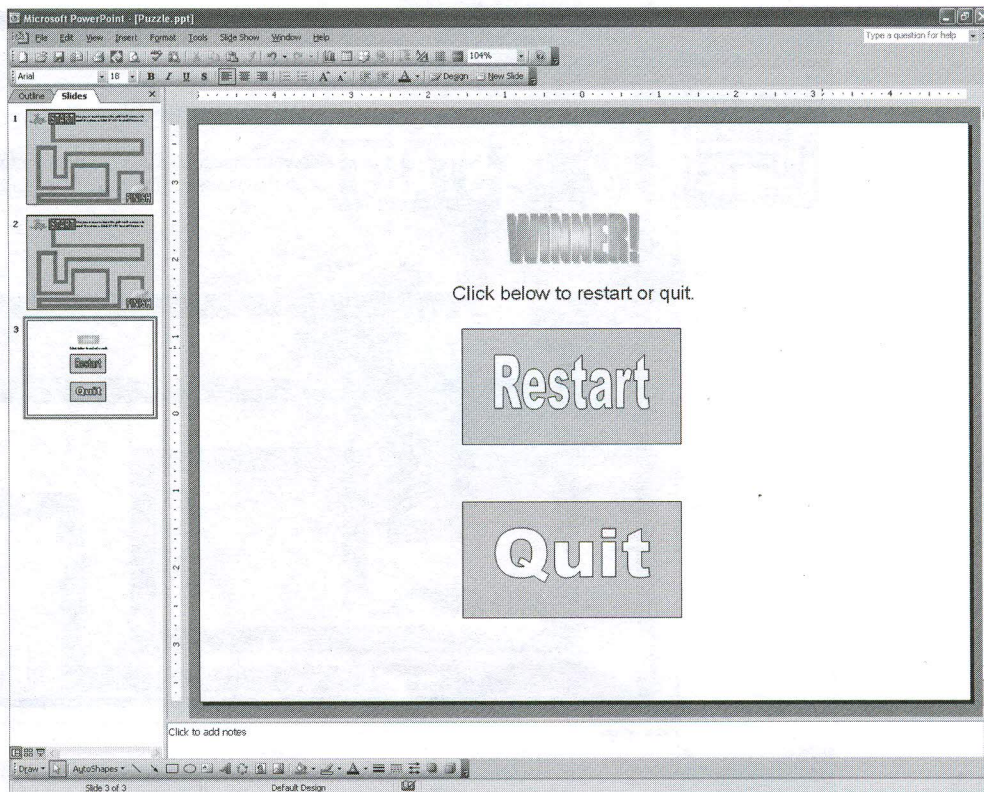


Figure 4

Game Programming

All of the assets are in place to build the game. Now, you need to make it play properly. Click on the first mini slide (slide 1) in the **Slides** panel. You will begin programming with that slide.

32. Right-click on the **START** word art and select **Hyperlink...** from the shortcut menu.
33. In the **Insert Hyperlink** dialog box, click the **Place in this Document** button, **Figure 5**. Then, in the tree that is displayed, select **Slide 2**. Finally, click the **OK** button to set the hyperlink.

Now, when the player clicks the **START** word art, the game will display slide 2. However, the player will not see this, as slide 1 and slide 2 look identical. This is an important step to get the player to place the mouse at the start position before the game begins. Otherwise, the player may have the mouse in the red area and would fail before the game even started. Remember, touching the red background will lose the game.

34. Hyperlink the rectangle behind the **START** word art to slide 2. This will make the text and rectangle act as a single button. (You cannot place a hyperlink on a group.)
35. Navigate to slide 2. This will be the game frame where the player will actually play the game.
36. Click on the red background rectangle to select it. Then, select **Slide Show>Action Settings...** from the pull-down menu.
37. In the **Action Settings** dialog box, click the **Mouse Over** tab.
38. Click the **Hyperlink to:** radio button. Then, select **Slide...** in the drop-down list, **Figure 6**.
39. In the **Hyperlink to Slide** dialog box that is displayed, select the last slide (slide 4), **Figure 7**. This is the "try again" slide. Then, click the **OK** button.
40. Click the **OK** button to close the **Action Settings** dialog box.
41. Using the same technique, set a mouse over hyperlink for the cheese to the **WINNER** slide (slide 3). This is the victory condition.

In the game, the defeat condition should be activated when the mouse is over the red background (outside of the maze). "Mouse over" is an action that activates whenever the mouse is over the object. You do not need to click on an object that is set to mouse over. Just placing the mouse over the object will activate the action.

So long as the player's mouse pointer is touching one of the rectangles that make up the path, the player can continue to move the mouse. However, if the mouse pointer is moved off of the path, the mouse is over the red background. The assigned action displays the **Please Try Again** slide (slide 4).

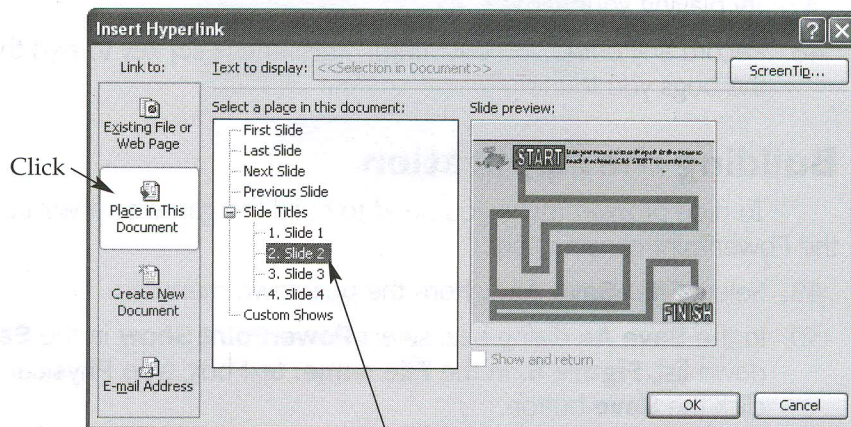


Figure 5

Select the slide

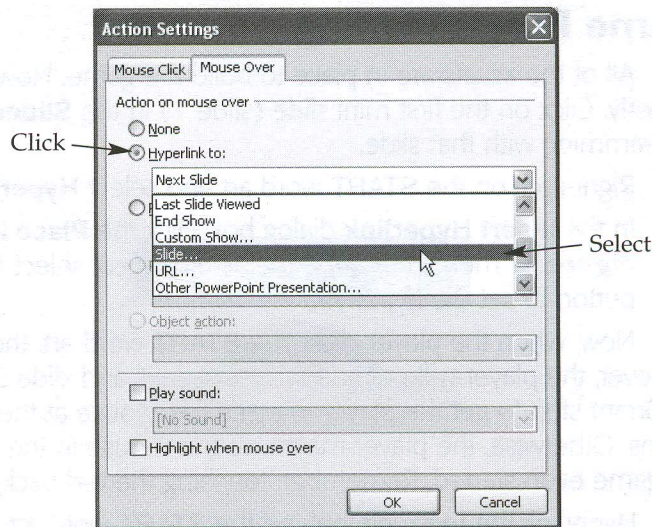


Figure 6

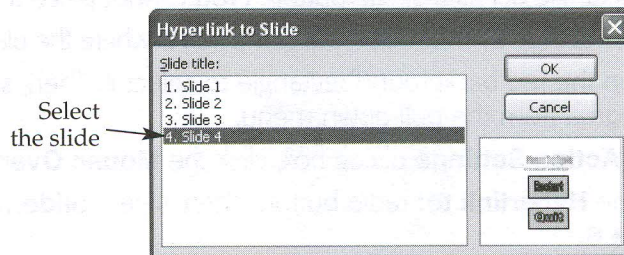


Figure 7

Tuning

Almost done. Just a few finishing steps before the game can be tested. Navigate to the **WINNER** slide (slide 3) and continue as follows.

42. Right-click on the **Restart** word art and select **Hyperlink...** from the shortcut menu.
43. In the **Insert Hyperlink** dialog box, click the **Place in This Document** button and then select **Slide 1** in the tree. Click the **OK** button to set the hyperlink.
44. Hyperlink the rectangle behind the **Restart** word art to slide 1.
45. Navigate to the **Please Try Again** slide (slide 4). Add the same hyperlinks to this slide.

Test Play

46. Press the [F5] key to launch the game.
47. Try playing your game.
48. Record any errors you encounter. Press the [Esc] key to end the game. Then, correct the bugs you found.

Building the Application

To hide programming, you need to build the game so it will open without showing the PowerPoint construction.

49. Select **File>Save As...** from the pull-down menu.
50. In the **Save As** dialog box, select **PowerPoint Show** in the **Save as type:** drop-down list, **Figure 8**. In the **File name:** text box, type **Physical Dexterity Puzzle**. Then, click the **Save** button.

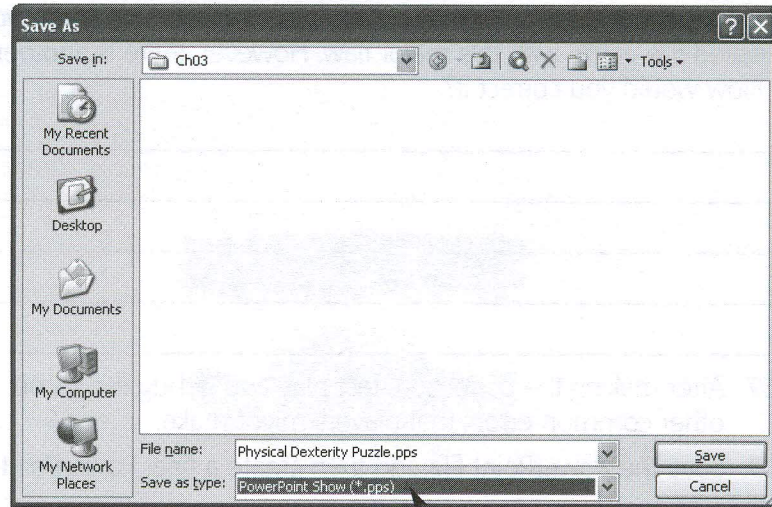


Figure 8

Save as a show

51. Locate the file you just saved and double-click on it. Test how this file works.
52. Debug and resave the application if needed. Note: you will need to open the original PPT file in PowerPoint.

Level A Bug

A level A bug is a serious problem that must be fixed before releasing the game. Although you should strive to fix all bugs, it is not always possible to fix everything and bugs need to be prioritized. Level A bugs need to be fixed first as they make the game unplayable if not fixed. There are level A, B, C, and D bugs that you will learn more about in the quality assurance lessons.

Test play the game and double-click (not a single click) on the **START** button. What happens? The game advances to the **WINNER** slide without the player moving through the maze. This happens because a PowerPoint slide advances on a mouse click. The double-click actually clicked once on slide 1 and once on slide 2. The click on slide 2 caused the presentation to advance to slide 3, the **WINNER** slide. You need to turn off this default feature for slides 1 and 2.

53. Navigate to slide 1.
54. Select **Slide Show > Slide Transition...** from the shortcut menu.
55. In the **Slide Transition** panel, uncheck the **On mouse click** check box, **Figure 9**.
56. Navigate to slide 2 and uncheck the **On mouse click** check box.

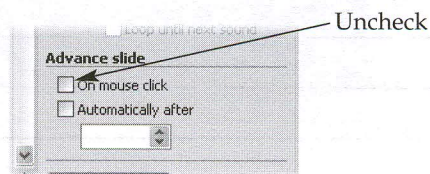


Figure 9

Major crisis averted! Imagine the problems the company would have if your team had released the game with this major flaw. However, there is another bug in the game. What is it? How would you correct it?

57. After making the correction, test play and debug the game. Try double-clicking and other common errors that players might make.
58. Save the PowerPoint file and then create a final PowerPoint Show file.

Review Questions

1. How does the maze game you designed help teach someone how to better perform tasks that require hand-eye coordination?

2. Why does the "start" space need to overlap the beginning of the maze?

3. The first slide only served to hyperlink to the second slide, which looked identical. Why does this game need the player to click the "start" space on the first slide?

4. How is a mouse over different from a hyperlink?

5. What is a level A bug?

6. Describe how you would use this game to help develop physical dexterity if it were played on the Wii system.
