**Instructional Day:** 24

**Topic Description:** Investigating Games

**Objectives:**

The students will be able to:

* Investigate two different types of games.
* Get ideas for their final projects.

**Outline of the Lesson:**

* Monkey game (25 minutes)
* Review of answers (5 minutes)
* Pinball game (25 minutes)

**Student Activities:**

* Complete Monkey game.
* Review answers.
* Complete Pinball game.

**Teaching/Learning Strategies:**

* Monkey game
  + Have students answer the questions in Monkey Game Project.
  + Have students enhance monkey game.sb.
* Review answers
  + See Monkey Game Project Solutions and monkey game solution.sb.
* Pinball game
  + Have students answer questions in Pinball Project.
  + Have students enhance pinball.sb.

**Resources:**

* Monkey Game Project
* Monkey Game Project Solutions
* monkey game solution.sb
* monkey game.sb
* Pinball Project
* Pinball Project Solutions
* Pinball.sb (An example that comes with Scratch)

**Monkey Game Project**

Answer these questions on paper:

1. Play the game by using the arrow keys. What blocks make the monkey respond to the keys?
2. Does the banana always appear in the same place?
3. What blocks do you think decide what x and y the banana should change to?
4. What are the names of the orange blocks under Variables?
5. What block(s) are used to change the score?

Make these changes to the file:

1. Customize the sprites in the game (make the characters be who you want).
2. Add another sprite that gives you 2 points if you touch it.
3. Get the game to stop at 10 points or more by telling you that you win.

**Monkey Game Project Solutions**

Answer these questions on paper:

1. Play the game by using the arrow keys. What blocks make the monkey respond to the keys? ”when \_ key pressed”
2. Does the banana always appear in the same place? No, it’s random.
3. What blocks do you think decide what x and y the banana should change to?   
   “set x to \_” and “set y to \_” combined with “pick random \_ to \_”
4. What are the names of the orange blocks under Variables? “change points by \_”, “set points to \_”, and “points”
5. What block(s) are used to change the score?“set points to 0” when the green flag is clicked and “change points by 1” when the monkey touches the banana.

Make these changes to the file: see monkey game solution.sb

1. Customize the sprites in the game (make the characters be who you want).
2. Add another sprite that gives you 2 points if you touch it.
3. Get the game to stop at 10 points or more by telling you that you win.

**Pinball Project**

Open pinball.sb and answer the questions below on paper:

1. Look at the scripts for the pinball. How did the author simulate gravity?
2. How does the ball know when to “bounce” off of something?
3. Does the ball always bounce the same way when it hits something?
4. How do you think the ball determines which direction to bounce?
5. What’s the purpose of the purple line at the very bottom of the game?
6. Modify the game to keep track of points and get it checked off. Write down what changes you made.
7. What other features do think would make this game better?

**Pinball Project Solutions**

Open pinball.sb and answer the questions below on paper:

1. Look at the scripts for the pinball. How did the author simulate gravity? There is a variable called gravity that is constantly affecting the direction of the ball.
2. How does the ball know when to “bounce” off of something? If it touches something that is green, orange or red, it will “bounce” off of it.
3. Does the ball always bounce the same way when it hits something? No, the amount of the turn is random.
4. How do you think the ball determines which direction to bounce?It uses “pick random \_ to \_” to vary the amount of the turn.
5. What’s the purpose of the purple line at the very bottom of the game? If the ball touches purple, you lose.
6. Modify the game to keep track of points and get it checked off. Write down what changes you made. See pinball solution.sb
7. What other features do think would make this game better? Answers will vary.