

Apple Catching Game

Sophie and Katie



Our Game Plan

Requirements:

- Create a variety of shapes to produce a unique, artistic artifact.
- Use color and size variations to enhance your artwork.
- Use movement to enhance your artifact.
- Use iteration (looping) and conditional execution (if statements) to control the drawing.

What we will do:

- Create turtle fruits falling from sky at random as our artistic piece
- Our variety and movement will stem from the randomness of the falling
- Allow for a basket to be controlled by arrow keys at the bottom
- Stop the fruit from falling when collided with basket
- Use if statements to control the fruit and basket
- Use looping to generate randomness

Step 1

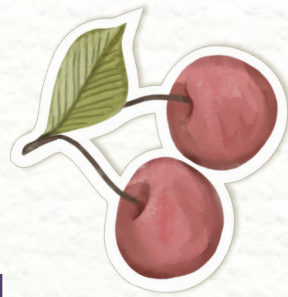
Create a
background
image: The grove
of apple trees

Step 2

Create the turtles
that will fall from
the top of screen
(red apples)

Step 3

Create the
basket and bind
the keys to
control it left and
right



Step 4

Use randint to
make the fruit
continuously fall
at random

Step 5

Stop the falling
of the apples
when collided
with basket





```
import turtle
import random

# Set up the screen
screen = turtle.Screen()
screen.bgpic("finalamazon1.png")
screen.setup(width=800, height=600)
screen.tracer(0) # Turn off automatic screen updates

# Register the image as a new shape
turtle.register_shape('basket4.gif')

# Create the basket
basket = turtle.Turtle()
basket.shape('basket4.gif')
basket.penup()
basket.speed(0)
basket.goto(0, -250)

# Create the fruit
fruit = turtle.Turtle()
fruit.shape("circle")
fruit.color("red")
fruit.penup()
fruit.speed(0)
fruit.goto(0, 250)

# Set the gravity for the fruit
gravity = 0.2
fruit.dy = 0
```

```
# Define movement functions for the basket
basket_speed = 20
basket_dx = 0

def move_right():
    global basket_dx
    basket_dx = basket_speed

def move_left():
    global basket_dx
    basket_dx = -basket_speed

def stop_movement():
    global basket_dx
    basket_dx = 0

gravity = 0.2
fruit.dy = 0

# Define movement functions for the basket
basket_speed = 20
basket_dx = 0

def move_right():
    global basket_dx
    basket_dx = basket_speed

def move_left():
    global basket_dx
    basket_dx = -basket_speed

def stop_movement():
    global basket_dx
    basket_dx = 0

# Bind the movement functions to keyboard keys
screen.listen()
screen.onkeypress(move_right, 'Right')
screen.onkeypress(move_left, 'Left')
screen.onkeyrelease(stop_movement, 'Right')
screen.onkeyrelease(stop_movement, 'Left')
```

```
# Function to move the basket smoothly
def move_basket_smooth():
    global basket_dx
    x = basket.xcor()
    x += basket_dx
    if x > 380:
        x = 380
    elif x < -380:
        x = -380
    basket.setx(x)
    screen.update()
    screen.ontimer(move_basket_smooth, 20)

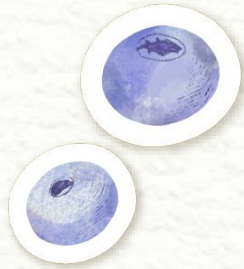
# Function to move the fruit continuously
def move_fruit():
    global fruit_dy
    y = fruit.ycor()
    y -= fruit_dy
    fruit.sety(y)
    fruit.dy += gravity
    if y < -300:
        reset_fruit()
    if abs(basket.xcor() - fruit.xcor()) < 50 and
    abs(basket.ycor() - fruit.ycor()) < 20:
        reset_fruit()
    screen.update()
    screen.ontimer(move_fruit, 10)

# Function to reset the fruit position
def reset_fruit():
    global fruit_dy
    fruit.goto(random.randint(-380, 380), 250)
    fruit.dy = 0

# Start the game
screen.update()
move_basket_smooth()
move_fruit()

# Start the main event loop
mainloop()
```





Our Favorite Part

- We are proud of how smooth the basket and fruit move
- We included a gravity function which makes the fruit fall faster as it gets closer to the ground to increase difficulty



Struggles We Encountered:

- All the methods we needed to know were in the next chapter
 - This resulted in needing to research how to do practically everything in our game so we couldn't include everything we wanted to such as a scoreboard
- Making images transparent

These issues forced us to rethink our original design because we had to adjust our plans to fit the time frame.





Things We Learned

- Onkey function
- Listen function
- Gravity function
- Random integer
- Changing the image of the turtle to a basket



What We Would Do If We Had More Time

- Make a scoreboard
- Include different types of fruits falling
- Include bombs falling to make the game harder



The Long Awaited Game

