

# Basketball Game

in JavaScript

Prof. Gail Harris



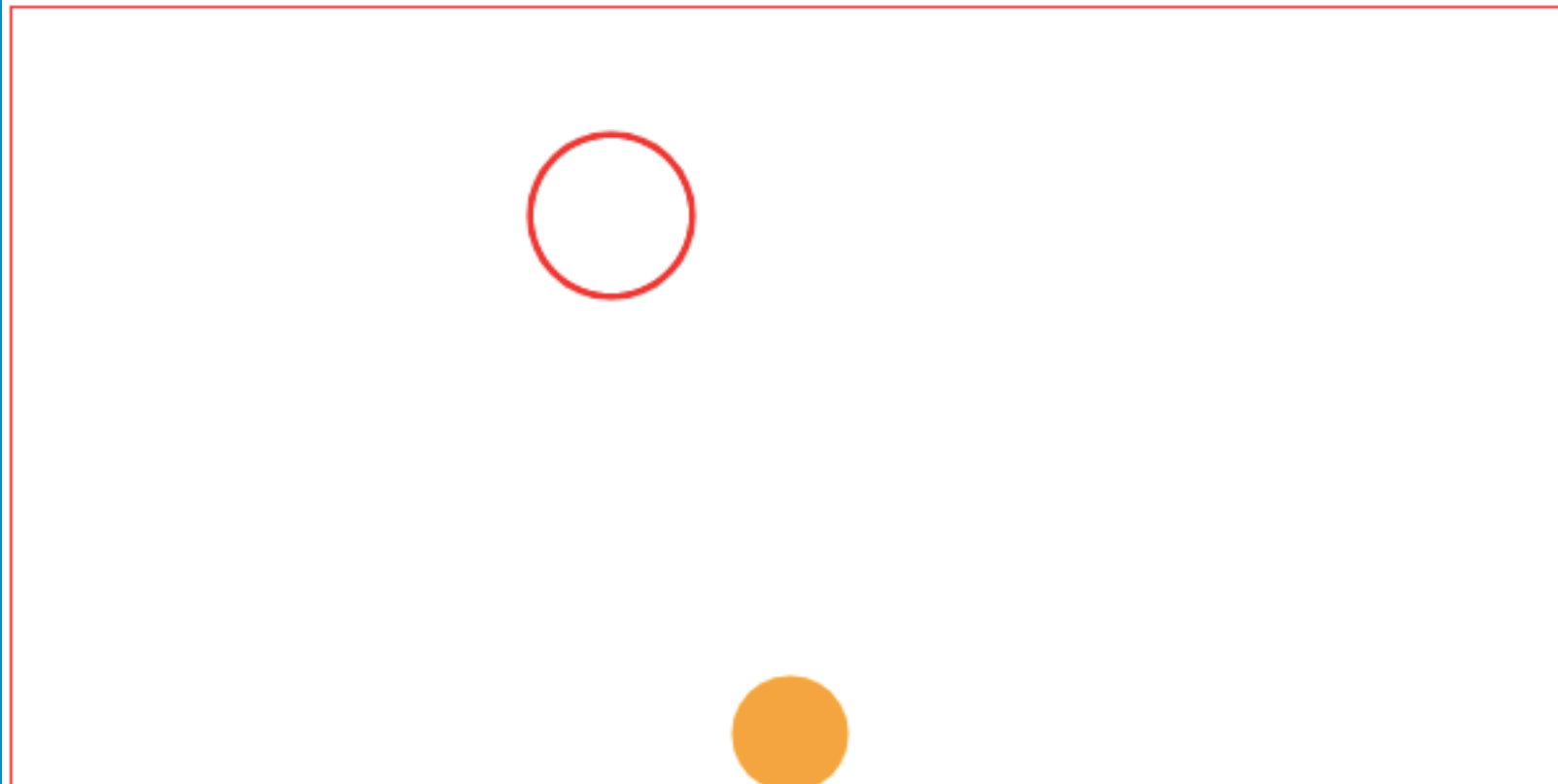
**WE ARE**

**HUMBER**

# Build a game in an hour!

## Basketball

Score: 0 Timer: 17

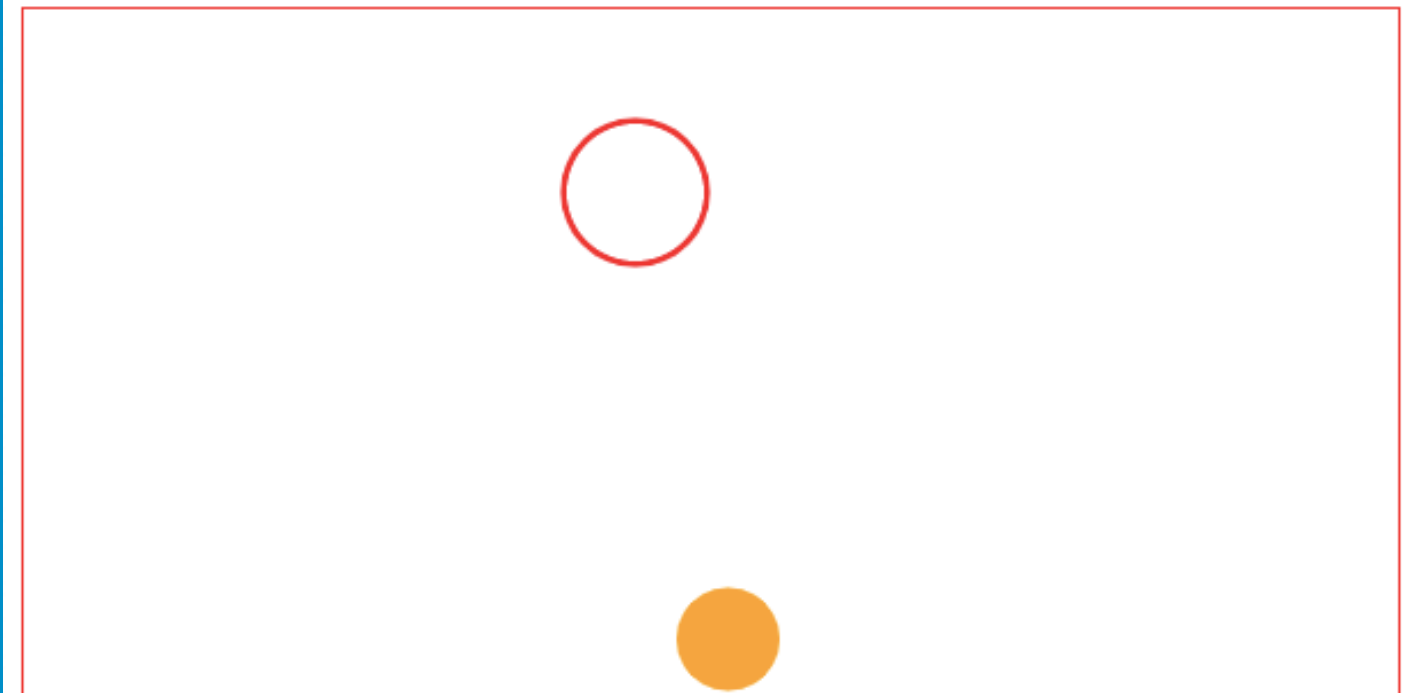


Left Shoot! Right

## Basketball

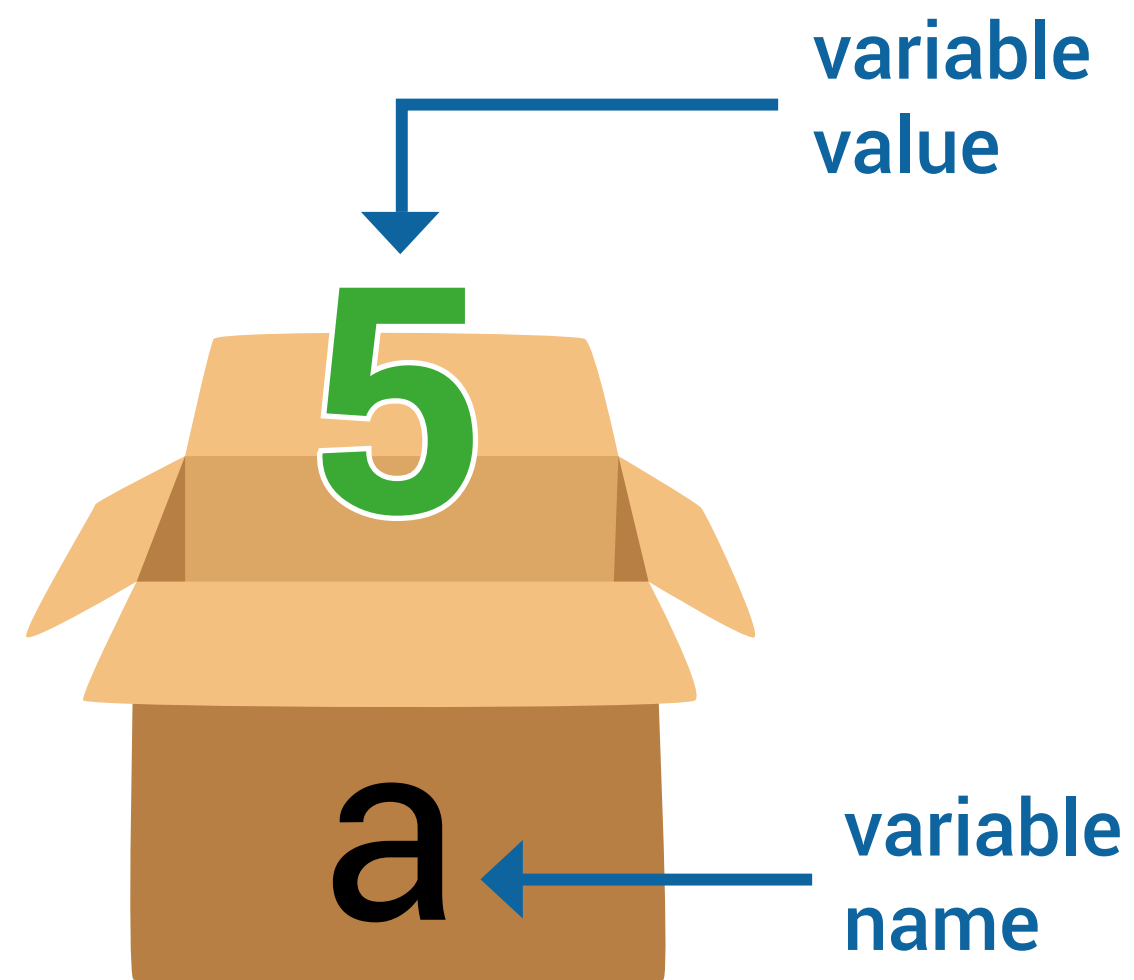
Score: 4 Timer: 9.59

You Win



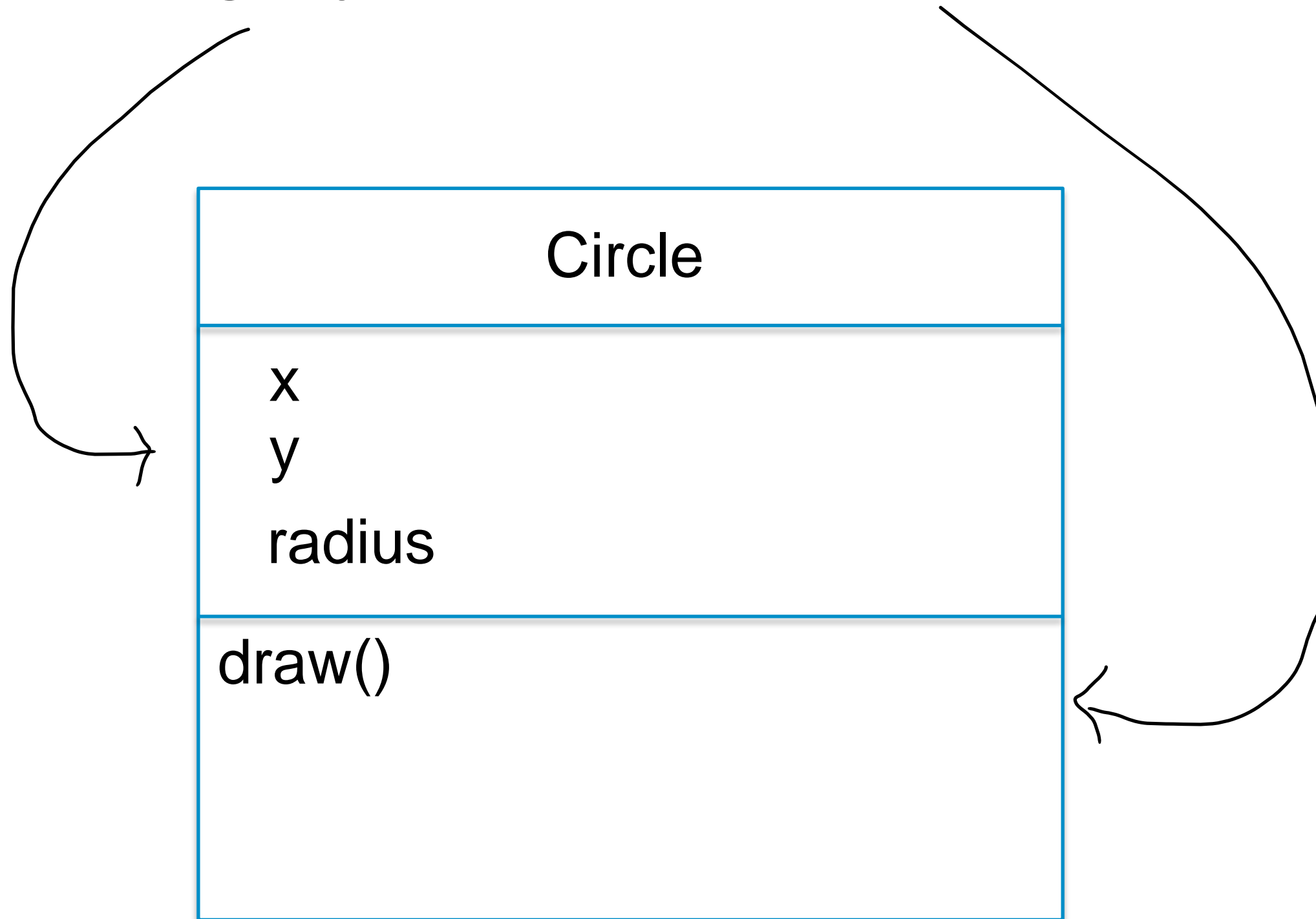
# What is a *variable* ?

A place to store a data value that can be used or changed later on



# What is an *object*?

A place to store a **group of variables**, and **functions** that use and change them.



# Move the basketball left and right

```
// add this code to left() function  
basketball.dx = -2.5
```

```
// add this code to the right() function  
basketball.dx = 2.5
```

# Animate motion of the hoop

```
// add this code to Circle's update() function
this.x += this.dx;
this.y += this.dy;
if ( (this.x < this.radius) || (this.x > (canvas.width -
this.radius) )
{
    this.dx *= -1;
}
```

# Shoot the basketball upward

```
// add this code to shoot() function
if ( basketball.dy == 0 )
{
    basketball.dx = 0;
    basketball.dy = -9;
}
```

# Gravity! We need Gravity!

```
// add this code to Circle's update() function  
this.dy += 0.2;
```



# Two Issues:

- watch hoop fall
- and watch both fall through the floor

# We have a floor

```
// add this to Circle's update()  
if ( this.y >= canvas.height - this.radius )  
{  
    this.y = canvas.height - this.radius;  
    this.dy = 0;  
}
```

- choose no bounce, for simplicity

# A hoop is not a basketball

```
// Let's add a flag for that
// add the characters in bold

function Circle(color_, fill_, x_, y_, dx_, dy_, r_, isBall_)

// add this line
this.isBall = isBall_;

// add characters in bold
if ( this.isBall ) this.dy += 0.2;
```

# Scoring a basket

```
// add this code to collide() function
let otherleft = other_.x - other_.radius + this.radius
let otherright = other_.x + other_.radius - this.radius
if ( this.y <= other_.y &&
    this.x >= otherleft && this.x <= otherright )
{
    this.y = other_.y + this.radius * 0.5;
    return true;
}
else
{
    return false;
}
```

# Hide/show text on web page

```
// add this code to gameover() function
```

```
my_shoot_button.style.visibility = "hidden";  
my_left_button.style.visibility = "hidden";  
my_right_button.style.visibility = "hidden";
```

# Final Code

```
// add text in bold
// to let ball fall to ground before stopping the animation
if ( score >= winningScore
    && (basketball.y >= canvas.height - basketball.radius) )
```

- provide final code, especially if ran out of time

# Thank you.



**WE ARE**

**HUMBER**