

The screenshot shows the Scratch workspace with the following details:

- Title Bar:** Unit 3 - Interactive Animations - X | Unit 3 - Interactive Animations - X | Shapes and Parameters #4 | Un X +
- Toolbar:** CODE, Share, Remix, Help & Tips, Instructions, Version History, Show Blocks.
- Background:** An orange background with three shapes: a purple square at the top left, a blue square at the bottom left, and a blue rectangle in the center.
- Toolbox:** Drawing category selected, containing blocks for background(color), fill(color), rect(x, y, w, h), and ellipse(x, y, w, h).
- Workspace:** Script blocks:

```
1 background("orange");
2 fill("purple");
3 rect(50,50, 100,100);
4 fill("blue");
5 rect(250,250, 100, 100);
```
- Bottom Bar:** English, Version: 2023, Debug Console, Debug Sprites: Off, Clear, Type here to search, Taskbar icons (File, Save, Print, etc.), Date/Time (11:33 AM, 6/6/2024), Weather (79°F Sunny).

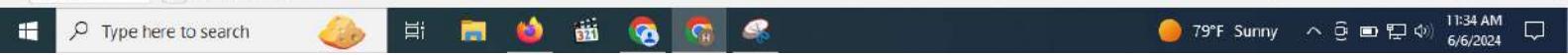
TheScratch workspace interface. On the left, a preview window shows a large green circle centered on a black background. Below it are buttons for 'Reset' (purple) and 'Finish' (orange). The main workspace has tabs for 'CODE' (selected), 'Share', and 'Remix'. The title bar says 'Lesson 4: Shapes and Parameters' and 'Saved 10 hours ago'. A progress bar shows 5 of 5 blocks completed. The 'Toolbox' sidebar contains categories like 'Drawing', 'background()', 'fill()', 'rect()', and 'ellipse()'. The 'Workspace' shows the following Scratch script:

```
1 background("black");
2 fill("green");
3 ellipse(200,200,200,200);
```

The 'Instructions' tab is selected, and there's a 'Help & Tips' section with the following note:

`background()` will draw on top of everything already in your drawing, so it's important to think about the order of your code.

On the right, a preview window shows the green circle on a black background. There are also buttons for 'Version History' and 'Show Blocks'.



Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #6 | Unit 3 - Interactive Animations

studio.code.org/s/csd3-2023/lessons/4/levels/6

Lesson 4: Shapes and Parameters
Saved 10 hours ago

CODE Share Remix Help & Tips

Instructions Debug - Using 4 Parameters

This program uses the four parameter version of `rect()` and `ellipse()` to draw a simple scene.

Toolbox

- Drawing
- `background(color)`
- `fill(color)`
- `rect(x, y, w, h) =`
- `ellipse(x, y, w, h) =`
- // Comment

Workspace

```
1 // Draw sky
2 background("skyblue");
3
4 // Draw sun
5 fill("yellow");
6 ellipse(350,50,50,50);
7
8 // Draw grass
9 fill("green");
10 rect(0,300,400,200);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Type here to search

79°F Sunny 11:35 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #7 | Unit 3 - Interactive Animations

studio.code.org/s/csd3-2023/lessons/4/levels/7/sublevel/1

Lesson 4: Shapes and Parameters
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Debug: Hidden Shapes

The code below should be making a pretty picture, but right now only one ellipse is showing up.

Toolbox

Drawing

background(color)

ellipse(x, y, w, h) ←

Workspace

```
1 fill("red");
2 ellipse(200, 200, 400, 400);
3 fill("orange");
4 ellipse(200, 200, 340, 340);
5 fill("yellow");
6 ellipse(200, 200, 280, 280);
7 fill("green");
8 ellipse(200, 200, 220, 220);
9 fill("blue");
10 ellipse(200, 200, 160, 160);
11 fill("indigo");
12 ellipse(200, 200, 100, 100);
13 fill("violet");
14 ellipse(200, 200, 40, 40);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 11:37 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #7 | Unit 3 - Interactive Animations

studio.code.org/s/csd3-2023/lessons/4/levels/7/sublevel/2

CODE Share Remix

Lesson 4: Shapes and Parameters
Saved 10 hours ago

Instructions Help & Tips

Debug: Missing Shapes

When the code below is run, nothing shows up. Try to debug the code so the image on the right appears!

Toolbox

Drawing

fill(color)
rect(x, y, w, h)

Workspace

```
1 fill("black");
2 rect(0, 50, 300, 300);
3 fill("white");
4 rect(10, 60, 250, 250);
5 fill("black");
6 rect(20, 70, 200, 200);
7 fill("white");
8 rect(30, 80, 150, 150);
9 fill("black");
10 rect(40, 90, 100, 100);
11 fill("white");
12 rect(50, 100, 50, 50);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 11:38 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #7 | +

studio.code.org/s/csd3-2023/lessons/4/levels/7/sublevel/3

CODE Share Remix Lesson 4: Shapes and Parameters Saved 10 hours ago 7 MORE

Instructions Help & Tips

Finish the Scene

The scene below seems to be incomplete. Be creative and finish the drawing however you want!

Toolbox

Drawing

background(color)
fill(color)
noFill()
stroke (color)
noStroke()
strokeWeight (size)
rect(x, y, w, h) ←
ellipse(x, y, w, h) ←
point (x, y)
// Comment

Workspace

```
1 fill("green");
2 rect(0, 250, 400, 150);
3 fill("blue");
4 rect(0, 0, 400, 250);
5 fill("brown");
6 rect(125, 150, 150, 200);
7 fill("yellow");
8 ellipse(300, 50, 50, 50);
9 fill("black");
10 regularPolygon(200, 150, 3, 130);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

English Version: 2023

Debug Sprites: Off Clear

Type here to search

79°F Sunny 11:39 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #8 | Unit 3 - Interactive Animations

studio.code.org/s/csd3-2023/lessons/4/levels/8

Lesson 4: Shapes and Parameters
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips Rubric

Debug - Using 4 Parameters

Now that the grass is working, let's add a cloud to the sky. Unfortunately, it looks a little funny right now.

Toolbox

Drawing

background(color)

fill(color)

rect(x, y, w, h) ←

ellipse(x, y, w, h) ←

Workspace

```
1 //1) Debug this program to make the cloud wider than it is tall, like in the image.
2
3 // Draw sky
4 background("skyblue");
5
6 // Draw sun
7 fill("yellow");
8 ellipse(300,50,50,50);
9
10 // Draw grass
11 fill("green");
12 rect(0,300,400,100);
13
14 // Draw cloud
15 fill("white");
16 ellipse(150,100,200,100);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

11:40 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #9 | Unit 3 - Interactive Animations

studio.code.org/s/csd3-2023/lessons/4/levels/9/sublevel/1

CODE Share Remix Lesson 4: Shapes and Parameters Saved 10 hours ago 9 MORE

Instructions Help & Tips

Regular Polygons

So far, you've just been drawing ellipses and rectangles. But now there is a new block to help draw other shapes!

Toolbox

- background(color)
- fill(color)
- noFill()
- stroke(color)
- noStroke()
- strokeWeight(size)
- rect(x, y, w, h) ←
- ellipse(x, y, w, h) ←
- point(x, y)
- regularPolygon(x, y, sides) ←

Workspace

```
1 regularPolygon(50, 75, 3, 50);
2 regularPolygon(150, 75, 4, 50);
3 regularPolygon(250, 75, 5, 50);
4 regularPolygon(350, 75, 6, 50);
5 regularPolygon(50, 175, 7, 50);
6 regularPolygon(150, 175, 8, 50);
7 regularPolygon(250, 175, 9, 50);
8 regularPolygon(350, 175, 10, 50);
9 regularPolygon(50, 275, 11, 50);
10 regularPolygon(150, 275, 12, 50);
11 regularPolygon(150, 275, 13, 50);
12 regularPolygon(250, 275, 14, 50);
13 regularPolygon(350, 275, 15, 50);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 11:41 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #9 | Unit 3 - Interactive Animations | +

studio.code.org/s/csd3-2023/lessons/4/levels/9/sublevel/2

CODE Share Remix Lesson 4: Shapes and Parameters Saved 10 hours ago 9 MORE

Instructions Help & Tips

Shape

So far, you have just been drawing ellipses and rectangles. But now there is a new block to help draw other shapes!

Toolbox

Drawing

background(color)
fill(color)
noFill()
stroke(color)
noStroke()
strokeWeight(size)
rect(x, y, w, h) ←
ellipse(x, y, w, h) ←
point(x, y)
shape(x1, y1, x2, y2, x3,

Workspace

```
1 fill("red");
2 shape(200, 200, 0, 400, 400, 400);
3 fill("blue");
4 shape(200, 200, 0, 0, 400, 0);
5 fill("green");
6 shape(0, 200, 200, 0, 400);
7 fill("yellow");
8 shape(200, 200, 400, 0, 400, 400);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

Record high 11:43 AM 6/6/2024

```
1 fill("red");
2 shape(200, 200, 0, 400, 400, 400);
3 fill("blue");
4 shape(200, 200, 0, 0, 400, 0);
5 fill("green");
6 shape(0, 200, 200, 0, 400);
7 fill("yellow");
8 shape(200, 200, 400, 0, 400, 400);
```

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #9 | Unit 3 - Interactive Animations | +

studio.code.org/s/csd3-2023/lessons/4/levels/9/sublevel/3

CODE Share Remix Lesson 4: Shapes and Parameters Saved 10 hours ago 9 MORE

Instructions Help & Tips

New Block: Line

So far, you have just been drawing ellipses and rectangles. But now there is a new block to help draw lines!

Toolbox

- Drawing
- background(color)
- fill(color)
- noFill()
- stroke(color)
- noStroke()
- strokeWeight(size)
- rect(x, y, w, h)
- ellipse(x, y, w, h)
- line(x1, y1, x2, y2)
- point(x, y)

Workspace

```
1 line(0, 0, 50, 400);
2 line(0, 50, 100, 400);
3 line(0, 100, 150, 400);
4 line(0, 150, 200, 400);
5 line(0, 200, 250, 400);
6 line(0, 250, 300, 400);
7 line(0, 300, 350, 400);
8 line(0, 350, 400, 400);
9 line(0, 0, 400, 50);
10 line(50, 0, 400, 100);
11 line(100, 0, 400, 150);
12 line(150, 0, 400, 200);
13 line(200, 0, 400, 250);
14 line(250, 0, 400, 300);
15 line(300, 0, 400, 350);
16 line(350, 0, 400, 400);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

High UV 11:43 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #9 | Unit 3 - Interactive Animations

studio.code.org/s/csd3-2023/lessons/4/levels/9/sublevel/4

CODE Share Remix Lesson 4: Shapes and Parameters Saved 10 hours ago 9 MORE

New Block: Arc

The `arc()` command works just like `ellipse()` except it has two extra parameters. These parameters specify two different angles that are used to create the arc.

Toolbox

- Drawing
- `background(color)`
- `fill(color)`
- `noFill()`
- `stroke(color)`
- `noStroke()`
- `strokeWeight(size)`
- `rect(x, y, w, h) ←`
- `ellipse(x, y, w, h) ←`
- `arc(x, y, w, h, start, stop) ←`
- `point(x, y)`

Workspace

```
1 arc(50, 100, 100, 100, 0, 360);
2 arc(200, 100, 100, 100, 0, 300);
3 fill("green");
4 arc(350, 100, 100, 100, 90, 180);
5 noFill();
6 arc(50, 200, 100, 100, 0, 180);
7 arc(200, 200, 100, 100, 30, 210);
8 fill("blue");
9 arc(300, 200, 100, 100, -90, 90);
10 fill("blue");
11 arc(50, 350, 100, 100, -90, -180);
```

Version History Show Blocks

Reset Finish

Type here to search

Debug Console

Debug Sprites: Off Clear

High UV 11:44 AM 6/6/2024

The image shows a screenshot of a Scratch-like programming environment. At the top, there are browser tabs for "Unit 3 - Interactive Animations" and "Variables #1 | Unit 3 - Interactive". The main interface has a teal header with the text "Lesson 5: Variables" and a progress bar showing step 1 of 10. On the left, there's a "CODE" button. In the center, there's a code editor window titled "Instructions" with the code:

```
1 var xPos = 50;
2
3 ellipse(xPosition, 350, 100, 100);
```

Below the code editor are buttons for "Reset" (purple), "Finish" (orange), and "Show grid" (checkbox). To the right of the code editor is a "View only" button and a "Show Blocks" button. At the bottom, there's a "Debug Console" tab, a status bar with "English Version: 2023", and a system tray with icons for "Debug Sprites: Off", "Clear", "Watchers", "Type here to search", and system status like "79°F Sunny" and "11:48 AM 6/6/2024".

The image shows a Scratch-like programming environment with the following components:

- Code Editor:** Displays the following Scratch script:

```
1 var xPosition = 300;
2 var whataTheY = 100;
3
4 ellipse(xPosition, whataTheY)
```
- Control Buttons:** Includes "Reset" (purple), "Finish" (orange), and "Show grid" (checkbox).
- Lesson Header:** "Lesson 5: Variables" with a progress bar showing 2 completed steps.
- Instructions:** A hint: "Click the 'Show grid' box to help you find the exact coordinates on the screen." followed by the text "on the top right corner".
- Browser Window:** Shows a tab for "Variables #2 | Unit 3 - Interactive Animations" and the URL "studio.code.org/s/csd3-2023/lessons/5/levels/2".
- System Taskbar:** Shows the Windows Start button, a search bar with "Type here to search", pinned icons for File Explorer, Mozilla Firefox, and Google Chrome, and system status icons for battery, network, and date/time (11:51 AM, 6/6/2024).

The screenshot shows a Scratch workspace titled "Lesson 5: Variables". The workspace contains the following code:

```
1 var xPos = 200;
2 var whatTheY = 300;
3
4 ellipse(x, y, w, h);
5 ellipse(xPos, whatTheY);
```

The "Variables" tab is selected in the toolbox. The stage area is empty. The status bar at the bottom shows "Version: 2023".

Unit 3 - Interactive Animations · Variables #4 | Unit 3 - Interactive

studio.code.org/s/csd3-2023/lessons/5/levels/4

CODE Share Remix

Lesson 5: Variables
Saved 10 hours ago

4 MORE

Instructions Help & Tips

Debug: Naming Variables

This program has multiple errors caused by bad variable labels. The errors prevent the program from being viewed in block mode, so the code is in text. Below are a few rules for naming variables.

Version History Show Blocks

Reset Finish

Show grid

Toolbox

Drawing Variables

fill(color)

rect(x, y, w, h) ←

ellipse(x, y, w, h) ←

Comment

Workspace

```
1 var size_of_circle = 150;
2 var dimension = 100;
3 var yLocation = 200;
4
5 fill("OrangeRed");
6 ellipse(dimension, yLocation, size_of_circle, size_of_circle);
```

Debug Console

Debug Sprites: Off Clear

English Version: 2023

Type here to search

79°F Sunny 11:52 AM 6/6/2024

The screenshot shows the Scratch workspace with a script in the workspace panel:

```
1 var size_of_circle = 150;
2 var dimension = 100;
3 var yLocation = 200;
4
5 fill("OrangeRed");
6 ellipse(dimension, yLocation, size_of_circle, size_of_circle);
```

A large orange circle is visible on the stage. The workspace toolbar includes 'Toolbox' (selected), 'Drawing', 'Variables', 'Comment', and 'Version History'. The bottom status bar shows 'English', 'Version: 2023', and system information like '79°F Sunny' and '11:52 AM 6/6/2024'.

Unit 3 - Interactive Animations | Variables #5 | Unit 3 - Interactive

studio.code.org/s/csd3-2023/lessons/5/levels/5

CODE Share Remix

Lesson 5: Variables
Saved 10 hours ago

5 MORE

Instructions Help & Tips

Using a Variable Many Times

This program has only one variable called `petalSize` but it uses it 8 different times. This makes it easy to quickly make lots of changes to how your picture is drawn.

Toolbox

Drawing Variables

- background(color)
- fill(color)
- noFill()
- noStroke()
- rgb(r, g, b) ←
- rect(x, y, w, h) ←
- ellipse(x, y, w, h) ←
- // Comment

Workspace

```
1 //1) Update the code so the red petals touch each other
2 var petalSize = 80;
3
4 //Set Up
5 noStroke();
6 background("ForestGreen");
7
8 // Petals
9 fill("red");
10 ellipse(150,200,petalSize,petalSize);
11 ellipse(200,150,petalSize,petalSize);
12 ellipse(250,200,petalSize,petalSize);
13 ellipse(200,250,petalSize,petalSize);
14
15 // Flower Center
16 fill("black");
17 ellipse(200,200,50,50);
```

Version History Show Blocks

Reset Finish

Show grid

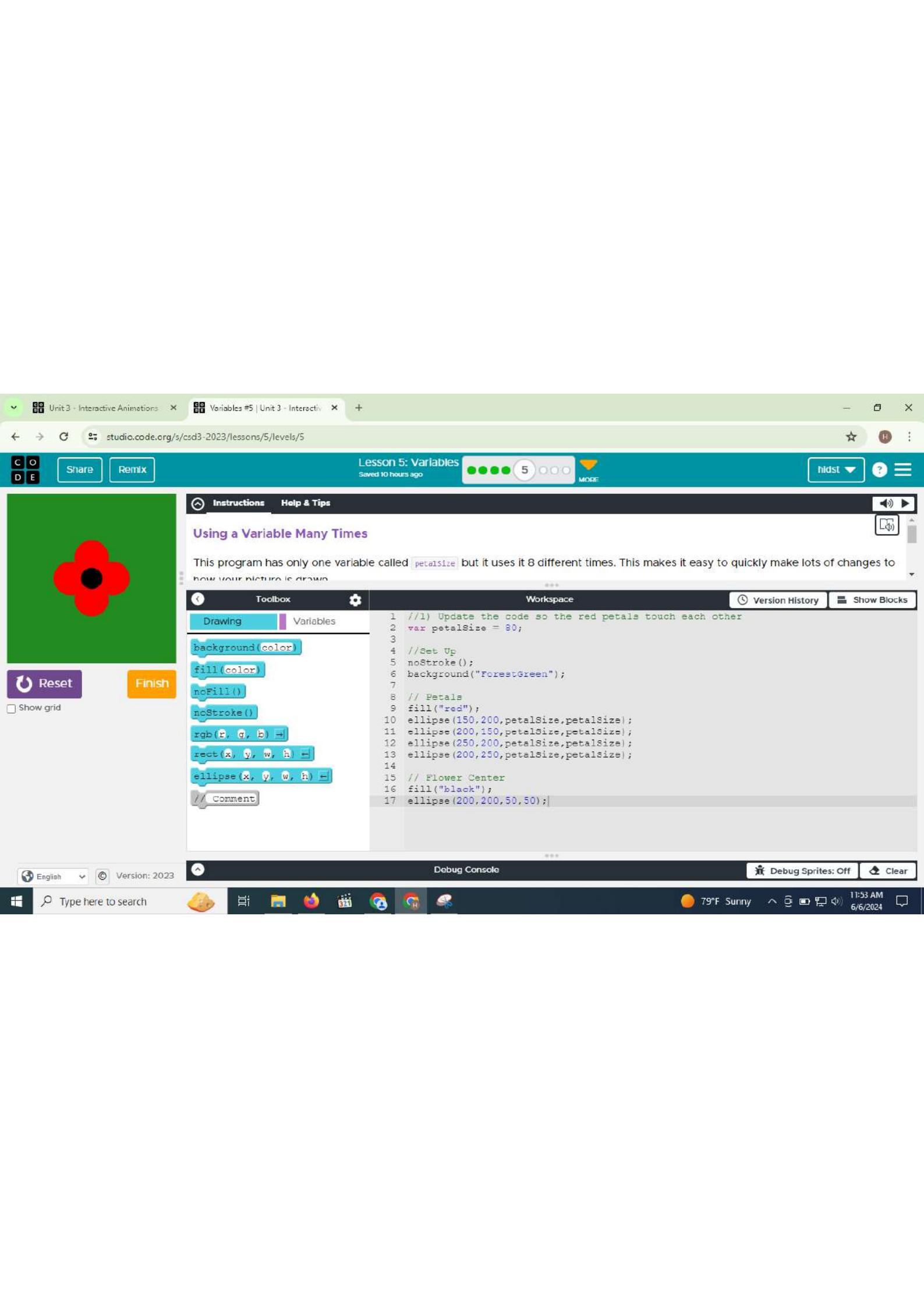
Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 11:53 AM 6/6/2024



Unit 3 - Interactive Animations | Variables #6 | Unit 3 - Interactive

studio.code.org/s/csd3-2023/lessons/5/levels/6/sublevel/1

CODE Share Remix

Lesson 5: Variables Saving... 6 MORE

Instructions Help & Tips

Debug: Using Variables

This program uses the variable `circleSize` to control the width and height of a circle. If you make the circle big enough, it will fill up the entire screen, as in the picture on the right.

Toolbox

Drawing Variables

`fill(color)`

`rect(x, y, w, h) ←`

`ellipse(x, y, w, h) ←`

Comment

Workspace

```
1 var circleSize = 400;
2 var circleSize = 900;
3
4 fill("Crimson");
5 ellipse(200, 200, circleSize, circleSize);
6 fill("crimson");
7 ellipse(200, 200, circleSize, circleSize);
```

Version History Show Blocks

Reset Finish

Show grid

English Version: 2023 Debug Console

Debug Sprites: Off Clear

Type here to search

79°F Sunny 11:54 AM 6/6/2024

Unit 3 - Interactive Animations · Variables #7 | Unit 3 - Interactive Animations · +

studio.code.org/s/csd3-2023/lessons/5/levels/7

CODE Share Remix Lesson 5: Variables Saved 10 hours ago 7 MORE

Instructions Help & Tips Rubric

Using Variables

This program currently draws a face, but the eyes are two different sizes. Change the program to use the variable for the size of both eyes, and run the code to make sure both eyes are drawn at the same size.

Version History Show Blocks

Toolbox

Drawing Variables

```
3 noStroke();
4 background("green");
5
6 // Face
7 fill("yellow");
8 ellipse(200,200,200,200);
9
10 // Eyes
11 fill("black");
12 ellipse(160,170,eyeSize,eyeSize);
13 ellipse(240,170,eyeSize,eyeSize);
14
15 // Mouth
16 fill("white");
17 rect(160,240,80,20);
```

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

English Version: 2023

Type here to search

79°F Sunny 11:56 AM 6/6/2024

Unit 3 - Interactive Animations · Variables #8 | Unit 3 - Interactive · +

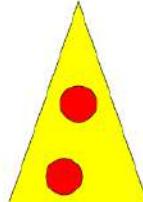
studio.code.org/s/csd3-2023/lessons/5/levels/8/sublevel/1

CODE Share Remix Lesson 5: Variables Saved 10 hours ago 8 MORE

Instructions Help & Tips

Challenge: Draw a Changing Image

Using variables, draw an image where many of the items rely on a common variable for size or placement. For example, draw a face with variables controlling the size and/or placement of both eyes, ears, and nostrils or a slice of pizza with variables controlling the size.



Reset Finish Show grid

Version History Show Blocks

Toolbox

Drawing Variables

```
1 var pizzaTopX = 200;
2 var pizzaTopY = 10;
3 var pizzaRightX = 300;
4 var pizzaRightY = 300;
5 var pizzaLeftX = 100;
6 var pizzaLeftY = 300;
7
8 var x1 = 200;
9 var y1 = 150;
10 var x2 = 180;
11 var y2 = 250;
12
13 fill("yellow");
14 shape(pizzaTopX, pizzaTopY, pizzaRightX, pizzaRightY, pizzaLeftX, pizzaLeftY);
15
16 fill("red");
17 ellipse(x1, y1);
18 ellipse(x2, y2);
```

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 11:57 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #1 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/1

CODE

Lesson 6: Random Numbers 1 0000000 MORE

Instructions Help & Tips

the circle will be drawn in random x coordinate between 200 and 400

View only Show Blocks

```
1 background("tomato");
2
3 fill("orange");
4 ellipse(randomNumber(200,400), 200, 50, 50);
```

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 11:59 AM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #2 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/2

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

Instructions Help & Tips DO THIS

Reset Finish Show grid

1. Change the numbers inside `randomNumber()` so the ellipse can appear anywhere horizontally on the screen

Run Your Code! Make sure the ellipse appears on both the right and left side of the screen.

Reset Finish Show grid

Version History Show Blocks

Toolbox

Drawing Math

`background(color)`

`fill(color)`

`rect(x, y, w, h) =`

`ellipse(x, y, w, h) =`

// Comment

Workspace

```
1 background("tomato");
2
3 //1) Change the codeso the ellipse can appear anywhere horizontally on the screen
4 fill("orange");
5 ellipse(randomNumber(200,400), 200, 50, 50);
```

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:00 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #2 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/2

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

Instructions Help & Tips DO THIS

Run Finish Show grid

1. Change the numbers inside `randomNumber()` so the ellipse can appear anywhere horizontally on the screen

Run Your Code! Make sure the ellipse appears on both the right and left side of the screen.

Reset Finish Show grid

Version History Show Blocks

Toolbox

Drawing Math

background(color)
fill(color)
rect(x, y, w, h) ←
ellipse(x, y, w, h) ←
// Comment

Workspace

```
1 background("tomato");
2
3 //1) Make the ellipse appear at random y coordinates
4 fill("orange");
5 ellipse(randomNumber(0,400), randomNumber(0,400), 50, 50);
```

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:01 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #3 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/3

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

Instructions Help & Tips

Random Numbers

Here's the same sun from last time. Right now only the x-coordinate is random, but you can make the y-coordinate random too!

Toolbox

Drawing Math

background(color)
fill(color)
rect(x, y, w, h) ←
ellipse(x, y, w, h) ←
// Comment

Workspace

```
1 background("tomato");
2
3 //1) Make the ellipse appear at random y coordinates
4 fill("orange");
5 ellipse(randomNumber(0,400), randomNumber(0,400), 50, 50);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

English Version: 2023

79°F Sunny 12:01 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #4 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/4

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

Instructions Help & Tips

Variables and Random Numbers

Variables can be assigned a random number too. This lets you save a single random value so that you can use it as many times as you want in your program.

Version History Show Blocks

Reset Finish

Show grid

Toolbox

Drawing Math

Variables

background(color)

fill(color)

noStroke()

rect(x, y, w, h) ←

ellipse(x, y, w, h) ←

// Comment

Workspace

```
1 //1) Make the eyes appear at random sizes
2 var eyeSize = randomNumber(5, 50);
3
4 noStroke();
5 background("green");
6
7 // Face
8 fill("yellow");
9 ellipse(200,200,200,200);
10
11 // Eyes
12 fill("black");
13 ellipse(160,170,eyeSize,eyeSize);
14 ellipse(240,170,eyeSize,eyeSize);
15
16 // Mouth
17 fill("white");
18 rect(160,240,80,20);
```

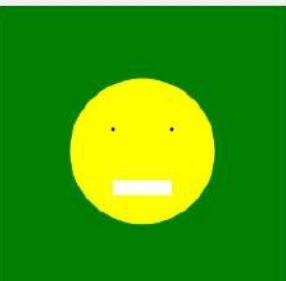
Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:02 PM 6/6/2024



Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #5 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/5

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

Instructions Help & Tips

Changing variable values

These two flowers use a single variable to store their petal size, but the value stored in the variable changes in the middle of the program. Let's update the program so each petal appears with different sizes each time the program runs.

Toolbox

Drawing Math

Variables

background(color)
fill(color)
noStroke()
rect(x, y, w, h) ←
ellipse(x, y, w, h) ←
// Comment

Workspace

```
6 // petals
7 fill("purple");
8 ellipse(75,100,petalsize,petalsize);
9 ellipse(125,100,petalsize,petalsize);
10 ellipse(100,75,petalsize,petalsize);
11 ellipse(100,125,petalsize,petalsize);
12 // center
13 fill("yellow");
14 ellipse(100,100, 50, 50);
15
16 // (2) Update the second flower's petals to be a random size
17 petalSize = randomNumber(30, 60);
18 // petals
19 fill("purple");
20 ellipse(275,300,petalsize,petalsize);
21 ellipse(325,300,petalsize,petalsize);
22 ellipse(300,275,petalsize,petalsize);
23 ellipse(300,325,petalsize,petalsize);
24 // center
25 fill("yellow");
26 ellipse(300,300, 50, 50);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:03 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #6 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/6/sublevel/1

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

Instructions Help & Tips

Modify the Planets

This scene represents several planets. Right now, they're all the same size. Let's use random numbers to change the size of each planet to generate a new planet scene every time the program is run.

Toolbox

Drawing Math

Variables

background(color)
fill(color)
noFill()
noStroke()
rect(x, y, w, h)
ellipse(x, y, w, h)

Workspace

```
1 background("black");
2 //1) Update each planet to be a random size each time the program is run
3 fill("yellow");
4 ellipse(0, 200, randomNumber(10, 50), randomNumber(10, 50));
5 fill("salmon");
6 ellipse(80, 200, randomNumber(10, 50), randomNumber(10, 50));
7 fill("cyan");
8 ellipse(160, 200, randomNumber(10, 50), randomNumber(10, 50));
9 fill("lavender");
10 ellipse(240, 200, randomNumber(10, 50), randomNumber(10, 50));
11 fill("crimson");
12 ellipse(320, 200, randomNumber(10, 50), randomNumber(10, 50));
13 fill("orchid");
14 ellipse(400, 200, randomNumber(10, 50), randomNumber(10, 50));
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:03 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #6 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/6/sublevel/2

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

6 MORE

Instructions Help & Tips

Debug: Random Shape Movement

Isaac wrote a program that created three rectangles in the same position, using a variable `xPosition`. He tried to update his code so the rectangles still appear together, but in a random position. But his code has some errors.

Toolbox

Math

Variables

background(color)

fill(color)

noFill()

stroke(color)

noStroke()

rect(x, y, w, h) ←

ellipse(x, y, w, h) ←

Workspace

Version History Show Blocks

```
1 //2) Update the code so the rectangles appear stacked at random x positions
2 var xPos = random(0, 150);
3 fill("pink");
4 rect(xPos, 100, 250, 50);
5 fill("purple");
6 rect(xPos, 150, 250, 50);
7 fill("firebrick");
8 rect(xPos, 200, 250, 50);
```

Reset Finish

Show grid

x: 302, y: 304

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:04 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #6 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/6/sublevel/3

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

Instructions Help & Tips

Modify the Scene

You have learned how to randomize things, so it's time to put all the knowledge to use in this scene! Use random numbers to randomize the position of the sun and the mountains.

Toolbox

Drawing Math

Variables

background(color)
fill(color)
noFill()
stroke(color)
noStroke()
rect(x, y, w, h)
ellipse(x, y, w, h)
regularPolygon(x, y, sides,

Workspace

```
1 background("lightblue");
2 //1) Randomize the x position of the sun
3 fill("yellow");
4 ellipse(randomNumber(0, 400), 50);
5 //2) Randomize the x position of the mountains
6 fill("brown");
7 regularPolygon(randomNumber(0, 400), 300, 3, 200);
8 regularPolygon(randomNumber(0, 400), 300, 3, 200);
9 regularPolygon(randomNumber(0, 400), 300, 3, 250);
10 regularPolygon(randomNumber(0, 400), 300, 3, 250);
11 regularPolygon(randomNumber(0, 400), 300, 3, 250);
12 fill("lightgreen");
13 rect(0, 300, 400, 100);
14
15
16
17
18 |
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:06 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #7 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/7

CODE Share Remix

Lesson 6: Random Numbers
Saved 10 hours ago

Instructions Help & Tips Rubric

Rainbow Snake

Alexis is working on a program to draw a rainbow snake that "wiggles" each time it's run. She's started the program but needs help finishing.

Version History Show Blocks

Reset Finish

Show grid

Toolbox

Drawing Math

```
3 background("skyBlue");
4
5 fill("red");
6 ellipse(100, randomNumber(190,210), 50, 50);
7
8 fill("orange");
9 ellipse(140, randomNumber(190,210), 50, 50);
10
11 fill("yellow");
12 ellipse(180, randomNumber(190,210), 50, 50);
13
14 fill("green");
15 ellipse(220, randomNumber(190,210), 50, 50);
16
17 fill("blue");
18 ellipse(260, randomNumber(190,210), 50, 50);
19
20 fill("purple");
21 ellipse(300, randomNumber(190,210), 50, 50);
```

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:06 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #8 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/8/sublevel/1

CODE Share Remix Lesson 6: Random Numbers Saved 10 hours ago 8 MORE

Instructions Help & Tips

Random Rainbow!

This level uses the `rgb()` block to set the color of the rainbow. Since the `rgb()` block uses (Red, Green, Blue) numerical values, it means we can use `randomNumber()` to generate random colors!

Toolbox

- Drawing
- Math
- Variables

Workspace

```
2 background(rgb(randomNumber(0, 255), randomNumber(0, 255), randomNumber(0, 255)));
3
4 //2) Update each arc of the rainbow to a random color
5 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
6 ellipse(200, 200, 400, 400);
7 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
8 ellipse(200, 200, 340, 340);
9 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
10 ellipse(200, 200, 280, 280);
11 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
12 ellipse(200, 200, 220, 220);
13 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
14 ellipse(200, 200, 160, 160);
15 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
16 ellipse(200, 200, 100, 100);
17 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
18 ellipse(200, 200, 40, 40);
19
20 //3) Update the ground to a random color
21 fill(rgb(randomNumber(0, 255), randomNumber(0, 255),randomNumber(0, 255)));
22
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:07 PM 6/6/2024

Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Random Numbers #8 | Unit 3 | +

studio.code.org/s/csd3-2023/lessons/6/levels/8/sublevel/1

CODE Share Remix Lesson 6: Random Numbers Saved 10 hours ago 8 MORE

Instructions Help & Tips

Random Rainbow!

This level uses the `rgb()` block to set the color of the rainbow. Since the `rgb()` block uses (Red, Green, Blue) numerical values, it means we can use `randomNumber()` to generate random colors!

Toolbox

- Drawing
- Math
- Variables

background(color)
fill(color)
noFill()
stroke(color)
noStroke()
rgb(r, g, b)
rect(x, y, w, h)
ellipse(x, y, w, h)
arc(x, y, w, h, start, end)

Workspace

```
3 //2) Update each arc of the rainbow to a random color
4 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
5 ellipse(200, 200, 400, 400);
6 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
7 ellipse(200, 200, 340, 340);
8 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
9 ellipse(200, 200, 280, 280);
10 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
11 ellipse(200, 200, 220, 220);
12 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
13 ellipse(200, 200, 160, 160);
14 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
15 ellipse(200, 200, 100, 100);
16 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
17 ellipse(200, 200, 40, 40);
18 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
19 //3) Update the ground to a random color
20 fill(rgb(randomNumber(0, 255),randomNumber(0, 255),randomNumber(0, 255)));
21 rect(0, 200, 400, 200);
22 rect(0, 200, 400, 200);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

79°F Sunny 12:08 PM 6/6/2024

Unit 3 - Interactive Animatio... | Mini-Project - Robot Faces

studio.code.org/s/csd3-2023/lessons/7/levels/1/sublevel/2

CODE Share Remix

Lesson 7: Mini-Project - Robot Faces
Saved 10 hours ago

Instructions Help & Tips

Review the Shape Block

Review how to use the `shape()` block to draw additional shapes that you can use on your robot face!

Toolbox

Drawing

background(color)
fill(color)
noFill()
stroke(color)
noStroke()
strokeWeight(size)
rect(x, y, w, h)

Workspace

```
1 fill("red");
2 shape(200, 200, 0, 400, 400, 400);
3 fill("blue");
4 shape(200, 200, 0, 0, 400, 0);
5 fill("green");
6 shape(0, 0, 200, 200, 0, 400);
7 fill("yellow");
8 shape(400, 0, 200, 200, 400, 400);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

English Version: 2023

Type here to search

79°F Sunny 12:10 PM 6/6/2024

Unit 3 - Interactive Animatio... | Mini-Project - Robot Faces

studio.code.org/s/csd3-2023/lessons/7/levels/2

CODE Share Remix

Lesson 7: Mini-Project - Robot Faces
Saved 10 hours ago

Instructions Help & Tips

Robot Face

Use at least 4 different shape blocks, variables, and random numbers to create a robot face with unique and creative features!

Toolbox

Drawing Math

Variables

background(color)
fill(color)
noFill()
stroke(color)
noStroke()
strokeWeight(size)
rgb(r, g, b)
rect(x, y, w, h)
ellipse(x, y, w, h)

Workspace

```
1 var headSize = randomNumber(100, 200);
2 var side = randomNumber(4, 6);
3 var eyeSize = randomNumber(20, 40);
4 var noseWidth = randomNumber(10, 15);
5 var noseHeight = randomNumber(20, 30);
6
7 fill("grey");
8 regularPolygon(200,200, side, headSize);
9
10 fill("red");
11 ellipse(150, 180, eyeSize, eyeSize);
12 fill("red");
13 ellipse(250, 180, eyeSize, eyeSize);
14 fill("black");
15 rect((200 - noseWidth), (200 - noseHeight), noseWidth, noseHeight);
16 noFill();
17 arc(200, 220, 100, 100, 0, -180);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

79°F Sunny 12:11 PM 6/6/2024

Unit 3 - Interactive A... | Sprites #1 | Unit 3 - In...

studio.code.org/s/csd3-2023/lessons/8/levels/1

CODE

Lesson 8: Sprites

Instructions

at the top of the code instead of at the bottom?

An apple and a carrot will be displayed

```
1 var fruit = createSprite(100, 200);
2 fruit.setAnimation("apple");
3 var vegetable = createSprite(300, 200);
4 vegetable.setAnimation("carrot");
5 drawSprites();
```

View only

Show Blocks

Reset

Finish

Show grid

Debug Console

Debug Sprites: Off

Clear

Type here to search

English Version: 2023

81°F Sunny 12:13 PM 6/6/2024

The screenshot shows a Scratch workspace titled "Lesson 8: Sprites". The workspace contains the following script:

```
1 var sprite1 = createSprite(200, 200, 200, 200);
2 drawSprites();
```

The workspace has tabs for "World" and "Sprites". There are two sprites in the stage area. The bottom-left corner of the screen shows a Windows taskbar with various icons and a search bar.

Unit 3 - Interactive A... | Sprites #3 | Unit 3 - In...

studio.code.org/s/csd3-2023/lessons/8/levels/3

CODE Share Remix

Lesson 8: Sprites
Saved 10 hours ago

Instructions Help & Tips

Debug

This program should create two new sprites, one on the left of the screen and one on the right, but it's only drawing one. You don't need to add any code. Just rearrange the code already present to make sure that

Toolbox

World Sprites

Workspace

```
1 var leftSprite = createSprite(100, 200);
2 var rightSprite = createSprite(300, 200);
3 drawSprites();
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

12:16 PM 6/6/2024

Unit 3 - Interactive A... | Sprites #4 | Unit 3 - In...

studio.code.org/s/csd3-2023/lessons/8/levels/4

CODE Share Remix

Lesson 8: Sprites
Saved 10 hours ago

Instructions Help & Tips

This level follows a video that you may have watched with your class. If you missed the video, you can watch it in the Help and Tips tab of this level.

Investigating Sprites

Toolbox

World Sprites

drawSprites()

Workspace

```
1 var fruit = createSprite(200, 100);
2 //1) Update the fruit animation
3 fruit.setAnimation("strawberry");
4
5 var vegetable = createSprite(200, 300);
6 //2) Update the vegetable animation
7 vegetable.setAnimation("broccoli");
8
9 drawSprites();
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

Result

12:16 PM 6/6/2024

Unit 3 - Interactive A... | Sprites #5 | Unit 3 - In...

studio.code.org/s/csd3-2023/lessons/8/levels/5

CODE Share Remix

Lesson 8: Sprites
Saved 10 hours ago

Code Animation

Instructions Help & Tips

Sprites

Let's use our new sprite blocks to create a student sprite!

Toolbox

World Sprites

drawSprites()

Workspace

```
1 var student = createSprite(200, 200);
2 student.setAnimation("Jeff");
3 drawSprites();
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Type here to search

Result 12:17 PM 6/6/2024

Unit 3 - Interactive A... | Sprites #6 | Unit 3 - In...

studio.code.org/s/csd3-2023/lessons/8/levels/6

CODE Share Remix

Lesson 8: Sprites
Saved 10 hours ago

Code Animation

Instructions Help & Tips

Adding Animations

This program draws four sprites to the screen, and one of them has an animation from the Animation Tab!

Toolbox

World Sprites

```
1 var topLeftSprite = createSprite(100, 100);
2 var topRightSprite = createSprite(300, 100);
3 var bottomLeftSprite = createSprite(100, 300);
4 var bottomRightSprite = createSprite(300, 300);
5 bottomRightSprite.setAnimation("alien");
6 topLeftSprite.setAnimation("bunny");
7 topRightSprite.setAnimation("flyBot");
8 bottomLeftSprite.setAnimation("planeRed1");
9 drawSprites();
```

Workspace

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Watchers

Type here to search

Result

12:18 PM 6/6/2024

Unit 3 - Interactive A... | Sprites #7 | Unit 3 - In...

studio.code.org/s/csd3-2023/lessons/8/levels/7

Lesson 8: Sprites
Saved 10 hours ago

CODE Share Remix

Code Animation

Instructions Help & Tips

Debug some sprites

This program draws three sprites to the screen, but it's not working yet. The wrong sprite is in front, and one sprite's animation isn't showing up.

Toolbox

World Sprites

```
1 var drink = createSprite(100, 200);
2 drink.setAnimation("soda");
3 var dessert = createSprite(300, 200);
4 dessert.setAnimation("ice_cream");
5 var message = createSprite(200, 200);
6 message.setAnimation("textGetReady");
7 drawSprites();
```

Workspace

Version History Show Blocks

Reset Finish

Show grid

Debug Console

Debug Sprites: Off Clear

Watchers

Type here to search

Result

12:18 PM 6/6/2024

Unit 3 - Interactive A... | Sprites #0 | Unit 3 - Interactive A... | +

studio.code.org/s/csd3-2023/lessons/8/levels/8

Match the image to the code that it will produce.

Submit

The image shows a Scratch script editor with four scripts listed on the left and their corresponding visual outputs on the right. Each script consists of a series of Scratch blocks (e.g., background, create sprite, draw sprite, set x/y, etc.) and its output is a 2x2 grid of four colored squares (blue, white, blue, white).

- Script 1:** background [sky color v], create喷漆笔 (100, 200) [] , draw喷漆笔 () [] , set [喷漆笔] to [喷漆笔 v], draw喷漆笔 () [] .
- Script 2:** background [乐高积木 v], create喷漆笔 (100, 200) [] , draw喷漆笔 () [] , set [喷漆笔] to [喷漆笔 v], create喷漆笔 (100, 200) [] , draw喷漆笔 () [] .
- Script 3:** background [乐高积木 v], create喷漆笔 (100, 200) [] , draw喷漆笔 () [] , set [喷漆笔] to [喷漆笔 v], create喷漆笔 (100, 200) [] , draw喷漆笔 () [] .
- Script 4:** background [乐高积木 v], create喷漆笔 (100, 200) [] , draw喷漆笔 () [] , set [喷漆笔] to [喷漆笔 v], create喷漆笔 (100, 200) [] , draw喷漆笔 () [] .

Submit

Type here to search

High UV 1221 PM 6/6/2024

Unit 3 - Interactive A... | Sprites #9 | Unit 3 - In...

studio.code.org/s/csd3-2023/lessons/8/levels/9/sublevel/1

Lesson 8: Sprites
Lesson 8: Sprites
Lesson 8: Sprites

Code Animation Share Remix

Instructions Help & Tips

Debug: Missing Sprites

Looking at the code below, we can see that many sprites are created, and yet when we run the program, nothing shows up. Can you fix it?

Toolbox

- World
- Groups
- Meth
- Sprites
- Drawing
- Variables

Workspace

```
1 var sprite1 = createSprite(50, 50);
2 var sprite2 = createSprite(50, 150);
3 var sprite3 = createSprite(50, 250);
4 var sprite4 = createSprite(50, 350);
5 var sprite5 = createSprite(300, 200);
6
7 sprite1.setAnimation("planeRed");
8 sprite2.setAnimation("planeBlue");
9 sprite3.setAnimation("planeGreen");
10 sprite4.setAnimation("planeYellow");
11 sprite5.setAnimation("bunny");
12
13 drawSprites();
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

Debug Sprites: Off Clear

Watchers

English Version: 2023

81°F Sunny 12:22 PM 6/6/2024

Unit 3 - Interactive A... | Sprites #9 | Unit 3 - In...

studio.code.org/s/csd3-2023/lessons/8/levels/9/sublevel/1

Lesson 8: Sprites
Lesson 8: Sprites
Lesson 8: Sprites

Code Animation Share Remix

Instructions Help & Tips

Debug: Missing Sprites

Looking at the code below, we can see that many sprites are created, and yet when we run the program, nothing shows up. Can you fix it?

Toolbox

- World
- Groups
- Meth
- Sprites
- Drawing
- Variables

Workspace

```
1 var sprite1 = createSprite(50, 50);
2 var sprite2 = createSprite(50, 150);
3 var sprite3 = createSprite(50, 250);
4 var sprite4 = createSprite(50, 350);
5 var sprite5 = createSprite(300, 200);
6
7 sprite1.setAnimation("planeRed");
8 sprite2.setAnimation("planeBlue");
9 sprite3.setAnimation("planeGreen");
10 sprite4.setAnimation("planeYellow");
11 sprite5.setAnimation("bunny");
12
13 drawSprites();
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

Debug Sprites: Off Clear

Record high Watchers

12:23 PM 6/6/2024

The screenshot shows the Scratch workspace with a script in the workspace area:

```
1 background("lightblue");
2 var explosion = createSprite(100, 100);
3 explosion.setAnimation("explosion");
4
5 for(var i = 0; i < 7; i++) {
6     var dirt = createSprite(i * 62, 350);
7     dirt.setAnimation("dirt");
8 }
9
10 drawSprites();
```

The script starts with a background block set to "lightblue". It then creates a sprite named "explosion" at position (100, 100) and sets its animation to "explosion". A loop runs 7 times, creating a new sprite named "dirt" at position $i \times 62, 350$ and setting its animation to "dirt". Finally, it calls the "drawSprites" block.

The workspace also includes a toolbox with categories: World, Sprites, Drawing, and Math. There is a comment block labeled "drawSprites()".

The status bar at the bottom shows "Earnings upcoming" and the date "6/6/2024".

Unit 3 - Interact! | Sprite Properties

studio.code.org/s/csd3-2023/lessons/9/levels/1

Lesson 9: Sprite Properties 1 / 5 MORE

Instructions Help & Tips

Look at the code below and predict where the bee sprite will appear.

What will the program show?

A. a bee sprite in the middle of the screen
 B. a bee sprite in the bottom right corner

View only Show Blocks

```
1 var bee = createSprite(100,200);
2 bee.setAnimation("bee");
3 bee.x = 350;
4 bee.y = 350;
5 drawSprites();
```

Reset Finish Show grid

Debug Console

English Version: 2023 Debug Sprites: Off Clear

Type here to search

Unit 3 - Interact! | Sprite Properties

studio.code.org/s/csd3-2023/lessons/9/levels/2

Lesson 9: Sprite Properties
Lesson 9: Sprite Properties

Instructions Help & Tips

You do Vanaboss, and see the results when your sprite is drawn to the screen.

Do this

1. Run the program to see where the sprites appear.
2. Change the location of the paint brush to touch the paint palette.
 - Change the `sprite.x` and `sprite.y` properties of the paint brush sprite to change its location.

Toolbox

World Sprites

Drawing Math

Variables

drawSprites()

// Comment

Workspace

```
1 //1) Run the program to see where the sprites appear.
2 var palette = createSprite();
3 palette.setAnimation("paint_palette");
4 var brush = createSprite();
5 brush.setAnimation("paint_brush");
6 palette.x = 100;
7 palette.y = 300;
8 //2) Change the location of the paint brush to touch the paint palette.
9 brush.x= 100;
10 brush.y = 277;
11 drawSprites();
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

English Version: 2023

81°F Sunny 12:32 PM 6/6/2024

Unit 3 - Interact! | Sprite Properties

studio.code.org/s/csd3-2023/lessons/9/levels/3

Lesson 9: Sprite Properties
Saved 10 hours ago

Code Animation

New Properties

Sprites have lots of properties. Check out the two new blocks in this activity and try them out for yourself. Notice that different sprites can use the same animation, and still look different because of properties.

Do this

Toolbox

World Drawing Variables drawSprites() Comment

Workspace

```
1 //1) Run the program to see how what is different about the first two notes.  
2 //2) Use the same blocks on the last two notes to make them look different, too.  
3 background("skyblue");  
4 var drums = createSprite(200,250);  
5 drums.setAnimation("drum_set");  
6 var note1 = createSprite(150,50);  
7 note1.setAnimation("eighth_note");  
8 note1.scale = 0.8;  
9 note1.rotation = 20;  
10 var note2 = createSprite(150,50);  
11 note2.setAnimation("eighth_note");  
12 note2.scale = 0.7;  
13 note2.rotation = -30;  
14 var note3 = createSprite(250,50);  
15 note3.setAnimation("eighth_note");  
16 note3.scale = 0.8;  
17 note3.rotation = -15;  
18 var note4 = createSprite(350,50);  
19 note4.setAnimation("eighth_note");  
20 note4.scale = 0.5;  
21 note4.rotation = -5;  
22 drawSprites();
```

Reset Finish Show grid

Version History Show Blocks

Debug Console

English Version: 2023 Debug Sprites: Off Clear

Type here to search

81°F Sunny 12:33 PM 6/6/2024

Unit 3 - Interact! | Sprite Properties | +

studio.code.org/s/csd3-2023/lessons/9/levels/4/sublevel/1

Lesson 9: Sprite Properties
Saved 10 hours ago

Code Animation Share Remix

Instructions Help & Tips

Scale Property

The `scale` property changes the size of the sprite. Scale of `1` is the normal size, scale of `2` is twice as big, and a scale of `0.5` is half as big.

Do this

Toolbox

- World
- Drawing
- Variables
- drawSprites()
- Comment

Workspace

```
1 //1) Fix the code so that it looks like the picture.
2 background("darkseagreen");
3 fill("deepskyblue");
4 ellipse(75, 75, 75, 75);
5 var fly = createSprite(25, 25);
6 fly.setAnimation("fly");
7 fly.scale = 0.25;
8
9 var fish = createSprite(75, 75);
10 fish.setAnimation("fish");
11 fish.scale = 0.45;
12
13 var cow = createSprite(150, 150);
14 cow.setAnimation("cow");
15 cow.scale = 0.5;
16
17 var elephant = createSprite(300, 300);
18 elephant.setAnimation("elephant");
19 elephant.scale = 1;
20
21 drawSprites();
```

Version History Show Blocks

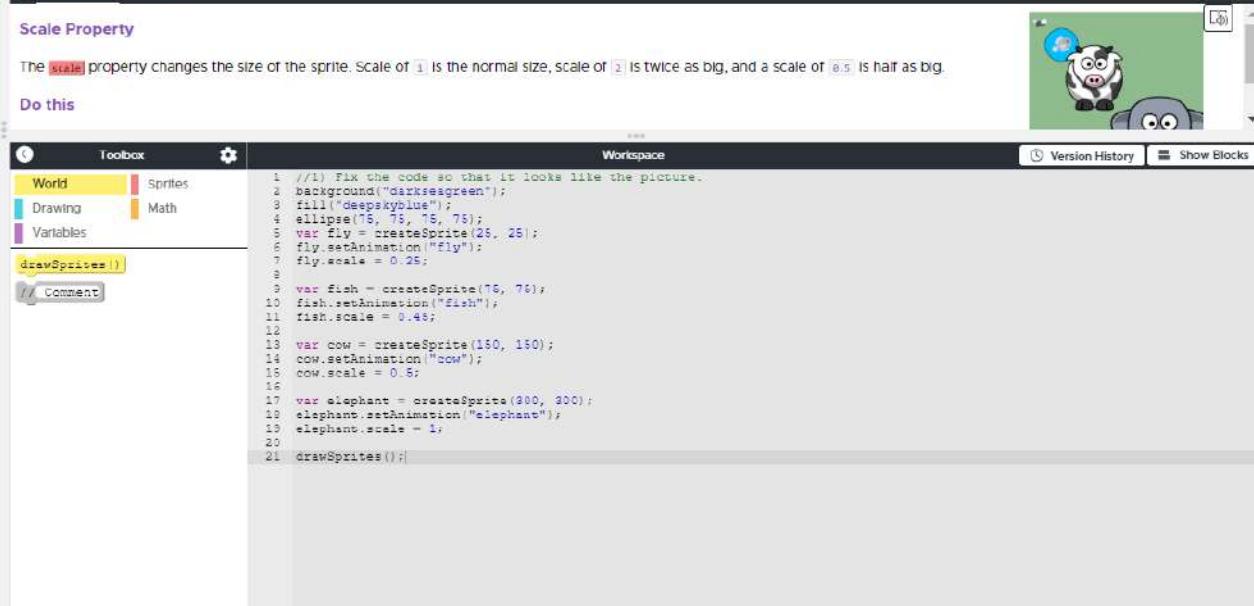
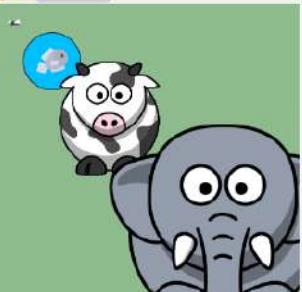
Reset Finish Show grid

Debug Console

English Version: 2023 Debug Sprites: Off Clear

Type here to search

81°F Sunny 12:34 PM 6/6/2024



Unit 3 - Interact! | Sprite Properties

studio.code.org/s/csd3-2023/lessons/9/levels/5

Lesson 9: Sprite Properties
Saved 10 hours ago

Instructions Help & Tips Rubric

Make it Fit!

The food is way too big to fit on the plate. Use your knowledge of sprite properties to make it fit.

Do this

Toolbox

- World
- Drawing
- Variables
- drawSprites()

Workspace

```
1 //1) Run the program to see how big the food is.  
2 //2) Use sprite properties to scale all of the food sprites down so they fit on the plate.  
3 background("burlywood");  
4 fill("white");  
5 ellipse(200,200, 350);  
6 var fries = createSprite(250,140);  
7 fries.setAnimation("fries");  
8 fries.scale = 0.6;  
9  
10 var burger = createSprite(110,200);  
11 burger.setAnimation("burger");  
12 burger.scale = 0.6;  
13  
14 var dessert = createSprite(240,270);  
15 dessert.setAnimation("watermelon");  
16 dessert.scale = 0.6;  
17  
18 drawSprites();
```

Version History Show Blocks

Reset Finish

Type here to search

Debug Console

Debug Sprites: Off Clear

81°F Sunny 12:34 PM 6/6/2024

The image shows a Scratch workspace titled "Lesson 9: Sprite Properties". The workspace contains a green, textured creature sprite. The code in the workspace is:

```
1 //1) Using either the sprite already created for you or with any other sprites of your choosing,
2 //play around with the tint property and
3 //see how it works and how it changes on different colored sprites
4 var creature = createSprite(200, 200);
5 creature.setAnimation("crowned_creature_1");
6 creature.scale = 0.3;
7 creature.tint = "green";
8 drawSprites();
```

The interface includes tabs for "Code" and "Animation", and buttons for "Reset" and "Finish". The status bar at the bottom shows "English", "Version: 2023", "Debug Console", "Debug Sprites: Off", "Clear", "81°F Sunny", "12:35 PM", and "6/6/2024".

The screenshot shows the Scratch programming interface. At the top, there are multiple tabs labeled "Unit 3 - Intro" and "Text #1 | Unit". Below the tabs, the URL "studio.code.org/s/csd3-2023/lessons/10/levels/1" is visible. The main area is titled "Lesson 10: Text" and shows a script for the "everyone" hat. The script contains three "text" blocks:

```
1 text("Hello", 10, 200);
2
3 text("everyone!", 200, 300);
```

Below the script, there is a text input field containing the placeholder "It displays 2 texts". On the left side of the workspace, there are blocks for "Control", "Sensing", "Operators", "Variables", and "Looks". On the right side, there are blocks for "Motion", "Sound", "Pen", and "Sound". At the bottom, there are buttons for "Reset" and "Finish". The status bar at the bottom indicates "English", "Version: 2023", "Debug Console", "Debug Sprites: Off", "Clear", "Watchers", "81°F Sunny", "1237 PM", and "6/6/2024".

The screenshot shows the Scratch workspace with a script titled "Hello World" in the "World" category. The script contains the following code:

```
background("lightyellow");
//1) Change the displayed text in the provided code.
text("Hello World", 200, 200);
//2) Add another sentence in a different part of the screen.
text(" ", 100, 100);
```

The workspace also includes a "Comment" block below the script.

At the bottom of the screen, the Windows taskbar is visible, showing the search bar, pinned icons for File Explorer, Mozilla Firefox, and Google Chrome, and system status indicators for weather (81°F Sunny), time (12:38 PM), and date (6/6/2024).

Unit 3 - Inter... | Text #3 | Unit... +

studio.code.org/s/csd3-2023/lessons/10/levels/3

Lesson 10: Text
Saved 10 hours ago

Code Animation Share Remix

Instructions Help & Tips

Text Size

You can change the size of the text using the `textSize` block.

Do This

small

medium

large

Toolbox

World Drawing Variables

Workspace

Version History Show Blocks

```
1 //1) Run the code to see how it works.
2 background("lightblue");
3 textSize(20);
4 text("small", 170, 100);
5 textSize(40);
6 text("medium", 130, 200);
7 //2) Add code to make the word "large" the biggest.
8 textSize(60);
9 text("large", 120, 300);
10 textSize(80);
```

Reset Finish Show grid

Debug Console

English Version: 2023

81°F Sunny 12:39 PM 6/6/2024

Unit 3 - Inter... | Text #4 | Unit ... +

studio.code.org/s/csd3-2023/lessons/10/levels/4/sublevel/1

Lesson 10: Text
Saved 10 hours ago

Code Animation Share Remix

Instructions Help & Tips

Debug

This scene has all the right code, but it's not in the right order. The scene should look like the image to the right.

Do This

Toolbox

World Drawing Variables drawSprites() Comment

Workspace

```
1 //1) Reorder the blocks so that each part of the scene is drawn in the correct order so that the scene looks like the picture
2 var berry = createSprite(200, 180);
3 berry.setAnimation("strawberry");
4 berry.scale = 0.7;
5 berry.rotation = 45;
6
7 background("lightpink");
8
9 stroke("black");
10 line(0, 0, 400, 400);
11 line(100, 0, 400, 300);
12 line(200, 0, 400, 200);
13 line(300, 0, 400, 100);
14 line(0, 100, 300, 400);
15 line(0, 200, 300, 400);
16 line(0, 300, 100, 400);
17
18 fill("yellow");
19 textSize(35);
20 text("It's berry nice to see you", 10, 100);
21
22 noStroke();
23 fill("white");
24 ellipse(185, 140, 40, 40);
25 ellipse(233, 168, 40, 40);
26 fill("black");
27 ellipse(185, 140, 16, 16);
28 ellipse(233, 168, 16, 16);
29
30 drawSprites();
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

81°F Sunny 1240 PM 6/6/2024



Unit 3 - Inter... | Text #5 | Unit ... +

studio.code.org/s/csd3-2023/lessons/10/levels/5

Lesson 10: Text 5 MORE

Share Remix

Code Animation

Add Text

Here is a scene, but it needs text.

Do this

Toolbox

World Sprites

Drawing Math

Variables

drawSprites()
// Comment

Workspace

```
1 //1) Add two pieces of text to the following scene.  
2 //2) Make the two pieces of text different sizes.  
3 var grass = createSprite(200,200);  
4 grass.setAnimation("floating_grass");  
5 var alien = createSprite(180,100);  
6 alien.setAnimation("alien");  
7 alien.scale = 1.3;  
8 var robot = createSprite(300,300);  
9 robot.setAnimation("robot");  
10 robot.scale = 0.2;  
11 drawSprites();
```

Version History

Reset Finish Show grid

Zoom out

Type here to search

81°F Sunny 12:45 PM 6/6/2024

Unit 3 - Inter... | Text #6 | Unit... | +

studio.code.org/s/csd3-2023/lessons/10/levels/6/sublevel/1

CODE Share Remix Lesson 10: Text
Saved 1 hour ago 6 MORE

Code Animation Instructions Help & Tips

Rainbows in the sky...

You can change the color of your text using the `fill` block.

Do This

Toolbox

- World
- Drawing
- Variables
- randomNumber(1, 10)
- // Comment

Workspace

```
1 //1) Read the code to see how it works.
2 var sky = createSprite(200,200);
3 sky.setAnimation("rainbow");
4 drawSprites();
5 textSize(50);
6 fill("red");
7 text("Rainbows", 30, 50);
8 fill("orange");
9 text("in the", 70, 100);
10 //2) Add a new block to make the word "sky" a different color.
11 text("sky...", 110, 150);
12 //3) Add more text with even more colors.
```

Version History Show Blocks

Reset Finish

Debug Console

Debug Sprites: Off Clear

English Version: 2023

81°F Sunny 12:49 PM 6/6/2024

A Scratch workspace featuring a blue background with white clouds. A red-to-yellow rainbow arches across the middle. The title "Rainbows in the sky..." is displayed in yellow and orange text at the top left. The workspace contains the provided Scratch script.

Unit 3 - In | Mini-Proj | +

studio.code.org/s/csd3-2023/lessons/11/levels/1

CODE

Lesson 11: Mini-Project - Captioned Scenes
saved 10 hours ago

Instructions

Sprite Scenes

What kind of music do planets sing?

Neptunes!

Before moving on, take a second to sketch out a scene that you'd like to make at the end of this lesson. Consider the simple shapes that you've used in the past, sprites for your characters, and any text that you'd like on the screen. Once you've sketched out an idea, you'll learn about how to compose a scene.

Is there anything else that you still need to learn how to do?

Are there any skills that you'd like to review?

Reset Finish Show grid

English Version: 2023

Type here to search

81°F Sunny 12:51 PM 6/6/2024

Unit 3 - In | Mini-Proj | +

studio.code.org/s/csd3-2023/lessons/11/levels/2

Lesson 11: Mini-Project - Captioned Scenes
saved 10 hours ago

Code Animation

Create Your Scene - Background

First, make the background of your scene by using the `background` command to fill the screen with a color, and then use at least 2 shape commands to finish the background of your scene.

Toolbox

- World
- Drawing
- Variables

Sprites

- Math

drawSprites()

// Comment

```
7 shape(0, 300, 400, 300, 400, 400, 0, 400);
8
9 // tree
10 fill(rgb(108, 88, 56));
11 rect(50, 170, 20, 80);
12
13 fill("green");
14 shape(70, 100, 100, 170, 20, 170);
15
16 // sun
17 fill("yellow");
18 ellipse(300, 50, 40, 40);
19
20 //cloud
21 var cloud = createSprite(200, 50);
22 cloud.setAnimation("cloud");
23 cloud.scale = 0.6;
24
25 var robo = createSprite(200, 300);
26 robo.setAnimation("robo");
27 robo.scale = 0.6;
28
29 drawSprites();
```

Workspace

Version History Show Blocks

Debug Console

ERROR: Line: 22: Error: Unable to find an animation named "cloud". Please make sure the animation exists.

Reset Finish Show grid

Type here to search

81°F Sunny 1251 PM 6/6/2024

Unit 3 - In | Mini-Proj | +

studio.code.org/s/csd3-2023/lessons/11/levels/3

Lesson 11: Mini-Project - Captioned Scenes
Saved 10 hours ago

Code Animation

Create Your Scene - Sprites

With your background in place, it's time to add your sprites.

Do This

Toolbox

World Sprites Drawing Math Variables

drawSprites() // Comment

```
7 shape(0, 300, 400, 300, 400, 400, 0, 400);
8
9 // tree
10 fill(rgb(108, 88, 56));
11 rect(50, 170, 20, 80);
12
13 fill("green");
14 shape(70, 100, 100, 170, 20, 170);
15
16 // sun
17 fill("yellow");
18 ellipse(300, 50, 40, 40);
19
20 //cloud
21 var cloud = createSprite(200, 50);
22 cloud.setAnimation("cloud");
23 cloud.scale = 0.6;
24
25 var robo = createSprite(200, 300);
26 robo.setAnimation("robo");
27 robo.scale = 0.6;
28
29 drawSprites();
```

Version History Show Blocks

Debug Console

ERROR: Line: 22: Error: Unable to find an animation named "cloud". Please make sure the animation exists.

Reset Finish Show grid

Type here to search

English Version: 2023

81°F Sunny 12:52 PM 6/6/2024

Unit 3 - In | Mini-Proj | +

studio.code.org/s/csd3-2023/lessons/11/levels/5

Lesson 11: Mini-Project - Captioned Scenes
saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Do this

1. Compare the scene that you drew to your plan.
2. Make any last changes.
3. What are you most proud of?

World Drawing Variables

Reset Finish Show grid

Toolbox

Code Animation

Workspace

Version History Show Blocks

DrawSprites()
// Comment

```
11 rect(50, 170, 20, 80);
12 fill("green");
13 shape(0, 100, 100, 170, 20, 170);
14
15 // sun
16 fill("yellow");
17 ellipse(300, 50, 40, 40);
18
19 // cloud
20 var cloud = createSprite(200, 50);
21 cloud.setAnimation("cloud");
22 cloud.scale = 0.6;
23
24 var robo = createSprite(200, 300);
25 robo.setAnimation("robo");
26 robo.scale = 0.6;
27
28 drawSprites();
29
30 fill("grey");
31 textSize(20);
32 text("Welcome to FICL", 150, 150);
```

Debug Console

ERROR: Line: 22: Error: Unable to find an animation named "cloud". Please make sure the animation exists.

Debug Sprites: Off Clear

English Version: 2023

Type here to search

Result 12:55 PM 6/6/2024

The screenshot shows the Scratch programming interface. At the top, there are multiple tabs labeled "Unit 3" and one tab labeled "The Draw". Below the tabs, the address bar shows the URL: studio.code.org/s/csd3-2023/lessons/12/levels/1. The main workspace has a green background. On the left, there's a vertical toolbar with icons for "C", "D", and "E". The script editor contains the following code:

```
1 //1) Discuss with your partner what will be drawn on the screen and why.  
2 //2) Record your prediction in the box.  
3 //3) Run the program to see what this program does!  
4 noStroke();  
5 fill("SeaGreen");  
6  
7+ function draw(){  
8 ellipse(randomNumber(0,400), randomNumber(0,400));  
9 }  
10
```

Below the code, there's a "View only" button and a "Show Blocks" button. To the left of the code editor, there's a text box containing the prediction: "Only scene background". The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray.

Unit3 | The Dr...

studio.code.org/s/csd3-2023/lessons/12/levels/2

Lesson 12: The Draw Loop
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Using the Draw Loop

Now it's your turn to do some work with the draw loop. Remember that the code inside the draw loop is run by Game Lab over and over again.

Do This

Toolbox

World Drawing

Math

function draw() {}

Workspace

```
1 //1) Add code to this program so that your drawing has orange circles being drawn, too.
2 noStroke();
3
4+ function draw(){
5   fill("green");
6   ellipse(randomNumber(0,400), randomNumber(0,400));
7   fill("orange");
8   ellipse(randomNumber(0,400), randomNumber(0,400));
9 }
```

Version History Show Blocks

Reset Finish

Debug Console

Type here to search

Record high

12:59 PM 6/6/2024

The screenshot shows a web-based Scratch-like programming environment. At the top, there are multiple tabs all titled "Unit 3". Below the tabs, the URL is studio.code.org/s/csd3-2023/lessons/12/levels/3. The main area is titled "Lesson 12: The Draw Loop". A progress bar indicates the user is on step 3 of 5. The workspace on the left is red, and a yellow circle is visible. The code editor on the right contains the following code:

```
function draw(){
    background("Red");
    ellipse(randomNumber(0,400), randomNumber(0,400));
}

World.frameRate = 5;
noStroke();
background("blue");
fill("Yellow");

function draw(){
    background("Red");
    ellipse(randomNumber(0,400), randomNumber(0,400));
}
```

Below the code editor are "Reset" and "Finish" buttons. The bottom of the screen shows a Windows taskbar with icons for search, file explorer, browser, and other applications. The system tray shows the date and time as 6/6/2024, 101 PM.

Unit3 | The Dr... +

studio.code.org/s/csd3-2023/lessons/12/levels/4

Lesson 12: The Draw Loop
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Sprites in the Draw Loop

By changing sprite properties in the draw loop, you can animate your characters.

Do This

Reset Finish Show grid

Toolbox

World Drawing Variables

function draw() {
 drawSprites();
}

Workspace

//1) Run the code to see how it works.
//2) Discuss with your partner why some code is inside the draw loop and some code is outside.
var sprite = createSprite(100,200);
sprite.setAnimation("greenAlien");
function draw() [
 background("orange");
 //3) Try changing the numbers in the random number block and running the program again.
 sprite.rotation = randomNumber(-30, 30);
 drawSprites();
]

Version History Show Blocks

Debug Console

Type here to search

83°F Sunny 102 PM 6/6/2024

Unit3 | The Dr... +

studio.code.org/s/csd3-2023/lessons/12/levels/5

Lesson 12: The Draw Loop
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Updating Properties

This animation already is updating one sprite's x property to make it look like it's shaking.

Do This

Toolbox

World Sprites

Drawing Math

function draw() {
 drawSprites();
}

Workspace

```
1 //1 Run the program to see how it works.  
2 var pencil = createSprite(100,200);  
3 pencil.setAnimation("pencil");  
4  
5 var brush = createSprite(300,200);  
6 brush.setAnimation("brush");  
7  
8 function draw(){  
9     background("white");  
10    pencil.x = randomNumber(100,110);  
11    brush.x = randomNumber(250, 300);  
12    drawSprites();  
13 }
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

English Version: 2023

83°F Sunny 102 PM 6/6/2024

Unit3 | The Dr... +

studio.code.org/s/csd3-2023/lessons/12/levels/6/sublevel/1

Lesson 12: The Draw Loop
Saved 10 hours ago

Code Animation

Instructions Help & Tips

Updating Properties

This level combines some of the skills you've already seen. It's drawing ellipses in the background and also updating sprite properties. This time it's changing the sprite's `rotation` property.

Toolbox

World Sprites

Drawing Math

Variables

Code

```
function draw() {  
    drawSprites();  
    World.frameRate = 10;  
  
    var greenAlien = createSprite(100, 200);  
    greenAlien.setAnimation("greenAlien");  
  
    var pinkAlien = createSprite(300, 200);  
    pinkAlien.setAnimation("pinkAlien");  
  
    background("black");  
    ellipse(randomNumber(0, 400), randomNumber(0, 400), 5, 5);  
  
    greenAlien.rotation = randomNumber(-5, 5);  
    pinkAlien.rotation = randomNumber(-5, 5);  
    drawSprites();  
}
```

Version History Show Blocks

Reset Finish Show grid

Type here to search

Debug Console

Debug Sprites: Off Clear

English Version: 2023

83°F Sunny 103 PM 6/6/2024

Unit3 | The Dr... +

studio.code.org/s/csd3-2023/lessons/12/levels/7

Lesson 12: The Draw Loop
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips Rubric

Code Animation

Updating Properties

This level is very similar to the last, but this time, you'll add in the draw loop yourself.

Do This

Toolbox

World Sprites

Drawing Math

Variables

```
function draw() {  
    drawSprites();  
    World.frameRate;  
}  
  
//1) Add the draw loop block to the bottom of this program.  
//2) Move any blocks that need to be inside the draw loop.  
  
var salt = createSprite(200,200);  
salt.setAnimation("salt");  
background("skyblue");  
  
function draw() [  
    salt.y = randomNumber(105, 205);  
    drawSprites();  
]
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

English Version: 2023

83°F Sunny 105 PM 6/6/2024

Unit3 | The Dr. | +

studio.code.org/s/csd3-2023/lessons/12/levels/8/sublevel/2

Lesson 12: The Draw Loop
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Code Animation

Animate the Rainbow Snake

This level brings back the rainbow snake from an earlier lesson so that you can animate it with the draw loop!

Do This

Toolbox

- World
- Drawing
- Variables

Workspace

```
1 //Setting World Frame Rate
2 World.frameRate = 5;
3
4 //1) Create your sprite for the snake head and set it's location to be at the front of the body.
5
6 //2) Set the animation for the snake head.
7
8 //3) Resize the snake head.
9
10 //Rainbow Snake Code
11 background("skyBlue");
12
13 fill("red");
14 ellipse(100, randomNumber(190,210), 50, 50);
15
16 fill("orange");
17 ellipse(140, randomNumber(190,210), 50, 50);
18
19 fill("yellow");
20 ellipse(180, randomNumber(190,210), 50, 50);
21
22 fill("green");
23 ellipse(220, randomNumber(190,210), 50, 50);
24
25 fill("blue");
26 ellipse(260, randomNumber(190,210), 50, 50);
27
28
```

Version History Show Blocks

Reset Finish Show grid

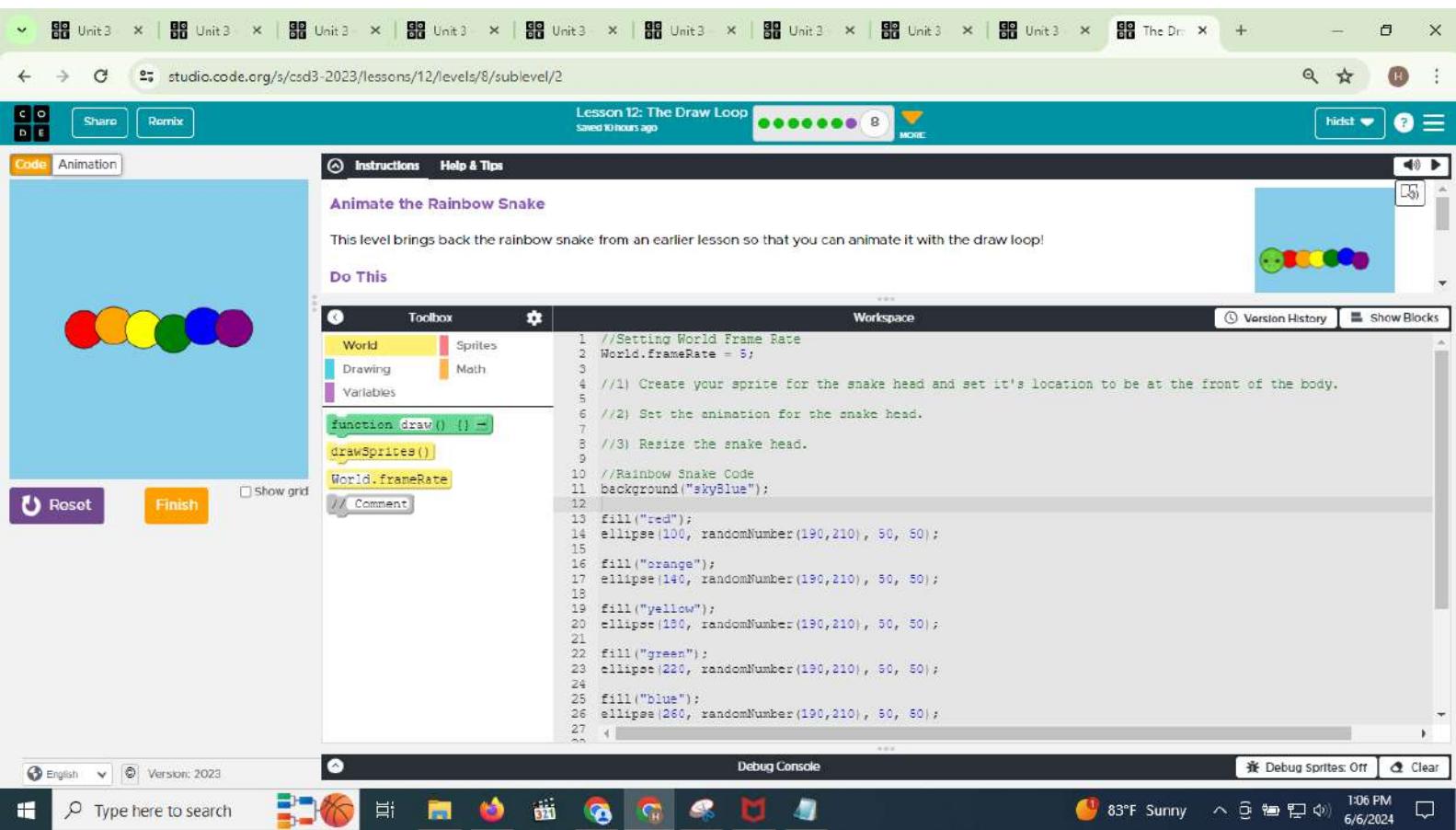
Debug Console

Debug Sprites: Off Clear

Type here to search

English Version: 2023

83°F Sunny 106 PM 6/6/2024



The screenshot shows the Scratch programming interface. At the top, there's a toolbar with multiple tabs labeled "Unit 1" through "Unit 10" and "Sprites". Below the toolbar is a navigation bar with a back arrow, forward arrow, and a URL field containing "studio.code.org/s/csd3-2023/lessons/13/levels/1". The main area is titled "Lesson 13: Sprite Movement" with a progress bar showing step 1 of 10. On the left, there's a large, stylized gray cat sprite. The script editor on the right contains the following JavaScript code:

```
1 var counter = 0;
2
3 function draw(){
4     background("white");
5     textSize(counter);
6     text(counter, 0, 400);
7     counter = counter + 1;
8 }
```

Below the code, there's a "View only" button and a "Show Blocks" button. At the bottom of the Scratch window, there's a taskbar with icons for various applications like File Explorer, Edge, and Google Chrome. The system tray at the bottom right shows the date and time as "6/6/2024 10:08 PM".

Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 | Unit 7 | Unit 8 | Unit 9 | Unit 10 | Unit 11 | Unit 12 | Unit 13 | Unit 14 | Unit 15 | Unit 16 | Unit 17 | Unit 18 | Unit 19 | Unit 20 | Sprites | +

studio.code.org/s/csd3-2023/lessons/13/levels/2

Lesson 13: Sprite Movement
Saved 0 hours ago

CODE Share Remix

Instructions Help & Tips

This level follows a video that you may have watched with your class. If you missed the video, you can watch it in the Help and Tips tab of this level.

Sprite Movement

Using the counter pattern, you can write programs that animate sprites smoothly. Adding to or removing from a sprite's `x` or `y` position by the same amount each time will make it move at a constant speed.

Toolbox

World Drawing Variables

function draw() {
 drawSprites();
}

Workspace

```
1 var jet = createSprite(350, 350);  
2 jet.setAnimation("jet");  
3 var plane = createSprite(50, 200);  
4 plane.setAnimation("plane");  
5  
6 function draw() {  
7     background("skyblue");  
8  
9     //1) Read the code that makes the jet go up the screen  
10    jet.y = jet.y - 3;  
11    plane.x = plane.x + 3;  
12  
13    drawSprites();  
14 }
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

English Version: 2023 Debug Sprites: Off Clear

Type here to search

Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 | Unit 7 | Unit 8 | Unit 9 | Unit 10 | Unit 11 | Unit 12 | Unit 13 | Unit 14 | Unit 15 | Unit 16 | Unit 17 | Unit 18 | Sprites

studio.code.org/s/csd3-2023/lessons/13/levels/3

Lesson 13: Sprite Movement
saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Moving to the Left

If adding to a sprite's x coordinate makes it move to the right, how could you make it move to the left?

Do This

Toolbox

World Sprites

Drawing Math

Variables

function draw() {
 drawSprites();
}

Workspace

```
1 var fly = createSprite(350, 200);
2 fly.setAnimation("fly");
3
4 function draw() {
5     background("skyblue");
6     fly.x -= fly.x - 3;
7     drawSprites();
8 }
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

English Version: 2023

83°F Sunny 1:10 PM 6/6/2024

Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 | Unit 7 | Unit 8 | Unit 9 | Unit 10 | Unit 11 | Unit 12 | Sprites

studio.code.org/s/csd3-2023/lessons/13/levels/4

Lesson 13: Sprite Movement
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Diagonal Movement

Updating both the `x` or `y` properties of a sprite can make it move diagonally. You can use the watchers under the code area to see how each property is changing.

Watchers

Toolbox

World Drawing Variables

```
function draw() {  
    drawSprites()  
    // Comment  
}  
  
1 //1) Read the code that makes the mouse go down.  
2 //2) Run the program and look at the watchers to see what is happening  
3  
4 var mouse = createSprite(50, 50);  
5 mouse.setAnimation("mouse");  
6 mouse.scale = 0.5;  
7  
8 function draw() {  
9     background("lightgreen");  
10    mouse.y = mouse.y + 2;  
11    mouse.x = mouse.x + 2;  
12    drawSprites();  
13 }  
14  
15 //4) Run your code again and look at the watchers.
```

Workspace

Version History Show Blocks

Reset Finish Show grid

Debug Console

Debug Sprites: Off Clear

Watchers

mouse.x: 122
mouse.y: 122

Variable / Property

Type here to search

English Version: 2023

83°F Sunny 1:11 PM 6/6/2024

Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 | Unit 7 | Unit 8 | Unit 9 | Unit 10 | Unit 11 | Unit 12 | Unit 13 | Unit 14 | Unit 15 | Unit 16 | Unit 17 | Unit 18 | Unit 19 | Unit 20 | Sprites

studio.code.org/s/csd3-2023/lessons/13/levels/5

Lesson 13: Sprite Movement 5

Instructions Help & Tips

View only Show Blocks

Reset Finish Show grid

1 var red_car = createSprite(-50, 150);
2 red_car.setAnimation("red_car");
3 red_car.rotation = 90;
4
5 var yellow_car = createSprite(250, -50);
6 yellow_car.setAnimation("yellow_car");
7 yellow_car.rotation = 180;
8
9 var blue_car = createSprite(450, 250);
10 blue_car.setAnimation("blue_car");
11 blue_car.rotation = 270;
12
13 var green_car = createSprite(150, 450);
14 green_car.setAnimation("green_car");
15
16 function draw() {
17 background("white");
18
19 red_car.x = red_car.x + 4;
20 yellow_car.y = yellow_car.y + 4;
21 blue_car.x = blue_car.x - 4;
22 green_car.y = green_car.y - 4;
23
24 drawSprites();
25 }
26

Debug Console

Type here to search

English Version: 2023

Debug Sprites: Off Clear

83°F Sunny 1:12 PM 6/6/2024

Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 | Unit 7 | Unit 8 | Unit 9 | Unit 10 | Unit 11 | Unit 12 | Unit 13 | Sprites

studio.code.org/s/csd3-2023/lessons/13/levels/6/sublevel/1

Lesson 13: Sprite Movement
saved 10 hours ago

Instructions Help & Tips

Rotation and Spinning

Using the counter pattern on a sprite's rotation property can make it spin around.

Do This

Toolbox

- World
- Drawing
- Variables

Sprites

- Math
- Functions

Workspace

```
1 var pan = createSprite(200, 200);
2 pan.setAnimation("pan");
3
4 function draw() {
5   background("palegreen");
6   pan.rotation = pan.rotation + 1;
7   drawSprites();
8 }
```

Version History Show Blocks

Reset Finish Show grid

Debug Console

Debug Sprites: Off Clear

Watchers

English Version: 2023

Type here to search

83°F Sunny 1:12 PM 6/6/2024

The image shows a Scratch workspace titled "Lesson 13: Sprite Movement". A green background is set to "palegreen". A black pan sprite with a red handle is positioned at the center. A script is attached to the pan sprite:1 var pan = createSprite(200, 200);
2 pan.setAnimation("pan");
3
4 function draw() {
5 background("palegreen");
6 pan.rotation = pan.rotation + 1;
7 drawSprites();
8 }

The workspace includes a toolbox on the left with categories like World, Drawing, Variables, Sprites, Math, and Functions. The status bar at the bottom shows the language as English, version 2023, and the date and time as 6/6/2024, 1:12 PM. The debug console and other system status are also visible.

Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 | Unit 7 | Unit 8 | Unit 9 | Unit 10 | Unit 11 | Unit 12 | Unit 13 | Unit 14 | Unit 15 | Unit 16 | Unit 17 | Unit 18 | Unit 19 | Sprites

studio.code.org/s/csd3-2023/lessons/13/levels/7

Lesson 13: Sprite Movement
Saved 0 hours ago

CODE Share Remix

Instructions Help & Tips Rubric

Fish Animation

Using the counter pattern, make all three of the fish move left across the screen as they do in the image to the right. The blue fish should move the fastest, and the green fish should move the slowest.

Toolbox

World Sprites Drawing Math Variables

function draw() {
 drawSprites();
 World.frameRate;
 // Comment
}

Workspace

```
1 var orangeFish = createSprite(400, randomNumber(0, 100));  
2 orangeFish.setAnimation("orange_fish");  
3 var blueFish = createSprite(250, randomNumber(0, 200));  
4 blueFish.setAnimation("blue_fish");  
5 var greenFish = createSprite(300, randomNumber(200, 300));  
6 greenFish.setAnimation("green_fish");  
7  
8 function draw() {  
9     // Draw Background  
10    background("navy");  
11  
12    // Update Values  
13    orangeFish.x = orangeFish.x - 2;  
14    blueFish.x = blueFish.x - 4;  
15    greenFish.x = greenFish.x - 1;  
16  
17    // Draw Animations  
18    drawSprites();  
19 }
```

Version History Show Blocks

Debug Console

Debug Sprites: Off Clear

Watchers

orangeFish.x: 298
blueFish.x: 46
greenFish.x: 249

Type here to search

English Version: 2023

1:13 PM 6/6/2024

Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 | Unit 7 | Unit 8 | Unit 9 | Unit 10 | Unit 11 | Unit 12 | Unit 13 | Unit 14 | Unit 15 | Unit 16 | Unit 17 | Unit 18 | Unit 19 | Unit 20 | Sprites

studio.code.org/s/csd3-2023/lessons/13/levels/8/sublevel/1

CODE Share Remix

Lesson 13: Sprite Movement
saved 10 hours ago

Instructions Help & Tips

More fish!

Before you learned the counter pattern, you learned to set sprite properties, such as rotation, to random values to animate them. By setting the rotation of the fish to a random number, you can make them appear to wiggle slightly. This will make their movement animation more lifelike!

Toolbox

World Sprites Drawing Math Variables

```
function draw() {  
    drawSprites()  
    World.frameRate  
    // Comment  
    13    // Update Values  
    14    if(keyDown("left")) {  
    15        orangeFish.x = orangeFish.x - 2;  
    16        orangeFish.rotation = randomNumber(-2, 2);  
    17  
    18        blueFish.x = blueFish.x - 3;  
    19        blueFish.rotation = randomNumber(-2, 2);  
    20  
    21        greenFish.x = greenFish.x - 1;  
    22        greenFish.rotation = randomNumber(-2, 2);  
    23  
    24    }  
    25  
    26    noFill();  
    27    stroke("white");  
    28    ellipse(100, bubble, 25, 25);  
    29    ellipse(200, bubble, 25, 25);  
    30    ellipse(300, bubble, 25, 25);  
    31    bubble = bubble - 2;  
    32  
    33    // Draw Animations  
    34    drawSprites();  
    35 }  
}
```

Workspace

Version History Show Blocks

Debug Console

Debug Sprites: Off Clear

Watchers

orangeFish.x: 400
blueFish.x: 258
greenFish.x: 388

Type here to search

English Version: 2023

1:14 PM 6/6/2024

Unit X | Min X +

studio.code.org/s/csd3-2023/lessons/14/levels/1

Lesson 14: Mini-Project - Animation
saved 10 hours ago

Instructions

Animated Scenes

It's time to try out an animated scene. Take a look at this example and think about what you'd like to make.

Animated Example

1. What movements do you see in this scene?
2. Which movements use random numbers?
3. Which movements use the counter pattern?

What kind of music do planets sing?

Reset Finish □ show grid

English Version: 2023

Type here to search

83°F Sunny 1:16 PM 6/6/2024

The screenshot shows the Scratch programming environment. At the top, there's a toolbar with various icons. Below it, the title bar displays the URL: `studio.code.org/s/csd3-2023/lessons/15/levels/1`. The main workspace is titled "Lesson 15: Conditionals". On the left, two gray rectangles representing sprites are visible. The code editor contains the following JavaScript code:

```
1 var sprite1 = createSprite(100, 200);
2 var sprite2 = createSprite(300, 200);
3
4 // Predict what each command will print
5 console.log(sprite1.y == sprite2.y);
6 console.log(sprite1.x > sprite2.x);
7 console.log(sprite1 < sprite2.y);
8
9 drawSprites();
```

Below the code editor, there are "Reset" and "Finish" buttons. To the right, there's a "View only" button and a "Show Blocks" button. The bottom of the screen features a Windows taskbar with the Start button, a search bar, and various pinned icons like File Explorer, Edge, and Google Chrome. The system tray shows the date and time as 6/6/2024 at 1:29 PM.

MATCHING: COMPARISON OPERATORS

Match the boolean expression to the English description.

Submit

Is the dog sprite's rotation less than the cat sprite's rotation?

`dog.rotation < cat.rotation`

Is the dog sprite's x less than the cat sprite's x?

`dog.x < cat.x`

Is the dog sprite's scale greater than the cat sprite's scale?

`dog.scale > cat.scale`

Is the dog sprite's x greater than the cat sprite's x?

`dog.x > cat.x`

Is the dog sprite's x equal to the cat sprite's x?

`dog.x == cat.x`

Submit



Unit 3 - Interactive Animations | Unit 3 - Interactive Animations | Shapes and Parameters #3 | Unit 3 - Interactive Animations

studio.code.org/s/csd3-2023/lessons/4/levels/3

Lesson 4: Shapes and Parameters
Saved 10 hours ago

CODE Share Remix

Instructions Help & Tips

Ellipse Parameters

The `ellipse()` block has also been updated to use these new parameters:

Toolbox

Drawing

`fill(color)`

`rect(x, y, w, h) ←`

`ellipse(x, y, w, h) ←`

Workspace

```
1 //1) Add an orange ellipse to the screen that is taller than the green one
2 //2) Rearrange the blocks so the orange ellipse is behind the green one
3 fill("green");
4 ellipse(200,200,200,150);
```

Version History Show Blocks

Reset Finish

Show grid

Debug Console

XAU/USD signals
Upto 2356 is support level, risk management is must: ✓

Type here to search

English Version: 2023

79°F Sunny 11:32 AM 6/6/2024