Recap Quiz

1. What does this mean?

```
if (x > 600)
```

A Check if x is 600

B Set x to 600

C Check if x is more than 600

D Bounce x

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A Check if x is 600

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2. What does *mousePressed()* do in p5.js?

```
function mousePressed() {
  // Code to run.
}
```

(A) draws a circle when you click

(B) is called every frame

(C) makes things bounce

(D) runs once when you click

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C makes things bounce

D runs once when you click

3. What does this code do?

```
x = x + 5;
```

A Makes x stay the same

B Resets x to 5

C Moves something to the left

D Increases x, so an object moves right

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4. Which of these is a *Boolean* variable?

(A)
```
let isDay = true;
```

(B)
```
let x = 50;
```

(C)
```
let speed = x + y;
```

(D)
```
let color = "■blue";
```

4. Which of these is a *Boolean* variable?

A `let isDay = true;`

B `let x = 50;`

C `let speed = x + y;`

D `let color = "■blue";`

Boolean

A **Boolean** can only be one of **two possible values**:

☑ **true** *or* ❌ **false**

Example

```
let isGameOver = false;

let isCircleClicked = true;
```
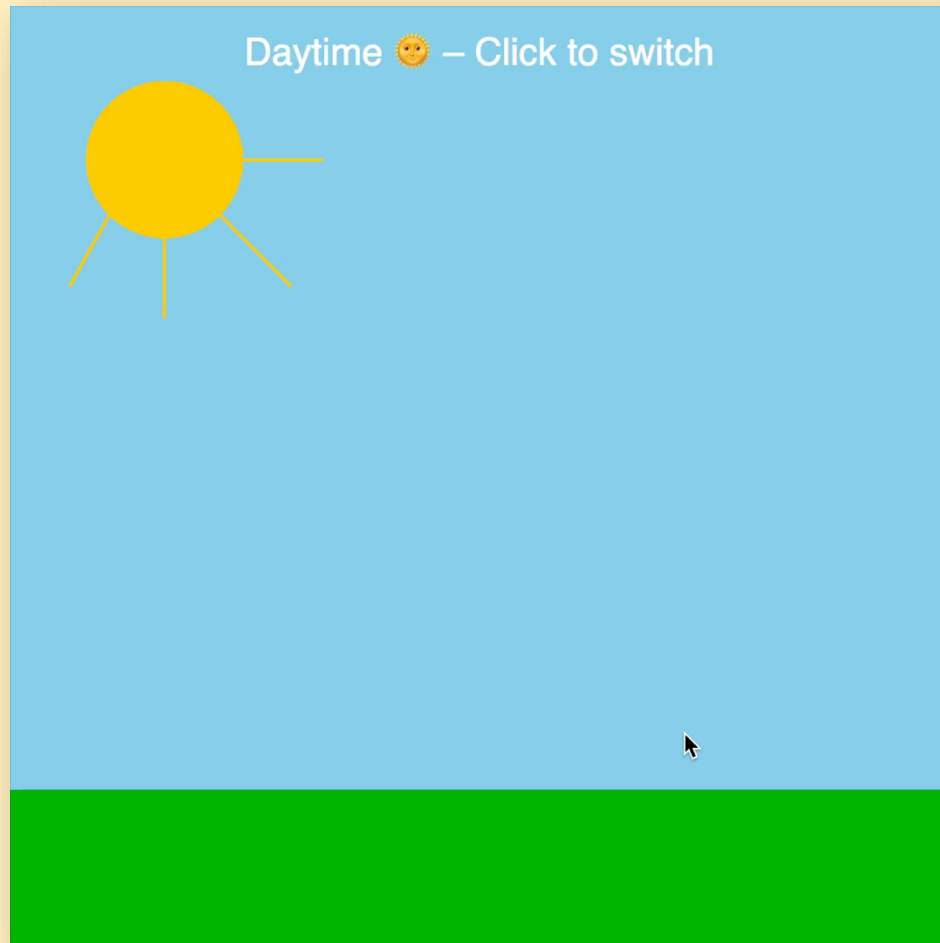

- These are Boolean variables
- They're perfect for yes/no questions in your sketch
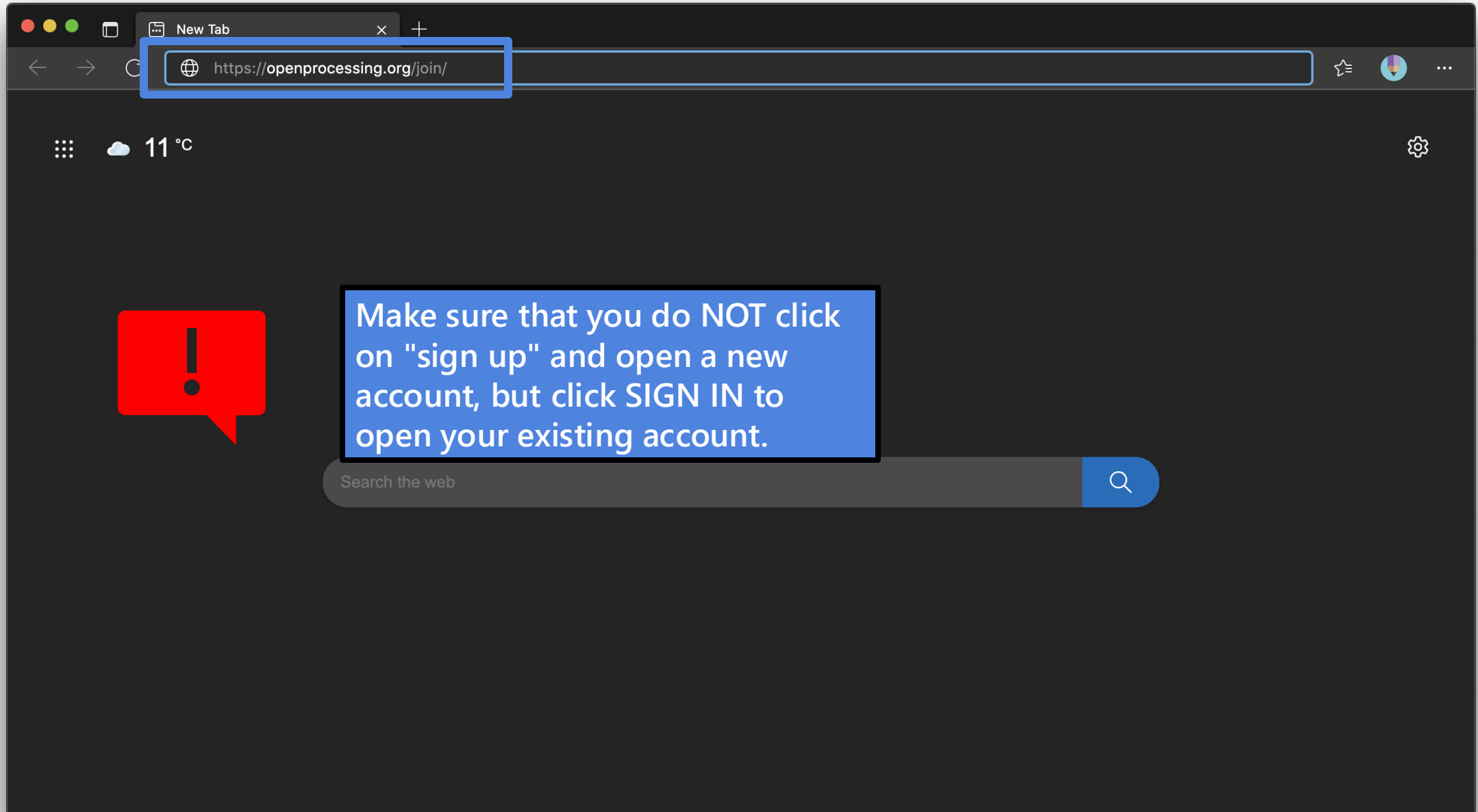- We'll use this idea today to switch between two scenes

Let's start to code

Code an Interactive Scene
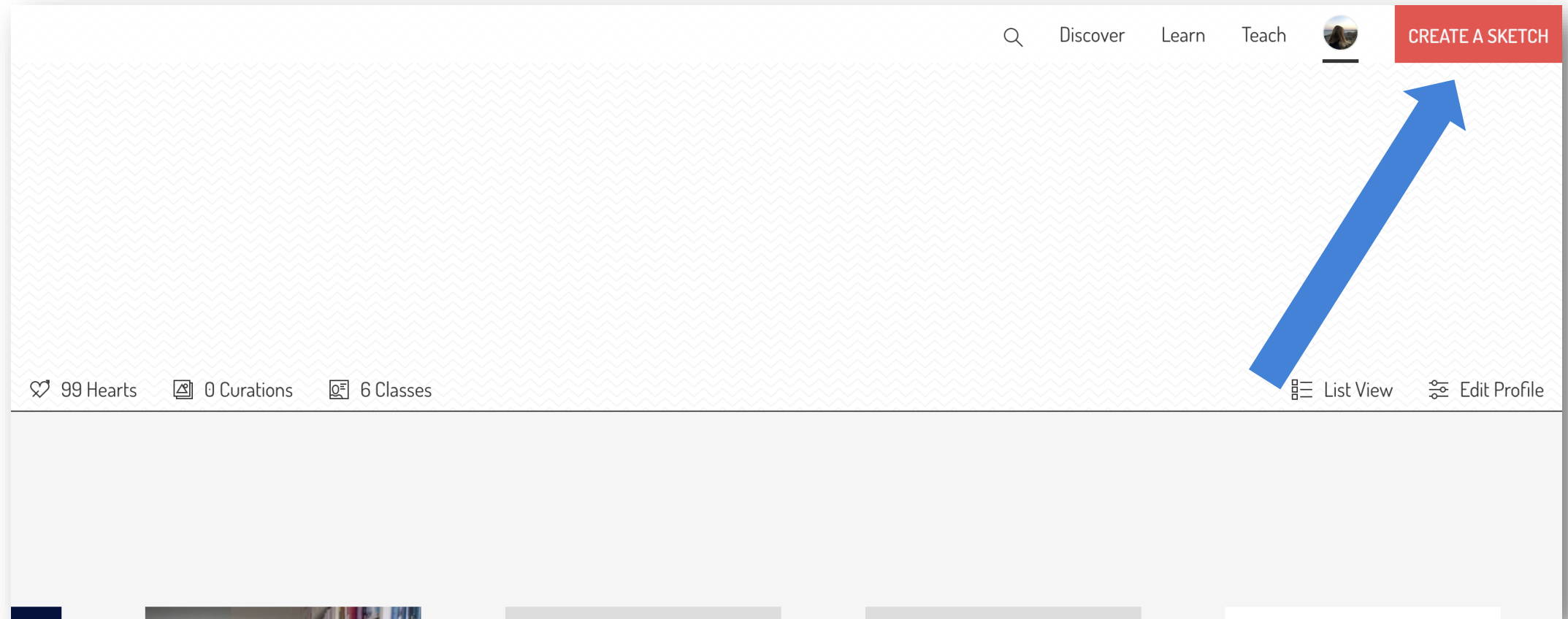
You program a switch between two scenes.

Daytime ☀ – Click to switch

- **What happens when we click?**
- **How do we switch the background & sky?**

Open OpenProcessing in your browser

Make sure that you do NOT click on "sign up" and open a new account, but click SIGN IN to open your existing account.

Create a new sketch

LIVE CODING

1: Create canvas and variables

```
1    let isDay = true;
2
3    function setup() {
4      createCanvas(600, 600);
5      textSize(24);
6      textAlign(CENTER);
7    }
8
9    function draw() {
10
11    }
12
```

Create a Boolean variable. It will track if our "day" or "night" scene is displayed. We want to start with our "day scene".

Prepare for the display of *text()*.

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2: Toggle between day and night

```
1    let isDay = true;
2
3    function setup() {
4      createCanvas(600, 600);
5      textSize(24);
6      textAlign(CENTER);
7    }
8
9    function draw() {
10
11   }
12
13   function mousePressed() {
14     isDay = !isDay;
15   }
16
```

- *isDay = true* → means it's daytime
- *isDay = false* → means it's nighttime

We'll use *isDay* to decide which scene to show: the day with sun or the night with moon.
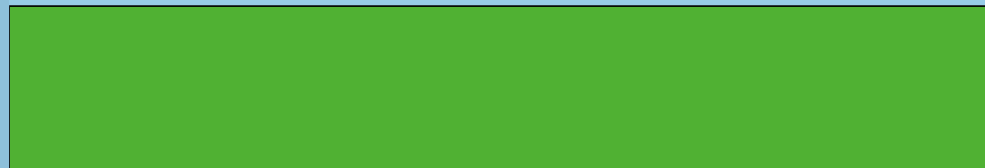
- This means: take the current value of *isDay* and make it the opposite when the mouse is pressed (a click). It will be like a switch.
- *!isDay* means „not isDay"
- If it was true, it becomes false, and vice versa.

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3: Start to build the scenes in *draw()*

```
1    let isDay = true;
2
3    function setup() {
4      createCanvas(600, 600);
5      textSize(24);
6      textAlign(CENTER);
7    }
8
9    function draw() {
10     if (isDay) {
11       background(135, 206, 235);
12     } else {
13       background(10, 10, 60);
14     }
15
16     fill(0, 180, 0);
17     rect(0, 500, width, 100);
18   }
19
20   function mousePressed() {
21     isDay = !isDay;
22   }
23
24
25
```

Inside the *draw()* function we use the *if (isDay)* block to check which scene to display and give each a different background colour.

We add a ground for both scenes.
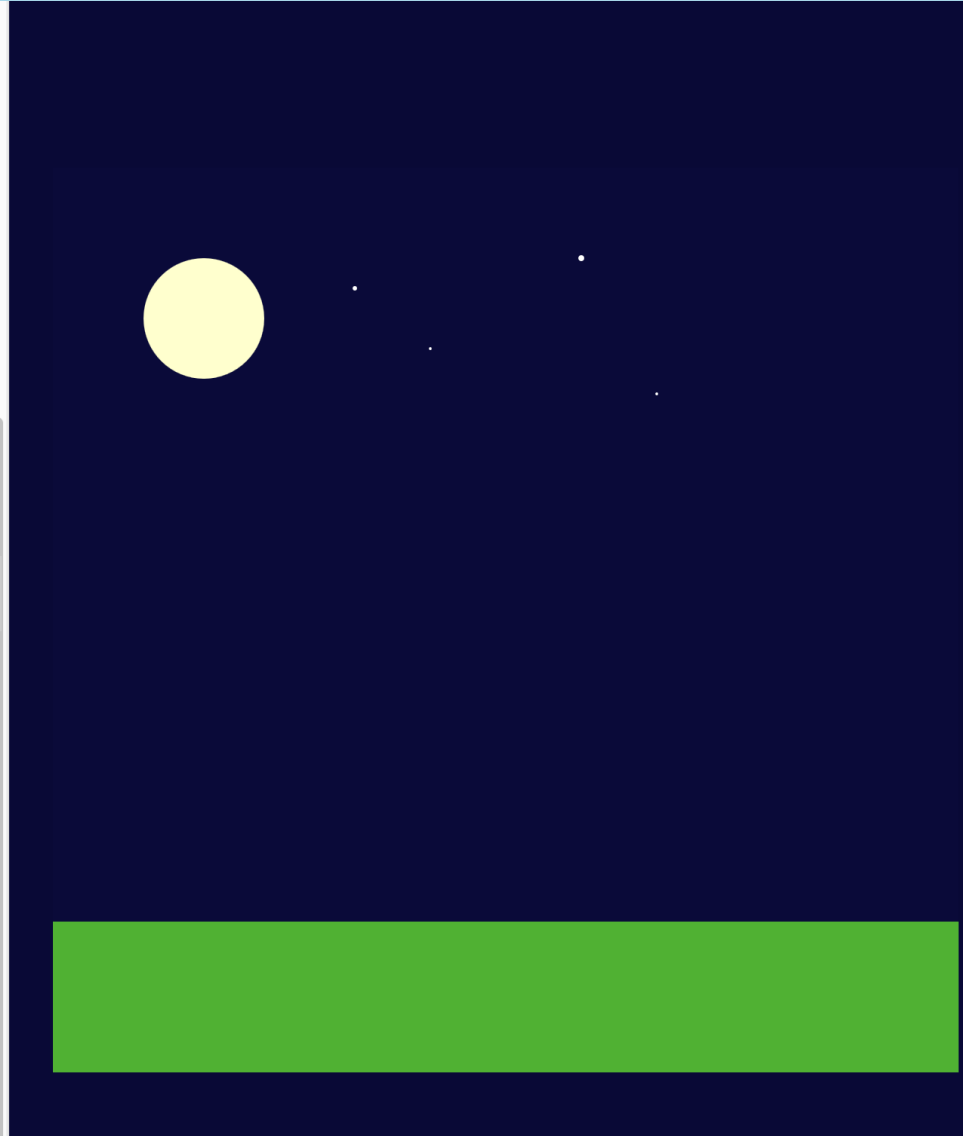
4: Add a day scene with sun

```
3    function setup() {
4      createCanvas(600, 600);
5      textSize(24);
6      textAlign(CENTER);
7    }
8
9    function draw() {
10     if (isDay) {
11       background(135, 206, 235);
12     } else {
13       background(10, 10, 60);
14     }
15     fill(0, 180, 0);
16     rect(0, 500, width, 100);
17
18     // DAY SCENE
19     if (isDay) {
20       fill(255, 204, 0);
21       circle(100, 100, 100);
22       stroke(255, 204, 0);
23       strokeWeight(2);
24       line(150, 100, 200, 100);
25       line(135, 135, 180, 180);
26       line(100, 150, 100, 200);
27       line(65, 135, 40, 180);
28       noStroke();
29     }
```
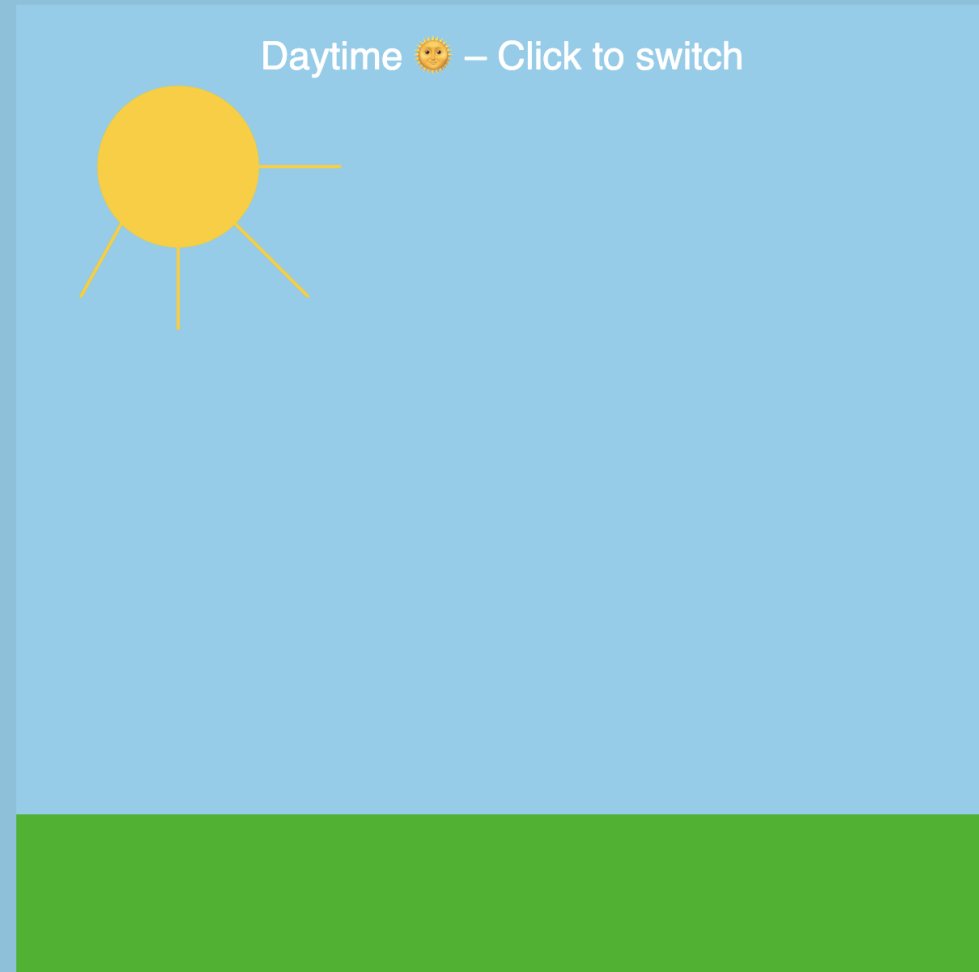
5: Add a night scene with moon & stars

```
17
18    // DAY SCENE
19    if (isDay) {
20      fill(255, 204, 0);
21      circle(100, 100, 100);
22      stroke(255, 204, 0);
23      strokeWeight(2);
24      line(150, 100, 200, 100);
25      line(135, 135, 180, 180);
26      line(100, 150, 100, 200);
27      line(65, 135, 40, 180);
28      noStroke();
29    }
30    // NIGHT SCENE
31    else {
32      fill(255, 255, 200);
33      circle(100, 100, 80);
34      fill(255);
35      circle(200, 80, 3);
36      circle(400, 150, 2);
37      circle(350, 60, 4);
38      circle(250, 120, 2);
39    }
40
41  }
42
43  function mousePressed() {
44    isDay = !isDay;
45  }
46
```


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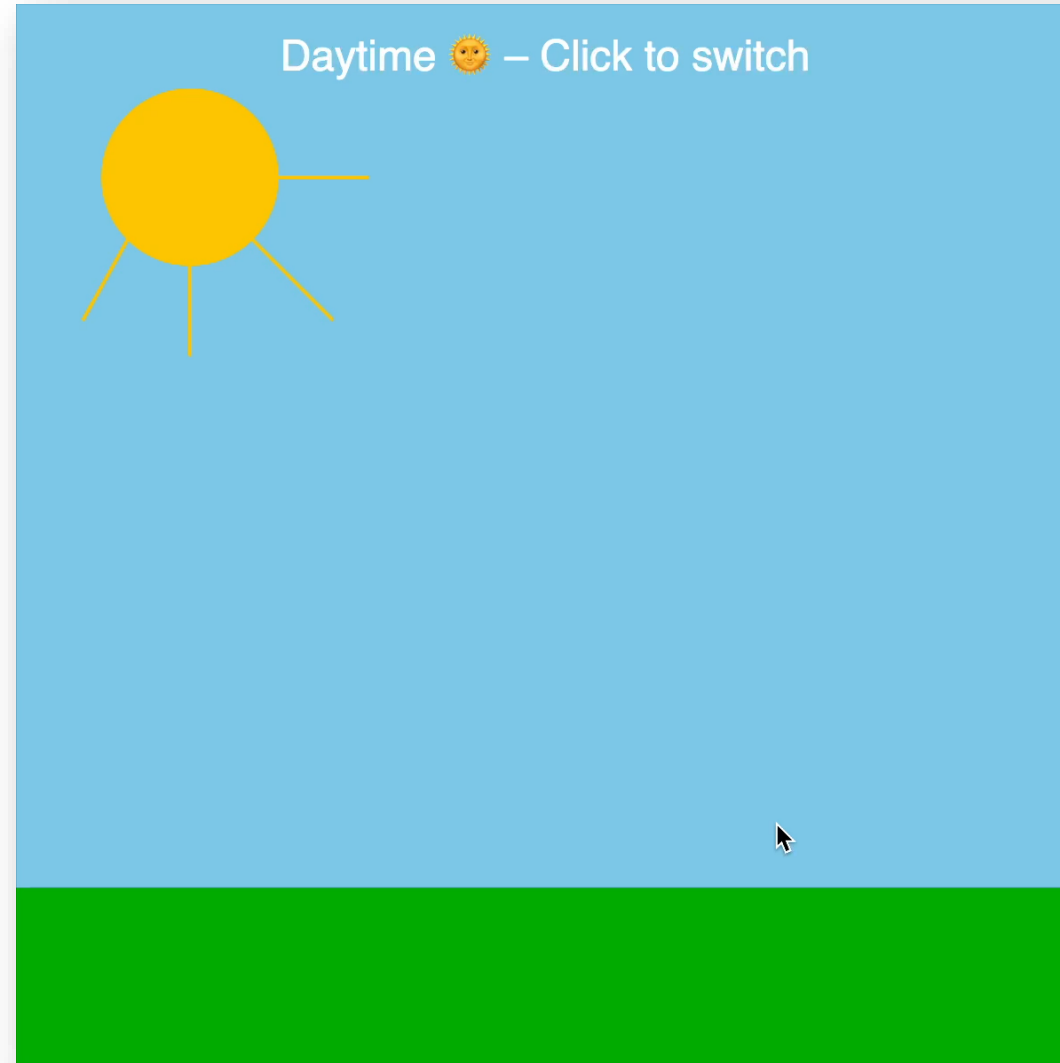# 6: (voluntary) Add some text()

```
25        line(135, 135, 180, 180);
26        line(100, 150, 100, 200);
27        line(65, 135, 40, 180);
28        noStroke();
29      }
30      // NIGHT SCENE
31      else {
32        fill(255, 255, 200);
33        circle(100, 100, 80);
34        fill(255);
35        circle(200, 80, 3);
36        circle(400, 150, 2);
37        circle(350, 60, 4);
38        circle(250, 120, 2);
39      }
40      fill(255);
41      if (isDay) {
42        text("Daytime 🌞 – Click to switch", width / 2, 40);
43      } else {
44        text("Nighttime 🌙 – Click to switch", width / 2, 40);
45      }
46    }
47
48    function mousePressed() {
49      isDay = !isDay;
50    }
51
```
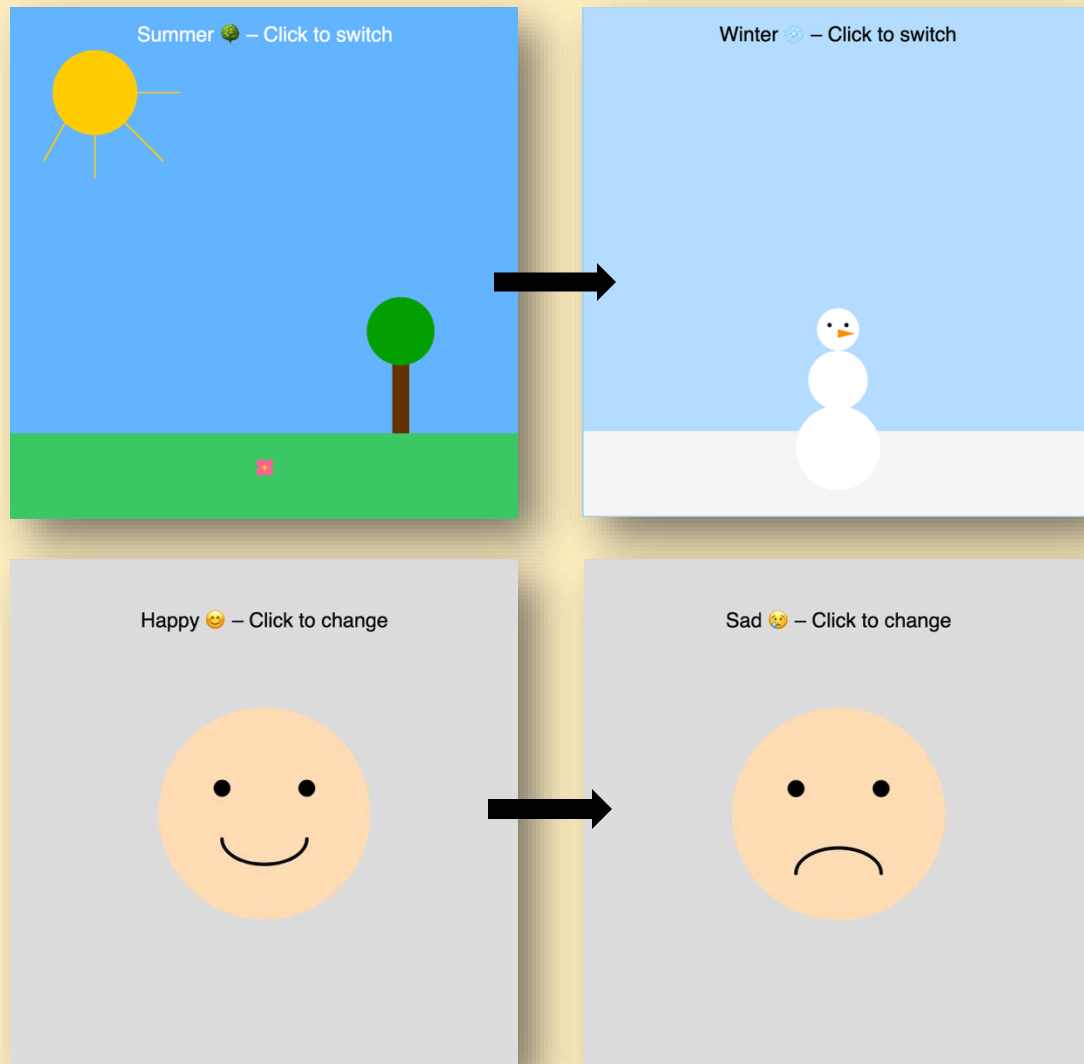
Daytime 🌞 – Click to switch

Final Sketch

Daytime ☀ – Click to switch

Final Code

```javascript
let isDay = true;

function setup() {
  createCanvas(600, 600);
  textSize(24);
  textAlign(CENTER);
}

function draw() {
  if (isDay) {
    background(135, 206, 235);
  } else {
    background(10, 10, 60);
  }
  fill(0, 180, 0);
  rect(0, 500, width, 100);

  // DAY SCENE
  if (isDay) {
    fill(255, 204, 0);
    circle(100, 100, 100);
    stroke(255, 204, 0);
    strokeWeight(2);
    line(150, 100, 200, 100);
    line(135, 135, 180, 180);
    line(100, 150, 100, 200);
    line(65, 135, 40, 180);
    noStroke();
```

```javascript
  // NIGHT SCENE
  else {
    fill(255, 255, 200);
    circle(100, 100, 80);
    fill(255);
    circle(200, 80, 3);
    circle(400, 150, 2);
    circle(350, 60, 4);
    circle(250, 120, 2);
  }
  fill(255);
  if (isDay) {
    text("Daytime 🌞 – Click to switch", width / 2, 40);
  } else {
    text("Nighttime 🌙 – Click to switch", width / 2, 40);
  }
}

function mousePressed() {
  isDay = !isDay;
}
```

Create your own interactive scenes

A **toggle** between two modes:

e.g.:

– Summer / winter

– Happy / sad,

– Mountain / beach

....