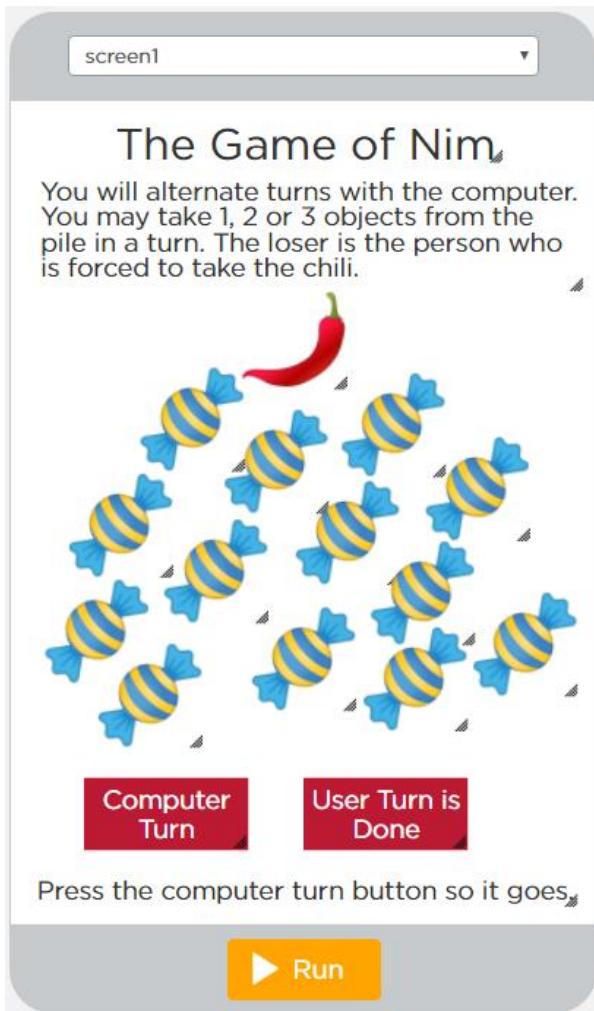


# The Game of Nim



Create this screen.



This game has:

- A title
- Instructions
- 1 chili image (named image1). It is 60 x 60 pixels.
- 13 candy images (named image2 through image14). They are 60 x 60 pixels. Make the first image, put in the picture, resize. THEN choose the duplicate button.
- Two buttons: named computer and user.
- The label at the bottom named result.

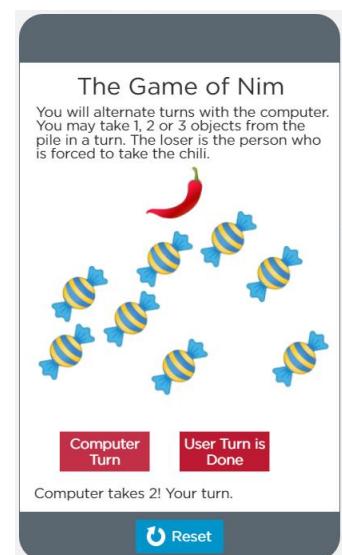
Make these global variables.

```
var list = [0,1,1,1,1,1,1,1,1,1,1,1,1,1,1];  
var count=3;  
var firstturn="yes";
```

The list in text format for easy cut and paste:

```
var list = [0,1,1,1,1,1,1,1,1,1,1,1,1,1,1];
```

The list's purpose is to track which candies have been taken and which hasn't so the computer knows.



The computer goes first. You code the part for the computer going first.

- The computer picks one random place and hides it.

A Scratch script titled "you build" for the "computer" hat. It starts with an "onEvent" event for "click". Inside, if "firstturn" is "yes", it picks a random place from 2 to 13, sets list[place] to 0, hides the element "image" + place, and then sets "firstturn" to "no". Otherwise, it enters a loop for 4 - count moves. It initializes place to 2, then loops until list[place] is not 0, increments place, sets list[place] to 0, and hides the element "image" + place. Finally, it sets the text to "Computer takes " + (4 - count) + "! Your turn." and sets count to 0.

```
onEvent([computer v], [click]) function(event) {
  if (firstturn == "yes") {
    var place = randomNumber(2,13);
    list[place] = 0;
    hideElement("image" + place);
    firstturn = "no";
  } else {
    for (var i = 0; i < (4 - count); i++) {
      var place = 2;
      while (list[place] == 0) {
        place++;
      }
      list[place] = 0;
      hideElement("image" + place);
    }
  }
  setText([result v], "Computer takes " + (4 - count) + "! Your turn.");
  count = 0;
}
}
```

**you build**

**in the cut  
and paste**

Then, the code for the next moves is trickier.

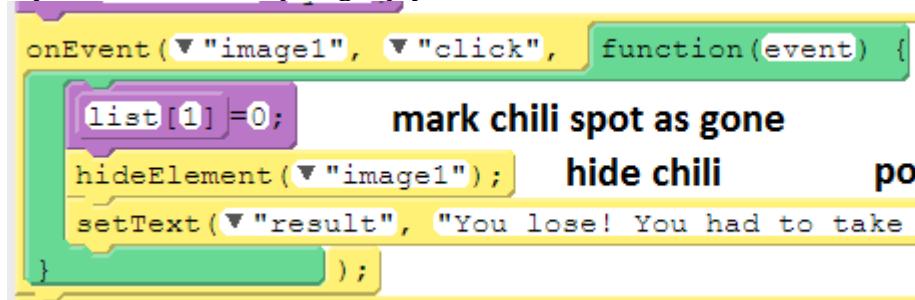
- The computer looks for the right number of pictures, that haven't been taken, and it removes them.
- This is the code for the else on down for easy cut and pasting.

```
} else {
  for (var i = 0; i < (4 - count); i++) {
    var place = 2;
    while (list[place] == 0) {
      place++;
    }
    list[place] = 0;
    hideElement("image" + place);
  }
}
setText("result", "Computer takes " + (4 - count) + "! Your turn.");
count = 0;
```

TEST IT. Did the computer take one random chili on their first turn?

Next, we need to code the chili.

If you take the chili (image1), you lose.



```
onEvent("image1", "click", function(event) {
    list[1] = 0;      mark chili spot as gone
    hideElement("image1");  hide chili
    setText("result", "You lose! You had to take the chili.")
})
```

TEST IT. After the computer takes their turn, try to take the chili. Did you lose?

Next, we need to code the 13 candies.



```
onEvent("image2", "click", function(event) {
    if (list[2] == 1 && count < 3) {
        list[2] = 0;  mark as gone
        count++;  add to your candy count
        hideElement("image2");  hide the candy
    }
})
```

You need to cut and paste the code for the others, changing the 2's to the other numbers.

When you are done, TEST IT. Can you take up to three candies? Then can the computer go?

Finally, we need to code the user's turn is done section.



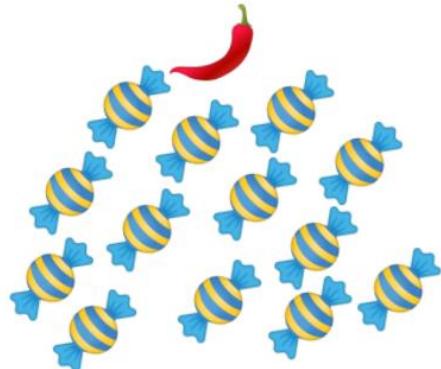
```
onEvent("user", "click", function(event) {
    if (count == 0) {
        setText("result", "You haven't taken any. Try again.");
    } else {
        setText("result", "You took " + count + ". Click computer turn.");
    }
})
```

As an additional task, (for bonus) add a reset button.

It is similar to the reset button in sand castle.

## The Game of Nim

You will alternate turns with the computer. You may take 1, 2 or 3 objects from the pile in a turn. The loser is the person who is forced to take the chili.



Computer Turn

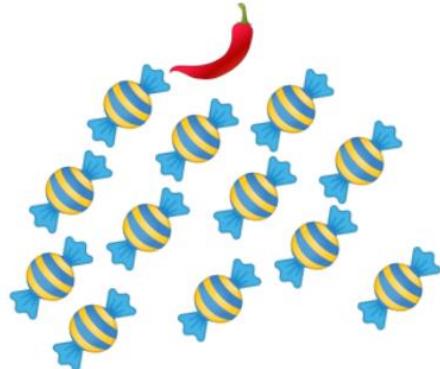
User Turn is Done

Press the computer turn button so it goes.

Reset

## The Game of Nim

You will alternate turns with the computer. You may take 1, 2 or 3 objects from the pile in a turn. The loser is the person who is forced to take the chili.



Computer Turn

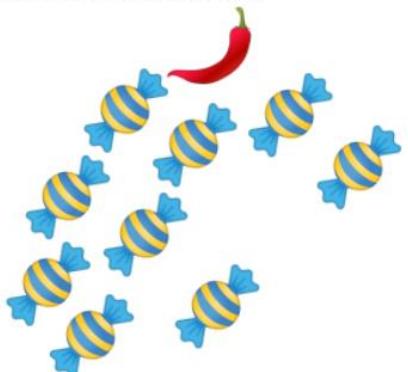
User Turn is Done

Computer takes 1! Your turn.

Reset

## The Game of Nim

You will alternate turns with the computer. You may take 1, 2 or 3 objects from the pile in a turn. The loser is the person who is forced to take the chili.



Computer Turn

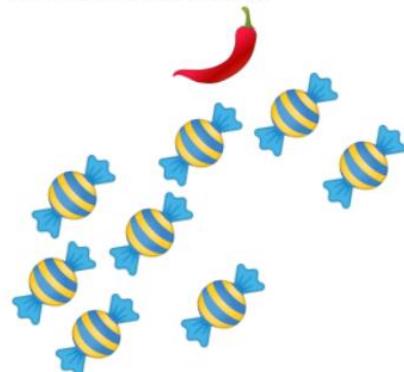
User Turn is Done

You took 3. Click computer turn.

Reset

## The Game of Nim

You will alternate turns with the computer. You may take 1, 2 or 3 objects from the pile in a turn. The loser is the person who is forced to take the chili.



Computer Turn

User Turn is Done

Computer takes 1! Your turn.

Reset