

Web Page

```
<html>
<head>
  <title>Caden's Dice Game</title>
  <link rel="stylesheet" type="text/css" href="../style.css" />
  <link rel="stylesheet" type="text/css" href="dice.css" />
  <script src='dice.js' language='javascript'></script>
</head>
<body onload='init();'>
  <?php
    if(isset($_GET['grid_size'])){
      $grid_size = intval($_GET['grid_size']);
      if($grid_size<5){
        $grid_size = 5;
      }
      if($grid_size>30){
        $grid_size = 30;
      }
    }else{
      $grid_size = 10;
    }
    echo("<input type = 'hidden' id = 'grid_size' value = '". $grid_size.'" />");
    for($row=$grid_size; $row>=1; $row--) {
      for($col=1; $col<=$grid_size; $col++) {
        echo("<div id='cell_". $col."_". $row.'" class='dice_cell'></div>\n");
      }
      echo("<br />");
    }
  ?>
  <div id = 'status'>Click the dice to roll it. </div>
  <img id='dice_image' src='dice_6.svg' onclick='roll_dice();' /><br />
  <ol>
    <li>
      Roll the dice to move forwards.
    </li>
    <li>
      Roll the dice again - odd for blue, even for red.
    </li>
    <li>
      Roll the dice again - odd to turn right, even to turn left.
    </li>
    <li>
      Repeat...
    </li>
  </ol>
  <input type = 'button' value = 'Click here to roll 25 times' onclick="multi_roll(25);" /><br /><br />
  <input type = 'button' value = 'Click here to roll 50 times' onclick="multi_roll(50);" /><br /><br />
  <input type = 'button' value = 'Click here to roll 100 times' onclick="multi_roll(100);" /><br /><br />
  <input type = 'button' value = 'Click here to roll 1000 times' onclick="multi_roll(1000);" /><br /><br />
  <input type = 'button' value = 'Click here to roll 10000 times' onclick="multi_roll(10000);" /><br /><br />
  <input type = 'button' value = 'PLEASE STOP!!!' onclick="please_stop();" /><br /><br />
  To change the grid size, enter a number from 5 to 30 and click the button:
  <input type = 'text' id = 'request_size' size = '5' />
  <input type = 'button' value = 'Set grid size' onclick="set_grid();" /><br /><br />
  <a href = 'Dice_Code.pdf' target='blank'>Click here</a> to veiw code &copy;
</body>
</html>
```

CSS Styles

```
div.dice_cell {
  display: inline-block;
  border: 1px solid black;
  width: 50px;
  height: 50px;
  margin: 0px;
}

div.up {
  background-image: url("counter_up.svg");
}
div.down {
  background-image: url("counter_down.svg");
}
div.left {
  background-image: url("counter_left.svg");
}
div.right {
  background-image: url("counter_right.svg");
}
img#dice_image {
  width: 100px;
  height: 100px;
}
div#status {
  margin: 20px;
}
```

JavaScript Code

```
var x;
var y;
var score;
var step;
var direction;
var grid_size;
var loop_target;
var loop_number;

function init() {
    x = 1;
    y = 1;
    step = 1;
    direction = "up";
    var cell = document.getElementById("cell_1_1");
    cell.className = "dice_cell up";
    grid_size = document.getElementById('grid_size').value;
}

function multi_roll(number){
    loop_target = number;
    loop_number = 0;
    timed_roll();
}

function timed_roll(){
    if (loop_number<loop_target){
        loop_number++;
        roll_dice();
        window.setTimeout(timed_roll,100);
    }
}

function please_stop(){
    loop_target = 0;
}

function roll_dice() {
    var dice = document.getElementById("dice_image");
    score = Math.floor((Math.random() * 6) + 1);
    var icon = 'dice_'+score+'.svg';
    dice.src = icon;
    var status = '';
    if (step == 1){
        var s = "s";
        if (score == 1){
            s = "";
        }
        status = 'Move forwards '+score + ' space' +s + ".";
        var cell = document.getElementById("cell_"+x+"_"+y);
        cell.className = "dice_cell";
        if(direction == "up"){
            y = y + score;
        } else if(direction == "down") {
            y = y - score;
        } else if(direction == "left"){
            x = x - score;
        } else if(direction == "right") {
            x = x + score;
        }
        if(y>grid_size){
            y = grid_size;
            status += ' Bump!';
        }
        if(y<1){
            y = 1;
            status += ' Bump!';
        }
        if(x>grid_size){
            x = grid_size;
            status += ' Bump!';
        }
        if(x<1){
            x = 1;
            status += ' Bump!';
        }
        cell = document.getElementById("cell_"+x+"_"+y);
        cell.className = "dice_cell "+direction;
        step=2;
    } else if(step==2){
        var colour = "blue";
        status = score + ' is odd. Colour square blue.';
        if(score/2 == Math.floor(score/2)){
            colour = "red";
            status = score + ' is even. Colour square red.';
        }
        var cell = document.getElementById("cell_"+x+"_"+y);
        cell.style.backgroundColor=colour;
    }
```

```

        step = 3;
    } else if(step==3){
        if(score/2 == Math.floor(score/2)){
            status = score + ' is even. Turn left.';
            if(direction == "up"){
                direction = 'left';
            } else if(direction == "down") {
                direction = 'right';
            } else if(direction == "left"){
                direction = 'down';
            } else if(direction == "right") {
                direction = 'up';
            }
        }else{
            status = score + ' is odd. Turn right.';
            if(direction == "up"){
                direction = 'right';
            } else if(direction == "down") {
                direction = 'left';
            } else if(direction == "left"){
                direction = 'up';
            } else if(direction == "right") {
                direction = 'down';
            }
        }

        }
        var cell = document.getElementById("cell_"+x+"_"+y);
        cell.className = "dice_cell "+direction;
        step = 1;
        if (pointing_off_board()){
            status += ' Pointing off board, roll again.';
            step = 3;
        }
    }
    var cell = document.getElementById("status");
    cell.innerHTML =status;
}

function pointing_off_board() {
    var result = false;
    if (x == 1 && direction == "left"){
        result = true;
    }
    if (x == grid_size && direction == "right"){
        result = true;
    }
    if (y == 1 && direction == "down"){
        result = true;
    }
    if (y == grid_size && direction == "up"){
        result = true;
    }
    return result;
}

function set_grid(){
    var size = document.getElementById('request_size').value;
    var url = 'index.php?grid_size='+ size;
    window.location.replace(url);
}

```