

## INSTRUCTIONS:

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### Goal of the Project:

In Class 27, you learned how to create constraints and tie together two bodies.

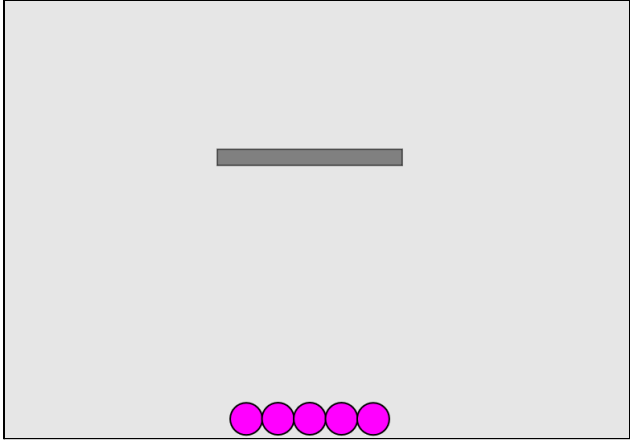
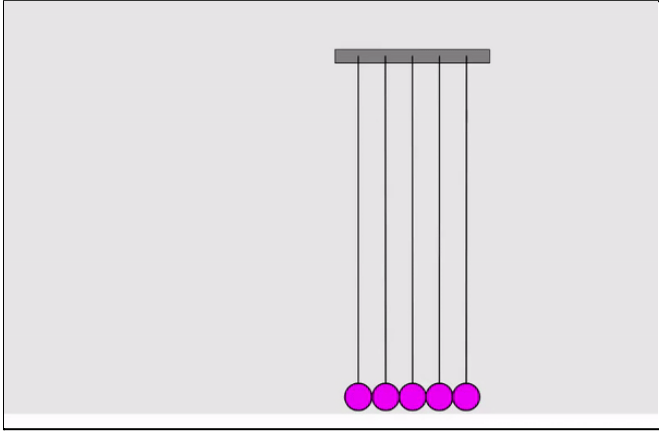
In this project, you have to practice and apply what you have learned in the class and create a Newton's Cradle using Constrained Bodies.

### Story:

Newton's Cradle is a toy that demonstrates the transfer of momentum when two objects or a group of objects collide.

You have to create this toy by writing a code. You will be adding five pendulums to create this toy. Are you ready for the challenge?

See a [video](#) of Newton's Cradle in action.

| Project Template Output   | Project Expected Output  |
|---|--|
|  |  |

**\*This is just for your reference. We expect you to apply your own creativity to the project.**


### Getting Started:

1. Use the blank template on **GitHub**, by downloading from [here](#).
2. **Unzip** the downloaded zip folder.
3. Rename the unzipped folder as **Project 27**.
4. **Import** this folder into **VS Code**.
5. Start editing your code in **sketch.js**.

### Specific Tasks to Complete the Project:

A pendulum is made up of a rope with a bob suspended at the end of the rope. The bob is the weight attached at the end of the rope.

You will have to choose the correct block of code in the template and uncomment it.

| Challenges   | Code Blocks / Output   |
|--|--|
| <div> <div>Step 1</div>  <div> <p>In the <b>rope.js</b> class, uncomment the correct option to create a <b>line</b> between <b>bodyA</b> and <b>bodyB</b>. Remember you need to make the body hang straight, so <b>pointX</b> is also needed.</p> </div> </div> | <pre>// line(pointA.x, pointA.y, pointB.y); // line(pointA.x, pointA.y, pointB.x + this.pointX, pointB.y); // line(pointA.x, pointA.y, pointB.x + this.pointX); // line(pointA.x, pointA.y + this.pointX, pointB.x, pointB.y);</pre> |

**Step 2**

In **sketch.js**, choose the correct option to create a **keyPressed** function so that once you press the up arrow key, the first ball object moves to the left.

```
// function keyPressed() {  
//   if (keyCode === DOWN_ARROW) {  
//     Matter.Body.applyForce(bob1.body, bob1.body.position, {x: -50, y: -45});  
//   }  
// }
```

```
// function keyPressed() {  
//   if (keyCode === UP_ARROW) {  
//     Matter.Body.applyForce(bob1, bob1.position, {x: -50, y: -45});  
//   }  
// }
```

```
// function keyPressed() {  
//   if (keyCode === UP_ARROW) {  
//     Matter.Body.applyForce(bob1.body, {x: -50, y: -45});  
//   }  
// }
```

```
// function keyPressed() {  
//   if (keyCode === UP_ARROW) {  
//     Matter.Body.applyForce(bob1.body, bob1.body.position, {x: -50, y: -45});  
//   }  
// }
```

**Step 3**

Make sure that the project works before you submit it.

### Submitting the Project:

1. Create a new repository named **"Project 27"**.
2. **Upload** the working code to this **GitHub** repository.
3. Enable **GitHub** pages for the repository.
4. Copy and paste the link to the **GitHub** pages on the **Student Dashboard > Projects panel** against the correct Class Number.

**REMEMBER...** Try your best, that's more important than being correct.

After submitting your project, the teacher will give you feedback on your project work.

\_\_\_\_\_ **xxx** \_\_\_\_\_ **xxx** \_\_\_\_\_ **xxx** \_\_\_\_\_ **xxx** \_\_\_\_\_ **xxx** \_\_\_\_\_