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<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Ostracod Bioluminescence Simulation</title>
  <script src="https://cdn.jsdelivr.net/npm/chart.js"></script>
  <style>
    body { font-family: Arial, sans-serif; text-align: center; }
    canvas { max-width: 600px; margin: 20px auto; }
    .tank {
      display: inline-block;
      width: 200px;
      height: 200px;
      border: 2px solid black;
      margin: 10px;
      position: relative;
    }
    .ostracod {
      width: 5px;
      height: 5px;
      background-color: yellow;
      border-radius: 50%;
      position: absolute;
    }
  </style>
</head>
<body>
  <h1>Ostracod Bioluminescence Simulation</h1>
  <p>Tracking bioluminescent courtship displays under different LED intensities</p>

  <div id="simulation">
    <div class="tank" id="controlTank">Control (No LED)</div>
    <div class="tank" id="lowLedTank">Low Intensity LED</div>
    <div class="tank" id="highLedTank">High Intensity LED</div>
  </div>

  <canvas id="bioluminescenceChart"></canvas>

  <script>
    function createOstracods(tankId, count) {
      const tank = document.getElementById(tankId);
      tank.innerHTML = tankId.replace('Tank', ' Tank');
      for (let i = 0; i < count; i++) {

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    let ostracod = document.createElement('div');
    ostracod.classList.add('ostracod');
    ostracod.style.left = `${Math.random() * 180}px`;
    ostracod.style.top = `${Math.random() * 180}px`;
    tank.appendChild(ostracod);
  }
}

```

```

function updateBioluminescence(week) {
  let controlCount = 20 - (week * 1);
  let lowLedCount = 20 - (week * 3);
  let highLedCount = 20 - (week * 6);
  createOstracods('controlTank', controlCount);
  createOstracods('lowLedTank', lowLedCount);
  createOstracods('highLedTank', highLedCount);
}

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let week = 0;
setInterval(() => {
  if (week < 3) {
    week++;
    updateBioluminescence(week);
  }
}, 3000);

```

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const weeks = [1, 2, 3];
const controlData = [100, 95, 90];
const lowLEDData = [100, 85, 70];
const highLEDData = [100, 60, 30];

```

```

const ctx = document.getElementById('bioluminescenceChart').getContext('2d');
new Chart(ctx, {
  type: 'line',
  data: {
    labels: weeks.map(w => `Week ${w}`),
    datasets: [
      { label: 'Control (No LED)', data: controlData, borderColor: 'green', fill: false },
      { label: 'Low Intensity LED', data: lowLEDData, borderColor: 'blue', fill: false },
      { label: 'High Intensity LED', data: highLEDData, borderColor: 'red', fill: false }
    ]
  },
  options: {
    responsive: true,
    plugins: { legend: { position: 'top' } },
  }
});

```

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scales: {  
  y: { beginAtZero: true, title: { display: true, text: 'Bioluminescence Activity (%)' } },  
  x: { title: { display: true, text: 'Weeks' } }  
}  
}  
});  
</script>  
</body>  
</html>
```