

Lesson 8: Dodge the Block (Part 2) – Game Over & Leaderboard

Goal

Students will complete their arcade-style game by adding:

- A **score counter**
- A **Game Over view**
- A **Leaderboard** using `localStorage`

This lesson introduces **multi-view structure**, **persistent data storage**, and **basic game state management**.

Duration: 90–120 minutes

Level: Intermediate / Capstone Project

Lesson Outline

1. Warm-Up & Review (10 minutes)

Ask students:

- “What’s missing from our game to make it feel *complete*?”
- “How do games usually show Game Over and keep scores?”

Then show a demo:

- Game starts → runs → ends with Game Over screen → shows leaderboard
-

2. Game Score System (20 minutes)

Goal:

Show a score that increases every second the player survives

```
let score = 0;
const scoreElement = document.getElementById("score");

const scoreTimer = setInterval(() => {
  score++;
  scoreElement.textContent = "Score: " + score;
}, 1000);
```

- Stop this timer when game ends
- Show final score on Game Over screen

3. Game Over View (20 minutes)

✓ Create views:

```
<div id="homeView">...</div>
<div id="gameView">...</div>
<div id="gameOverView">...</div>
```

✓ Navigation logic:

```
function showView(viewId) {
  let views = ["homeView", "gameView", "gameOverView"];
  views.forEach(id => {
    document.getElementById(id).style.display = (id === viewId) ? "block" : "none";
  });
}
```

- On collision:
 - Stop all movement
 - Show Game Over view

- Display final score
- Prompt for name

4. Leaderboard with localStorage (30–40 minutes)

✓ Save scores:

```
let leaderboard = JSON.parse(localStorage.getItem("leaderboard") || "[]");
leaderboard.push({ name: playerName, score: score });
leaderboard.sort((a, b) => b.score - a.score);
leaderboard = leaderboard.slice(0, 5); // top 5
localStorage.setItem("leaderboard", JSON.stringify(leaderboard));
```

✓ Display scores:

Loop through `leaderboard` array and display top scores:

```
leaderboard.forEach(entry => {
  // create DOM elements like <li>${entry.name}: ${entry.score}</li>
});
```

5. Polish & Customize (10–20 minutes)

Ideas:

- 🎨 Add “Restart Game” button
- 🔄 “Play Again” resets score and restarts game
- 🖼️ Animate game over screen or leaderboard
- 🌈 Let players enter name before game starts


✓ Key Takeaways

Concept	Skill
Game Loop Control	Start/Stop setInterval

Game Over UI	Show/hide views
Persistent Storage	<code>localStorage</code> for leaderboard
DOM Rendering	Create elements based on score data

What's Next?

Challenge students:

- Add difficulty ramp (blocks fall faster)
- Add multiple block types or levels
- Style the game like a real arcade experience 

 Coming up next: Final submission, reflection & class showcase!