

Project Proposal: 3D Skate Game

1. Executive Summary

This document outlines the design for a 3D, physics-based skateboarding game. The project's core philosophy is built around a "create and play" model. The primary development effort will be focused on creating a robust level editor, which will then be used to build the game's three distinct, objective-based levels. In addition to the main campaign, the game will feature a free-play mode where players can skate in pre-made or custom-built levels to achieve high scores.

2. Core Gameplay & Mechanics

The foundation of the game is a fun and responsive physics system that simulates the feel of skateboarding.

- **Skating Physics:** The player controller will be built from the ground up, focusing on key elements like **gravity**, **momentum**, **acceleration**, and **turning friction**.
 - **Trick System:** Players will be able to perform a variety of tricks (e.g., ollies, kickflips, grinds). A combo and scoring system will reward players for linking tricks together seamlessly.
 - **Modular Design:** All levels will be constructed from a standardized set of 3D models, including ramps, rails, ledges, and flat ground. This approach is efficient for development and is the cornerstone of the level editor.
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3. Level Editor

The level editor is the central tool of this project. It will be built first and then used to create the game's main levels. It will also be available to the player for creating and sharing their own skateparks.

- **Functionality:**
 - **Free Camera:** A simple, unbound camera for easy navigation of the creation space.
 - **Object Palette:** A UI menu displaying all available modular pieces for selection.
 - **Manipulation Tools:** The ability to place, move, rotate, and delete objects in the world. A grid-snapping feature will be included for precision.
- **Save/Load System:** A straightforward file system will allow levels to be saved to and loaded from a simple text file format, capturing the properties of every piece in the level.

4. Game Levels

The game will feature a campaign of three levels, each with a unique objective and design.

Level 1: The Skatepark (Tutorial)

- **Concept:** A classic, open-plan skatepark designed to teach the player the game's core mechanics in a safe environment.
- **Objective:** Reach a target score within a two-minute time limit. On-screen prompts will guide the player to perform specific actions like ollieing, grinding, and executing a basic combo.

Level 2: Tag the City (Exploration & Traversal)

- **Concept:** A multi-layered urban environment with rooftops, hidden alleys, and interconnected paths. This level tests the player's mastery of movement and control.
- **Objective:** Find and "tag" five specific, hard-to-reach graffiti spots before time runs out. Players must use the environment creatively, linking grinds and transfers to navigate the complex terrain.

Level 3: Downhill Rush (Obstacle Course & Challenge)

- **Concept:** A high-speed, dynamic race down a long, winding city street. This level focuses on speed, reaction time, and finding the perfect line.
- **Objective:** Reach the finish line at the bottom of the hill as quickly as possible.
- **Features:**
 - **Dynamic Obstacles:** Players must dodge pedestrians walking across streets and cars crossing at intersections.
 - **Forced Paths:** A major construction zone will block the main road, forcing the player onto a long grind rail to cross the hazard, creating a key cinematic moment.

5. Game Modes & Structure

A simple but effective state machine will manage the flow between the game's different modes.

- **Campaign Mode:** Players progress through Levels 1, 2, and 3 in order, unlocking the next level upon successful completion.
- **Free Play Mode:** Players can load any unlocked official level or a custom-saved level to skate freely, practice tricks, and compete for high scores without the pressure of specific objectives.

- **Level Editor Mode:** Players can access the level editor from the main menu to create, edit, and save their own skateparks.