Title: Spit Ball Rules Design Concept

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<u>Rules Specification Table</u>

Rule Name	Rule Category	Description	Functionality	Pre - Conditions	Post - Conditions
Classroom Movement Constraints	Navigation Rules	Rules defining how the player moves and navigates the classroom environment.	function Mover()	Player is at a starting position within the classroom boundaries and provides input via WASD or arrow keys.	Player character moves in the direction mapped to the key input, constrained within the classroom boundaries.
Zombie Extermination Rewards	Point Earning Rules	Rules for earning points by killing zombies with spitballs.	function AwardPoints()	Player uses a spitball to attack a zombie.	Player wins the level and is awarded points by killing all the zombies on the level.
Survival and Respawn mechanics	Attempt/Life Rules	Rules governing the player's life and attempts.	function HandleAttack()	Zombies reach the player and attack, decreasing the player's life points.	Player's life decreases by a set amount per attack. If life reaches 0, the player dies and the game restarts.

Health boosts rewards	Bonus Ability Rules	Rules for special abilities or bonuses the player can acquire.	function GrantHealthBonus()	Player kills a zombie with a spitball.	Player earns a health point for each successful life, which is displayed on the UI.
Victory progression Mechanics	Level Transition Rules	Rules for transitioning to the next level after defeating all zombies.	function TransitionLevel()	Player kills all zombies on the level.	Transition to the next level is triggered. A victory message is displayed, and after a short delay, the next level begins.
Rigidbody interaction mechanics	Physics Rules	Rules defining the physical interactions of objects in the game, zombies, and the environment.	function ApplyPhysics()	Zombies or the player move, triggering physics interactions.	Zombies have Rigidbody components to ensure they interact correctly with the environment. The player has a Rigidbody for realistic movement and collision detection.

Audio dynamics and effects	Music Rules	Rules governing the background music and sound effects during the game.	function HandleMusic()	Game starts, the player engages zombies, the player dies, or the player transitions to the next level.	Background music plays continuously during gameplay. Sound effects play during specific actions like shooting spitballs, hitting zombies, being attacked, and dying. Different music or effects play during level transitions.

Rule Mapping Tables

Navigation Rules:

Rule Function	function Mover()
Input/Trigger	Up, down, left, and right keyboard keys
Action	For up key, move along +ve of z-axis For down key, move along -ve of z-axis For left key, move along -ve of x-axis For right key, move along +ve of x-axis
Alternative Action	No action or display message ("For move use up, down, left and right arrow keys")

Pseudocode	if (getKeyboardInput() == up) {
	
	    move +ve along Z axis;
	
	} else if (getKeyboardInput() == down) {
	
	    move -ve along Z axis;
	
	} else if (getKeyboardInput() == left) {
	
	    move -ve along X axis;
	
	} else if (getKeyboardInput() == right) {
	
	    move +ve along X axis;
	
	} else {
	
	    displayMessage("For move use up, down, left and right arrow keys");
	
	}

Reward	No points for any movement
Pacer Logic	N/A

Point Earning Rules:

Rule Function	function AwardPoints()
Input/Trigger	Player shoots a spitball at a zombie
Action	Kill the zombie and award points
Alternative Action	Display message ("Missed the zombie")

Pseudocode	if (spitballHitsZombie()) {
	killZombie();
	awardPoints(10);
	} else {
	displayMessage("Missed the zombie");
	}
Reward	10 points for killing a zombie
Pacer Logic	N/A

Attempt/Life Rules:

Rule Function	function HandleAttack()
Input/Trigger	Zombies reach the player and attack
Action	Decrease player's life points
	Check if player's life is 0
Alternative Action	Display message ("Player is dead, restarting the game")
Pseudocode	if (zombieAttacksPlayer()) {
	decreaseLife(attackDamage);
	if (playerLife <= 0) {
	displayMessage("Player is dead, restarting the game");
	restartGame();
	}
	}
Reward	No points for losing life
Pacer Logic	Place player at the beginning of the classroom facing the zombies, the

	level restarts

Bonus Ability Rules:

Rule Function	function GrantHealthBonus()
Input/Trigger	Player kills a zombie with a spitball
Action	Increase player's health by one point
Alternative Action	No action

Pseudocode	if (zombie is killed) {
	    playerhealth += 1;
	    Destroy(zombie);
	    updateHealthUI();
	}
	}

Reward	Gain 1 health point for each zombie killed
Pacer Logic	N/A

Level Transition Rules:

Rule Function	function TransitionLevel()
Input/Trigger	Player kills all zombies on the level
Action	Transition to the next level
Alternative Action	Display message ("Defeat all zombies to progress")

Pseudocode	if (allZombiesKilled()) {
	   displayVictoryMessage();
	   waitForDelay();
	   transitionToNextLevel();
	} else {
	   displayMessage("Defeat all zombies to progress");
	}

Reward	No points, transition to the next level
Pacer Logic	N/A

Physics Rules:

Rule Function	function ApplyPhysics()
Input/Trigger	Player shoots spitball, zombies move, or player moves
Action	Apply realistic physics to spitball, zombies, and player
Alternative Action	No action

Pseudocode	if (spitball is shot) {
	       applyForce(spitball, direction, forceAmount);
	 }
	 if (zombie moves) {
	       applyMovementPhysics(zombie);
	 }
	 if (player moves) {
	       applyMovementPhysics(player);
	 }
	}

Reward	No points for physics interactions
Pacer Logic	N/A

Music Rules:

Rule Function	function HandleMusic()
Input/Trigger	Game starts, player engages zombies, player dies, or level transition
Action	Play appropriate background music and sound effects
Alternative Action	No action

Pseudocode	if (gameStarts()) {
	
	   playBackgroundMusic();
	
	} else if (playerEngagesZombies()) {
	
	   playEngagementSoundEffects();
	
	} else if (playerDies()) {
	
	   playDeathSoundEffects();
	
	} else if (levelTransition()) {
	
	   playTransitionMusic();
	
	}

Reward	No points for music
Pacer Logic	N/A