Test Plan (Milestone 3)

New features from in M3 are highlighted in **BOLD**

Controls (Gameplay)	Gameplay	A - Move Left D - Move Right **ESC - Pauses game** Space - Jump **R - This doesn't do anything** **ENTER - This doesn't do anything** Left Click - Grapple to grapple point when clicking within circle / Left click again while grappled to release the grapple W - Retracts the grapple, pulling the ball closer to the center
Controls (Main Menu)	Main menu	**1-9: If the level exists, selects that level.** **UP/DOWN: If the level exists, increments/decrements selection to that level.** **ENTER: Starts game on selected level** **ESC: Exits game**
Controls (Pause)	Pause	**ESC: Resumes game** **R: Restarts level** **ENTER: Returns to main menu**
Controls (Game Ended)	Game Ended	**ESC: Exits game** **R: Restarts level**

		ENTER: Returns to main menu
Additional Gameplay Elements	HP Bar Timer	**HP: Player starts with a set amount of HP, and loses it when they "lose" a collision against a common or swarm enemy.** **HP: When HP reaches 0, screen switches to "Game Ended"** **TIMER: Counts the amount of time in seconds that the player has spent on the current level (in the current round).**
Camera	Grappling	When the ball grapples to a grapple point, the camera should lock to the center of the grapple point, and not to a different one. When the ball releases the grapple from the point, the camera should return to its normal behaviour.
Enemy AI	Spawn Points	Enemy **spawns** should be triggered when the player moves over a specific tile.
Enemy AI	Enemy Types	The **OBSTACLE** enemy is invulnerable and ignores the player, patrolling a set path between 2 points. If a player hits an obstacle they shouldn't lose any HP. The **SWARM** enemy should be fast, flying, avoids crashing (but chasing player takes precedence) and swarms to pursue the player. **note: needs at least ~5 swarms to

		show swarming behaviour. These should be defeatable by running into it at high speed. The **COMMON** enemy is flightless and does its best to chase the player on the ground. When the ball enters the common room, there should be some common enemies that can be defeated by moving quickly into them. Note: these are not swarming and shouldn't fly (unless they fall off a ledge or ramp, but is that really flying?)
Grapple	Grapple	**Grapple:** Player will "orbit" the center of the grapple once they hook onto it. **Grapple:** While the ball is grounded and attached to the grapple, the grapple will automatically shorten until the ball is not grounded and can swing without making contact with the ground **Grapple:** Momentum should be retained when the player latches onto it. **Grapple:** Grapple should not shorten automatically if the ball is not moving. **Grapple:** can be extracted/extended by the player. **Grapple:** Grapple should be able to manually retract (W) even while the player is

		grounded.
Ramps	Terrain	The player should be able to smoothly move up the ramp as if it were a perfect curve.
Ground	Terrain	The player should be able to smoothly roll across the ground.
World	Layout	The tutorial world should be split into rooms, each with unique enemies and things to do.
Tile Textures	Graphics	Tile Assets should be rendered appropriately based on the type of terrain. There should be helpful diagrams in the background of rooms.
Animation	Graphics	All enemy entities are animated with a sprite representative of their behavior (EX:. a drone sprite for swarming enemies).
Other	FPS Counter	There is an FPS counter in the title of the window
Performance	FPS	PERFORMANCE: Game should hover around at least 60 fps.
Physics	BALL ROTATION	ROTATION SPEED DECELERATING: Ball's rotation speed should approximately match the speed of the ball while it decelerates. BALL JUMP: Ball will not go orbital when jumping on a ramp. JUMP COOLDOWN: Ball jump has a cooldown of 0.5 seconds
Rendering	Level Textures Background/Parallax	LEVEL TEXTURES: Each level should have its own texture

		that the player interacts with. BACKGROUND: Behind the level texture there is a distinct background. PARALLAX: Parallax effect should be noticeable when the player moves.
UI/UX	Display Assets	DISPLAY: The game resolution and aspect ratio are consistent across different machines/displays. ASSETS: Gameplay should include new assets including enemies, backgrounds/levels, terrain, background music, sound effects, player tips, etc.
Tile Map ** note: this might look simple in terms of system testing, but back-end implementation is EXTREMELY COMPLICATED.	Level Loading Map Geometry	LEVEL LOADING: The player should be able to select ANY available level, successfully LOAD, and PLAY on it. This includes map-specific assets including the texture and background music. MAP GEOMETRY: Map geometry should be consistent with the texture. For example: No phasing through walls, no invisible walls, the floor works, ramps work, etc.