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**Controls:**

Movement left/right: Left/Right Arrow keys

Jump: Ctrl (You must hold down the ctrl key longer for a higher jump)

Crouch: down arrow key

Shoot: space key

\*Note: you can shoot in all 4 directions in mid-air and on poles. Just simply hold the arrow key representing the direction you want to shoot then press the space key.

Action Key (walk through door, toggle switch, climb pole, etc.): up arrow key

Look up: up arrow key.

Fall off platforms: down arrow key + ctrl key

Cycle upward through weapon inventory: Enter key

Cycle downward through weapon inventory: Shift Key

\*Note: you can also move to a specific weapon in your inventory by pressing the number key associated with the number next to the weapon.



In this control panel, the selected weapon is highlighted in gray. In this case, it is weapon #4: the shotgun. Cycling downward would bring you back to weapon #1, and cycling upward would select weapon #3, the RPG cannon. Pressing "2" would select the railgun, which is weapon #2. Every level begins with 5 ammo for the pistol (weapon #1). Every other weapon will be numbered in the order in which it was acquired.

Toggle Shield (On/Off): "S" key

**Constructs:**

Constructs are simply objects and structures in the game that you will typically interact with. These can consist of doors, moving platforms, poles, etc. Below is the complete list of game constructs:

**Doors**:



Doors are a common construct in the game. They function as teleports to get you from point A to point B. Each door can have up to only one destination or no destination at all. To walk through a door, press the "up key" while standing in front of it.

**Chutes**:



Chutes work in conjunction with doors in that they are destinations only. Walking through a door may move you to the location of a chute.

**Exit Door:**



Exit doors are typically found in keen 5 themed normal mode levels where you are trying to reach the exit with the fastest time possible. Like any other door, press the up arrow key to interact with it. This door can only be opened when the player has the key card. Otherwise, the door will emit a sound indicating access is denied.

**Stationary Platforms:**



Platforms are floor tiles that you can stand on, but have no ceiling collision. You can fall through them by pressing the ctrl key while crouching. Stationary platforms do no collide with projectiles like lasers, but they collide with projectiles that have bounce physics like grenades, shrapnel, etc.

**Flipping Platforms:**



Flipping platforms were introduced in Commander Keen episode 5 and were also featured in episode 6. A flipping platform functions when it is perfectly horizontal (see the fourth image from the left). When it flips, it will cause any player standing on it to fall down and any player trying to land on it to fall straight through. The timing is the same every flip cycle, so these are very predictable.

**Moving Platforms**:



Moving Platforms work similarly to stationary platforms, but certain moving patterns. There are 4 types of moving platforms:

1) Set Path Platform: A set path platform moves in a repeated pathway determined by a series of x,y coordinates that it cycles through. A set path platform can begin in an active or inactive state. When in an inactive state, the set path platform will remain stationary wherever it is.

2) Horizontal Trick Platform: A horizontal trick platform remains stationary until the player tries to jump onto it. While the player is approaching the platform, the platform will quickly shift away from the player in an attempt to trick the user into falling below. After its dodge action completes, it will return to its initial position. You can outsmart a trick platform by jumping towards the platform until its dodge mechanism initiates, retreat quickly back to safety, then jump on the platform again while it is returning to its original location. Be sure to be on the platform before it returns to its original location, or it may activate its trap card again!

3) Drop Platforms: Drop platforms begin stationary. Once the player is standing on the platform, the platform will descend by a specified amount. If it descends its maximum vertical distance while the player is standing on it, it will remain stationary until the player jumps off the platform. When the player jumps off the platform, it will ascend to its original location.

4) Bottom Out Platform: Bottom out platforms are similar to drop platforms with the exception that they have no maximum fall distance. They only have a "bottom-out" distance. After this specific fall distance is reached, it will terminally descend until it leaves the map altogether, disappearing until the level is completed or the player dies and restarts. If it does not descend that "bottom-out" distance and the user jumps off the platform, it will ascend to its original location.

**Poles:**



Poles are a very useful construct as they can allow the player to remain at a position above or below potential danger without having to stand on a tile. Some poles have a manhole, which is the oval-shaped hole cut through a tile that a pole will go through. These manholes function similarly to stationary platforms with the exception that they stop projectiles moving downward and you cannot fall through them; you can only move down through them via their associated pole. Press the "up" arrow key to hang on a pole. Hold "up" or "down" arrow keys to move up and down the pole respectively. You can also jump while on a pole. It them follows that you can move quicker up a pole than climbing by repeatedly jumping up and catching the pole using the "up" arrow key.

**Toggle Switches:**







Toggle switches are used to activate/deactivate constructs in the game. Rows 1 and 2 in the diagram depict keen 4 and 5 themed toggle switches respectively. For keen 4 and 5 toggle switches, simply press the "up" arrow key to toggle on/off the switch. The third row depicts keen 6 themed toggle switches. The left switch in the photo shows the switch in an "off" state. You can turn that switch on by standing directly underneath the yellow knob and jumping upward, hitting your head on the switch. The right photo depicts the toggle switch in an "on" state. To turn it off, jump on top of the yellow knob.

**Gem Doors:**



Gem Doors begin shut and will permanently open when a player places the right colored gem on the placeholder. In this photo, the placeholder is the green fixture next to the door. Although the placeholders are usually next to the door they open, this is not always the case, and can technically be placed anywhere in the level.

**Activateable Tiles:**





Activateable tiles act as bridges that can be toggled on/off via the toggle switches previously mentioned. When activated, they function identically to the floor tiles in the game.

**Enemy Spawners:**



Enemy Spawners are objects that will continuously spawn enemies until destroyed. They have the following properties:

1) Concurrent Spawn Limit: This determines how many concurrent enemies it can spawn. For example, if the limit is set to 3, the spawner will stop spawning when it has spawned 3 enemies and they are all still alive. If one enemy dies, the enemy spawner will spawn one new enemy in its place and wait for others to die before continuing its spawn cycle.

2) Spawn Delay: This determines how long to wait (in game ticks, which are roughly 20 per second) before spawning another enemy if applicable. This is essentially the spawn rate.

3) Enemy List: This is the list of enemy types the spawner can spawn. In a later section, I will explain the functions of the Map Maker (level editor) and how all of these properties can be changed. The enemy list essentially refers to the diversity in the spawn. The spawn is also affected by the terrain, and will typically spawn enemies from the same episode as most of the surrounding tiles. When the spawner is constructed and loaded into the level, the spawner will store the 10 nearest tiles, including what episode they currently represent (tiles theme can be changed, more on that later). During the spawn cycle, the enemy spawner will pick a random tile from the list of 10 nearest and read its current episode biome. It will then filter its list of spawnable enemies to only enemies from that episode of Commander Keen and pick a random enemy from that filtered list to spawn. If there are no enemies from that episode in the list of enemies, nothing will spawn. So, be sure to add enemies from all episodes while editing this object in the Map Maker if your intention is to use this construct in conjunction with the Biome Changer, which will alter the surrounding terrain and, in turn, affect the spawn of nearby enemy spawners.

4) Health: This determines how much damage the enemy spawner can sustain before becoming non-functional.

**Biome Changers:**



Biome changers are constructs that are used in conjunction with enemy spawners to alter the surrounding terrain and affect the spawn of nearby enemy spawners. They alter the terrain by firing projectiles at varying speeds, rates, and directions. Any episode-specific tile that is hit by these projectiles will have their biome changed to the biome reflected by the image of said projectile. These constructs have the following properties:

1) Minimum Delay: The minimum delay in game ticks before firing another biome projectile. The biome changer will not fire another projectile any sooner than this amount after the previous projectile was fired.

2) Maximum Delay: The maximum delay in game ticks before firing another biome projectile. The biome changer not fire another projectile any later than this amount after firing the previous projectile.

3) Minimum Speed: The minimum initial velocity of the projectile being fired.

4) Maximum Speed: The maximum initial velocity of the projectile being fired.

5) Health: Determines the limit of damage that can be sustained by the biome changer before it is destroyed.

\*Note: you cannot limit the direction that the projectile is fired in. It can shoot projectiles and any and all angles. This makes the biome changer very unpredictable.

**Random Weapon Generators:**



Random weapon generators will give a random weapon at a specified price. There are 8 different weapons in the game (details on those weapons in the "Weapons" subsection of the "Items" section). There are 6 common weapons and 2 rare weapons. There is a 1/50 chance a rare weapon will spawn. If that does not occur, the random weapon generator will pick randomly between the 6 common weapons with uniform probability distribution. In the level editor, you can specify the price for each weapon generation. When the player activates the weapon generator, it will deduct that amount from the total points the player has. If the player does not have enough points to buy a weapon from the random weapon generator, it will emit a noise indicating the action cannot be completed. Before dispensing a weapon for the player, it will run a weapon cycling animation. The player must wait until that animation is completed and the weapon is dispensed before buying another weapon. Use the "Up" arrow key while in front of the control panel of the generator (the buttons on the bottom right-hand side) to buy a weapon.

**Map Edge Tiles:**



Map Edge tiles are only shown as the image above in the map maker. In the actual levels, these tiles will be invisible. They can function as barriers, exits, or death traps. This feature is configurable in the level editor. These are useful to ensure that the player does not fall off the edge of the map when he/she is operating along said edges.

**CTF Destinations:**



CTF Destinations are used primarily in the "Capture the Flag" game mode. They are bases that the player returns flags to to gain points. There are four flag/CTF destination colors: Yellow, Green, Blue, and Red. The player must return the flag that corresponds to the CTF destination color in order to score any points. More details on the "Capture the Flag" game mode in the "Game Modes" section.

**Items:**

Items are collectible aids to the player to assist the player in navigating the level. Below is the list of items the player can collect:

**Weapons:**



Weapons will sometimes be needed for the player to defend themselves against attacking enemies and to break through destructible barriers. The following is the complete list of weapons in the game:

 The Neural Stunner: This is the laser pistol that represents the standard Commander Keen weapon he is armed with to defend the universe. It is semi-automatic capable of firing about 2 rounds per second. It does one damage and fires perfectly straight projectiles.

 The SMG: This gun is a fully automatic variant to the neural stunner. It has a large spread, and is thus hideously inaccurate. It has a faster firing rate than the pistol, and each round does 1 damage and has 1 pierce (Pierce is the ability for the round to go through an enemy and hit another behind it. The more pierce, the more enemies the same round can hit in one line of fire).

 The Shotgun: This gun fires a powerful and quick burst of 5 neural stunner rounds at enemies. Though it has a slightly longer delay than the pistol, it's 5 rounds shoot at varying trajectories like a buck shot, and is thus capable of dealing 5 damage per shot. Be careful, because it fires 5 rounds each, the ammo can be spent very quickly.

 The Boobus Bomb: Boobus bombs are bouncing projectiles that the player fires at enemies. These are fun and incredibly useful when trying to kill enemies in difficult-to-reach places without confronting an enemy head-on. They bounce off walls and floors and will stop at enemies and destructible barriers. They deal 2 damage, are semi-automatic, and can be fired as rapidly as the pistol. However, they function more like a grenade throw, and have more sophisticated gravity and physics. So they cannot travel indefinitely in one single direction.

The Railgun: This gun fires an extremely powerful and fast projectile at enemies. It fires in a perfectly straight line just like the pistol, except with much more power and speed. It can pierce through 20 enemies at once and deals 20 damage to each enemy the projectile hits. The one major downside is its 5 second delay in between shots. It is the fastest projectile in the game, but by far the slowest firing rate. If you miss with this weapon, you had better have another close-range weapon handy or you could find yourself in deep trouble. It is best suited for taking down hordes of enemies coming at you from a single direction.

The RPG: The RPG fires a rocket propelled grenade at a rate of 1 round per second. It is a perfectly straight round with average speed, but when it impacts a block tile or an enemy, it elicits a massive explosion that deals a lot of damage to anything inside the blast radius, include the player themself. Be sure to be far away from anything you intend to shoot with this weapon.

 The Snake Gun: This is one of the two special weapons in the game. It is an extremely lethal weapon despite its slow firing rate. The initial projectile deals 3 damage and can pierce through 2 enemies. If the initial projectile hits a block tile (wall, floor, etc.), it will spawn a chain of explosions in the two directions perpendicular to the trajectory of the bullet. Those explosion chains can work their way around walls and floors like a snake navigates around obstacles. Each miniature explosion in the chain deals 3 damage as well. This can be very useful in killing large mobs of enemies coming at you from both sides and can reach enemies in very tricky places. The explosions are also lethal to the player, so use caution.

The BFG: The iconic Id Software classic, this game features its own form of the big freaking gun. It functions like a nuclear bomb that temporarily incapacitates the player when in the blast radius, and will deal overwhelming amounts of damage to any enemy or destructible construct caught in its enormous blast. The projectile is the slowest and smallest moving projectile in the game, but once it hits anything, a massive explosion ensues and wipes out everything destructible thing it touches. It deals 999 damage per explosion animation, which can add up to about 20-50k possible damage depending on how close an object is to the center of the blast. It will render the player temporarily incapacitated, so do not use this around indestructible moving hazards/enemies.

**Point Items:**

In every game mode, points are useful. Every game mode aside from "Normal Mode" is scored, whereas "Normal Mode" is timed. Even still, points are useful because they are another means of hoarding extra lives to help the player continue to play despite dying a lot. Point Items come in the form of junk food and have differing point values. Below is the complete list of attainable point items:

Keen 4:

Soda: 100 points

Three-tooth gum: 200 points

 Chocolate Candy Bar: 500 points

Jawbreaker: 1000 points

Donut: 2000 points

Ice Cream: 5000 points

Keen 5:

Shikadi gum: 100 points

Marshmallow: 200 points

Chocolate Milk: 500 points

Tart Stix: 1000 points

Sugar Stoopies Cereal: 2000 points

Bag-o-sugar: 5000 points

Keen 6:

Bloog Soda: 100 points

Icecream bar: 200 points

Pudding: 500 points

Root beer float: 1000 points

Banana split: 2000 points

Pizza Slice: 5000 points

**Extra Life Items:**

Below is the complete list of extra life items:

Keen 4:

Lifewater Droplet: Collect 100 of these for an extra life

Lifewater Flask: Collect 1 of these for an extra life

Keen 5:

Vitalin: Collect 100 of these for an extra life

Keg-o-vitalin: Collect 1 of these for an extra life

Keen 6:

Viva: Collect 100 of these for an extra life

Viva Queen: Collect 1 of these for an extra life

**Keys/Gems:**

Keys and gems are critical in gaining access to excluded areas of a given level. The keys will appear in the associated inventory section.

Key Card: This is necessary to go through an exit door if there is one in the level. Check to see if the card shows up in your inventory as seen below:



Gems:



Match the gem to the gem placeholder by color to open any associated doors. Check to see if the right color gems are in your inventory as seen below:



This example shows that the green key is acquired, but the others are not.

**Miscellaneous Items:**

Shield: Acquiring the shield will allow the player to be impervious to attacks from enemies or hazards. You can still fall to your death, however. This shield lasts a limited amount of time, and while it is activated, the player cannot fire a weapon. Press the "S" key to toggle the shield on/off.



The figure above shows the shield section of your inventory which will be located on the top right corner of the inventory panel, which is to the left of the game window. This indicates active vs inactive state and how many second are remaining before the shield is fully depleted. The shield does not lose health from damage sustained. It only disappears if it is deactivated or it runs out of time.

Flag: These are items you collect in "Capture the Flag" mode to get points for returning to the CTF Destination with the same color. They come in four colors: Red, Blue, Yellow, and Green. Flags have the following properties:

Base (or starting) Points: The value of a flag can depreciate over time. This property tells how many points the flag is worth to start out.

Min Points: The value of a flag will not depreciate indefinitely. There is a floor, or a minimum value. This property tells what that minimum point value will be.

Points Degraded Per Second: Each second you have not collected the flag, the point value for capturing that flag will reduce by that amount. Note: Once a flag is collected, the point value will not degrade anymore. You are not judged by how quickly you return the flag, only by how quickly you acquire the flag. This incentivizes you to exercise more caution when returning the flag and to collect it quickly. If you die with flags in your inventory. You lose all the flags you had and the map resets. If you successfully capture a flag, you will be awarded the point value for each flag you captured and the flags will be put back into their original position.

Check for flags in your inventory as seen below:



The figure above indicates that the player has yellow flag(s) with a total point value of 1000. Keep in mind, there can be multiple flags of the same or differing color in a level. If, for example, the player had 2 yellow flags worth 1000 points each, this inventory container would display the yellow flag with 2000 points next to the icon. Once the yellow based is touched, it will award that many points to the player.

Enemy Flag: This flag is not collected by the player, but by any destructible enemies on the map. Once the flag is collected by an enemy, the flag will display above the head of the enemy that collected it. At this point, the players points will be deducted by a specified amount (set in the level editor by the user) every second the enemy flag is in the possession of an enemy. Once the enemy is killed, the flag will fall and the point deduction will cease until the flag is collected again. A player's points cannot go below 0.

**Hazards:**

Hazards are defined as any non-living threat to Commander Keen's existence. Any sentient being that poses an existential threat to the player is classified as an enemy. Below are all the hazards in the game and how to avoid them:

Keen 4:

Acid Pool: The acid pool is lethal except when standing on the edges, which act as floors.

Dart Gun: The dart gun fires darts repeatedly at a constant rate. It is lethal to the touch as well as the darts it shoots

Fire: Pretty self explanatory. Don't touch it.

Mine: the mine can be stationary or move back and forth vertically or horizontally. They explode when the player comes in contact with it and will immediately kill the player.

Spear - A spear will stab in the direction it is pointing repeatedly at a constant rate. A spear is safe to touch when it is in its retracted state as shown in the picture. When it is in its stabbing phase, it is lethal.

Hovering Platforms: Hovering platforms are suspended in air by a jet-engine-like mechanism emitting lethal fire. You can stand on the top of the platform, but you cannot touch the fiery section!

Tar Pit: The tar pit is lethal to land in and can span long distances.

Spikes: Spikes are another stationary death trap to avoid.

Keen 5:

Force Field: A force field serves as a barrier until the player applies enough fire power to it to destroy it. It's health and height are configurable in the map maker.

Laser Field: Laser Fields are hazardous obstacles that emit a pulsating laser along a fixed vertical plane. If the size of that laser is large enough, it will be lethal to the touch.

Laser Turret: These are mounted laser guns that fire lasers at a constant rate. You can stand on them since the turret itself acts as a platform tile, but its projectiles are always lethal.

Rotating hazard platform: These platforms can span massive lengths and can contain white-hot energy bulbs that are lethal to touch. They rotate around the platform. Be sure not to touch the red/white section as shown in the picture as that is the only hazardous part of this structure.

Spining flamethrowers: These small spinning hazards are stationary, but lethal.