Functional Specification

Puppeteer

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# Game Mechanics

*The game mechanics describe the game play in detailed terms, starting with the vision of the core game play, followed by the game flow, which traces the player activity in a typical game. The rest is all the infinite details.*

## Core Game Play

Puppeteer is a party game over LAN where you play as 4v1 where 1 player is all-seeing. Playing as the all-seeing puppeteer you will have an overview of all the players and rooms and be able to move, switch and rotate the rooms to confuse the other players. You will be able to spawn traps and monsters in order to try and kill the puppets. All of your skills and abilities will cost a currency so that you can’t spam items.

The other 4 players, the puppets, are to co-operate with each other in order to find the exit and survive. You need to defend yourself against the puppeteer’s minions with different types of weapons and power-ups with different abilities.

*In a few paragraphs describe the essence of the game. These few words are the seeds from which the design should grow. Planted in the fertile soil of a known market, they should establish roots that anchor the vision firmly in place and help ensure a successful game. This is similar to the description section in the game concept, except that it’s non-narrative, and usually expressed clearest in bullet points, though this could vary depending on the type of game.*

## Game Flow

As a regular player (puppet) you wake up in a bedroom alongside your other team mates. You will get a little time to explore the bedroom, pick up some weapons and ammo and prepare yourself for the match. Once the time is over you will start to explore outside the bedroom and it appears at first sight that you are in an abandoned mansion. As you progress you can notice that there is something working against you, which is your main minion, the puppeteer. Your main goal as a puppet is to escape from this mansion and the puppeteer’s traps and tricks.

You will find spawners that minions will spawn from that you need to destroy in order to survive and traps that you need to avoid, but you will also find other kinds of weapons, more ammo and also power-ups with different kind of abilities. If it happens that you run out of HP you will be knocked down for an amount of time. If that timer runs out you will die, but there is also the option to be revived by a teammate, using med kits that can be found, to come back to life. To help find a teammate you will have a compass that will show you the direction of where your other teammates are.

Playing as the puppeteer, you are the one that will control the entire mansion. The mission as the puppeteer is to kill all of the puppets and make sure that no one makes it out. You will be able to pick up and move, rotate and switch the different rooms. You can only move the rooms under certain conditions, for example you can’t move rooms with puppets inside and you have to place the rooms in a formation so that there will be a path available from every puppet to the exit. You will also have the ability to place different kind of traps and enemy spawners in different rooms. To have a bit of balance the puppeteer will have a cooldown on the skills (both placing them out and room to room?).

*Trace the typical flow of game play with a detailed description of player activity, paying close attention to the progression of challenge and entertainment. If the core game play is the root of a tree, the game flow is the trunk and the branches. All activity should actualize and extend from the core game play. Be specific about what the player does, though try to use terms like "shoot", "command", "select" and "move" rather than "click", "press" and "drag". This keeps the description distinct from how the actual GUI will work, which is likely to change. Refer readers to specific pages in the User Interface section when you first mention a GUI element such as a screen or window or command bar.*

# Characters / Units (if applicable)

## Puppets

There will be 4 characters for the puppets, Froggo, Doggo, Gekko and Pekko. They all have an equal amount of HP. They can pick up and use different kinds of weapons for both ranged and melee attacks. They can also pick up and use power-ups. One of the wishlist elements is that each character have unique powers. All of the puppets will also have a compass for which they can use to see which direction their team mates are towards. If the puppets dies, they will get a timer for being downed and the other teammates can revive the fallen before the timer runs out, or else the puppet will die. The puppets also have stamina bars for which they can use to sprint. The bar will automatically charge when not used.

## Puppeteer

The puppeteer is the player that has all-seeing powers. The puppeteer is not like the other entities since he doesn’t have HP and can therefore not be killed. The puppeteer can see all of the rooms, the puppets, his spawners and minions and his traps. The only things the puppeteer can’t see are the randomly placed weapons, ammunition and power-ups.

## Minions

There are two types of minions, the small ones that spawns from spawners and bigger ones that don’t need spawners, but can’t roam. Both of them as HP and can be killed and performs melee attacks towards the puppet. The smaller minions needs a spawner that the puppeteer will place out. Once a minion dies, a new one will spawn out of the spawner until it’s destroyed. The smaller enemies also have a faster movement speed than the puppets, while the big minions are slower than the puppets. For more information about the behavior, read [“Artificial Intelligence”](#_Artificial_Intelligence).

*These are the actors in the game controlled by the players or the AI. This should include a brief description and any applicable statistics. Statistics should be on a rating scale i.e. A to Z or Low to High, so that it’s clear where units stand in relation to each other in broad terms. It’s a waste of time plugging in the actual numbers until the programmers have written the technical specification and created an environment for you to experiment with the numbers. Special talents or abilities beyond the statistics should be listed and briefly described, but if they are complex, they should be expanded upon in the game play Elements section.*

# Game Play Elements

## Puppet Items

### General

Only the puppets can wield the weapons for both ranged and melee attacks. A puppet can only have one weapon at a time so they don’t have any kind of inventory. They can find new weapons throughout the map that they can switch to, but they have to leave the old one behind. That means that puppets that have a strong weapon and find a stronger one, can leave their old one behind for another puppet to pick it up.

All items such as weapons, ammunition, med kits and power boosts will be randomly placed around the map.

### Shotgun

The shotgun is best for close combat. It will have a short range so the further away your target is, the less damage it will make. It has a high spread so it will cover a large area. The whole area of the shotgun has high damage, but the individual particles has low damage. So, the closer you are to the target, the more damage it will make. It has a medium fire rate since it’s not automatic. The shotgun has low accuracy, because it has a high spread.

### Rifle

The rifle has the highest damage and the furthest range, but it has a very low fire rate. It has a high accuracy. It is best used for single targets on long range

### Pistol

The pistol is the starting weapon. It has a low fire rate, low damage and medium range. It has a high accuracy, but not as high as the rifle.

### Gatling gun

The gatling gun has a low damage for each bullet, but a high fire rate and lots of spread. It has a medium accuracy. It is best used for multiple targets on medium range.

### Ammunition

In order to use your weapons you need ammunition. The ammunition works for all weapons so there are no weapon specific ammo.

### Power-ups

The puppets have their own unique power-ups. The power-ups require a recharge that the players can find throughout the map.

### Froggo

Froggo will get infinite stamina boost for an amount of time. When activated Froggo will not need a stamina bar in order to sprint and will also get a stamina boost which means that Froggo will run faster and can even activate traps but will be able to avoid them.

### Gekko

Gekko will have the power to become invisible for a medium amount of time. He will become invisible for both the puppeteer and the minions, but not your teammates.

### Pekko

Pekko will get a navigation boost which means that the exit will appear on his compass for a short amount of time.

### Doggo

Doggo will get a sniffer ability where he can detect if there is a trap, or minions or power boots, ammo or weapons for an amount of time. The doors for the rooms will light up in a specific color depending on what’s inside, for example red if there is something dangerous inside, blue for a boost, purple for both a trap and a weapon etc.

### Med Kit

The puppets can find med kits placed all around the map. A puppet can only have 1 med kit at a time and they can only be used for reviving downed allies.

### Compass

## Puppeteer Items

### Spikes

The spikes can be placed both in the roof and on the ground. They will be hidden until the puppet triggers it. It will then shoot up or down and deal damage to the puppet. If you watch closely you may see the spikes depending on where it’s placed, for example it’s completely hidden if it’s underneath a carpet. The spikes will have an activation time, so it will take a very small amount of time until it’s activated so that Froggo can escape it when he has his boost.

### Fake Item

The fake items are traps, with skins as regular items such as stamina boosts, weapons and ammo. When a puppet will try to pick up a fake item it will explode and make damage to the puppet.

### Bear Trap

If a puppet walks onto a bear trap the puppet will get stunned and won’t be able to move. You will take a basic amount of trap damage and you can choose to wait for a team mates to come and release you, or take it on yourself but take extra damage for it.

### Chandelier

If a puppet walks underneath a chandelier it will be triggered and dropped upon the puppet and make damage.

### Minions

For more information about the minions and their behavior, go to [“Artificial Intelligence”](#_Artificial_Intelligence) or [“Minions”](#_Minions).

### Spawners

The spawner is the smaller minions spawning point. Once a spawning point is placed, the minions will start spawning until the spawners spawning cap is reached. If a spawner is attacked it will send a message to all of its minions in order for them to run back and defend it. If the spawner is destroyed no new enemies will start to spawn.

### Doors

### Rooms

All of the items that the puppeteer can place throughout the map can only be placed on certain positions. For example you can’t place a spawner right in front of the door because it will have pre-defined positions that you can choose to snap it to.

* Weapons
* Power-Ups
* Traps
* Doors
* Compass
* Med kit
* Rooms
* Enemies

*This is a functional description of all elements that the player (or characters/units) can engage, acquire or otherwise interactive with. These are such things as weapons, buildings, switches, elevators, traps, items, spells, power-ups, and special talents. Write a paragraph at the start of each category describing how these elements are introduced and interacted with.*

# Game Physics and Statistics

We’re going to need some basic physics like jumping for the puppets, basic collisions between entities and walls etc. For everything physics related we’re going to use Unity’s own physics engine.

*Break out how the physics of the game should function, i.e. movement, collision, combat etc., separating each into subsections. Describe the look and feel and how they might vary based on statistics assignable to the characters, units and game play elements. Indicate the statistics required to make them work. Get feedback from the programmers as you write this, as how the game handles the physics and the quantity of the statistics will severely impact performance issues.*

*This can get a little dry, but avoid getting too technical. Avoid using actual numbers or programming terms. These will come later in the technical specification, written by the programmers who will want to do things their way (usually the right way). Just tell them what you want to accomplish. For example: "The units should slow down when going uphill and speed up when going down, unless they are a hover or flying vehicle. How much they are affected should be a factor of their climbing and acceleration statistic as well as the angle of the incline." You would not tell the programmers what math to use to adjust the speed. Assuming you are not a programmer yourself, they’re just better at that than you.*

# Artificial Intelligence

## Small Minions

After the spawner has been placed, the minions will start roaming around, but not too far from the spawner. They can move between rooms, as long as it’s in the spawner’s area. If a minion finds one of the puppets on its exploration, it will start to chase the puppet. The minion will keep chasing the puppet until it is dead, it has run too far from the spawner or the spawner is attacked. If the spawner is attacked all of the minions connected to the spawner will run back and start to defend it.

## Big Minions

The big minions cannot roam around, but will stay inside the room where it is placed and walk around inside it. If one of the puppets walks into the room it will react and start chasing the puppet endlessly. The difference between the small and the big minion is that the small ones will chase the puppet, until it’s too far from the spawner, but it’s faster than the puppet so it will get up to speed to it some time. Meanwhile the big minions can’t really keep up with the minion, but will instead never stop chasing the player until it’s killed.

* Enemies
  + Can spawn from a spawner that the puppeteer can place in rooms.
  + Can roam around the spawner.
  + Spawner has a cap limit on both number of active enemies and amount of spawner over all.
  + Spawner will get snapped to positions.
  + Enemies will start following the puppet if they are noticed.
  + Will start defending the spawner if it gets attacked.

*Describe the desired behavior and accessibility of the AI in the game. This includes movement (path finding), reactions and triggers, target selection and other combat decisions such as range and positioning, and interaction with game play elements. Describe the avenue through which the AI should be controlled by the level designers, i.e. using .INI files, #include files of game stats or C-code, proprietary AI scripts, etc.*

# Multiplayer

The multiplayer type is team vs solo since there will be a group of puppets working against the all-seeing puppeteer. It will require at least 2 players (1 puppeteer and 1 puppet) and can support at the most 5 players (1 puppeteer and 4 puppets). The networking method is that there will be 1 host.

* Team vs Solo
* 2-5 players
  + Minimum 1 puppeteer and 1 puppet
  + Maximum 1 puppeteer and 4 puppets
* 1 host

*Indicate the methods of multi-player play (i.e. head-to-head, cooperative vs. AI, teams, every man for himself, hotseat) and how many players it will support on the various networking methods. Describe how multi-player differs from solo-play in game flow, characters/units, game play elements and AI.*

# User Interface

* Menus
  + Start Menu
  + Lobby
  + End Screen
  + Guide
  + Credits
* Puppeteer
  + Cooldown
  + Room selection
* Puppets
  + Health
  + Stamina
  + Ammunition
  + Med Kits
  + Power-up status
  + Compass to indicate the direction of the other players

*The interface changes so very often that it almost seems pointless to document it; however, it’s got to start somewhere. It’s structured here to minimize the impact of changes. It’s starts with a flowchart of the screen and window navigation, then breaks down the functional requirements of all the screens and windows. That done, the GUI artist is free to do what he or she feels is right as long as it meets the requirements. To get him or her started you should provide mock-ups. This often is to the designer’s benefit to think everything through. Then follow up with a description of all the GUI objects that need to be programmed to make all the screens work.*

## Flowchart

*This charts the navigation through the various screens and windows. Use VISIO or similar flowcharting tool to connect labeled and numbered boxes together, representing screens, windows, menus, etc. On the corner of each sheet, put a numbered list of all the items for easy referencing and ease of defining tasks for the programmers.*

*Functional Requirements: This functional breakdown of every screen, window and menu lists the user actions and the desired results and may include diagrams and mock-ups. While the specific interaction (buttons, hotspots, clicks, drags and resulting animations) can be listed, it’s often best to keep this separate from the list of functional requirements as these can evolve during implementation. Of course if it’s just easier to think in terms of clicking a button or it’s really important that something work a certain way, then by all means get specific about the method of interaction.*

## Mockups

### Puppet Gameplay



### Puppeteer Gameplay

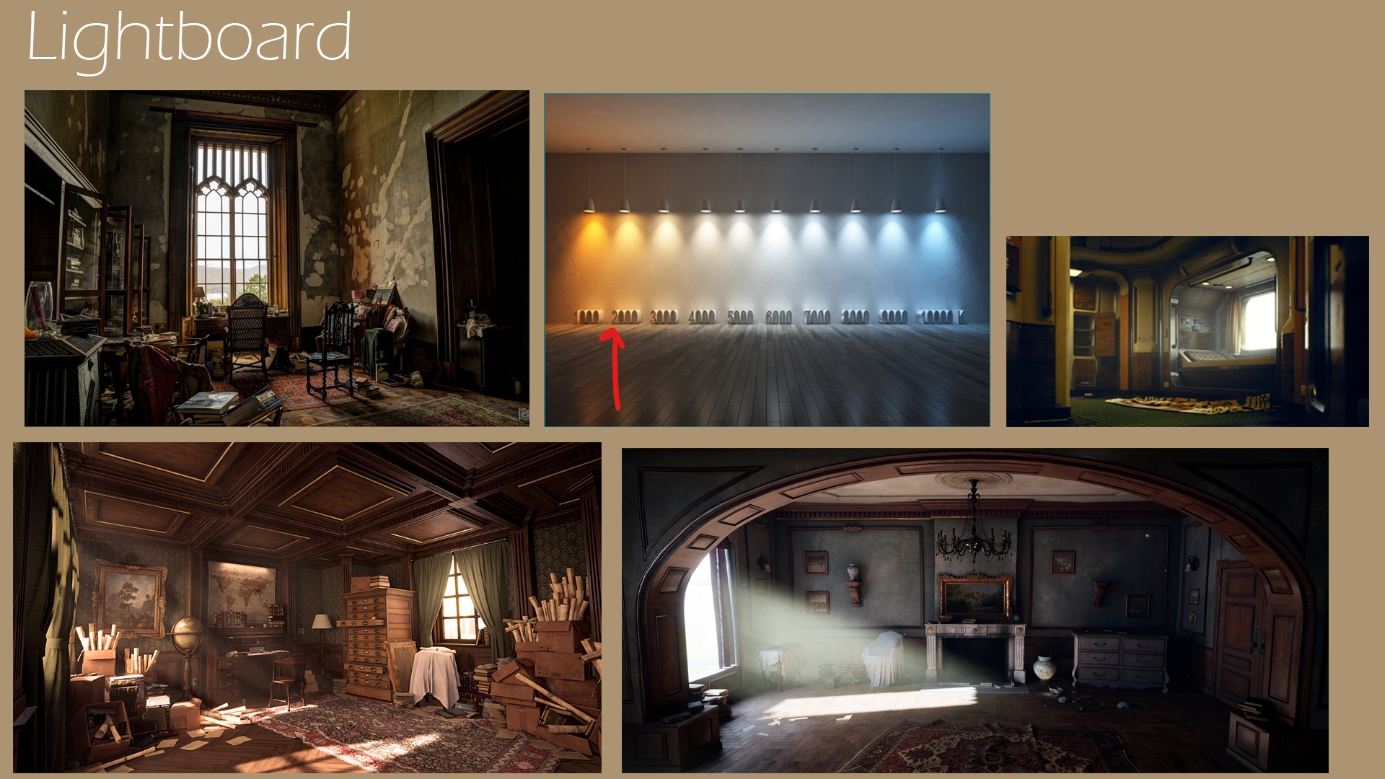


*Create a mock-up for all the screens, windows and menus. This may end up getting ignored, but it’s a good starting point for the artists if they have no idea what else they may want to do. Don’t waste your time creating anything really pretty. Just create simple line drawings with text labels. Color can be very distracting if it’s bad, but if it’s important, go ahead. Some drawing programs have templates that make creating mock-ups very quick and easy.*

## GUI Objects

*These are the basic building blocks used to create all the screens, windows and menus. This should not include the items seen in the main view portal, as these are covered in the art list in the next section. The GUI objects are primarily listed here for the programmers to know what pieces they’ll need to code and have for putting together the screens. You should explain in detail how each is interacted with and how they behave. It may seem a bit obvious and not worth documenting, but it really helps when drafting together the technical spec and schedule to know exactly everything the game will need.*

# Art and Video



*This should be the definitive list for all the art and video in the game. We all know how things creep up, though, so add a couple of placeholder references for art to be named later, like mission specific art and art for marketing materials, demos, web pages, manual and packaging.*

*Overall Goals: This is where you should spell out the motifs, characteristics, style, mood, colors etc. that make up the goals for the art. Gather consensus with the lead artists and art director and make sure they see eye to eye with the project’s director or producer. Doing so now will save a lot of time later if they end up redoing everything because the goals were never clearly defined.*

# 2D/3D Art & Animation

## Asset List

* Books
* Bookshelf
* Painting
* Chair
* Doors + doorframe
* Walls
* Roof
* Floor
* Support pillars
* Floor, roof and corner baseboard
* Windows (walls and roof)
* Curtains + rods
* Rugs
* Desk
* Table
* Fireplace
* Ladder
* Floor, desk, lamp
* Chandelier
* Couch
* Armchairs
* Floor clock
* Mirror
* Inner walls / room divider
* Vase
* Standing Earth globe
* Radiators + pipes
* Coal burner
* Candles
* Heal item (Medkit/ syringe)
* Power-up
* Weapons
  + Blunderbuster
  + Rifle
  + Pistol
  + Gatling gun (Bobobobobo)
* Ammo box
* Player characters
* Enemy spawner
* Enemy model/ small and large
* Clothes hanger
* Bed
* Decals
  + Bullet holes
  + Worn wallpaper
  + Scribbles

## Room Types

* Living room
* Corridor
* Study room
* Bedroom
* Library
* Dining room
* Common hall

## 2D Assets

**Title Screen**

* Buttons
  + Join game
  + Host game
  + Exit game
  + Options
  + Nickname

**Lobby Screen**

* Character selection
* Ready/Start game button

**In-Game**

* Ammo
* Health
* UI - Compass
* Power-up available/ duration
* Stamina
* Interaction icon
* First person hands for puppeteer

*This is really just a huge list that can be thrown into the art schedule. It can also include descriptions if needed. Some art isn’t self-explanatory, and other may involve specific needs from a design standpoint. Be sure to explain it all. Break your art down into sections. The lead artist may have some particular way he or she would like you to do that. I’ll list the typical section and their contents. Read them all to be sure you don’t forget anything.*

* *GUI: Screens, windows, pointers, markers, icons, buttons, menus, shell etc.*
* *Marketing and Packaging Art: You might as well list it here and the schedule, because they’ll ask for it. This includes web page art, sell sheet design, demo splash screens, magazine adds, press art, the box and manual.*
* *Terrain: Environment art like tiles, textures, terrain objects, backgrounds*
* *Game Play Elements: Player and enemy animations (sprites or models), game play structures and interactive objects, weapons, power-ups, etc. Don’t forget damage states.*
* *Special Effects: Salvo, explosions, sparks, footprints, blood spots, debris, wreckage*

# 3D Art & Animation

*This serves the same purpose and has the same requirement of the 2D Art list above. The difference may be in how the work may be divided. Art teams like to divide 3D art task lists into models, textures, animations and special effects, as they usually divide the tasks this way to maximize talent and skill and maintain consistency.*

# Cinematics (optional)

*These are the 2D or 3D scenes often shown as an intro, between missions, and at the end of the game. These should be scripted like a film script as separate documents. This, however, is production work. For the purposes of the functional spec, just list them here with the general purpose, content and target length. If any video is involved, list it in the following subsection.*

# Sound and Music

## Overall Goals

*Stress the aesthetic and technical goals for the sound and music. Describe the themes or moods you want. Name existing games or films as examples to aspire to. Issue technical edicts and editing objectives, such as sampling rates, disk space, music formats, and transition methods.*

## Sound FX

*List all the sound FX required in the game and where they will be used. Include the intended filenames, but be sure to consult with the sound programmer and sound technician (or composer) on the file naming convention. This makes it easier for people to find the sound FX and fold them into the game.*

*Don’t forget about all the areas that sound FX may be used. You don’t want to overlook anything and throw off the schedule. Go through all the game elements and your art lists to see if there should be some sound associated with them. Here are some to consider:*

* *GUI: Button clicks, window opening, command acknowledgments*
* *Special Effects: Weapons fire, explosions, radar beeping*
* *Units/Characters: Voice recordings, radio chatter, stomping, collisions*
* *Game Play Elements: Pick-up jingle, alerts, ambient sounds*
* *Terrain (Environment): Birds, jungle sounds, crickets, creaks*
* *Motion: Wind, footfalls, creaking floors, wading, puddle stepping*
* *Music: List all the music required in the game and where it will be used. Describe the mood and other subtleties. Music will often reuse the same themes and melodies. Mention where these themes should be reused. Consult the composer on this.*
* *Event Jingles: Success/failure/death/victory/discovery etc.*
* *Shell Screen: Mood setting for title screens, credits, end game*
* *Level Theme: Level specific music (designers choose the theme)*
* *Situations: Sets the mood for situations (lurking danger, combat, discovery)*
* *Cinematic Soundtracks*

# Story (if applicable)

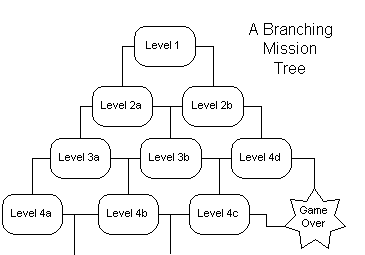
*Write the synopsis of the story told by the game. Include the back-story and detailed character descriptions if it helps. Indicate the game text and dialogue requirements so they can be added to the schedule. Some game designs focus so much on this that they overlook everything else that should be in the spec. Telling a story is not the focus of most games. Of course, if you are doing an adventure game, it is extremely important. Expand and organize this section as is necessary to tell the story.*

# Level Requirements

## Level Diagram

When the game starts all of the rooms will be randomly placed and will be in constant change since the puppeteer will be changing the layout.

*Whether this is a linear campaign, a branching mission tree, or a world-hopping free-for-all, this diagram should be the backbone upon which all the levels are built. A diagram isn’t necessary if the structure is so simple that a list would suffice. The following is an example of a typical success/fail branching mission tree. Of course this will vary greatly for each game. The important thing is that it just presents a road map for the level designers and for the readers.*



## Asset Revelation Schedule

The players will wake up in the bedroom where they will by default have a compass ready and equipped. In the same room they will also find a basic weapon to defend themselves. After that there won’t be a specific order for the assets to be revealed to the player since everything depends on which room the player enters. Things like power-ups, ammunition and weapons will be randomly placed on the map, but minions and traps till be placed by the puppeteer and so it all depends on what the next room is.

*This should be a table or spreadsheet of what level the game’s assets are to be revealed to the player for the first time. There should be a row for each level and a column for each general type of asset. Assets include power-ups, weapons, enemy types, tricks, traps, objective types, challenges, buildings and all the other game play elements. The asset revelation schedule ensures that assets, the things that keep the players looking forward to the next level, are properly spaced and not over or under used.*

*If it’s important to the game that certain assets stop being used, then the schedule might be better drawn as a Gantt chart with lines indicating the availability of assets. This gives the level designers a guide to what assets they have to work with so they don’t ruin their level or anyone else’s.*

## Level Design Seeds

*These are the seeds for the detailed paper designs to follow. Detailed paper designs at this point are less legitimate and unlikely to survive intact. Designs created after the designers have had time to experiment with the tools and develop the first playable level are much more likely to succeed. It’s best to just plant the seeds for each level with a description of the goals and game play and where it ties into the story (if applicable). A thumbnail sketch is optional, but very helpful if the designer already has a clear idea of what he or she wants. Be sure to list any specific requirements for the level, such as terrain, objectives, the revelation of new assets, and target difficulty level.*