BIG IDEA SHEET

Challenging Puzzles!

Consistent Game Design!

LITTLE SISTER'S BIG ADVENTURE

MAIN IDEA

Our game is a physics puzzle game where the main character, Little Sister, is fed up with living in an underground exile and starts puzzling her way to the surface. To solve the puzzles, she unlocks special mental abilities that allow her to resize crates, levitate planks and change the density of objects.

ASSESSMENT

The main strength of our game is the physics puzzles that not only use basic rigid body dynamics but also resizable objects. The appealing background story motivates the player to overcome the challenges and to explore the game mechanics.

Target audience: Single-player physics puzzle fans that enjoy a comic game and a mock-heroic storyline.

DRAMATIC ELEMENTS

ATMOSPHERE

Fun, comic, mock-heroic, playful

WORLD / HISTORY

Once upon a time, there was a small colony of people living peacefully in a land called "Smallasia". They called themselves "NAME" and each one of them had special mental abilities that were induced by eating special food called, Brainfood. Brainfood grew everywhere, where sunshine and moonlight could reach the earth. Different kinds of Brainfood gave different abilities. Depending on the person and the sort of Brainfood eaten, some "NAME" became the ability to shrink or enlarge, levitating, or even to change the density of objects. But only very few possessed the mental capacity to focus on multiple abilities at the same time.

All "NAME" did all daylong had to do with harvesting or eating Brainfood. They were living peacefully all together, helping each other and sharing their special foods equally.

But their life was soon to be changed. One of them, NAME, got unsatisfied with his life, he wanted to have more power and stronger mental abilities than the others. He tricked the others out of their Brainfood and soon possessed mental abilities that were by far more powerful than the sum of the strength of all the abilities of the people. NAME built up a cruel empire, naming it "#Largeasia". He wanted to have all the Brainfood to himself to become yet more powerful. He banned all people, except for his minions, into an underground ghetto colony, where neither the sun

could shine, nor the moonlight reach the earth. They were watched and oppressed by "Big Brothers", the "NAME"'s evil guards. No Brainfood could grow in the darkness and only a few had weak, fading mental abilities. It was easy to keep them from escaping. Up until now…

This is the story of "Little sister". A rebellious teenage girl fed up with everybody moping around, telling tales of the glorious days, and doing nothing. She decides to escape the dark dungeons...
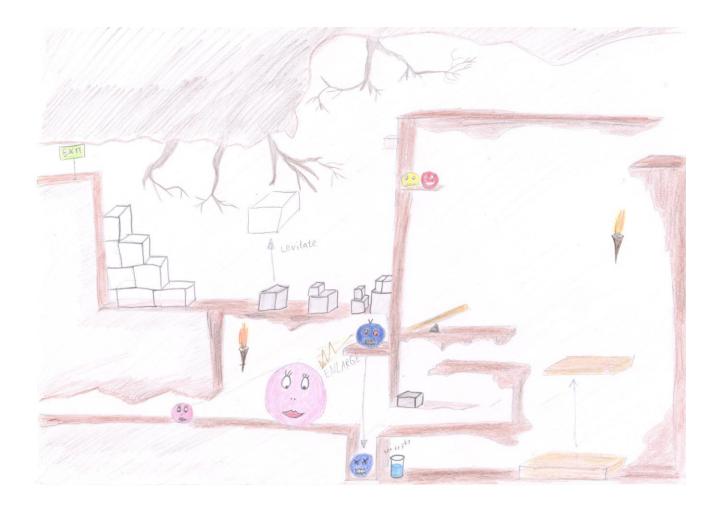
STORY

Chapter One
In the first chapter little sister has to find her way to the earth surface. She only has the mental ability to resize objects. To get to the surface, she has to solve puzzles, that when completed, let her climb/go up. Of course, Big brothers are watching her and are trying to hamper her. From time to time she finds small portion of Brainfood, that were probably lost by Big brothers, which give here additional temporal mental abilities. Her people is very cynical and not very eager to help her. However, from time to time, as they are bored anyway, they help her.

Level 1

The player starts without any mental abilities and is only able to jump and walk. In the course of the level, the player finds a large portion of Brainfood, which give her the ability to resize objects.

This is an example level draft for the first chapter:

Chapter Two

After having finally reached the surface, she realizes, what she has missed all her life and what her people is missing. She decides to free her people. For that Brainfood is needed. She collects Brainfood and with that also sabotages the resource flow of the Big brothers. She has to solve again puzzels to get access to the Brainfood and to prevent Big brothers access to Brainfood. With that they will get weaker and weaker and finally the people is able to free themselves.

Chapter Three

This is the last step to ultimate freedom. Now everyone is eager to help to get rid of evil NAME. Little sister again solves puzzles but now with the strong help of her people.

CHARACTERS

- Little sister (Player) - a rebellious girl that has enough of the "nothing-doing-ness" of its people and just wants to go away from them. She starts out with the ability to resize objects.
- Big brothers (guards) – the evil, arrogant minions of the dictator. All of them have mental abilities, since they have access to Brainfood.

- Your people, NPCs populating the underground labyrinth and not very eager to help you (cynic people). Only a few others from your ghetto have also mental abilities.

CHALLENGE

Reaching the surface, collecting Brainfood for the people, chasing away the "dictator"

FORMAL ELEMENTS

PLAYERS

The main focus is on the single-player campaign, where one player is facing puzzles and NPC opponents.

A coop modus is also under consideration (very low priority) where two players have to work together to overcome the obstacles.

OBJECTIVE

The goal of each level is steer the playable character to the exit.

PROCEDURES

- [START] Pauses the game and shows the menu.
- [BACK] Pauses the game and shows a picture explaining the functions of the gamepad buttons / game rules.
- [Left Joystick.right] moving right
- [Left Joystick.left] moving left
- [A] jump
- [B] reverse time
- [D-pad] selecting mental ability
- [LT/RT, X, Y] are dynamically assigned depending on the selected mental ability.
- (moving with the character into the range of an object) Any object highlights when it can be interacted with. If it can be interacted with depends on the selected mental ability. (E.g. if the resize ability is selected, only the objects that can be resized are highlighted.)
- [LB/RB] switches through the objects that can be manipulated.
- (moving near Brainfood) Brainfood is picked up
- (moving near a toggle) Toggle switches automatically.

- Mental abilities (selected with the D-pad, except for time reversing, which has its own button).
  - [Time reversing] The player and all objects are moved back on their trajectory. #Is this also true for used abilities? Are the Big Brothers excluded / immune?
  - [Resizing] Resizable objects have 10 different sizes
    - [LB/RB] increases/decreases the size one step
    - [X] Maximizes the object (jump directly to the largest shape).
    - [Y] Minimizes the object
  - [Telekinesis] #(…)
  - [Freezing] #(…)
  - [Changing density] #(…)

RULES

- The effects of Brainfood: small portions give limited, big portions permanent mental abilities that however, loose their strength when no more Brainfood is eaten.
- Eating big amounts of Brainfood increases the strength of the ability.
- The player can only use the mental abilities to change objects not himself.
- Fixed objects cannot be manipulated.
- All other objects have specific interaction rules (can only be resized, resized and changed in density …).
- Objects can only be manipulated within a certain range (e.g. minimum size, maximum size).
- Objects can only be manipulated from a certain distance.
- Nobody can die.
- All levels are ergodic (no dead-ends).

RESOURCES

- Brainfood, small portions can only be used 1-5 times. Big portions can be used indefinitely, however when no more Brainfood is eaten, the mental abilities will lessen in strength.
- Objects (boxes, planks …) that the player can interact with.
- NPCs (people from the colony, enemy guards)

CONFLICT

- Physics-puzzles
- Enemies (obstructing the player from reaching the exit by sabotaging the puzzle solving)

BOUNDARIES

- Level walls
- Fixed objects

Outcome

- You reached the exit! Welcome to the next level...

Technical Aspects

Software Engineering / Class Design

- C#
- XNA, Farseer physics engine
- Maya
- Visual Studio 10, Game Development Kit 4
- Scripting system
- Text display system (thought bubbles)

Graphics

- 3D models
- Particles
- Highlighting objects
- Shadows
- Bump mapping
- Water (height map)
- Thought bubbles

Interface / Controller

- Start menu
- Help screen
- Story screen
- GUI

- Selecting abilities

ARTWORK

- Models
  - crates
  - planks
  - "egg cups" (instead of chairs)
- Textures
- Shaders
- Background texture
- Foreground texture
- Artwork pipeline
  - 2D modeling for physics engine
  - 3D modeling for graphics engine
- Screenwriting (dialogues, story)

SOUND

- Background music
- Sound effects

PHYSICS

- Rigid body dynamics
- Particles
- Water (height map)

ANIMATION

- Facial animation (eyebrows, eyes, mouth)
- Animated foreground texture (weed, plants)

GAME AI

- Scripted enemies and environment

- NPCs can use their special abilities (basic AI)

TIME SCHEDULE

Task	Who?	Time	Due date
Pre-work tasks			
Final draft for project proposal	All	1 day	March 15
Physical prototype + report	All	2 days	March 21
Research - XNA - Farseer - Software installations/Xbox development - Maya - Visual Studio 2010	All	1 day	March 14
Project setup	Christian/All	0.5 days	March 21
Concept for 1st level on paper	Marina/All	0.5 days	March 21
Basic Software design	Fabian/All	1 day	March 21
Extended Software design	Fabian/All	1 day	March 28
Functional minimum One playable level with full physics support, resize ability and no story. No textures, no shadows, simple shader, no animations.			
Controller input	Fabian	0.5 day	April 4
Graphics - camera setup - simple shader	Christian	2 days	April 4
Level objects modeling (crates, planks, …)	Marina	0.5 days	April 4
Level modeling	Marina	1 day	April 4
Loading content	Marina	1 day	April 4
Physics engine integration - rigid body dynamics - resizing shapes	Fabian	2 days 1 day	March 28 April 4
Physical properties for objects	Fabian/All	1 day	April 4

Game logic - pick up Brainfood - unlock resize ability - select objects + highlighting	Christian	2 days	April 4

Low target

3 playable levels (one for each chapter) with the basic storyline, background textures, object textures, start/story screens, help screen (controls, goals of game), no additional mental abilities

Interim report + presentation	All	1 day	April 11
Extended camera model (follows player)	Christian	0.5 days	April 18
2 level concepts on paper	All	1 day	April 11
Create background texture	Christian	1 day	April 11
Include background texture	Fabian	1 day	April 11
Create object textures	Marina	1 day	April 18
Include object textures	Christian	1 day	April 18
Level 2 modeling	Fabian	1 day	April 18
Level 3 modeling	Christian	1 day	April 18
Start/menu screen	Marina	1 day	April 18
Help screen - Picture of controls	Marina	1 day	April 18
Simple story screen - Screenwriting - Closed by clicking [A]	Fabian	0.5 days	April 18

Desirable target

Foreground textures			
Character textures			
More level concepts			
Time reversal ability			
Telekinesis ability			
Shadows/light sources			
GUI			
Balancing			

Character animation			
Advanced object highlighting			
High target			
Scripting system			
Enemies			
Particles			
Thought bubbles			
Logo			
Extras			
Multiplayer			
Water simulation using height map			
Bump mapping			
More abilities			