Narrative Section and Design Document of

a Successful Application

The attached document contains the grant narrative and design document of a previously funded grant application. It is not intended to serve as a model, but to give you a sense of how a successful application may be crafted. Every successful application is different, and each applicant is urged to prepare a proposal that reflects its unique project and aspirations. Prospective applicants should consult the Public Programs application guidelines at http://www.neh.gov/grants/public/digital-projects-the-public for instructions. Applicants are also strongly encouraged to consult with the NEH Division of Public Programs staff well before a grant deadline.

Note: The attachment only contains the grant narrative and design document, not the entire funded application. In addition, certain portions may have been redacted to protect the privacy interests of an individual and/or to protect confidential commercial and financial information and/or to protect copyrighted materials.

Project Title: Walden, A Game

Institution: University of Southern California

Project Director: Tracy Fullerton

Grant Program: Digital Projects for the Public: Production Grants

Application Narrative for *Walden, a game*

A) Nature of the request
The Game Innovation Lab at the University of Southern California is seeking support for production and distribution of a video game based on the writings Henry David Thoreau at Walden Pond. This would be follow-on support for the previously funded prototype of the same project. Directed by Tracy Fullerton, Walden, a game, simulates the experiment in living made by Thoreau at Walden Pond in 1845-47, allowing players to walk in his virtual footsteps, attend to the tasks of living a self-reliant existence, discover in the beauty of a virtual landscape the ideas and writings of this unique philosopher, and cultivate through the game play their own thoughts and responses to the concepts discovered there. The humanities content of the game focuses on a translation of Thoreau's major themes of self-reliance and the individual's relationship to nature into a playable game experience and allows player to make their own choices in regards to how best to carry out Thoreau's experiment. These core themes are layered into an historical context, as the game takes place in an immersive 3D game replica of 1845 Concord and Walden Woods, when new technologies such as the railroad, the telegraph were first coming in to disrupt the environment and were part of the changes to pace of life that Thoreau resisted, albeit with curiosity, in his experiment.

The current game prototype has been developed for home and school use on a PC and Mac with six hours of play (eight half-seasons) following Thoreau's experiences over the course of the first year of the experiment, and plans to support unlimited post-game sandbox play in the open environment of the game. With this next phase of the project, we will continue working with our advisors, integrating, playtesting and polishing the experience to be certain that the humanities content is fully and consistently integrated, and that players are able to glean the key ideas from their experience with the gameplay and environment. It is a major endeavor to bring an experimental game such as this from the prototype stage to a releasable product, and so once we have finished production, we will need to focus a great deal of energy on polishing and testing the game. We will work with a premiere marketing and PR firm to publicize a release in 2016. The production grant will cover the digital media team's costs as we complete development as well as costs for the launch campaign.

B) Humanities content:
Thoreau's themes -- his deep questions over self-reliance, work, simplicity vs. progress, solitude vs. society, Transcendentalism and spirituality, and most of all an individual's relationship to nature – are very well known and have been much explored in critical scholarship. He is a classic figure in American literature, and yet one who exhibits a fascinatingly modern set of cross-disciplinary concerns. It has been said "there is hardly an "ism" in our time that has not attempted to adopt Thoreau." (Petrelonious) Naturalist and poet, activist and hermit, bean farmer and philosopher, the strands of his life and work intertwine science and art, work and reflection. As we near the 200th anniversary of his birth, the questions that he raises seem ever more important to re-examine in a format that brings them to life for today's public: How much do we really need to live? Why and how do we work? What is the essence of progress? What can we learn of life by looking at the examples in nature? And, finally, how best shall we live, together and alone?

These classic questions raise modern concerns given the global moments of both environmental crisis that we find ourselves in, and the pace at which we now find ourselves approaching life.

Interrogating our own responses to Thoreau's questions is as important today as is was when he went down to the Pond to answer them for himself in 1845. But for the modern reader first coming to Thoreau, it is sometimes difficult to feel these connections as strongly as we might, to take the time to reflect on the ideas and how they are impacting us every day. There is a sense, somehow, that his words, somewhat antiquated and foreign to us, are the heart of the experience, when, actually, Thoreau's experience was at the heart of his words. As Thoreau himself notes in *Walden's* chapter on reading, "the heroic books, even if printed in the character of our mother tongue, will always be in a language dead to degenerate times." But to philosopher Stanley Cavell, in his *Senses of Walden*, the task reading of Walden is perhaps the most modern 'to do' item there is, that is "to discover how to earn and spend our most wakeful hours— whatever we are doing."

E. L. Doctorow noted in his remarks at the Walden Woods Project, "We need both Waldens, the book and the place. We're not all spirit any more than we're all clay; we are both and so we need both—as in: You've read the book, now see the place." (Buell) Certainly, we cannot all have the opportunity to go to the woods to live deliberately, as did Thoreau, and of course a video game cannot give us that opportunity. However a game can bring to life some of the types of experiences that fed Thoreau's work in an emotionally situated way. It can create a rich sense of place, one that reflects the subtle nature of Walden as detailed by Thoreau. And it can encourage reflection on Thoreau's ideas, and through them, center a player's attention on how those ideas and themes are pertinent, even critical, to their own best-lived life. This possibility for a personal connection to Thoreau's core themes is what we feel that we have been able to design into the game prototype we are submitting.

Self-reliance

As already noted, Thoreau's main theme in Walden is that of self-reliance. And so, the prototype we have created is at root a simulation of self-reliance. The player must learn to fend for themselves in the virtual woods of Walden. During the summer, it is easy to live off of the land, picking berries, fishing, chopping wood, etc. But if a player does not think ahead, the winter will become a trying time. Of course, a player may always choose to visit town, as Thoreau often did, to buy some basic supplies, have dinner at home, or check to see if there is fresh laundry done. Self-reliance is not a purist exercise here, or for Thoreau, who famously walked into town several times a week; rather, the player must make meaningful choices about how to balance their time and energy. As the player works and lives, there are quotes from Thoreau commenting on the theme of self-reliance, its virtues and its possibilities. The player may agree with these comments, but they may also choose to explore alternate paths of living. In our prototype, we have left plenty of breadth of choice for the player to interrogate the idea of self-reliance. For example, a player may choose to become a full time bean farmer, working beyond their own needs to grow beans for sale. Rather than Thoreau's "ten or twelve dollars for unusual expenses" a player may choose to find out how it feels to work hard into the night in the bean field planting, and get up at dawn to weed. What will they do with the money they earn? There are items to be purchased in the store, and there again lies a choice for the player that explores one of Thoreau's themes. How much is enough? What do we need to live? Will we simply get enough money to buy rice or molasses at the store, or will we consider the fashionable clothes a necessity? Also, once a player gets into the habit of buying what they need, rather than making or finding things in the woods, is a danger of losing ones self-reliance?

The "I" in Society

This question of how much or how little to work, and whether or not to work for money or to live more simply and directly off of the land is only one layer of the question of self-reliance. There is, of course, the question of how one lives and understands society. For Thoreau, society was a curiosity, comparable to a colony of muskrats. Going to the pond set him apart from society, and gave him a better view of his neighbors' habits and foibles. We have worked to integrate this relationship of both interest and separation into our prototype. The player is the only full persona in the experience, much as Thoreau is the richest character in his own book. There are other to be observed – townspeople busily going about their days, a shopkeeper and post office clerk – and there is beauty to be found in the sounds of society just over the horizon – the incessant chopping of trees as the woods are cleared, wagons traveling to and from Concord, the whistle of the Fitchburg Railroad and like clockwork marking the speed of progress. Society in our prototype serves the same purpose as it does in the text: a juxtaposition against nature, and a highlight of the way in which the individual stands in relation to his fellows. While the player may choose to become a woodchopper in the game to make money for items in the store, they might also choose to watch or listen to the distant woodsmen and consider the way in which that work is impacting the very woods they live in. Of course, Thoreau's words point a direction for the player, but they must still consider those words and make their own choices about how to live in this virtual experiment.

Transcendence and Materialism

Environmental author Bill McKibben calls Thoreau "a Buddha with a receipt from the hardware store" and the game models these twin impulses of the philosophical and the practical in its structure. Players must build their cabin to protect them from the elements, but they are also encouraged to wander the woods during a spring rainstorm or to climb to the heights of Emerson's Cliff to view the landscape as from his transparent eyeball. As the seasons progress, so hopefully, does the player's ability to balance the basic necessities of life in the woods with the incentive to explore and reflect on life in the woods, chasing the rabbits, squirrels, or partridges, listening to hoot owls call or watching a night hawk swirl over the pond. We have found in playtesting the prototype that the tension raised between these opportunities causes extended contemplation on the part of players on how they might better relate to nature and the environment in their own lives. This kind of personal interrogation of action and transference of intent is exactly the connection our design intends in its evocation of the themes of transcendence and materialism.

Freedom and Responsibility

Environmental author Rebecca Solnit drills down into Thoreau's description of his night in jail and notes that not once but twice he states that directly after being released he went off to join a huckleberry party. "That he told it twice," Solnit writes, "suggests that he considered the conjunction of prisons and berry parties, of the landscape of incarceration and of pastoral pleasure, significant." This relationship between constraint and free action, what we might think of as play, is as much at the root of game design as it is intertwined in Thoreau's discussions of an individual's relationship to the state. In *Walden*, Thoreau glosses over his night in jail, mentioning the experience in passing, but

leaving the meat of the discussion to his essay on *Civil Disobedience*. In our game, however, we offer the player their own moment in the Concord jail, which they can extend as long as they like. Having gone to jail, in fact, should a player choose to do so, they may remain there for the rest of the game in protest. The seasons will pass outside their window until they decide to take the arrowhead that will allow them to return to their own huckleberry picking. In their journal on leaving their jail cell, they find the inklings of ideas that lead to Thoreau's essay.

A Sense of Place

Our game environment is rich with detail and possibility space. We have worked very closely with our advisors and through our own research to create a world that is true to both the details of the text and its overarching themes. The prototype game world is a fully immersive simulation of Walden Pond and its surroundings circa 1845, including a section of Concord, the Fitchburg Railroad, Emerson's house and library and Thoreau's cabin and bean field. The environment is filled with the plants and animals that Thoreau discusses in his writings, determined by a detailed indexing of the text, and created as 3D elements in the world that change from season to season over the course of the narrative year. We have striven in our prototype to echo Thoreau's own rich sense of locale. His attention to the details of region and of nature are carefully replicated; the contemplative practice he models in his writing structures the play of the game; and the themes of self-reliance, work, simplicity, solitude, society and spirituality are all developed as part of the mechanics of play. And, the prototype contains over 350 direct textual references to Walden, Thoreau's journals, and his other writings found in the voice over, journal entries and descriptions of objects and areas of the world. Thus, the project is rooted in a careful attention to Thoreau's writing and to scholarship on Thoreau. Of course, a virtual environment is not nature itself, and will always be a slim reflection, but as Thoreau biographer Robert Richardson points out, Thoreau himself was aware that he too was only simulating wilderness in the woods, that he was embarking on a kind of "symbolic or laboratory experiment."

The meaning that players may glean from playing a game lies between what they must do and what they can do, what they desire and what they discover. In *Walden, a game*, this dialectic forms the potential for an emergent narrative to form from the collision a players own thoughts on their experience the questions, insights and perceptions we hear and read from Thoreau. This interplay will allow players to find their own answers to Thoreau's questions, their own relationships to his themes.

What we hope to accomplish with this game is a reimagining of Thoreau's work at a time when his themes are, perhaps, more important than ever for the public to consider them. We live in a world that has sacrificed simplicity and self-reliance for interconnectivity and convenience. The speeding up of life that Thoreau identified as "railroad time" might now be just as well thought of as "Internet time." What we plan to accomplish with our final project is to reach a wide population of player, young and old, with the chance to go to the woods, virtually, to live deliberately and to discover for themselves Thoreau's questions about life, nature and society, and to discover their own best answers to these enduring questions.

C) Project format:

The prototype is being created for PC/Mac in the Unity3D game engine (v5). It will later be ported to PlayStation or Xbox, also using the Unity3D engine, and concurrently, adapted for use in Oculus Rift.

Game features:
The underlying mechanics of the game are a "survival" simulation based in Thoreau's writing. As he states in Economy, the first chapter of "Walden," "the necessaries of life for man in this climate may, accurately enough, be distributed under the several heads of Food, Shelter, Clothing, and Fuel; for not till we have secured these are we prepared to entertain the true problems of life with freedom and a prospect of success." Using this as a starting point, we will create a game simulation that allows the player to care take these "necessaries of life" in a number of ways. They can fill their food stores in the woods by picking berries, finding other edible plants, growing beans or fishing. Or, they can go to the general store in Concord and purchase food stores – if they have the money. They can find fuel in the driftwood along the shore of the pond, chop wood, or again, visit Concord to purchase fuel in the store. There are similar options for all of these basic needs, each of which has their own pros and cons. For example, finding food might be easy at first, but as the seasons progress, and winter approaches, berries won't be as plentiful and this becomes more of a challenge. Similarly, in the winter, more fuel is required to maintain what Thoreau calls "the vital heat." Vital heat, or energy, will revive over time, but if the player uses too much too fast, they may faint from over exertion.

These basic necessaries of life are countered in the game by the more ephemeral needs fulfilled by activities that Thoreau describes throughout the rest of the book: reading, listening to the sounds of the woods and of society just off his horizon, enjoying solitude as well as the company of a few visitors and his "brute neighbors," the various animals sharing his sojourn at the pond. These activities all add to what we call "inspiration" in the game, or the sense of self as connected to the natural world, and the world of ideas. In Walden, a game, unlike other videogames, maintaining this sense of connection to the world is as important as maintaining ones energy levels. Players will need to rethink their strategy of play in order to fully realize Thoreau's experiment.

The core mechanics of the game are:
- Exploration of the woods (walking, running, rowing boat)
- Finding/growing/buying food
- Finding/cutting/buying fuel
- Repairing/finding/buying clothes
- Building/repairing/upgrading shelter
- Listening to sounds of woods, life in the distance
- Enjoying solitude at stone cairns in the remote sections of the woods
- Reading sections of books scattered throughout the woods
- Interacting with animals and other visitors
- Responding to letters and requests from interested family, friends and colleagues

Throughout the game players will receive notes and letters from various game characters including mentor Ralph Waldo Emerson, sister Sophia Thoreau, scientist Louis Agassiz, and other

friends and family that will send them on quests and offer them opportunities for special interactions that form the emergent narrative opportunities of the game.

Game levels:
The game begins in summer of 1845, when Thoreau first went down to the woods to live. Although he lived there for 2 years, 2 months and 2 days, the book of Walden only describes the first year, season by season, of his experiment and so that is the structure of the game as well. This list of levels describes the intent of each season of the game as it relates to player narrative and flow of the game. Each player will, of course, experience a different narrative, depending on how they spend their time, but this gives a general sense of the possibilities available in each level of the game.

Game level	Playing time	Experience goal of season
Summer	45 minutes	Players learn how to survive by picking berries, gathering driftwood. They may borrow an axe and chop wood, find a fishing pole and fish, find a boat and traverse the pond. Life is simple and easy.
Late summer	45 minutes	In late summer they begin to learn about inspiration, how to find it in the woods, how ephemeral it is if they do not care take it as well as their basic needs. Thoreau's sister Sophia reaches out to him and sets a "game" for him in the woods, sending the player to various spots of solitude, which will increase their inspiration, and offering gifts from home.
Fall	45 minutes	In the fall, life is still fairly simple, but the berries are growing thin. If they have planted beans, they will need to nurture them to keep the weeds and the woodchucks away. If they take on odd jobs, they may have more money, but find themselves spending more and more time away from the woods. Letters from friends speak of topical issues in America of 1845, such as the anti-slavery movement. Peers write of their work. The player may be thrown in jail and spend the night there.
Late fall	45 minutes	The leaves are changing and if they have kept a good balance between their basic and needs and inspiration, the woods will be glorious. If not, they may find themselves experiencing fall in dullness and drudgery. Scientist Louis Agassiz writes in request of specimens from the pond, which players can search for if they like.
Winter	45 minutes	With winter comes the hardest challenge of the game. There are higher needs for food and fuel. The shelter and clothes need repair to keep the player warm. But, if they have been able to balance their needs, they will find winter to be full of a fragile grace, stillness and opportunities for solitude as well as joyful activity.
Late Winter	45 minutes	The pond is frozen; the town is quiet. If the player is full of energy, they can skate across the pond on clear days.

		They may forage out the few edible berries and plants in winter, or they may live off their store of beans. If they have not prepared well, late winter may find them taking refuge in the Thoreau house in town, where Henry's mother often leaves mended clothes and possibly a homemade pie.
Spring	45 minutes	As the pond breaks up and the first signs of life return to the woods, there is again the potential for great joy for the player to experience, especially as life becomes easier again and there is more potential to focus on raising inspiration rather than survival.
Late Spring	45 minutes	The return of full spring was a powerful metaphor for Thoreau, and as well for the game. As life blooms in fresh and bright greens, there is a largeness and lushness to the environment if players can maintain that balance they have learned. Walking in the twilight with Emerson as he muses on his epic essay Nature we hope that players will take away from this game experience a sense of the "dawn in me" of which Thoreau speaks.
Sandbox play	Unlimited	"And so the seasons went rolling on into summer, as one rambles into higher and higher grass. Thus was my first year's life in the woods completed; and the second year was similar to it." After the main year is complete, players are able to engage in unlimited sandbox play in the world of Walden, which will still be filled with experiences to be had and secrets to be explored.

As mentioned, the game is being designed as a 3D PC/Mac experience that will be downloadable and playable at home or in schools. We are also planning to port the game to the Sony PlayStation and to the Oculus Rift once the major work on the PC/Mac version is complete. The Oculus Rift version will likely be focused on use in museum exhibits or art game installations, until there is a significant player base with the technology available at home.

This game is perhaps one of the most ambitious independent experimental games attempted to date, but the team has a high potential for success given our experience in developing and distributing independent projects. See the next section for a discussion of the potential reach of this project.

D) Audience and distribution:
The intended audience for *Walden, a game* is both broad and deep. We plan for both a wide commercial release and hope for the game to be of interest to educators and scholars. As such, we have designed the game to be playable by a very broad audience of players, from those who have never played a 3D first person game, to those who are experienced, long time game players. For new players, they will find the simple control scheme, using the keyboard to move and mouse to click on items of interest and activate game features, simple and intuitive. We have made simple adjustments in expected game tropes to help lesser experienced players with the game, such as making sure the horizon is always visible so that players don't become confused, a common problem for those new to 3D environments. We are also working on

making the user interface for the game as simple as possible, while still communicating the information needed to play. All of this is to say that we intend this game for a broad reach – from old to young, from gamers to non-gamers.

In addition to making the game accessible for a broad audience in terms of playability, it also has a deep relationship to the content on which it is based. As already described, there are direct quotes from Walden and other writings found in various aspects of the game, from the voice over that forms the narrative through line, to the annotations on each of the various trees, plants, animals, objects and people that fill the woods and the town. As these are found or experienced, they fill the player's own game journal with a procedural version of Walden. The experience communicates the themes of the book in a deeply meaningful way, and with great rigor as to its textual roots. In this way, we believe that the game will reach audiences that range from players of experimental games, to students of history and literature, to scholars of Thoreau, Concord history and Transcendentalism. Our past experience with games that reach such a unique range of audiences include the documentary game *The Cat and the Coup*, which engages player in the life of Dr. Mohammed Mossadegh, the first democratically elected Prime Minister of Iran. Artist Kurosh ValaNejad, one of the co-creators of this critically acclaimed game, has worked on *Walden, a game* to give its presence and UI the same sense of elegant simplicity but historical accuracy. We know that this game, which has been played by hundreds of thousands of players at exhibits around the world, achieved the same balance of appeal and ease of use, alongside engaging gameplay that we are striving for in *Walden*.

The audience for games such as these – with complex ideas and engaging yet simple gameplay – is a growing market. One only has to look at the success of indie games such as *Gone Home*, which sold over 250,000 copies, mostly via Steam, or *The Stanley Parable*, which has sold over 1M copies. To see that there is an interested public in this space. Both of these games use a first person, exploratory narrative style to convey their experience, which is similar to *Walden's* UI. And these are only two popular entries in what is becoming a strong indie genre of reflective, space-based narrative play. The recently release *Sunset* by Tale of Tales, which tells the story of a relationship during wartime through a first person exploration game also promises to be a strong entry into this genre. We have had our own experience reaching players in this genre early on, with games such as *Cloud* and *The Night Journey*, and know that even as simple mobile experience have dominated the casual space recently, there is also a strong audience for these richly developed first person narrative experiences.

In addition to thinking through our platform and audience, we have done quite a bit of work with our advisors to select the existing content of the piece. Our playtesting process is such that we are always able to integrate better, more pertinent selections, however, as we continue production and polish the piece. We have designed the content system so that adding new objects with important textual quotes is not a difficult process. To this end, we have reached out to a number of scholars in this area to act as playtesters to the current version of the game and give input. These are in addition to the advisors from the Thoreau institute, Concord Library and Huntington Library, with whom we have worked during production. Playtesters by necessity are not directly involved in the development, and we feel that the critical eye of these scholars will help us to further meet our goals for the humanities content of the piece. As of this writing, we are working with Laura Dassow Walls (Notre Dame), Scott Saul (Berkeley), Cecelia Tichi (Vanderbilt), Jarom McDonald (BYU) to playtest the current prototype. As described below, this special audience of scholars is in addition to the wider public we hope to reach with the piece.

Our goals with this production and distribution grant are both to finish production of the final game and to partner with as many avenues of distribution and engagement as possible for its release. We have already shown the game in progress at IndieCade 2014 and will be showing it at the LA Film Festival in June of 2015. We have also been approached by the store at Walden Pond about carrying the game for visitors to the site. This early acceptance of the prototype speaks well to the final game's potential at a wider range of festivals and independent distribution venues, which will help us to reach the audience for independent games and to set up word of mouth for online sales of the game. We have found through the release of a number of our prior independent game projects, that online distribution is a very effective way to reach a mass audience of players interested in these types of experimental games. Previous projects which we have released online have had downloads exceeding several millions and have garnered international audiences and awards. We are of the hope that this game, with its innovative and expressive mechanics, will also find an audience online and through word of mouth at festivals. Our plan is to will actively continue to present the game at academic and industry conferences, art exhibitions including galleries and museums to engage with potential players and encourage such word of mouth.

Additionally, we have partnered with a PR firm on plans to market and publicize the commercial launch of the Walden, game. The firm, Sandbox, is well known for their work with many successful game releases. The principles of the company have worked with AAA game publishers including Activision, Telltale Games, Crytek, Remedy Entertainment, Grey Box, and SteelSeries. After initial consulting, the principles are enthusiastic about the release of Walden, a game. In their proposal letter they state "*Walden* is positioned in a prime spot for media placements beyond traditional games outlets. Because of its source material, there is an opportunity to reach out to higher-level press who focus on deeper games or who normally might not cover the games space. Walden is a familiar name to most, so it has immediate recognition power and credibility." We are confident that with their experience in reaching markets through viral techniques, that the game will have a strong commercial launch in 2016, reaching in the hundreds of thousands of users.

Beyond the commercial release, we plan to create curriculum around the game and make the game available to teachers at no cost to use in their classrooms. This curriculum will target the common core curriculum for 11 grade English Language Arts, specifically those items in the curriculum that look at key ideas and details, craft and structure, and integration of knowledge and ideas. An example of current common core curriculum for Thoreau asks students to do a "closed eyes" exercise where they imagine what it would be like to live in the wilderness for a month and to make a list of items that are necessary for food and shelter. In our proposed curriculum around the game, we would ask students to play several seasons, then analyze the experience of virtual "survival" in the game. Another exercise might be to have them compare and contrast the opening quotations from the late summer season to the spring season. What do they feel has changed in each of these quotations? What is Thoreau's relationship to each of these seasons? They might be asked to do their own journals, like the ones found in the game, which develop a sense of place in their own neighborhoods.

In addition to the core standards for language arts, we will create environmental and historical curriculum that is aligned with the game. Examples of exercises for these include "sense of place"; wherein students will be asked to analyze the sense of place created by the game and

develop a digital photo essay of their own environments and sense of place. Other exercises could include a "tree diary" where they might visit a tree in their neighborhood at various points over a period of time. Similar to the way that the quotes attached to each tree in the game change over time, they will develop descriptions of their own trees. For historical curriculum, we will build on the environmental aspects of the game -- those that reference important changes, movements and events. For example, Thoreau's night in jail, which can be experienced in the game, can be part of an exercise in which students discuss civil disobedience and activism. Additionally, we will look at building ancillary curriculum for younger students and for University literature classes. We are interested in creating a Skype classroom module for the game, if the idea playtests well with teachers. Advisor Jeffrey Cramer currently has a module that he offers to classrooms studying Thoreau, and we feel that an expansion to his current offering for classes using the game would be a perfect complement to the curriculum we are planning.

As part of our launch of the game, we also are intending to hold two events – one at the Thoreau Institute at Walden Pond and the second at the Huntington Library and Gardens in Pasadena – that will introduce the piece to the press. These small invite-only events (approximately 75 people each), will involve several speakers who will contextualize the game, speak to the importance of the themes, and spark discussion and press around the launch.

E) Project evaluation:
Following the official release of the game we will be able to quantify the success of engagement through download statistics, embedded play metrics, You Tube hits, Twitter and Facebook followers, among other social network statistics. Our experiences in utilizing online marketplaces we will help to open up these venues for Walden, a game, as well as other potential humanities based games in the future.

The Game Innovation Lab uses an iterative, playcentric approach to designing our games. This means that we involve players and player feedback at each level of our design process, from the earliest days when we are working with concepts and paper prototypes, to our first digital prototypes and on through our digital development. For a project such as *Walden*, we have brought in game players and non-players alike, to get a sense of how the game will be approached by a range of players. During our work on the prototype, we have continued to iterate using this method of design.

During our prototype phase, we have tracked over 100 playtests at in-progress exhibits of the game such as IndieCade, LA Film Fest and the Giant Robot gallery. The heat map data we have gathered from these playtests show us where the majority of players are going in the game, what content they are engaging with, how long they are engaging, and the types of choices they are making in regards to the themes. This kind of information, coupled with in-depth interviews, is the basis on which we are iterating towards our design goals. During the production phase, we will likely do a large-scale open beta that will give an even larger playtest base from which to gain data.

In addition to this metric-based approach, we have also integrated feedback from high-level creative mentors via the Sundance Institute New Frontiers Storytelling Workshop. This workshop was an incredible opportunity to receive focused, one-on-one input from mentors that have worked on media projects ranging from Robert Altman's *Nashville* to the massive online roleplaying game *Eve Online*. Each of these mentors showed us facets of the work that

could be enhanced and enriched. Between the large-scale playtests of our festival showings and the personalized playtests of our Sundance mentors, and the current playtests we are beginning with external Thoreau scholars, the feedback we have received on the prototype so far has been extremely useful.

We know we are not finished, however, and as part of our continuing process, we will continue working in the Game Innovation Lab's state of the art user research labs, run by Professor Dennis Wixon, who was formerly the founding manager of the Microsoft Games User Research Lab. Dr. Wixon is now a full time faculty member at USC and the Microsoft Endowed Professor in User Experience. He will continue to assist us in evaluating the way in which the game is reaching our goals for overall player experience, usability and depth of understanding of the content.

As we evaluate the overall player experience of the game, we dig deeper into the metrics of how players interact with the game environment: how many of the textual references they encounter, where they go, what they do, their success rates for using the game features, etc. These will all be tracked during the alpha and beta periods in order to optimize the game for the best experience. And later, in order to understand how the game is performing as it reaches a wider public. We are very familiar with using these types of metrics in gameplay and will be able generate daily, weekly and monthly reports of our game metrics for internal use. We will not distribute these metrics beyond our team and advisory board, however, and no personal information from individual players will be tracked.

In terms of quality assurance, we are currently using an Asana database in the lab to organize our playtesting feedback. The input from playtests is submitted to our Asana project, discussed and triaged by the team on a bi-weekly basis. As we move toward finalizing the content of the game, we will be hiring a full time quality assurance lead to be sure that all feedback is considered, but also that we are testing the game stability on all intended platforms. We will hire bug testers to work find and record issues so that the development team can address these. Our back-end metrics can help with this as well, as we will track machine and operating system information, as well as crashing instances so that we can find patterns of errors. With twenty years of experience leading game development teams, Tracy Fullerton, along with the team at the Game Innovation Lab, will strive to produce a deployable version of the game with no crashing or limiting bugs present.

F) Rights, permissions, and licensing:
The text of Walden by Henry David Thoreau is in public domain. The Unity 5 game engine is used as per our professional licenses. We have a SAG waiver in place for the voice over performance for Thoreau, as the well-known actor we have chosen (not yet announced) is a member of that union. All other material is original and copyrights are owned by the Game Innovation Lab at the University of Southern California.

G) Humanities advisers:

Jeffrey S. Cramer, M.L.S., has been an advisor to the project for a number of years. Cramer is Curator of Collections at the Thoreau Institute at Walden Woods. He is the author of several internationally known works on Thoreau, including "I to Myself: An Annotated Selection from the Journal of Henry D. Thoreau" and "Walden: A Fully Annotated Edition." His input and advice

on Thoreau, his writing, his life and habits, has given the team validation and excellent new directions over the years of the project and we see him continuing in this vital role.

William Deverell, Ph.D., is Professor and Chair of the History Department at USC. He received his undergraduate degree in American Studies from Stanford and his MA and PhD degrees in American history from Princeton, where he was a student of James M. McPherson. He has written books on political, social, ethnic and environmental history and will be teaching a course on Thoreau and Walden during the course of this project. We will engage Professor Deverell and his class in our iterative process, seeking input into how the game might be used to inform the study of Thoreau, and how a digital humanities project such as this might extend or layer the classroom experience around historical literature.

Daniel Lewis, Ph.D., is Chief Curator of Manuscripts and Dibner Senior Curator of the History of Science & Technology at the Huntington Library, where Thoreau's original manuscripts of Walden are part of the collection. Lewis' most recent exhibit at the Huntington was entitled Beautiful Science: Ideas that Changed the World, which won the American Association of Museums' Grand Prize for Excellence in Exhibitions. The Huntington has plans to create a conference around Thoreau in the fall of 2016, of which *Walden, a game*, would be a central part.

Susan Foster Jones is Director of Education at the Concord Museum, where she is in charge of developing curriculum around the many collections of the Museum, including the Henry David Thoreau Collection, the world's largest collection of objects related to the author. The collection holds over 250 artifacts, including the desk and chair from Thoreau's house at Walden, his flute, pencils from his family's business, and much more. As the Director of Education, Jones will develop ways to use the Walden video game as part of the outreach that she does with many audiences including students, families and general visitors. The Concord Museum's annual visitation exceeds 40,000 visitors including 8000 students.

Pablo Frasconi is an independent filmmaker and professor at USC's School of Cinematic Arts. Frasconi's films *Survival of a Small City, Towards The Memory of a Revolution* and *The Woodcuts of Antonio Frasconi* have been broadcast on PBS and are distributed by the Museum of Modern Art, The American Federation of Arts and Filmmakers' Library. His films are in the collections of the Smithsonian Institution, the Museum of Modern Art, the New York Public Library and the Virginia Museum of Arts. He is currently working on a film about the work of Thoreau entitled "The Light at Walden," involving extension research of Thoreau's experiment and the environment at Walden and his insights on the topic have proven extremely useful to the team.

H) Production team:

Tracy Fullerton, M.F.A., is the lead game designer and director of Walden, a game. She is the Electronic Arts Endowed Chair of USC's Interactive Media and Games Division and the Director of USC Games, ranked the #1 ranked games program by the Princeton Review. She is an experienced game designer with over 20 years in the industry and academia making games for companies including Microsoft, Sony, MTV, among many others. Prior to joining USC, she was president and founder to the multiplayer game developer, Spiderdance. Her textbook, "Game Design Workshop," is used in game programs worldwide. Her long career in game design and influence on the independent games community was recently acknowledged by the IndieCade

Trailblazer Award. She holds a BA in Theater Arts and English Literature from University of California, Santa Cruz and an MFA in Cinema-Television from USC.

Todd Furmanski, Ph.D. candidate, is the lead programmer for *Walden, a game*. He is a researcher at the University of Southern California School of Cinematic Arts, working towards his Ph.D. in Media Arts and Practice. His research interests inclusion virtual reality, emergent algorithms and their use in procedural content generation, and the history of digital media. He recently completed his examinations in the spring of 2014, and is now focused on a variety of research projects with both the Game Innovation Lab and the World Building Media Lab, including *Walden, a game* and the *Leviathan* project.

Kurosh ValaNejad, M.F.A. candidate, is the Art Director of the Game Innovation Lab and *Walden, a game*. During the last 20 years, he has worked with artists and scientists in a variety of disciplines including: Land Planning, Architecture, Publishing, Fine Art, Animation, Virtual Reality, Artificial Intelligence and now Video Games. He has managed to remain an amateur by continually changing the field to which he applies his 3D computer-graphics skills and the resulting works are evidence of the synergistic value of collaboration. Prior game projects at the Game Innovation Lab include *The Night Journey* and *The Redistricting Game*.

Lucas Peterson, B.A., is the 3D environment and character artist, as well as a level designer for *Walden, a game*. He graduated from the USC Roski School of Fine Arts in May of 2010 with a Bachelor of Fine Arts degree and an emphasis in drawing and design. Throughout his time at USC, Lucas has supported a multitude of graduate and undergraduate video game projects as a 2D and 3D all-purpose artist. Other projects at the Game Innovation lab include the *FutureBound* college access games and the *Chrono Cards* WWI history games. His interest in video games stems from a long history of gaming and a passion for entertainment and the interactive experience.

Michael Sweet, B.A., is the audio designer and composer for *Walden, a game*. He is an award winning composer and sound designer including a BDA Promax Award for Best Sound for a Network Package, Best Audio Award at GDC Independent Games Festival, and nominations for multiple Game Audio Network Guild awards. His work has been featured in games from Cartoon Network, Sesame Workshop, Shockwave, RealArcade, iWin, PlayFirst, Pogo, Microsoft, Lego, AOL, and MTV, as well as network identities for HBO, VH1, Comedy Central, CNN, General Motors, and NASDAQ. He has collaborated with Tracy Fullerton on many projects, including *The Night Journey* project with Bill Viola. Michael is currently an associate professor at Berklee College of music, of which he is an alumnus, and where he has led the development of their video game scoring curriculum.

Alex Matthew, M.F.A., is a programmer and systems designer for *Walden, a game*. He is a recent graduate of the USC Interactive Media & Games division where he studied game design and development. Prior to coming to USC, he graduated from UC Santa Cruz with a degree in computer science, emphasizing games. He has worked on a number of student projects and has been working as a graduate research assistant in the Game Innovation Lab for the past year, focusing on *Walden, a game*.

Logan Ver Hoef, M.F.A., is a programmer and level designer for *Walden, a game*. He recently graduated from the USC Interactive Media & Games division, where he has been a graduate

research assistant in the Game Innovation Lab for the past three years focusing on *Walden, a game*. His MFA thesis project, *The Observatory*, is an exploration of environmental storytelling.

Media Partners
Sandbox Strategies, PR/Marketing partner, was founded in 2005 by three video game and consumer tech veterans: Bill Linn, Rob Fleischer, and Corey Wade. Their three partners' combined industry experience exceeds 60 years, and their media relationships and marketing know-how are stronger than any agency that works in the games space. Sandbox works on a wide spectrum of games across consoles, PC, and mobile: everything from action, adventure, and strategy experiences to Apple Design Award-winning mobile titles, eSports-driven MOBAs, and more. Their clients include Activision, Crytek, Telltale Games and more.

Blindlight, voice talent partner, was formed in 2000 by Lev Chapelsky, Dawn Hershey, Matt Case and Rich Dickerson to apply talents and expertise from Hollywood's film and television industries to the videogame industry. The company has partnered with the Game Innovation Lab to bring name-brand voice talent to the project, including brokering a SAG waiver and providing session direction, engineering and studio rental.

I) State of the project:
Walden, a game is perhaps one of the most ambitious independent games ever attempted. The prototype is currently a richly realized immersive 3D simulation of Walden Pond, the surrounding woods and a section of Concord, including the Fitchburg Railroad. Each of these areas are now simulated in eight seasons – the four main seasons and transitional seasons between. Thousands of trees, plants and ground details all now change season to season in this dynamic game environment.

Additionally, we have integrated are over 350 textual references, 250 of which are connected to "arrowhead moments," which are special moments in the game that bring ideas, themes and special aspects of the book to life. Each of these 250 arrowhead moments are voiced by a well-known actor in the character of Thoreau. Also, there are approximately 100 species of trees, plants and animals that inhabit the world, many of which are animated and require artificial intelligence to control their behavior.

Uniting all of these elements is a procedural sound scape and musical score that changes with the time of day, season and location in the world. The music reacts to the state of the player's inspiration, falling away to a thin accompaniment when the player is uninspired, and rising in level of orchestration as they find more inspiration in the world.

Currently, we have a prototype of all eight seasons. We submitted a rough build of the first two (summer and late summer) to IndieCade last year and were accepted into their Digital Selects. This year, we will submit a more polished version of the first two seasons, plus two new seasons: fall and late fall. We have also integrated much of the feedback from our advisors and mentors. This includes a new narrative line that has been developed around Thoreau's sister Sophia and brother John. This humanizing storyline touches on the sudden and recent death of John, and Henry's typically stoic reaction.

We are also implementing several new features based on the feedback from players, including a new emphasis on reviewing journal entries at the end of each game day and a new opening

video that we feel sets a more effective tone for the piece than our earlier designs. Moving forward, we will continue to implement more of the planned storylines (around Emerson, Agassiz and the political moment), and polish to the emotional arc of the experience through continued playtesting.

From the early days of building the cabin, to the dry days of fall when the summer berries begin to fade, and to the fragile grace of winter when living becomes a hardship, but a beautiful one, and final to the lush beauty of spring, which so inspired Thoreau, our game needs a great deal of polish to accomplish the level of articulation we seek. We want players to not only understand Thoreau's experiment, but to feel its arc, the fragments of narrative that Thoreau strung like jewels in his descriptions of his first year at the Pond.

As already mentioned, we have recently received a second NEA grant for $40,000 and are extremely grateful for our current NEH support. However, once we have completed the piece, the real work of getting it out to the public and into the scholarly dialogue around digital media and literature remains. A production grant to follow on our prototyping grant would seem to be the very springboard that we need to accomplish these ambitious goals.

J) Work plan:
Our schedule for the final production and distribution of the game, team permitting, is as follows:

- December 2015:
    - Alpha version of PC/Mac game
- Jan/March 2016:
    - Testing and iteration of alpha content
    - Review/playtest content with advisors and scholars
    - Development of curriculum, play alpha version of PC/Mac in schools and Concord Museum for feedback
- April/June 2016:
    - Beta version of PC/Mac game
    - Continued playtests with players, students, advisors and scholars
    - Testing and polish of beta version
    - "Playtesting" of curriculum with students at Concord Museum
    - Begin work on console version
- June/July 2016:
    - Continue testing beta version
    - Ongoing playtests with players, students, advisors and scholars
    - Continue work on console version
    - Begin working with PR team to craft the full launch of PC/Mac game
- August 2016:
    - Gold version
    - Launch of Final PC/Mac game
- August 2016:
    - Hold events at Walden and Huntington
    - Support launch with showings at festivals, invited talks, lectures
- Sept 2016: Testing/Debugging of console version

- o   Announcement of console game (depends on deal with console)
- Oct/Dec 2016:
    - o   Continued work on console version
    - o   Continued PR, talks, support of PC/Mac version
- Jan/March 2017:
    - o   Beta tests of console version
    - o   Start work on Oculus Rift version
- April/May 2017:
    - o   Gold version of console version
    - o   Beta tests of Oculus Rift version
- June 2017:
    - o   Launch of console version
    - o   Launch of Oculus Rift version
- July 2017:
    - o   200th anniversary of Thoreau's birth
- Post-grant ongoing:
    - o   Support of all launched versions
    - o   Continued talks, PR, exhibits for all versions

During the period of the grant, we would continue to meet with our advisors on an ongoing basis. Since most of our advisors are local, we have tended to meet with them on an ongoing, ad hoc basis when they can come to the lab to play the game, rather than holding formal meetings. This allows for more personalized interaction and feedback.

K) Organization profile:

The Game Innovation Lab is the premier center for experimental game design and research at USC. Founded in 2004, the lab is directed by Professor Tracy Fullerton. The mission of the lab is to pursue experimental design of games in cultural realms including art, science, politics and learning. The international success of games that have emerged from the lab, including *Cloud*, *flOw*, *Darfur is Dying*, *The Cat and the Coup* and *The Night Journey*, have made it a hub for indie and experimental games culture in Los Angeles. Our Playthink Salons attract speakers and participants from across the city and across disciplinary boundaries.

Associated faculty include award winning game designers Richard Lemarchand (*Uncharted* series) and Peter Brinson (*Waco*, *The Cat and the Coup*) as well as pioneering games user researcher Dennis Wixon. Research staff include up and coming game designers Elizabeth Swensen and Sean Bouchard, as well as the talented digital media artists Kurosh ValaNejad, Todd Furmanski and Lucas Peterson. Graduate student researchers in the lab have gone on to stellar careers at Microsoft, Electronic Arts, Zynga and more.

The lab has a strong history of collaboration with cross-disciplinary experts in many fields, including education and technology. Our commitment to an iterative, participatory process brings users, stakeholders and designers into constant dialogue. Current projects, such as the *Collegeology* suite of games *Walden, a game*, and the *Chrono Card*s History games are supported by Microsoft Research, The Gates Foundation, The National Endowment for the Arts, The Gilbert Foundation, and The Department of Education.

L) Fundraising plan:

The project has raised the following funds to date:

- NEA Media Arts (2012) $40,000
- USC Advancing Scholarship in the Humanities and Social Sciences (2014) $25,000
- NEH Digital Projects for the Public (2014) $100,000
- NEA Media Arts (2015) $40,000

In addition to the outright support we have received, we have also received support from our media partner Blindlight, which provided recording services for our SAG voice over talent. They also negotiated a waiver for that talent to participate in the project. Additionally, our partners at Sony have provided us with a PlayStation development kit and support for creating prototypes on that platform. And, the USC School of Cinematic Arts, has provided us with in-kind support in the form of facilities, hardware, software, staff and student talent.

Our plan is to finish this project completely with the support of the production and distribution grant. Once the grant support is finished the minimal support for downloads, patches and ongoing talks and exhibits will be done by the Game Innovation Lab

Design Document for Walden, a game

Updated June 2, 2015

Figure 1 Survey of Walden Pond by Henry David Thoreau.

Executive Summary:

Walden, a game, simulates the experiment in living made by Henry David Thoreau at Walden Pond in 1845-47, allowing players to walk in his virtual footsteps, attend to the tasks of living a self-reliant existence, discover in the beauty of a virtual landscape the ideas and writings of this unique philosopher, and cultivate through game play their own thoughts and responses to the concepts discovered there. The game takes place in a real-time 3D environment, which replicates the geography of Walden Pond and the woods in which Thoreau made his home over the seasonal changes of a year. In the game, you play Thoreau, working to find the balance between pursuing the basic necessities of life and searching out more ephemeral, spiritual experiences and connections.

The goal of the project is to bring to life the philosophy, sensibilities and historical context of Thoreau's experiment in self-reliant living as an interactive experience. This will speak to a broad audience of players who may or may not have previous knowledge of Thoreau's work, but who may find this piece an introduction to the author and his ideas. For example, the game can introduce students in high school or college who are reading Thoreau for the first time to Thoreau's experiment in self-reliant living. The piece will also speak to those already deeply interested in Thoreau, as it situates his writings in a new context, one that can be explored in a reflective and interactive setting. By taking on Thoreau's experiment ourselves, even in a virtual sense, players will find a better understanding of his writings, even if they are already deeply immersed in them.

The humanities content of the game is centered on the writings of Thoreau, specifically "Walden" itself, but not exclusively. The game will contain over 350 textual references to "Walden," Thoreau's journals, and his other writings. These will be direct quotes found in

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various aspects of the game; from the voice over that forms the narrative through line, to the annotations on each of the various trees, plants, animals, objects and people that fill the woods and the town. As these are found or experienced, they will fill the player's own game journal with a procedural version of "Walden." The experience is intended to communicate the themes of the book in a deeply meaningful way, and with great rigor as to its textual roots. In this way, we feel that the game has potential audiences that range from players of experimental games, to students of history and literature, to scholars of Thoreau, Concord history and Transcendentalism.

The prototype is being created in the Unity3D game engine and will initially be available for PC and Mac users. We plan to subsequently port it to PlayStation 4 and/or Xbox One, also using the Unity3D engine and, concurrently with this port to consoles, adapt it for use with the Virtual Reality headset, Oculus Rift. The distribution channels for the game will be our own Game Innovation Lab web site, Steam, the store at Walden Pond and other relevant gift stores. Additionally, we have been contacted by a number of curators who hope to include it in upcoming game art exhibits. We see the Oculus Rift VR version being especially suited to these environments.

Game Overview:

When the game begins, it is summer of 1845, and you enter in a clearing of wildflowers behind the frame of Thoreau's unfinished cabin. As you explore, you see a glimmer of an arrowhead ahead. Upon picking up the artifact, the kind Thoreau was famous for finding in his native Concord, you hear his voice explaining, in his own words, why he has come to the woods and how he intends to live there. His experiment is now your experiment. You can choose to finish his shelter, clearing and farming the bean field behind the cabin, and get to work providing yourself with the basic necessities of life, or, you can wander the woods in search of inspiration.

Figure 2 Unfinished cabin at start of game.

You are not alone in the woods, as you soon find out. You are surrounded by wildlife, Thoreau's "brute neighbors," who, if followed, will lead you to find special areas and rewards. The woods are filled, not only with more arrowheads of Thoreau's thoughts, but also with the library of ideas that he was inspired by while there. You may even stumble on Emerson taking a walk and musing upon nature. There are the faraway sounds of society that were the focal point of

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Thoreau's many critiques of his fellow townspeople – the wagons on the road, the train whistle, the incessant chopping of trees, culling away the very nature he was seeking to understand. The game activities are based in Thoreau's exacting descriptions of his time at Walden and break ground in terms of how a game can express ideas through its mechanics. Environmental author Bill McKibben calls Thoreau "a Buddha with a receipt from the hardware store" and the game models these twin impulses of the philosophical and the practical in its structure. Players must build their cabin to protect them from the elements, but they are also encouraged to wander the woods during a spring rainstorm. The meaning of a game lies between what players must do and what they can do. In Walden, a game, this dialectic forms a place of discovery that will allow players to find their own answer to Thoreau's primary question: "How much is enough?"

During the summer, it is easy to live off of the land, picking berries, fishing, chopping wood, etc. But if a player does not think ahead, the winter will become a trying time. As the seasons progress, so hopefully, does the player's ability to balance these basic needs with the urge to explore and play in the woods, chasing the rabbits, squirrels, or partridges, or following a blue jay along its path. The various animals will lead players to "solitude" spots, places of great natural beauty, and "reading rocks," places where the texts that Thoreau himself was inspired by, can be found and browsed. Players can row across the Pond to Emerson's Cliff and take in the view that Thoreau found so inspiring, or they can walk along the Concord road to the town itself. Here, the player can visit the Thoreau family home and pick up some mended laundry, possibly partake of a homemade pie from the windowsill. In town, there is a general store, and, if the player has money (from odd jobs that are available), they can also purchase supplies that they may be short on. There are many expensive items here, however, and once a player gets into the habit of buying what they need, rather than making or finding things in the woods, there is a danger here. In the post office, letters can be picked up from correspondents including Louis Agassiz, for whom Thoreau provided unique specimens of the wildlife at Walden Pond. Also, letters from friends, family, and other poets and authors provide an ongoing narrative of life in America at this time. It is even possible that the player may find themselves in the town jail cell, should they choose to protest the collection of taxes.

Figure 3 Attending to "necessaries of life." (Temporary interface graphics)

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The seasons of the game pass in a loose narrative, as they do in the book, following an arc of discovery from summer through fall and the deep solitude of winter, culminating in the coming of spring and the reaffirmation of faith in humankind and nature alike. At the end of the game year, the player is invited to continue on in an open play mode. As Thoreau says at the end of his narrative, "Thus was my first year's life in the woods completed; and the second was similar to it."

The experience of playing Walden, a game is one that will embody and express the themes of Thoreau's work, bringing it to life in the game medium in a such a way as never has been possible before. The game will also offer a new lens into the possibility of video games as an expressive form, advancing our understanding of their mechanics and narrative form. I ask you to support this effort, which breaks new ground, even as it revalues and explores the rich terrain of inner life at Walden Pond that Thoreau so ably preserved for us.

The following sections describe how we plan execute on these goals in specific aspects of the game design.

POV:

The game is experienced from the perspective of author Henry David Thoreau, in a first person view with voice over drawn from Thoreau's writings – Walden, his journal, and several other sources. The following is a character brief intended for inspiration to the game designers and to the actor who will provide Thoreau's voice in the game.

Henry Thoreau was 28 years old when he went down to Walden woods, only a few miles from his hometown of Concord, Mass, and built a small cabin in which to live. This was an experiment he'd been thinking about for some time; and, unlike many of the other experiments in social living going on at the time, this was a somewhat solitary venture.

Until he started keeping a journal in 1837, there wasn't much remarkable about Henry Thoreau. He was born in 1817 in Concord, Massachusetts, where he would spend most of his life. His family made pencils, which given Thoreau's eventual career as a writer, seems somewhat appropriate. He attended Harvard and was a good, but not brilliant student. After graduating he returned home, got a job as a teacher, which he promptly quit because he refused to beat the students. And at that point, he embarked on a career of walking, thinking and getting to know the area of Concord better than anyone has likely ever done. Supported by a series of odd jobs, such as building fences and surveying land, Thoreau was probably best known to his neighbors as "that fool who burned down the woods" because of an unfortunate camping accident. In many ways, Thoreau was the kind of sensitive slacker we'd call "emo" or "hippie" today.

In 1837, though, shortly after befriending Ralph Waldo Emerson, he began keeping a journal – apparently at Emerson's provocation. This lifelong work included all of his observations about Concord, his environment, the details of the wildlife, the terrain, the ponds, the people and animals of the area. These observations would form the basis for his published writings, including Walden, a life in the Woods. Thoreau's observations are written in a tone of dry humor, he loved word play and double *entendres* and used them often in his writing. Early on, he fancied himself a poet, though we mostly know him for his writings on nature. Far from a

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stodgy icon of American literature, this is a somewhat romantic young person prone to seclusion and personal epiphany.

In Walden, a game, the player should get a sense of Thoreau's ongoing inner monologue – his introspection, his joyfulness in the adventure he set for himself, his sense of exploration and discovery, and the mindfulness of life that made his such an exemplary one.

Figure 4 Inspecting an arrowhead.

There will be over 350 direct textual quotes from Thoreau included the game. Here are examples of how some of those will be discovered as text when inspecting trees, animals and other objects in the world. Two hundred and fifty of these quotes will be experience as voice over during special "arrowhead moments" that the player may discover. When an arrowhead is found, it cues a special media sequence that may include animations and environmental effects to bring out the meaning of the quote. The full list of selected quotes may be altered while working with our advisory team, but the number of such opportunities will remain essential stable.

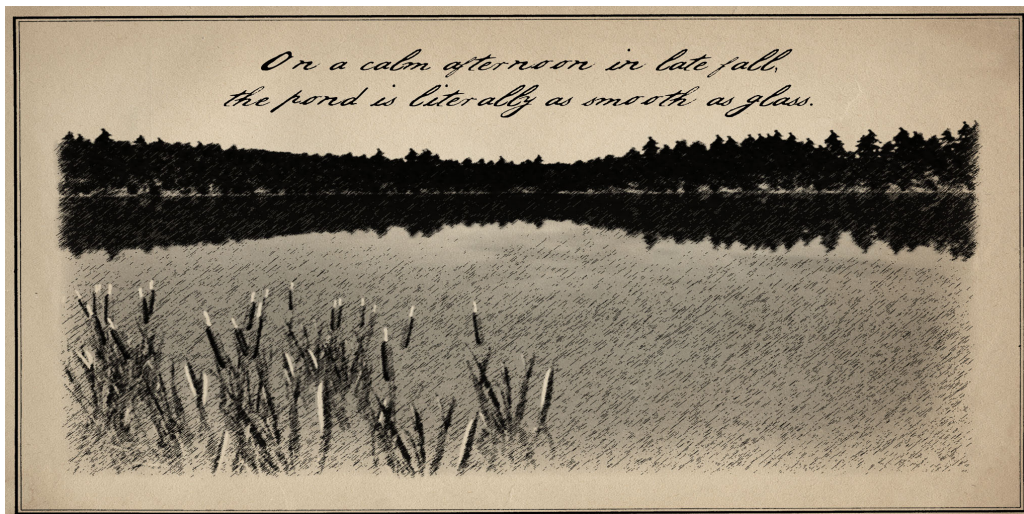**Figure 5 Late fall season card. Each season is introduced with a quote.**

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A well-known actor, who has agreed to do the performance with a SAG waiver for his fees, will play the voice of Thoreau. The name of this person is not yet announced, but it is assured that the level of professional quality will give a sense of authenticity and depth to the first person experience of the game. This actor has a real interest in the work of Thoreau, and in fact, studied Eastern Religions at Columbia, reading the same texts that Thoreau himself was inspired by during his time at the Pond.

Player agency:

The underlying mechanics of the game are a "survival" simulation based in Thoreau's writing. As he states in Economy, the first chapter of "Walden," "the necessaries of life for man in this climate may, accurately enough, be distributed under the several heads of Food, Shelter, Clothing, and Fuel; for not till we have secured these are we prepared to entertain the true problems of life with freedom and a prospect of success." Using this as a starting point, we have created a game simulation that allows the player to care take these "necessaries of life" in a number of ways. They can fill their food stores in the woods by picking berries, finding other edible plants, growing beans or fishing. Or, they can go to the general store in Concord and purchase food stores – if they have the money. They can find fuel in the driftwood along the shore of the pond, chop wood, or again, visit Concord to purchase fuel in the store. There are similar options for all of these basic needs, each of which has their own pros and cons. For example, finding food might be easy at first, but as the months progress, and winter approaches, berries won't be as plentiful and this becomes more of a challenge. Similarly, in the winter, more fuel is required to maintain what Thoreau calls "the vital heat." We have translated this concept into game "energy," as can be seen from the mechanic diagram below. Energy will revive over time, but if the player uses too much too fast, they may faint from over exertion.
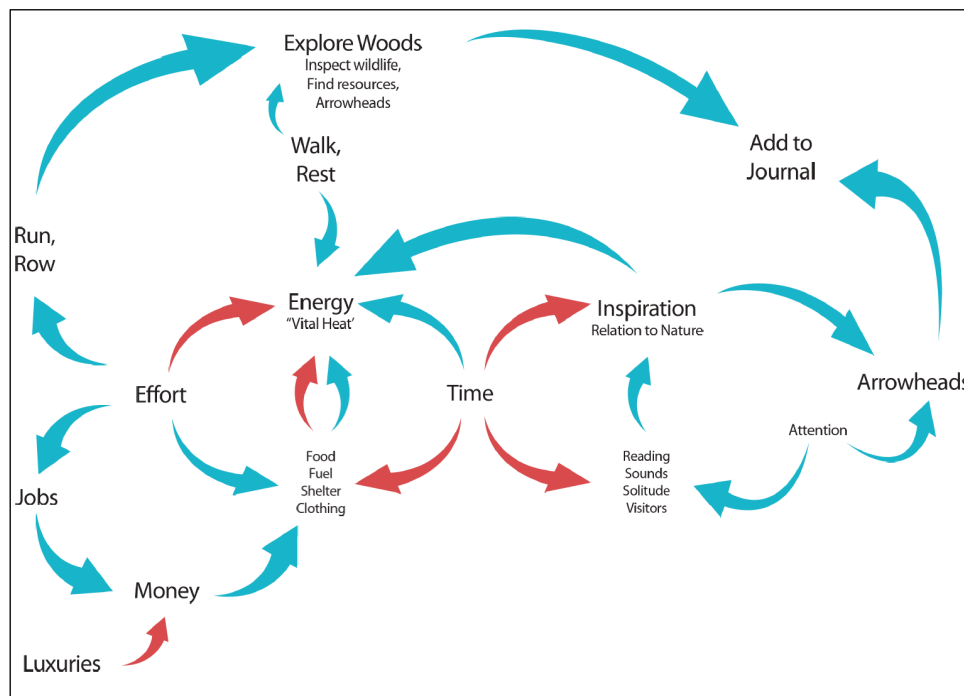

Figure 6 Game resource chart - "vital heat" vs. inspiration.

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These basic necessaries of life are countered in the game by the more ephemeral needs fulfilled by activities that Thoreau describes throughout the rest of the book: reading, listening to the sounds of the woods and of society just off his horizon, enjoying solitude as well as the company of a few visitors and his "brute neighbors," the various animals sharing his sojourn at the pond. These activities all add to what we call "inspiration" in the game, or the sense of self as connected to the natural world, and the world of ideas. In Walden, a game, unlike other videogames, maintaining this sense of connection to the world is as important as maintaining ones energy levels. Players will need to rethink their strategy of play in order to fully realize Thoreau's experiment.

The core mechanics of the game are:
- Exploration of the woods (walking, running, rowing boat, skating)
- Finding/growing/buying food
- Finding/cutting/buying fuel
- Repairing/finding/buying clothes
- Building/repairing/upgrading shelter
- Listening to sounds of woods, life in the distance
- Enjoying solitude at stone cairns in the remote sections of the woods
- Reading sections of books scattered throughout the woods
- Interacting with animals and other visitors, such as Ralph Waldo Emerson
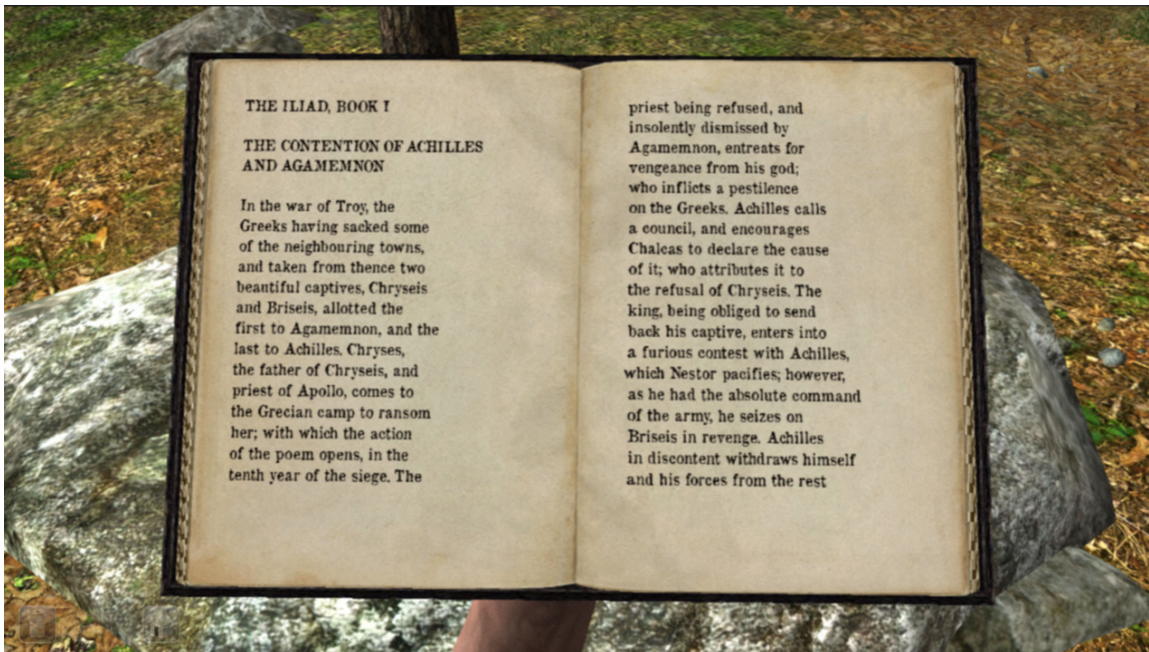
Figure 7 Example of a book found on a reading rock. Reading rocks are found throughout the woods.

Throughout the game players will receive notes and letters from various game characters including Emerson, scientist Louis Agassiz, friends and family that will send them on quests and offer them opportunities for special interactions that form the emergent narrative opportunities of the game.

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Figure 8 Letter from Emerson with an example "quest" - to borrow an axe.

Game flow:

As already noted, the game begins in summer of 1845, when Thoreau first went down to the woods to live. Although he lived there for 2 years, 2 months and 2 days, the book of Walden only describes the first year, season by season, of his experiment and so that is the structure of the game as well. This abstracted flow describes the intent of each season of the game as it relates to player narrative. Each player will, of course, experience a different narrative, depending on how they spend their time, but this gives a general sense of the possibilities available in each level of the game.

Game level	Playing time	Experience goal of season
Summer	45 minutes	Players learn how to survive by picking berries, gathering driftwood. They may borrow an axe and chop wood, find a fishing pole and fish, find a boat and traverse the pond. Life is simple and easy.
Late summer	45 minutes	In late summer they begin to learn about inspiration, how to find it in the woods, how ephemeral it is if they do not care take it as well as their basic needs.
Fall	45 minutes	In the fall, life is still fairly simple, but the berries are growing thin. If they have planted beans, they will need to nurture them to keep the weeds and the woodchucks away. If they take on odd jobs, they may have more money, but find themselves spending more and more time away from the woods. Letters from friends speak of topical issues in America of 1845, such as the anti-slavery movement. Peers write of their work.

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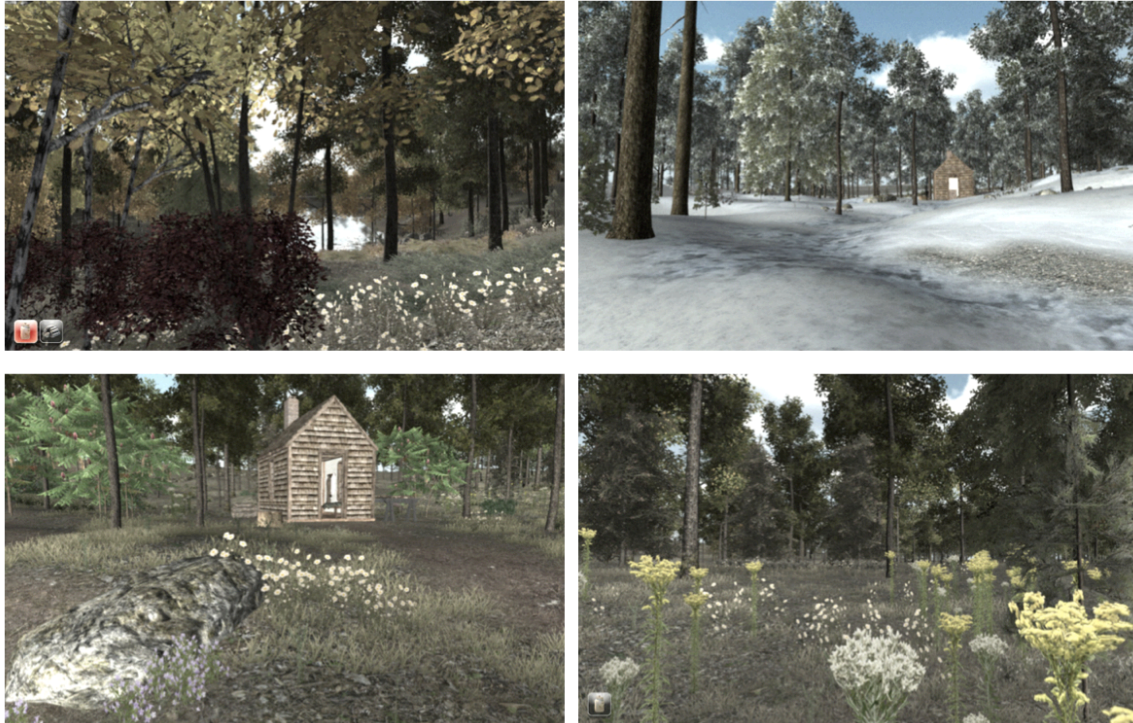| Late fall	45 minutes	The leaves are changing and if they have kept a good balance between their basic and needs and inspiration, the woods will be glorious. If not, they may find themselves experiencing fall in dullness and drudgery. Scientist Louis Agassiz writes in request of specimens from the pond, which players can search for if they like.
Winter	45 minutes	With winter comes the hardest challenge of the game. There are higher needs for food and fuel. The shelter and clothes need repair to keep the player warm. But, if they have been able to balance their needs, they will find winter to be full of a fragile grace, stillness and opportunities for solitude as well as joyful activity.
Late Winter	45 minutes	The pond is frozen; the town is quiet. If the player is full of energy, they can skate across the pond on clear days. They may forage out the few edible berries and plants in winter, or they may live off their store of beans. If they have not prepared well, late winter may find them taking refuge in the Thoreau house in town, where Henry's mother often leaves mended clothes and possibly a homemade pie.
Spring	45 minutes	As the pond breaks up and the first signs of life return to the woods, there is again the potential for great joy for the player to experience, especially as life becomes easier again and there is more potential to focus on raising inspiration rather than survival.
Late Spring	45 minutes	The return of full spring was a powerful metaphor for Thoreau, and as well for the game. As life blooms in fresh and bright greens, there is a largeness and lushness to the environment if players can maintain that balance they have learned. Walking in the twilight with Emerson as he muses on his epic essay Nature we hope that players will take away from this game experience a sense of the "dawn in me" of which Thoreau speaks.
Sandbox play	Unlimited	"And so the seasons went rolling on into summer, as one rambles into higher and higher grass. Thus was my first year's life in the woods completed; and the second year was similar to it." After the main year is complete, players are able to engage in unlimited sandbox play in the world of Walden, which will still be filled with experiences to be had and secrets to be explored.

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Figure 9 Passage of seasons throughout the game.

Areas of play:

The game levels are each built on the same geographic map, altered for the seasonal changes. The playable area of the map is shown below. It surrounds the Pond, bounded by the Fitchburg Railroad on the west, the Concord Road on the east, ends just below Emerson's cliff on the south and just above Thoreau's bean field on the north. In addition to this area of the woods, the player may also visit a small section of Concord, which contains, the Thoreau family home, a general store, a post office and the jailhouse.

These areas contain a number of paths to guide the player toward interesting encounters, but do not restrict them to these paths. Players may wander freely throughout the map to accomplish their goals. So, if they want to farm beans "early and late," as Thoreau says, they may do so at will. Or, they may go into Concord and buy food instead, spending their time at odd jobs to earn enough money to do so. These types of choices make the experience an extremely emergent one, and let the player be as free and at home in Walden Woods as was Thoreau himself.
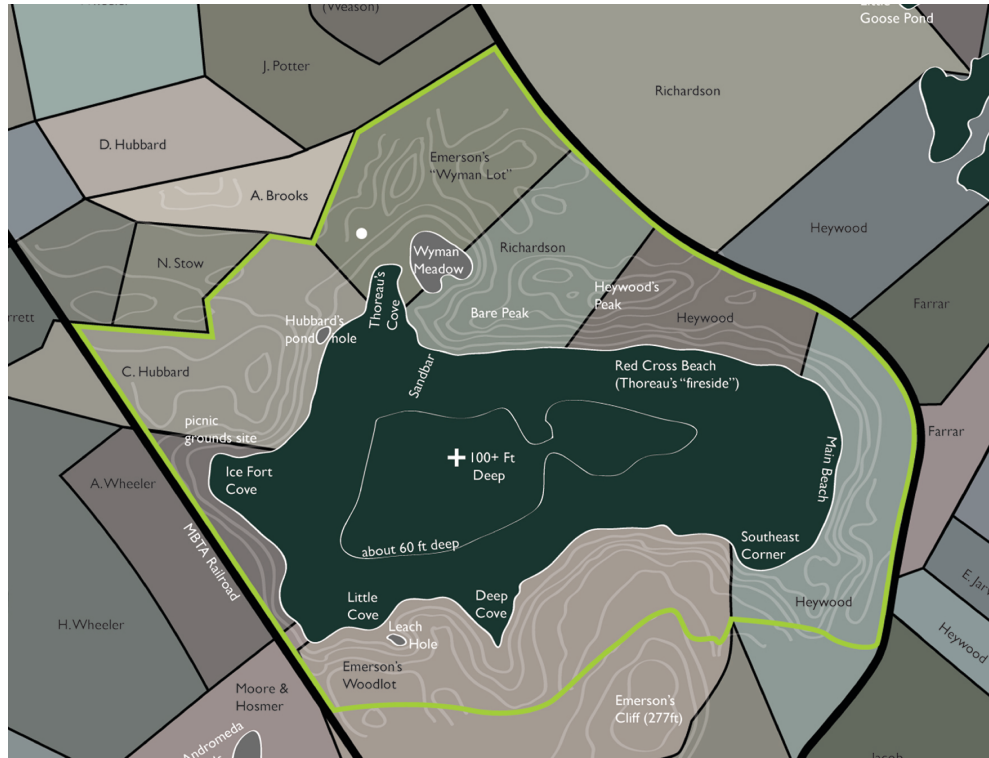
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Figure 10 Visualization of the main game area.

In addition to the woods, there are several main interior areas of interest: the cabin, Emerson's home, the Thoreau home, the general store, and the post office. And, there are several important landmarks that will both guide the player and relate their activities to the unfolding narrative. These are the Fitchburg Railroad, the bean field, Emerson's Cliff, and various campsites. Each of these plays a role in both the underlying survival simulation and/or the narrative and historical content aspects of the game.

The cabin: The cabin is the player's home base. It is deeply tied to their energy levels, and if it is not finished by the colder winter, will cause their basic needs to fall rapidly. In and around the cabin are other key meters for basic needs: a food shelf that shows the state of the player's food stores; a wood pile that shows the state of their fuel stores; a clothes rack that shows the state of their clothes; and the cabin itself, which shows the state of their shelter. Each of these needs must remain sufficiently high or the player's "vital heat" or energy level will fall. The cabin also has a fireplace where the player can regain lost energy quickly. Inside the cabin is a writing desk where the player can review any letters they have received. Letters often include tasks to do, offer odd jobs, or send the player on adventures to find particular items of interest in the natural world. The cabin also has a bed where the player may "sleep." Sleeping fast forwards the game; sleeping at night forwards to dawn, while sleeping in the day fast forwards to dusk.

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Emerson's home: Emerson's home has a vast library of inspiring works that the player can peruse. Reading these books, or the ones scattered throughout the woods, will cause the player's inspiration to rise. The study also holds a fireplace to replenish any lost energy. And, if the player so chooses, they may do odd jobs for Emerson, earning small amounts of money as they do so. Emerson's home, as he said himself, sits at the liminal place between the woods and society. When leaving here, the player has the choice of returning to Walden, or walking into Concord and becoming a "sojourner in civilized life" for a while.

Figure 11 Emerson's study, reference image.

Figure 12 Emerson's study, in game.

Thoreau home: The Thoreau family home in Concord offers some of the creature comforts that the cabin in the woods does not. If the player visits Thoreau's parents home, they may find that his mother has left some laundered and mended clothes for him. Or, if they are lucky, they may find a pie cooling on the windowsill. There is much criticism of Thoreau and his visits to town, as well as his dependence on family for help, but here the player is offered the choice of taking such comforts themselves, or going without. Letters from family and friends may also be found here at the Thoreau house.

General store: The general store is filled with all one might need in the world of the game: various types of food and fuel, upgrades to shelter and clothing, as well as luxuries small and large that may tempt even the most self-reliant player. Elaborate fishing rods, a fancy suit, a cast iron stove, china plates, utensils, and even penny candies. What is really necessary and what is

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superfluous? Players may find themselves eager to farm more beans or take on more jobs in order to afford a new coat. But, as Thoreau points out, "beware any enterprise that requires new clothes."

Figure 13 General store and shopkeeper.

Post office: The post office is where the player will find newspapers of the times, letters from other authors beyond Concord, correspondence from scientists such as Louis Agassiz, and job offers beyond manual labor – such as lectures and articles.

Fitchburg Railroad: The railroad was a strong metaphor for Thoreau of the encroachment of the new pace of life onto nature and civilization. In the game, as in the book, the railroad connects the pond and the town. Players can walk to town along the railroad itself, hearing the dim clicking and hum of the telegraph wires overhead. And, they can listen to the train pass on its appointed schedule from many areas of the town and the woods. These sounds of life just off the horizon were a major part of Thoreau's sense of the woods, and attending to them will also raise the player's inspiration.

The bean field: The bean field sits behind Thoreau's cabin and must be cleared of brush before it can be planted and beans can be grown. Once beans are planted, they must be weeded until they are ready to harvest. Harvesting may give the player food to eat, or, if they have exceeded their storage space, may be sold to earn a small amount of money.

Emerson's Cliff: The vista from Emerson's cliff includes a view of the entire Pond and the spires of the churches in Concord. It is the highest point in the game world, and here players will find one of several "solitude cairns." These cairns mark spots of particular beauty and stillness in the game world, and being in their vicinity will raise the player's inspiration.

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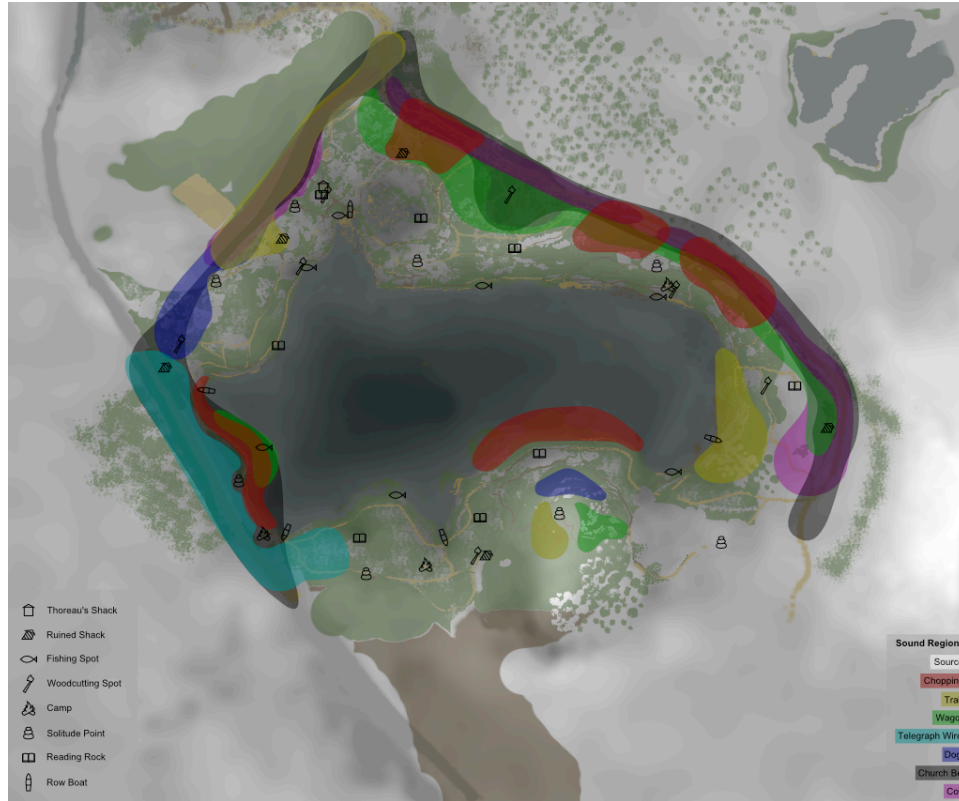USC Game Innovation Lab internal
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Figure 14 Sound region plan - the sounds of life beyond the horizon raise inspiration.

Campfires: The player may not wish to spend all of their time in the area of the cabin, so, in order to aid in exploration, small campsites are placed around the woods where players can revive their energy, chop wood, mend their clothes and take a short break from travel. These campfires also make good landmarks for players as they move around the Pond.

Resources:

As mentioned, the game levels are season based, and each season will have different resources available, as edible plants go in and out of season. The following diagrams show how these resources will change over the course of the game.
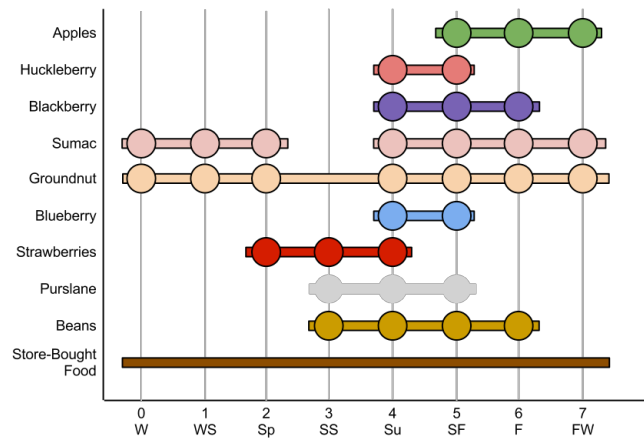

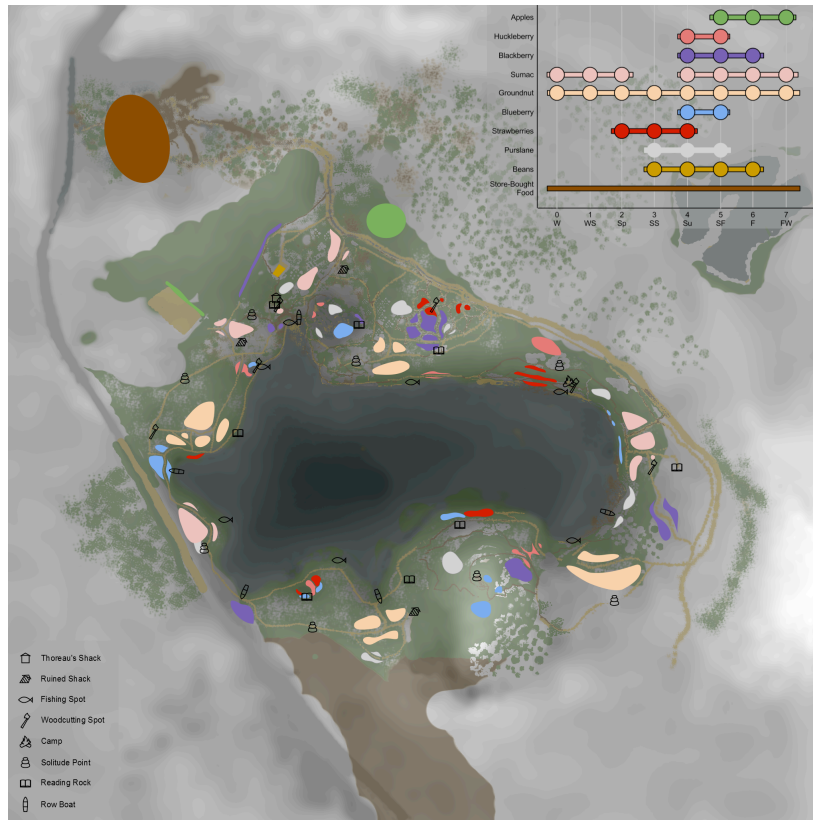**Figure 15 Edible plants by season.**

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Figure 16 Resource plan for edible plants – all seasons turned on.

Plants and Animals:

There will be approximately 100 species of plants and animals, which have been taken from a detailed coding of the text of Walden, as seen in example images below. These serve not only as environmental set dressing, but also as anchor to textual quotes and descriptions that echo Thoreau's precise mapping of the natural world around him. As the player explores the world, inspecting these species closely, each text quote will be added to a play journal. These quotes, along with the ones associated with arrowhead moments, form the basis of the player's own procedural version of "Walden" – see the "journal" section of this document.

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PLANTS

Latin

NAME	LATIN	PAGES	# MENTIONS	TYPE
purslane/pigweed	portulaca oleracea	54, 144	2	food (wild)
sand-cherry	cerasus pumila/prunus pu	16, 101	2	tree
(smooth) sumach	rhus glabra	39, 99, 101, 114, 199, 22!	7	tree
blue flag	iris versicolor	178	1	flower
false elm/nettle tree	celtis occidentalis	180, 16	2	tree
ground nut	apios tuberosa	200, 213	2	plant; food (wild)
goldenrod	solidago stricta	101, 229, 274	3	flower

Species

NAME	LATIN	PAGES	# MENTIONS	TYPE
red huckleberry	vaccinium parvifolium	16	1	shrub; food (wild)
red pine	pinus resinosa	16	1	tree
black ash	fraxinus nigra	16	1	tree
yellow violet	viola pubescens	16	1	flower
white pine	pinus strobus	36, 102, 165, 170, 203, 2	6	tree
blackberry	rubus fruticosus	39, 101, 114, 138, 139	5	shrub; food (wild)
potato	solanum tuberosum	48, 117, 139	3	food (domestic)
(Indian) corn	zea mays	48, 56, 139, 146	4	food (domestic)
turnip	brassica rapa var. rapa	48	1	food (domestic)
rye	secale cereale	56	1	food (domestic)
red maple	acer rubrum	74	1	tree
black birch	betula lenta	179	1	tree
yellow birch	betula alleghaniensis	179, 236	2	tree
pitch pine	pinus rigida	101, 114, 118, 162, 176, 2	14	tree
life-everlasting	hylotelephium telephium	101, 274	2	flower
(st.) johnswort	hypericum perforatum	101, 138, 139, 200, 274	5	flower
white bush bean	phaseolus vulgaris	9, 48, bean field chapter,	many, many	food (domestic)
(eastern/Canadian) hen	tsuga canadensis	133, 180	2	tree

Figure 17 Page from plant list - name, Latin name, pages & number of mentions.

Each tree and plant species will change throughout the seasons of the game year, as mentioned above in the section about resources. Many trees and plants will not be edible, but their appearance and associated text quotes will change. An observant player will notice these changes and fill their journal with many different views of these species.

Thoreau's Name	Modern Name	Latin	Quote	Alternate Quote 1
Pond Skater	Water Strider	(Aquarius Antigone) 378 331	The surface of the lake is literally as smooth as glass, except where the skater insects, at equal intervals scatter over its whole extent, by their motions in the sun produce the finest imaginable sparkle on it.	You can detect a water-bug ceaselessly progressing over the smooth surface of the lake a quarter of a mile off; for they furrow the water slightly, making a conspicuous ripple bounded by two diverging lines, but the skaters glide over it without rippling it perceptibly.
Song Sparrow		(Melospiza Melodia)	I once had a sparrow alight upon my shoulder for a moment while I was hoeing in a village garden, and I felt that I was more distinguished by that circumstance than I should have been by any epaulet I could have worn.	The first sparrow of spring! The year beginning with younger hope than ever! The faint silvery warblings heard over the partially bare and moist fields from the song-sparrow, as if the last flakes of winter tinkled as they fell!
Mink	American Mink	(Neovison Vison)	As I sit at my window this summer afternoon, a mink steals out of the marsh before my door, its belly close to the ground, and seizes a frog by the shore.	
Partridge	Ruffed Grouse	(Bonasa Umbellus, formerly Tetrao Umbellus)	In June the partridge, which is so shy a bird, led her brood past my windows, from the woods in the rear to the front of my house, clucking and calling to them like a hen, and in all her behaviour proving herself the hen of the woods.	The young chicks of a partridge so exactly resemble the dried leaves and twigs of the forest floor that many a traveller has placed his foot in the midst of a brood, and heard the whirr of the old bird as she flew off, or seen her trail her wings to attract his attention, without

Figure 18 Page from animal list - modern name, Latin name, quotes.

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Figure 19 Image references for animals and plants.

Animals will roam the woods according to the time of day and season. Some will lead the player to interesting game items, such as the books that can be found throughout the woods, solitude cairns, and ruined shanties that can be poached to repair the player's cabin. Interacting with the animals will raise the player's inspiration as well, with the rare animals, like a fox or mink, offering more inspiration than common ones such as squirrels or hares.
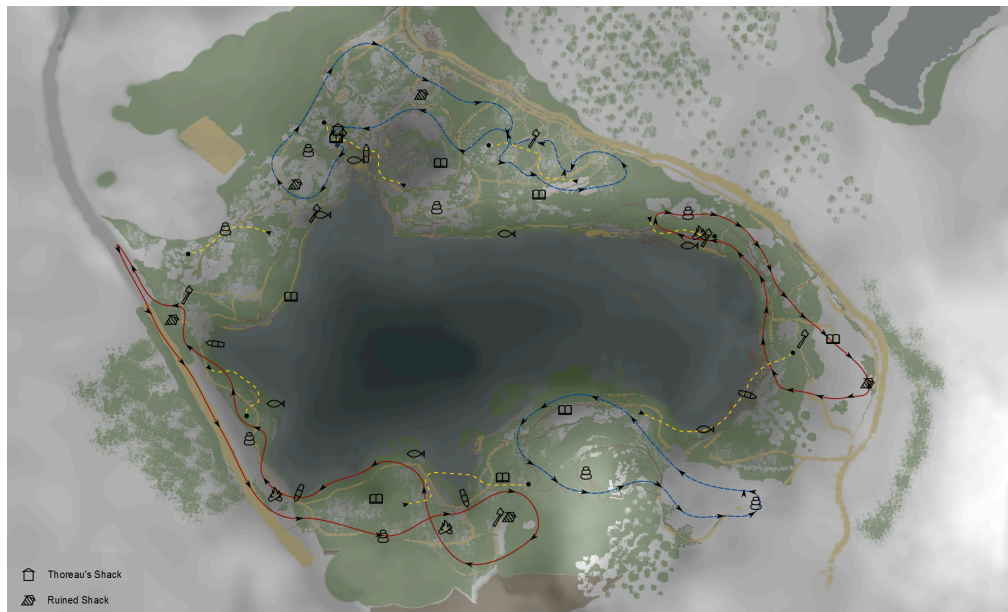

Figure 20 Animal path plans - paths lead players toward areas of interest.

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Types of Players:

As our goals for this project are to bridge a great deal of player types – from new player to experienced ones, and from old to young – it is critical that the game have opportunities for them to explore Thoreau's experiment in many different ways. For example, a young player, who has experience pushing the boundaries with many types of game systems, but little understanding of Thoreau's message, may opt to play in a way that conforms with most commercial games. This means looking for opportunities to gain more money, buy or collect more items, and generally "level up" in the game world. While this is not the way that Thoreau would have us live, we must as he says "each find our own way," and so too in this game. A player who looks for such opportunities will find them: in odd jobs, bean farming, letters with quest items, tools to collect, the general store, etc.

Some of the items will in fact, make life in the woods easier, giving the player more time to spend in exploration. But some will only pull the player into the cyclic trap of needing more and more money and spending more and more time up-keeping their luxury items. The following chart shows how each of the basic needs may be attended to, with varying requirements of effort, time, tools and money. In general, the most "Thoreauvian" solutions are the first and second rows, with the bottom row leading to the "trap" of relying too much on society and spending too much time earning money.

	Food	Fuel	Shelter	Clothing
Low effort, in the wild	wild fruits plants	driftwood	camping, abandoned shacks	mend (self)
Tools, more effort & time	fishing, bean farm	chopping wood	building/ repairing	mend (mother)
Money	store bought food	store bought fuel	purchased improvements	dress clothes or sturdy clothes

Figure 21 Walden "tech tree" for basic needs.

The fact that there are many ways to play the game means that players will have many different types of experiences. We will tune the game for several general types, however, and as we do so, are certain to find more as part of our player groups. Early in the game, as players are learning the system, we expect to see a breakdown of their time look something like the chart below, where they are spending the majority of their time caretaking their basic needs (food, fuel, shelter and clothing).
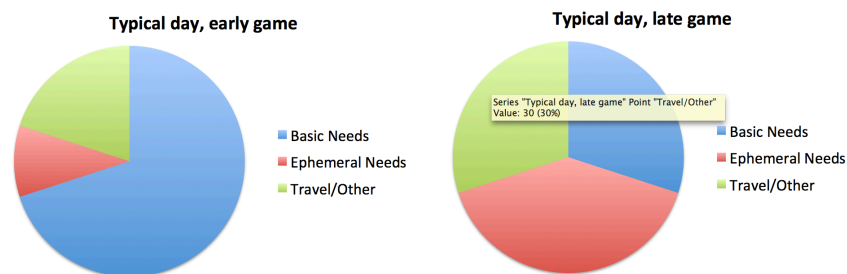

Figure 22 Player activity – out of balance, and in balance.

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Later in the game, we hope to see that players are more balanced in their play – making time for both the basic and the more ephemeral "needs" in their virtual life. There will be those, of course, who set their own personal goals, and the game will support this. The charts below show how theoretical players might spend their time if they were to focus on bean farming or earning money through various jobs. (We internally call this the "Walden millionaire" player style, though of course they will be earning pennies for their work, and not millions of dollars.)
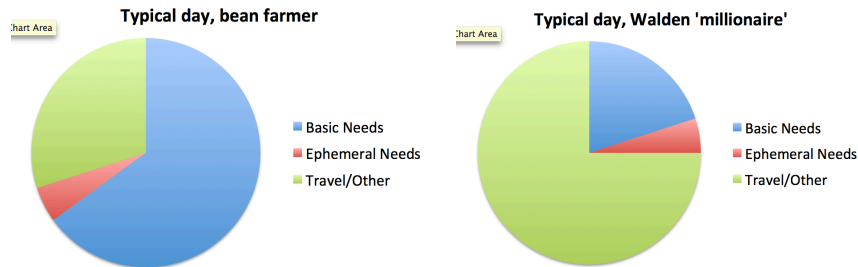

Figure 23 Player activity for alternative play styles - bean farmer and "Walden millionaire."

Player Journal:

How a player plays will ultimately be reflected in their "journal," a collection of all the textual quotes they find as they explore the world. These quotes are taken from the original text in such a way as to make them reconfigurable in this procedurally generated review of the player's own "version" of "Walden." We are considering adding a feature in which this review of the player's experience can be printed on demand, possibly through a custom book printing solution, but this would be a stretch goal for the team.

As seen in the screenshot below, the journal is organized by season. There will be hotkeys to forward to a particular season, or the player can turn each page of the journal one at a time.
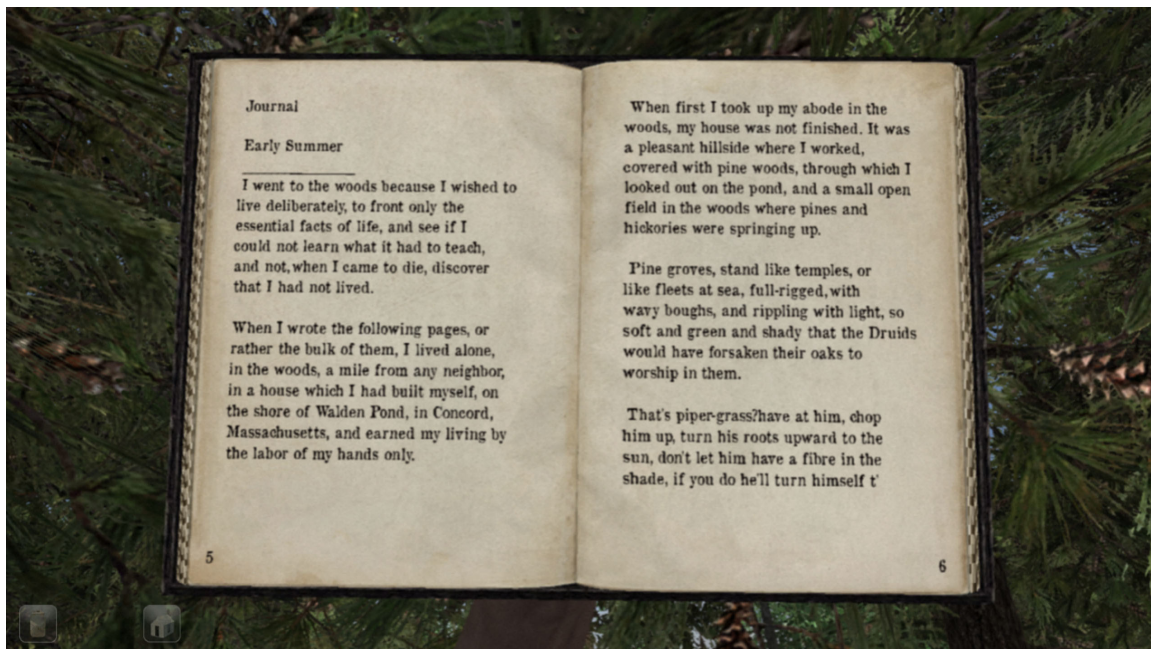

Figure 24 Player journal.

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Look and Feel:

The look and feel of the game has been given a tremendous amount of thought. While we so not want the game to look photorealistic, a certain amount of naturalistic realism seems appropriate for the subject matter. We are going for a style of Romantic realism, such as can be seen in the painting below, of Emerson on a camping trip. Here we see the men as small and relatively insignificant next to the large trees, but the woods seem generous, with the soft sunlight breaking through their high branches. Rich, earthy colors, and soft edges make this an inviting natural landscape.

Figure 25 Concord camping trip circa 1840s, courtesy of Thoreau Institute.

We are also interested in the look of auto chrome photography, even though it post-dates the period of the game setting. As the image below shows, the subdued colors, soft grain and blur make it an interesting choice for our moments of low inspiration. As the section on user interface explains, the game will use a subtle feedback system for cuing the player as to their level of inspiration. Since we don't want player "gaming" the system, we are not making this available directly, but rather, will reflect the state in elements of the environment, such as the level of saturation, grain, blur and availability of arrowheads. Our references for look and feel, therefore, go beyond historical accuracy or visual design, but are an integral part of the game system design as well.

Figure 26 Early auto chrome image, subdued colors, soft grain and blur.

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This visual processing as part of the feedback system is something we envisioned from the earliest days of the game and it will go hand in hand with the musical score that rises and falls with inspiration. Sound designer and composer Michael Sweet is extremely experienced in designing procedural systems and has coded a system for the music, which responds to the player's actions. If the player spends all of their time working, both the visual feel of the environment and the music will grow dull and thin. A low heartbeat of a piano maintains a presence of music, but all other melody falls away with the color and clarity of the world. As a player increases their inspiration, strains of melody in layers of instrumental voices join in, and the color and lushness of the world return. Both sound and visuals are incremented in ten steps or gradations, so that they are subtle and yet noticeable changes for the player. At the highest levels of inspiration, the world is filled with music, color and opportunities for enlightenment in the form of arrowheads.

Figure 27 Field of flowers – inspired (top) and uninspired (below).

In additional to the interactive changes to the environment, there are also the procedural changes as already discussed. The environment of *Walden* will go through a transformation in each of its eight seasons (four standard, and four transitional). We will control these seasons

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through a backend XML that makes it possible for the designers to tweak the selection of sky (clear, clouds of several types, hazy and night), color of light (changes day to night and season to season), atmospheric events (rain, snow, fog, pond frozen) and other game specific variables.

Figure 28 Fall at medium-high inspiration.

Each "season" of *Walden* (summer, late summer, fall, late fall, etc.) will be made up of three in-game days of 15 minutes, making each season 45 minutes, and the full year six hours of play. As already mentioned, after the first year is finished, ending, as does Thoreau's book in Spring, the player will be free to continue playing in sandbox mode. Given the flexibility of our backend weather system, we may create procedurally generated weather for this mode of the game, but this is a stretch goal.

User Interface:

Even though the simulation of Walden has a fairly complex underlying system, we do not want to focus players' attention on this simulation. Rather, we wish to draw them into a more intuitive, rhythmic play where they learn to balance their basic needs with exploration based on cues from the environment. As such, the user interfaces for Walden, are very minimal. There are only a few interface systems that the user must learn to use.

In terms of buttons, here are the keys that are used in the game:
- W, A, S and D keys (for movement) + shift (for running)
- Mouse look (for view)
- Left and right mouse buttons (for action and inspection)
- J key (opens journal)
- M key (opens mail)
- L key (activates lantern)

In terms of GUI, the first, and most important system is the basic need cues at the bottom left of the screen. These cues only appear when the player needs to pay more attention to one of the four basic needs – food, fuel, shelter or clothing. The screenshot below shows a player with low food stores, who is picking berries to replenish them. When their food stores are full, the icon

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will glow green briefly and disappear. When a player has sufficient stores of all their needs, they will not see any icons on the screen, making for a clean interface focused on the immersive experience rather than on "grinding" play common to many role playing and simulation games.

Figure 29 Picking berries to fill food stores.

Another important set of interfaces is the "mini game" interfaces for doing tasks that require some effort, such as sawing, chopping, fishing, rowing and sewing. In these activities, the player follows a simple onscreen guide to make the appropriate gesture for each task. Once the gesture is complete, an animation plays, showing the action and the cycle begins again. Each task has a different gesture, but they are all equally simple to master. The goal of these mini games is not to challenge the player's skill, but to represent the daily "grind" of fulfilling basic needs.

You now have an axe, which you can use at chopping stumps throughout the woods (stumps with axes in them) to replenish your fuel stores.

Figure 30 Chopping mini game interface.

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The most complex user interface in the game is the map, shown below. The map helps the player situate themselves in regards to their cabin and other major landmarks around the pond, including Emerson's house, the Concord road, the Fitchburg Railroad and other game elements that will appear once the player has found them. The map is the first page of the journal, so is easy to access and can be opened at any time.
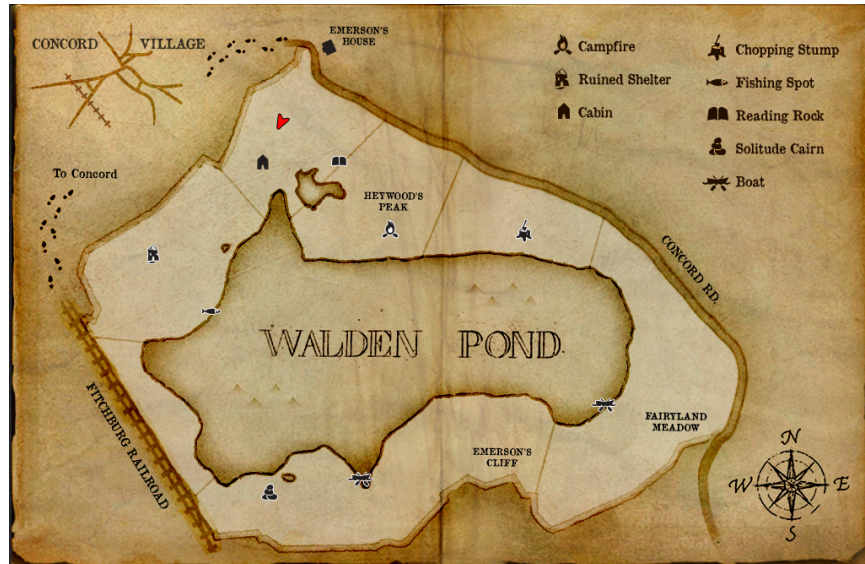

Figure 31 Game map; player location is red triangle at top left.

Letters and Quests:

As already mentioned, the player will sometimes receive letters or notes at the door of the cabin, find them at the Emerson house, their parents' home, or the Post Office. These letters may include narrative content or quests. Narrative content describes the daily life of Thoreau and his peer group at Concord, while quests send the player out to complete odd jobs, to look for specific plant or animal species, or to experience an aspect of the woods. A preliminary lists of quests, which is an area on which we hope to work with our advisors extensively, is here:

Letter/quest:	Type:
Borrow an ax	Upgrade quests
Buy a food jar	
Plans for a wood shed	
Learn to fish	
Upgrade fishing pole	
Buy fancy clothes	
Buy a stove	
Find the boat	
Survey a farm	Surveying quests
Survey for railroad	
Survey along Concord road	
Survey across pond	

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Find a fox for Agassiz	Wildlife quests
Find a striped bream	
Find a tortoise	
Find an eel	
Find an owl	
Find a frog	
Invitation to walk w Emerson	Letters from friends
Invite to Emerson's library	
Invite to parents' house	
Letter about reading rocks	
Letter about solitude point	
Letter about fairyland meadow	
Visiting a wildflower	
Letter from Hawthorne	
Invitation to skate	
Letter from Channing about burned land	
Hunt for solitude spots	Sophia's "game"
Work at Emerson's	Odd job quests
Chop trees in clearing	
Clear the bean field	
Sell extra beans	
Work in town	
Lecture at Lyceum	Speaking & writing jobs
Journal article for Dial	
Lecture in Boston	
Poem for Dial	
Letter to the Liberator	

It is important that the letters and quests be both clear in terms of game play, but also true to the tone of the time and the historical authors. We will use references to real letters in Thoreau's correspondence to create these narrative components.

Technical Architecture:

The prototype will be built using Unity 3D, which will make it possible to release on PC and Mac simultaneously. The game will be available through download and may also be released via DVD for distribution in museum stores. There is no significant backend architecture to consider, other than our analytics engine, which will track user paths and crashing bugs, allowing us to release patches for any problems that arise. There is no user-generated content to account for, other

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than the procedurally generated player version of "Walden," which we may add as a stretch goal. Plans for how to address this feature will be made if it becomes feasible.

Future releases of the game are planned for the PlayStation 4 and the Xbox One, which will require further funding and development and are not considered under this schedule or current design document.

Distribution and Sustainability:

As already noted, the game will be distributed online, via our website at http://www.waldengame.com (currently a work in progress). We also plan to make the game available via Steam, DVD and through exhibitions. The Game Innovation Lab has a long history of releasing independent games and is fully ready to support the game post-launch with patches and updates as required. Since the game has been created on Unity, we should also be able along with them should new versions of the PC and Mac operating systems make that necessary. Updating for currency is normal part of a digital game's lifecycle and we assume that we will continue to do so as long as there is interest in the game.

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