



# The Creative Laboratory

Embracing Childlike Imagination to Develop Lifelong Creativity and Cognitive Ability Through Worldplay

**Nicholle Abbott**

**Master of Fine Arts Thesis**

Liberty University  
Department of Studio & Digital Arts  
Spring 2021

# Final Signatures

*The Creative Laboratory: Embracing Childlike Imagination to Develop Lifelong Creativity and Cognitive Ability Through Worldplay* is a Masters of Fine Arts thesis prepared by Nikki Abbott for Liberty University's Department of Studio and Digital Arts.

---

JOSHUA WILSON, CHAIR

---

CHRISTOPHER PHILLIPS, FIRST READER

---

PAUL REYNOLDS, SECONDER READER

---

TODD SMITH, DEPARTMENT CHAIR



# Table of Contents

Chapter 1: The Problem.....07

Chapter 2: Research.....11

Chapter 3: Visual Process.....35

Chapter 4: Visual Solution.....83

Chapter 5: Conclusion.....105

Bibliography.....108



Fantasy remains a human right: we make in our measure and in our derivative mode, because we are made: and not only made, but made in the image and likeness of a Maker.

-J.R.R. Tolkien





# Abstract

There is a decline in creativity that occurs in children around the sixth grade. Although it is commonly agreed that creativity is a valuable skill, the playful activities of childhood that naturally develop creativity are often discouraged once the child reaches middle school age. This thesis investigates methods of generating creativity that can be introduced to children as a way to combat the slump. Specifically, it analyzes worldplay, the act of creating an imaginary world, as a potential tool for building creativity.

To test the viability of worldplay as a creative tool, the thesis used a literature review to establish existing methods of generating creativity, particularly exploratory play, constructive play, and roleplay. Then, case studies and content analysis were employed to examine the worldplay activities of known worldbuilders. The results showed that many of the common activities involved in worldplay naturally incorporate the methods of generating creativity, supporting the idea that worldplay can function as a laboratory in which children can practice and hone their creative abilities.

Therefore, the thesis visual deliverable was the construction of a worldplay guidebook for middle school age children, demonstrating the process of worldplay through the creation of an imaginary world, with a focus on teaching and implementing the methods of play that foster creativity.







# Chapter 1

# The Problem



# Introduction

## Research Problem

The decline in imagination and make-believe play that occurs around middle school age can lead to a creativity deficit in adulthood; consequently, there is a need at this critical stage of childhood to introduce methods that combine critical thinking and problem-solving with playful imagination in order to boost lifelong creativity.

## Objectives

This thesis will explore worldbuilding, also called worldplay, as one method that can combat the decline of imagination that occurs around the middle school years of childhood. In addition, the research will examine how the creative benefits of worldplay can have lasting results. To accomplish this the study will investigate some methods of creative development that have already been established, specifically exploration and curiosity, constructive play, and roleplay, and show how worldplay incorporates all three of these.

The research will seek to confirm the credibility of worldplay as a creative tool. C. S. Lewis and others will be used as examples of creative individuals who engaged in worldplay in childhood and beyond. The study will show how worldplay encourages people to be more creative and innovative, to meet challenges, and to find original solutions.

Finally, the thesis will demonstrate the process of worldbuilding by producing a detailed illustrated book that documents the development of an imaginary world. This will include character designs, maps, histories, models, and concept art.



## Research Questions

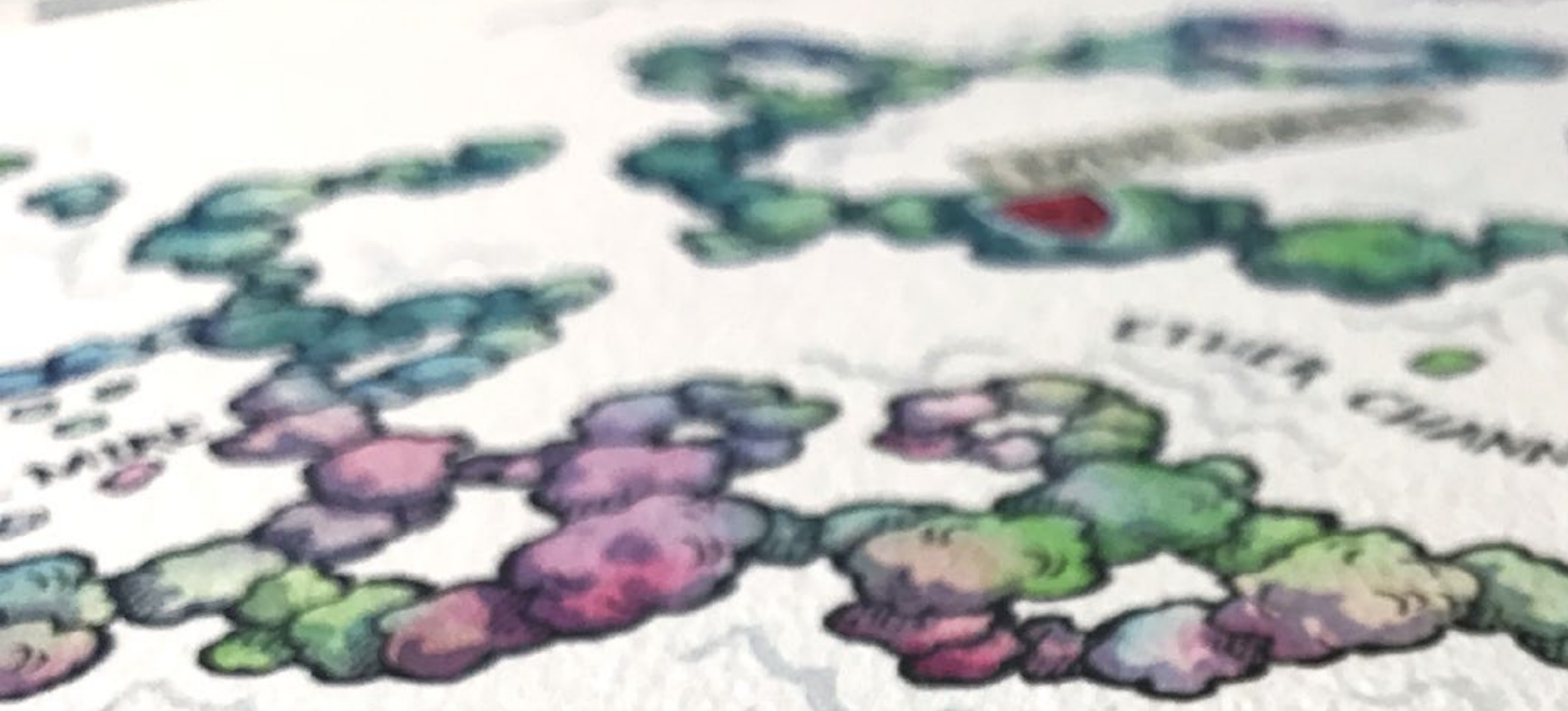
- Why aim for lifelong creativity? What are the benefits of creative thinking in childhood? In adulthood?
- What is the importance of play as it relates to developing creative thinking?
- At what age does make-believe and imaginative play typically begin to decline and why?
- What is worldplay and who are some examples of people who engaged in worldplay?
- Why is worldplay a viable means of encouraging creativity? How does worldplay incorporate problem-solving and innovation?

## Knowledge Gap

There are various scholarly sources that exist on the topic of creativity, including ones related to the demand for creativity and its lifelong benefits, the loss of creativity that occurs around the sixth grade, and methods for generating creativity. In addition, there are sources that deal with the power of play, and some that specifically look at worldplay. The knowledge gap lies between these two main topics of creativity and worldplay. The study of play and its benefits only became a topic of scholarly research relatively recently, and the research conducted on childhood paracosms only began 50 years ago. As such, there are only a small number of scholarly academic sources that explicitly link creativity and worldplay, and this is the gap addressed by the thesis.



OALS



ETHER CHANN





# Chapter 2

# Research



# Research

## Rationale

As children grow and make-believe play declines, so does creativity. Although it is commonly agreed that creativity is a valuable skill, the playful activities of childhood that naturally develop creativity are often discouraged once the child reaches middle school age. Engaging in childlike play can actually prove highly beneficial when it comes to developing inventive ideas or innovative solutions. Worldplay, as a complex form of imaginary play, holds great potential as a tool for building one's creative abilities. However, worldplay has only become a topic of scholarly research within the last half a century. There is little research specifically connecting worldplay and methods of generating creativity, but pairing these two topics shows promising creative benefits that compels further investigation.

The aim of the thesis research is to investigate worldplay's potential as a tool for cultivating creativity. The research will look into the reasons behind why there is a decline in creativity around middle school age, why creativity is something to strive for, and methods for fostering it. The thesis will explore worldplay examples and investigate the process of worldbuilding personally through the construction of an imaginary world.

## Stakeholders

Although the thesis supports the idea that one can benefit from practicing creativity at any age, for the purposes of the thesis visual solution, the target audience is middle school aged children, approximately 11-14 years old. Since studies show that a slump in creativity occurs commonly around sixth grade, it seems the ideal time to introduce worldplay, as a means of combating the slump and encouraging a continual growth in creativity as one matures. As a secondary target audience, the parents of middle school aged children could also benefit from this research, as they are the decision-makers when it comes to purchasing educational activities for their kids. Making parents aware of the value of creativity and its benefits for their children would encourage them to be involved in cultivating its development.



## Research Methods

A literature review is essential to gain a thorough understanding of existing research on the topic. The literature review addresses the following questions: why is creativity a valuable skill that needs to be encouraged? Why does research show a decline in creativity around middle school age? Furthermore, what methods exist to help generate creativity? Finally, the literature review explores the topic of worldplay and its creative potential. In addition, other research methods will be employed, such as the use of case studies, content analysis, and mind mapping. These will examine the many facets of worldplay and attempt to bridge the gap between methods of generating creativity and worldplay.



# Summary of the Literature Review

## Introduction

The decline in imagination and make-believe play that occurs around middle school age can lead to a creativity deficit in adulthood; consequently, there is a need at this critical stage of childhood to introduce methods that combine critical thinking and problem-solving with playful imagination in order to boost lifelong creativity. This review will examine how play can impact creativity, the possible reasons why imagination wanes as we mature, and provide a defense of worldplay as one solution to this deficiency. It is the position of this thesis that many of the established techniques for generating creativity are perfectly incorporated into the act of worldbuilding, making worldplay the ideal laboratory for middle school aged children to experiment with and foster creative capabilities.

## Creativity and the Context of Play

Defining creativity can prove difficult. The word is applied liberally throughout many different fields; however, Dr. Yong Zhao provides a useful definition that can be applied to creativity for the purposes of this thesis. Dr. Zhao is a Foundation Distinguished Professor in the School of Education at the University of Kansas and professorial fellow at the Mitchell Institute for Health and Education Policy, Victoria University. He is considered a leading authority on creativity, entrepreneurship, and technology, having written more than a 100 books and articles on these subjects (Richardson, 515). In the article “The Courage to be Creative: An Interview with Dr. Yong Zhao,” the definition for creativity is broken down into three aspects. The first is cognitive ability, meaning the ability to merge and rearrange existing ideas to develop something new. The second is the courage to create, because creativity requires a willingness to take risks, confront challenges, and break out of the norm. The third is social value, the ability to create something that is important to others or that solves a problem (Richardson, 516). In addition, the author brings out a concern for the education system because it often promotes conformity and convergent thinking.



To commence this thesis, it is important to start with the general context of play as a whole. The Oxford Handbook of the Development of Imagination, edited by Marjorie Taylor, presents a comprehensive look on the topic of imagination and play in children. Jerome L. Singer and Dorothy G. Singer, authors of “Historical Overview of Research on Imagination in Children,” offer both a summary and analysis of the relevant research. The authors look into the early research done on childhood behavior and walk through the progression of studies and discoveries to the present. The focus of the article is on childhood play, specifically pretend play; what it looks like, why it is a vital part of normal child development, and how play relates to imagination. Finally, the authors state the current research and perceptions about imagination in childhood play including how the influence of parents, peers, and schools can impact play. Of particular note is the positive findings related to children engaging in make-believe play. For example, the authors’ research dealing with the creation of make-believe friends showed that “children who had developed these invisible companions were characterized by greater smiling, laughing, curiosity, and excitement during their spontaneous play; they were also more persistent in maintaining games and showed other signs of creative tendencies” (Singer, 24). Some children even engage in the invention of entire imaginary societies, as first researched by Robert Silvey and Stephen MacKeith. Silvey and MacKeith called these make-believe worlds paracosms and suggested that they may be an early indication of creativity (Singer, 24). This article opens the door to explore the emotional and cognitive benefits of pretend play as well as brings to light the need for parents and teachers to encourage this kind of play.

Eva Hoff, professor in the Department of Psychology at Lund University, takes the research a step further by looking deeper at the connection between make-believe play and creativity in her article, “The Relationship Between Pretend Play and Creativity.” Hoff defines creativity in terms of a process rather than a product, calling it “a productive or generative novel way of experiencing reality, including the perceiver’s own self” (405). Hoff defines imagination as “involving cognitive processes in which memories, former experience, and images are combined in new constructions.” (406). Hoff further states that pretend play produces skills that assist in creativity such as association and flexibility, and that this kind of make-believe play could be a precursor to mature creativity in adulthood (408). A complex form of pretend play is the development of a personal imaginary world, “an exercise that prepares for the ability

Pretend play produces skills that assist in creativity such as association and flexibility.



to produce idiosyncratic novel expressions as an adult” (Hoff, 409). The purpose of this article is to show the value of pretend play as it relates to imagination and creativity, and to introduce the need to encourage such play.

## The Decline of Creativity

Dr. Kyung Hee Kim is a professor at The College of William and Mary and has gained international acclaim for her research into the field of creativity. Kim, author of “The Creativity Crisis: The Decrease in Creative Thinking Scores on the Torrance Tests of Creative Thinking,” gives credence to the existence of a creativity problem. After discussing how intelligence has been growing over the past century according to increasing IQ scores, Kim asks the question, what about creative thinking? Using the Torrance Tests of Creative Thinking, Kim examines data from the past 40 years, judging the changes in creative thinking among children kindergarten to 12th grade as well as adults. Previous studies had shown a decrease in creativity around the fourth-grade; however, the results of the current study indicated a slump that occurs closer to sixth-grade (Kim, 291). One possible reason for this slump is the influence of social conformity in middle school and high school, as well as increasing pressure of conventionality (291). Kim discusses the implications of this creativity slump, saying “The decline begins in young children, which is especially concerning as it stunts abilities which are supposed to mature over a lifetime” (293). Furthermore, the results showed that creativity has declined over the past 40 years. Kim attributes the decline partially to the education system’s steady move toward standardized testing and focus on IQ (294), and speculates that the decline may also be connected with the increased use of technology which encourages impersonal rather than face to face communication (292). This study provides valuable quantitative data as evidence of the creativity decline and its potential negative impact on an individual’s future. In addition, Kim gives suggestions for how to combat the decline that could be useful to examine as the thesis develops.

One potential reason for the decline of imagination and creativity is discussed by Sir Ken Robinson. Robinson was the head of the British government’s advisory committee on creative and cultural education in 1998, and is an outspoken author and public speaker who challenges the way we are educating our children. Robinson states that “creativity is as important in education as literacy” (3:00). At a very young age, children are naturally creative, unafraid of trying new things even if they make mistakes. There is no fear of judgment from others. Robinson maintains that “If you’re not





prepared to be wrong, you will never come up with anything original” (5:37). However, both in the education system and in the professional world, mistakes are stigmatized. Furthermore, Robinson discusses the hierarchy in education that places mathematics and languages at the top and the arts at the bottom. Instead of creating a hierarchy, there needs to be a change in how society views intelligence and acknowledge that there are multiple types of intelligence. The arts is one area where creativity can naturally be nurtured, and the value of creativity is becoming more and more obvious as technology continues to transform work.

## Why Aim for Lifelong Creativity?

Mark A. Runco’s article “Creativity” explores many facets of the topic. The author states the definition and background of creativity and discusses the growing demand for it in this increasingly complex and technology-driven world (658). Runco describes creativity as, “the development of original ideas that are useful or influential. In this perspective, creativity is not only a reaction to but also a contribution to change and evolution. Creativity thus underlies problem solving and problem finding; it plays a role in reactions (e.g., adaptations and solutions) but it is also often proactive” (658-659). Runco creates an extensive framework, dividing creative studies and findings into numerous categories, the four main categories being person, product, press, and process. This article does a good job at stressing the importance and need for creativity because of its efficacy and flexibility. It particularly hits on the concepts relative to this thesis such as the importance of encouraging creativity in our children to prepare for the future, the “fourth-grade slump” and why it happens (Runco, 670), and benefits of creativity in the professional world and even in old age. This source serves as a broad overview of the topic of creativity, touching briefly on numerous related aspects.

If you’re not prepared to be wrong, you will never come up with anything original.

## Creativity in Adulthood

A need for creativity goes beyond childhood and has a very real impact on adults in the professional world. Creativity is in great demand in the ever-evolving, ever-growing world of commerce and industry. Catalin-George Alexe’s article “The Importance of Creativity in Business Innovation” provides a straight-forward and practical look at this issue. Alexe reveals that due to rapidly growing competition, companies are



Creativity has a marked positive effect not only in childhood, but throughout one's life as well.

forced to constantly improve their goods and services; meaning the success of a firm is dependent on its innovative capabilities to generate and execute new ideas. The importance of creativity is becoming increasingly apparent; as Alexe states, creativity is “the start point of innovation” (341). Creativity is the backbone of developing new ideas and improving old ones. The author also covers the interesting topic of creativity and personality, showing that although personality can have an impact on a person's creativity level, creativity is inherent to all and can be improved. Creativity is not an exclusive commodity, reserved only for geniuses (342). The article looks at the creative process and different approaches that can generate more creativity. Of particular note is that the author points out the value of a childlike innocence that allows a freedom to express ideas without feeling restricted. Alexe describes two main barriers to creativity, the first being an individual's adaption to society, creating a narrow and stiff mindset; the second barrier is the emotional factors, the fear of making mistakes, taking risks, or criticism (344). Finally, the article discusses ways of creating environments that encourage creativity and innovation within an organization. Overall, the article provides a useful look at the adult aspect of creativity, backing the claim that developing one's creativity can benefit his or her future. In addition, this article, from the International Conference on Management and Industrial Engineering, shows that creativity does not belong solely to the arts, but can be applied among many fields.

## Creativity in Later Life

One fascinating study supports the idea that creativity has benefits reaching well into later life. The Mayo Clinic and the National Institute on Aging conducted a study that investigated the effect of different activities on preventing dementia. The activities being examined included arts and crafts, computer pastimes, and social activities. 256 people, with an average age of 87 years old, took part in the research, answering questions about how they spent their free time. When researchers conducted a follow-up study four years later, 121 of the participants had developed mild cognitive impairments. Of the activities being analyzed, those who engaged in the creative hobbies were found to be the least likely to develop cognitive impairments. In fact, the elderly who had hobbies such as painting, sculpting, and drawing were 73% less likely to develop symptoms of dementia compared to the participants who did not. Crafting hobbies



such as pottery, woodworking, or quilting showed 45% less likely, social activities 55% less likely, and computer use 53% less likely (Firger). The study demonstrates that creative activities could reduce the risk of dementia and preserve memory, but “in order for such hobbies to provide a protective benefit for cognitive function, a person must begin them in middle age” (Firger). It is clear that creativity has a marked positive effect not only in childhood, but throughout one’s life as well.

## Existing Methods of Generating Creativity

Regarding already existing methods of cultivating creativity, there is a great variety of resources. For the purposes of this thesis, the research will focus on the methods that deal with play. At the 2008 Serious Play conference, IDEO’s CEO Tim Brown spoke on utilizing play to generate creativity. The TED Talks video “Tim Brown: Tales of Creativity and Play” includes three specific techniques for generating creative responses along with several examples. The first method is exploration, which is concerned with quantity of ideas. Where adults can become embarrassed and sensitive about the opinions of others, young children are unconcerned and are therefore less conservative with their ideas. Children in a safe trusted environment can feel free to play and take creative risks (Brown, “Tales of Creativity” 3:25). Adults tend to stick to the rules and throw out ideas too quickly, whereas children don’t self-edit. The second method is construction play, playing by building with your hands. It is easier to work on an idea if it is in a tangible form that one can physically manipulate (Brown, “Tales of Creativity” 19:00). The third method is roleplay, which involves acting out a scenario or projecting ourselves into someone else’s situation. Actually walking through a scenario is an efficient way of testing out the authenticity of a solution and helps us build empathy for our subjects (Brown, “Tales of Creativity” 21:39). Each of these techniques are naturally engaged in by children, but adults can learn from these methods as well. Brown is an effective speaker and creates a compelling argument for taking on these childlike activities that can ultimately stimulate big ideas. Tim Brown sets the stage for this thesis’s creative endeavor and lends credibility to the concept of play being an effective method of generating creativity.

### Exploratory Play

A method of generating creativity discussed above is that of exploratory play. This is when one’s curiosity drives that person to explore and learn. Exploration is concerned



with quantity of ideas, and no self-editing. This is something that young children are naturally good at, but can be a struggle in adulthood. Richard Phillips' article "Space for Curiosity" takes a deeper look at why curiosity has the potential to be a useful and healthy tool not only in creative industries but also everyday life. Curiosity is defined as "a strong desire to know or learn something" (Phillips, 493). Many organizations, schools, and industries recognize curiosity as an advantage and have begun setting aside separate spaces where curiosity can be encouraged, whether it be a 'Cabinet of Wonder' room full of fascinating and stimulating objects, or a 'Learning Café' with refreshments and games. However, Phillips stresses that a space for curiosity can be found anywhere, like in the street, the library, or out in nature. Phillips states, "Curiosity is also linked to creativity and playfulness" (497). It can inspire exploration and inquiry, useful for formal and informal learning, and is considered a "driver of innovation" (Phillips, 504). The author encourages making a space for curiosity because of its ability to facilitate "problem-solving, learning and creative work, and research" (Phillips, 507). With the focus of this thesis being on worldplay as a tool for creativity, the goal is to show how these already established methods are a fundamental part of worldplay. As one constructs an imaginary world, curiosity will lead that person to explore a vast range of interrelated concepts within their invention. Exploratory play could be said to be the driving force behind worldplay.

## Constructive Play

Constructive play has to do with building with one's hands and physically arranging things in space. Tim Brown, CEO of IDEO, talked about constructive play at the 2008 Serious Play Conference, and his article "Design Thinking" elaborates on the subject. His article provides insight into the need for creative thinkers as companies continue to ask for new ideas and innovative solutions. Specifically within the context of design, Brown walks through several examples of how constructive play was used in the development of a product or service. For example, by taping a marker, a film canister, and a clothespin together, designers constructed a crude prototype of a new device that would be used for sinus surgeries. The prototype provided a tangible object that could be manipulated and built off of as the design moved forward. Brown clarifies, saying, "The goal of prototyping isn't to finish. It is to learn about the strengths and weaknesses of the idea and to identify new directions that further prototypes might take" (Brown, "Design Thinking" 87). Prototyping is a valuable tool that helps one to



experiment and test out ideas in a physical 3-dimensional way.

In addition, Alistair Sutcliffe, emeritus professor of Systems Engineering in the Schools of Computer Science and Business at the University of Manchester, offers another look at the value of prototypes in his article “Juxtaposing Design Representations for Creativity.” Sutcliffe examines a number of design representations that are used in the creative design process, including the making of prototypes. The article states that prototypes are an effective tool for a designer because of their ability to stimulate creativity. Prototypes are beneficial because they are concrete, providing a solid example of what the final design could look like (Sutcliffe, 41). Regarding this thesis, prototypes, as a kind of constructive play, are a valuable creative tool, and can be applied to worldplay. When one builds models of things from an imaginary world, he or she is essentially practicing the construction of prototypes. These models test out how potential configurations work in a physical, tangible way and provide a method of exploring possibilities.

Prototypes are an effective tool for a designer because of their ability to stimulate creativity.

## Roleplay

The last method of generating creativity discussed by Tim Brown is that of roleplay. “Using Sociodrama to Help Young Children Problem Solve” is an article that addresses the value of roleplay. One of the greatest advantages of roleplay is its ability to foster empathy (Pacaski, 408). When one takes on the role of another, it essentially provides the opportunity to step into the other person’s shoes and experience what it is like to be that person. Roleplay allows one to understand the thoughts and feelings of someone else, making it a valuable method of gaining a new perspective, which is a vital component in generating creativity. A common practice to worldplay, roleplay permits the creator to step into the shoes of his or her characters and allows for a deeper and more authentic development of the characters and the rest of their imaginary world.

## Worldplay as a Creative Laboratory

Thus far the literature review has addressed the importance of creativity, the decline of creativity around middle school age, and some methods of generating creativity via play, but has not yet given a detailed description of worldplay, one of the primary focuses of this thesis.

Worldplay, as the name implies, is a form of play. As seen from the investigation



If one hopes to make a creative contribution in their field, then creativity should be practiced.

into the already existing methods of generating creativity, play is not only fun but useful as a creative tool. Sarah Keenan and Punya Mishra from the Deep-Play Research Group are the authors of “Profiling Scholars of Creativity: Practicing the Process with Dr. Michele Root-Bernstein.” The authors stress the value of play as a source of creativity, and emphasize that play is beneficial for both children and adults. “Playing allows for work and thought processes to shake traditional constraints, and become both fun and creative in an open-ended exploration of possibility” (Keenan, 201). This source goes into Root-Bernstein’s approach to building creativity. Creativity can be developed over time. In fact, if one hopes to make a creative contribution in their field, then creativity should be practiced. Practice is all about priming oneself for the future. This is the role that worldplay fills for this thesis, as a training exercise to develop an individual’s creativity.

## What is Worldplay?

Worldplay revolves around the creation of imaginary worlds, called paracosms. In a study put out by the University of Oregon, “Imaginary Worlds in Middle Childhood: A Qualitative Study of Two Pairs of Coordinated Paracosms,” researchers wanted to develop an effective method of collecting information regarding the construction of paracosms directly from the children currently engaging in the worldplay. Before conducting their own study, researchers examined past work on paracosms, looking at the work of Silvey, MacKeith, and Cohen, who gathered accounts from adults recalling imaginary worlds they had devised in childhood. In addition, Root-Bernstein’s study of MacArthur Fellows showed that paracosms were more common among the group acknowledged as highly creative, and that childhood paracosms are more widespread than originally thought (Taylor, 168). In the current study, the researchers found that paracosms were an outlet for the children to explore real world interests, and that real events or topics of study at school often triggered the developments taking place in their imaginary worlds. Furthermore, the paracosms were a “vehicle for their interests in writing stories, drawing, computer animation, and computer drawing” (Taylor, 173). In addition, researchers looked at the potential social aspect of creating paracosms by interviewing 2 sets of interconnected paracosms. According to the parents of the children being interviewed, the shared worldplay “helped their children learn to resolve interpersonal conflict and all four parents reported having positive feelings about the





social effects of this activity on their children” (Taylor, 172). Although some accounts of worldplay are ones of private play, there are a great number of instances of siblings or friends or even children with their parents developing paracosms together, with positive results.

Michele Root-Bernstein is the author of *Inventing Imaginary Worlds: From Childhood Play to Adult Creativity Across the Arts and Sciences*. Root-Bernstein is the author of many articles dealing with the topic of the construction of imaginary worlds, called paracosms. She defines worldplay as “an outcome of the normally developing imagination...self-generated make-believe, tending to the sustained mental modeling of a hypothetical place or system; in the arts, a plausible pretense; in the sciences and social sciences, a possible world; a touchstone experience, a creative strategy” (Introduction). In her book, Root-Bernstein covers a broad range of related concepts, starting with an introduction to worldplay through the eyes of her own daughter who created a fantasy land called Kar. By watching the adventures of her daughter, Root-Bernstein witnessed the development of an entire civilization, from the design of the Kar people’s garb and adornments, to the drawing of maps and diagrams of flora and fauna, and even the invention of a make-believe language (ch.1). The creation of one thing led to a question about something else, creating a cycle of problem-finding and problem-solving. Root-Bernstein’s experience with her daughter led her to an extensive investigation of worldplay. In her book, Root-Bernstein gives numerous examples of people who created imaginary worlds and goes into many other areas of the topic, including the integration of worldplay into schools, how technology can help or hurt creativity, and how parents can encourage their children in worldplay.

Childhood worldplay might be a predictor for mature creative achievement.

### A Tool for Creativity

Root-Bernstein, who received her Ph.D. in History from Princeton University and has written articles on the topic of worldplay for Oxford University, provides a credible authority on the subject of worldplay. She looks at what study has previously been done on worldplay and builds off of it by doing her own. In her study of MacArthur Fellows and MSU college students, the results suggested that although it could not be a guarantee, “childhood worldplay might be a predictor for mature creative achievement” (Root-Bernstein, ch.3). She states that worldplay brings together an amalgamation of



several factors that naturally stimulate creativity. She specifically includes the following factors:

- 1) Cognitive capacities that include imaginative skills as well as facility with creative process and attendant behaviors
- 2) Strategies for learning and discovering, such as knowledge construction and problem finding and solving; and
- 3) Compositional facility in expressive culture, particularly constructive forms such as stories, histories, drawings, maps, handmade books, outdoor forts, or other models. (Root-Bernstein, ch.3)

Furthermore, in chapter six of *Inventing Imaginary Worlds*, Root-Bernstein describes worldplay as a 'learning laboratory,' and breaks down the process into a number of distinct steps:

- 1) Ideas taken from experience – the subject of the worldplay is taken from a real environment either firsthand experienced or secondhand.
- 2) Associations of ideas and feelings – involves the blending of imaginary ideas with remembered experiences, sometimes in unusual or insightful ways.
- 3) Elaboration by play creation – can be broken down into several categories:
  - a. Organizing – classifying and cataloguing
  - b. Play acting – empathizing with each created character
  - c. Narrative – developing a story
- 4) Synthesis of a consistent play-world – ensuring that, even if imaginary, things still make sense

The natural outflow of these steps is manifested in modeling and mnemonic invention, the creation of models, drawings, maps, records, etc. in order to test the understanding of how things work.

Root-Bernstein's in-depth look at worldplay will be a valuable resource for the purposes of this thesis. In this literature review, established methods of generating creativity have already been mentioned, that of exploration, constructive play, and roleplay. Root-Bernstein demonstrates how worldplay perfectly incorporates all three of these methods. This single activity brings together multiple techniques, making worldplay an ideal tool for developing one's creative capabilities, and therefore supports

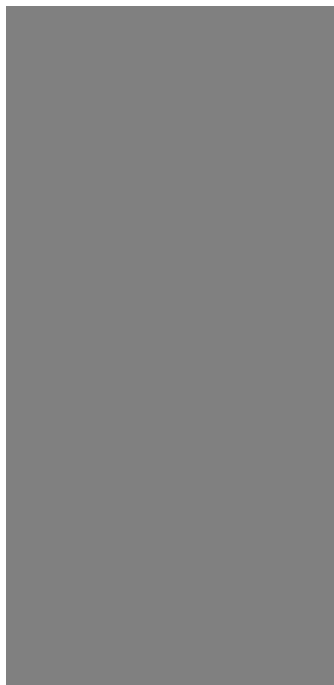


the concept of introducing worldplay to middle school age children in order to provide an environment that can exercise imagination and inspire creativity.

## Case Studies

To further establish the credibility of worldplay, this thesis will look at a number of examples of creative individuals who engaged in worldplay, such as C. S. Lewis. Well-known author of the *Chronicles of Narnia*, C. S. Lewis is undoubtedly considered an accomplished storyteller and master of imaginative creativity. What many do not know, however, is that Narnia was not the first fantasy world that Lewis created. His first world, created at the age of eight, was called Boxen, in which he told tales of 'Animal-Land' with his older brother Warnie. In Jennifer Rains Proper's dissertation, "C. S. Lewis' Animal Images in 'The Chronicles of Narnia,'" she examines the influences that led C. S. Lewis to use animals as his chosen medium to tell the stories of Narnia. Proper looks back at the happy years developing the world of Boxen in the nursery with his brother as one of the influential moments of Lewis' life. This was his first attempt at writing, and motivated him to draw pictures of the fanciful animal characters he created (Proper, 13). Proper goes into much more detail about Lewis' background, literary influences, and his specific use of animal characters in *Chronicles of Narnia*. For the purposes of this thesis, the focus will remain on Lewis' childhood experiences in imaginary world building. Proper provides support for the concept of imaginative creativity in youth encouraging creative endeavors in later life.

Another example of a creative individual who created an imaginary world as a child is Mozart. Maynard Solomon has written several books about famous musicians, including his book *Mozart: A Life*. Although the biography goes into much detail regarding his later life, it also reveals much of the composer's childhood. Solomon describes how, as a child Mozart created the "Kingdom of Back,"



*Lord Big, ruler of Boxen, drawn by C. S. Lewis in childhood from: Hunt, Sylvia. "The Political Worlds of Boxen and Narnia." Journal of Juvenilia Studies, vol. 1, 2018, pp. 37-47., doi:10.29173/jjs104.*





of which he was the king. Mozart's sister was privy to this private world, and related how Mozart described and named all the cities and villages in his fantasy kingdom. Solomon speculates that inventing this pretend world was Mozart's way of creating his own space, a place "for the free expression of his own individuality" (ch. 4). Mozart is another example among many creative individuals who participated in worldplay.

Katherine Dalsimer, professor of Psychology at Weill Medical College of Cornell University, writes about one of the earliest recorded examples of worldplay, that of the Brontë children. In her article "The Young Charlotte Brontë," Dalsimer describes how a gift of twelve wooden soldiers sparked an entire fantasy world that the four Brontë siblings named "Glass Town", which eventually developed into the country of "Angria." Charlotte and Branwell, the two older children, were responsible for the majority of the world's creation, and together they developed elaborate histories and characters, complete with genealogies and evolving relationships. They created the *Young Men's Magazine*, which included stories of their characters, but also advertisements, poems, reviews of imaginary paintings, and notes from the editor (Dalsimer, 321). The magazine included multiple editions, which were carefully recorded in tiny hand-sewn books. It all began with fashioning stories around the toy soldiers, which eventually grew into plays that the children acted out (326). Charlotte wanted to be an author, and Angria became her outlet. She explored a variety of genres, experimenting with poetry, prose, plays, reviews, and essays. This "high-spirited exercise of the imagination" (328) allowed her to test out multiple narrative voices and grow in her writing abilities. Although Branwell died when he was in his 30s, Charlotte went on to become an author, and she believed that the fantasy world she had created as a child was the foundation of her creativity.

*Young Men's  
Magazine*  
from: Dalsimer,  
Katherine. "The  
Young Charlotte  
Brontë." *Journal  
of the History of  
Childhood and  
Youth* 3.3 (2010):  
317,339,452.  
ProQuest.Web. 12  
June 2020.



As Dalsimer states, “She had served her apprenticeship in the pages of the *Young Men’s Magazines*, trying her hand at stories, plays, poems, essays” (332). Charlotte Brontë, best known for her book *Jane Eyre*, is a prime example of someone whose childhood worldplay inspired lifelong creativity. This source also demonstrates how worldplay incorporates exploratory play, constructive play, and roleplay.

## Fantasy Play

An interesting aspect of worldplay is its fantastical potential. Although not a required characteristic of worldplay, imaginary worlds are often filled with elements of fantasy. “The Effects of Fantastical Pretend-Play on the Development of Executive Functions: An Intervention Study” provides a new perspective on fantasy play. This study tested over 110 children in a 5-week fantastical pretend-play intervention to discover if fantasy-based play had an impact on executive functions, specifically working memory, inhibitory control, and cognitive flexibility. The study points out there is a difference between pretense-based or socio-dramatic pretend play (e.g. pretending to be a mom) and fantastical pretend play (e.g. pretending to be a fairy). Fantastical pretend play requires a greater use of executive functions to engage in a cognition that differs significantly from reality. Furthermore, the article states, “the act of switching between reality and imagination, specifically highly fantastical imagination, is what is driving the observed benefits in [executive functions]” (Thibodeau, 135). The results of the study confirmed that fantasy-based play directly impacts the development of executive functions and cognitive control (Thibodeau, 136). This study provides a framework for the kind of worldplay that could be the most beneficial and a potential direction for the thesis visual solution.



# Additional Research Methods

## Content Analysis

Content analysis was used to chart the specific activities of some well-known worldbuilders into the three categories of exploratory play, constructive play, and roleplay. The goal was to help strengthen the connection between worldplay and the methods of generating creativity that was discussed in the literature review. The case studies included the childhood paracosms of C. S. Lewis, J. R. R. Tolkien, the Brontë siblings, Wolfgang Mozart, Maurice Baring, Gregory Benford, Fairfield Porter, Peter Ustinov, the Winkworth siblings, and Friedrich Nietzsche.

The results showed that there was substantial evidence of constructive play common to almost all of the case studies. This would include anything that the individual built, drew, or wrote. One of the most frequent occurrences was maps, as well as handwritten stories. Although more difficult to define, exploratory play also seemed fairly common. Exploratory play involves quantity of ideas, such as exploring a wide variety of concepts, styles, or genres. Somewhat surprising was that evidence of roleplay was less common, with only four of the ten specifically mentioning acting out stories or characters. However, these findings are limited to only what information was recorded, and the individuals may have engaged in roleplay or exploratory play without it being included in any sources. In order to get a more complete picture of the case studies' worldplay activities, more sources will need to be consulted. Nonetheless, based on these preliminary findings, one can see how the common activities involved in worldplay are linked with the methods of creativity.



	Exploratory Play	Constructive Play	Roleplay
C. S. Lewis	<ul style="list-style-type: none"> <li>Created substantial amount of content, compiled into the Encyclopedia Boxaniana<sup>3</sup></li> <li>Explored combining human and animal characteristics<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Drawings<sup>3</sup></li> <li>Handwritten stories<sup>3</sup></li> <li>Maps<sup>3</sup></li> <li>Histories<sup>3</sup></li> <li>Made-up words<sup>3</sup></li> </ul>	
J. R. R. Tolkien	<ul style="list-style-type: none"> <li>Endless elaboration from the clothes, agricultural implements, pottery, and architecture of hobbits, to royal annals, chronologies, and calendars<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Faery language<sup>3</sup></li> <li>Poems<sup>3</sup></li> <li>Pencil and watercolor imaginary landscapes<sup>3</sup></li> <li>Histories, genealogies, maps<sup>3</sup></li> </ul>	
Charlotte, Branwell, Emily, and Anne Brontë	<ul style="list-style-type: none"> <li>Biggest cache of worldplay artifacts<sup>3</sup></li> <li>Charlotte experimented with a wide variety of writing genres<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>Tiny hand-sewn books<sup>3</sup></li> <li>Juvenile manuscripts<sup>3</sup></li> <li>Special language<sup>3</sup></li> <li>Maps, histories, stories, poems, and editorial essays in a magazine<sup>3</sup></li> <li>Sketched and painted portraits<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>The siblings fashioned stories around toy soldiers, which they acted out as plays<sup>2</sup></li> </ul>
Wolfgang Mozart		<ul style="list-style-type: none"> <li>Secret language<sup>3</sup></li> <li>Invented cities and villages in his fantasy kingdom<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>He and his sister called themselves King and Queen<sup>3</sup></li> </ul>
Maurice Baring	<ul style="list-style-type: none"> <li>Invented hundreds of characters<sup>1</sup></li> <li>Anything new he learned was brought into the game—history, geography, the ancient Romans, the Greeks, the French<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>Gibberish language<sup>3</sup></li> <li>Dictionary<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Acted out his invented stories<sup>1</sup></li> </ul>
Gregory Benford	<ul style="list-style-type: none"> <li>Explored way-out ideas in physics, exploring the implications of space travel and time travel<sup>3</sup></li> </ul>		
Fairfield Porter	<ul style="list-style-type: none"> <li>Explored what a world might be like if everything ran by sunlight<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Maps<sup>3</sup></li> </ul>	
Peter Ustinov		<ul style="list-style-type: none"> <li>Wrote constitution<sup>3</sup></li> </ul>	
Catherine and Susanna Winkworth		<ul style="list-style-type: none"> <li>Stories<sup>5</sup></li> </ul>	<ul style="list-style-type: none"> <li>Rulers of their own fairy kingdoms<sup>5</sup></li> </ul>
Friedrich Nietzsche		<ul style="list-style-type: none"> <li>Wrote poems and plays<sup>3</sup></li> <li>Composed music<sup>3</sup></li> <li>Created paintings for an art gallery<sup>3</sup></li> </ul>	

<sup>1</sup>Baring, Maurice. *The Puppet Show of Memory*. W. Heinemann, 1922.

<sup>2</sup>Dalsimer, Katherine. "The Young Charlotte Brontë." *Journal of the History of Childhood and Youth* 3.3 (2010): 317,339,452. ProQuest. Web. 12 June 2020.

<sup>3</sup>Root-Bernstein, Michelle. *Inventing Imaginary Worlds: from Childhood Play to Adult Creativity across the Arts and Sciences*. Rowman & Littlefield Education, 2014. Kindle Edition.

<sup>4</sup>Solomon, Maynard. *Mozart: A Life*. HarperCollins College, 1995. Kindle Edition.

## Mind Mapping

A mind map was created as a tool to help those unfamiliar with worldplay gain a basic understanding of the topic. In order to summarize the overall topic of worldplay, the subject was broken down into the main branches of “What does worldplay look like?”, “Why do worldplay?”, “Examples,” “Ongoing,” and “Imagination.” Under “What does worldplay look like?” things like maps, drawings, stories, and roleplay were listed. The “Why do worldplay?” branch stresses that worldplay is both fun and has healthy benefits. Under “Examples” some of the famous worldbuilders, such as C. S. Lewis, J. R. R. Tolkien, and James Gurney, were listed along with their invented worlds. By mentioning some of these beloved childhood fantasy lands, this not only gives a better idea what worldplay is but could also spark interest in creating a personal imaginary world. The “Ongoing” branch communicates that worldplay is meant to be a continual activity, something that one can always come back to and add to indefinitely. Finally, the last branch stresses that creating a make-believe world involves using one’s imagination while keeping consistent rules within the world. For the actual design of the mind map, bright colors and many watercolor illustrations were included.



# Conclusion

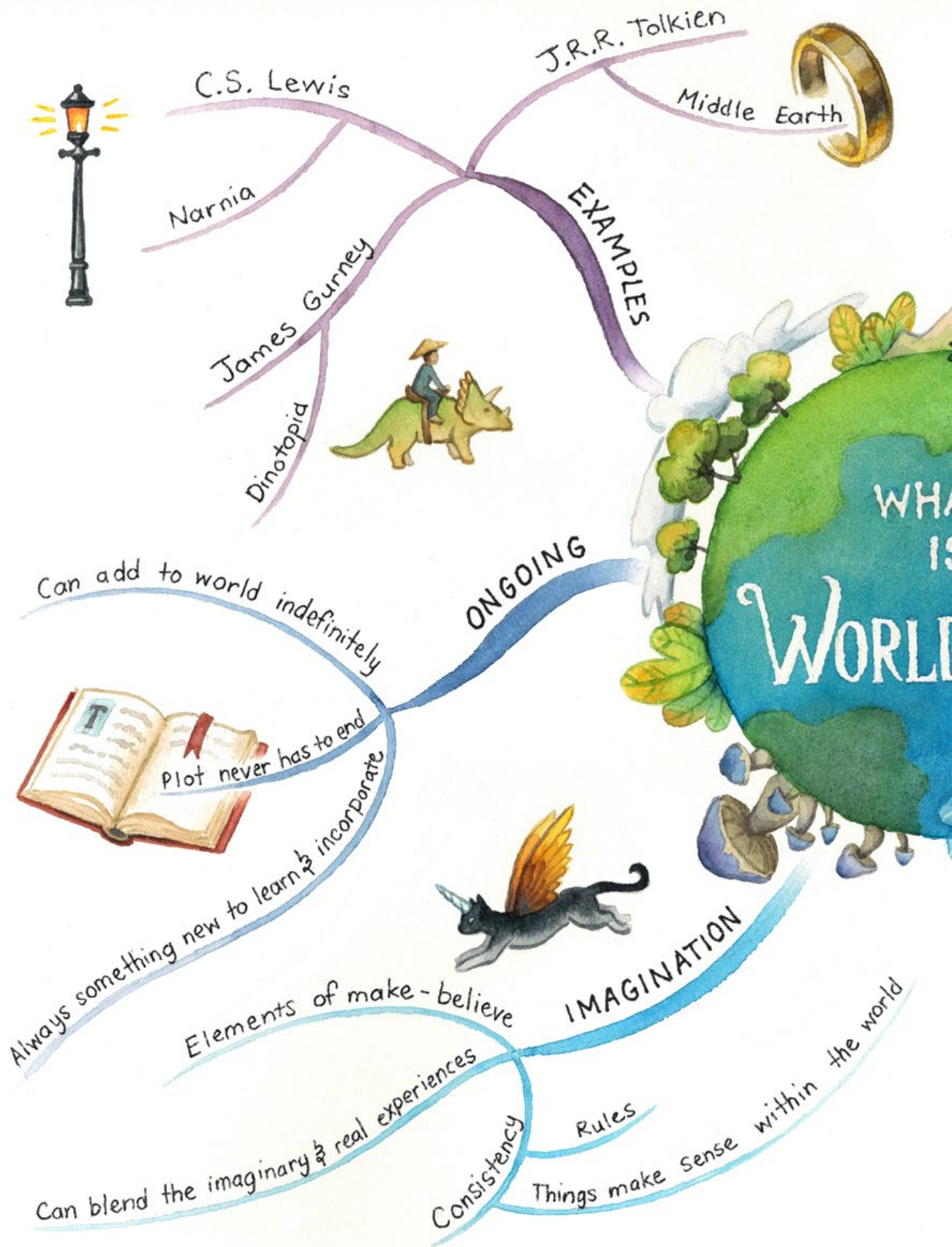
The literature review began with an introduction to the value of childhood play, specifically pretend play because of its imaginative and creative benefits, such as flexibility, effective problem-solving, and novel and innovative design. However, studies show that there is a decline in creativity that occurs around or just before middle school. This is a problem not only to the normal development of the child, but can also affect their future as the demand for creative and innovative ideas grows due to the fast-paced nature of the corporate world. Furthermore, creativity can have a positive effect on cognitive health in later life, preserving memory and keeping the brain sharp. To address the problem of reduced creativity, it is important to examine already established methods of generating creativity via play such as exploration, constructive play, and roleplay. Worldplay, as a blend of all of these methods, provides a laboratory of sorts, a place for children to explore, build with their hands, and empathize with their own invented characters, learning flexibility and gaining experience in problem-solving along the way. It is the goal of this study to develop a child's creativity in preparation for a creative future.

## Visual Solution

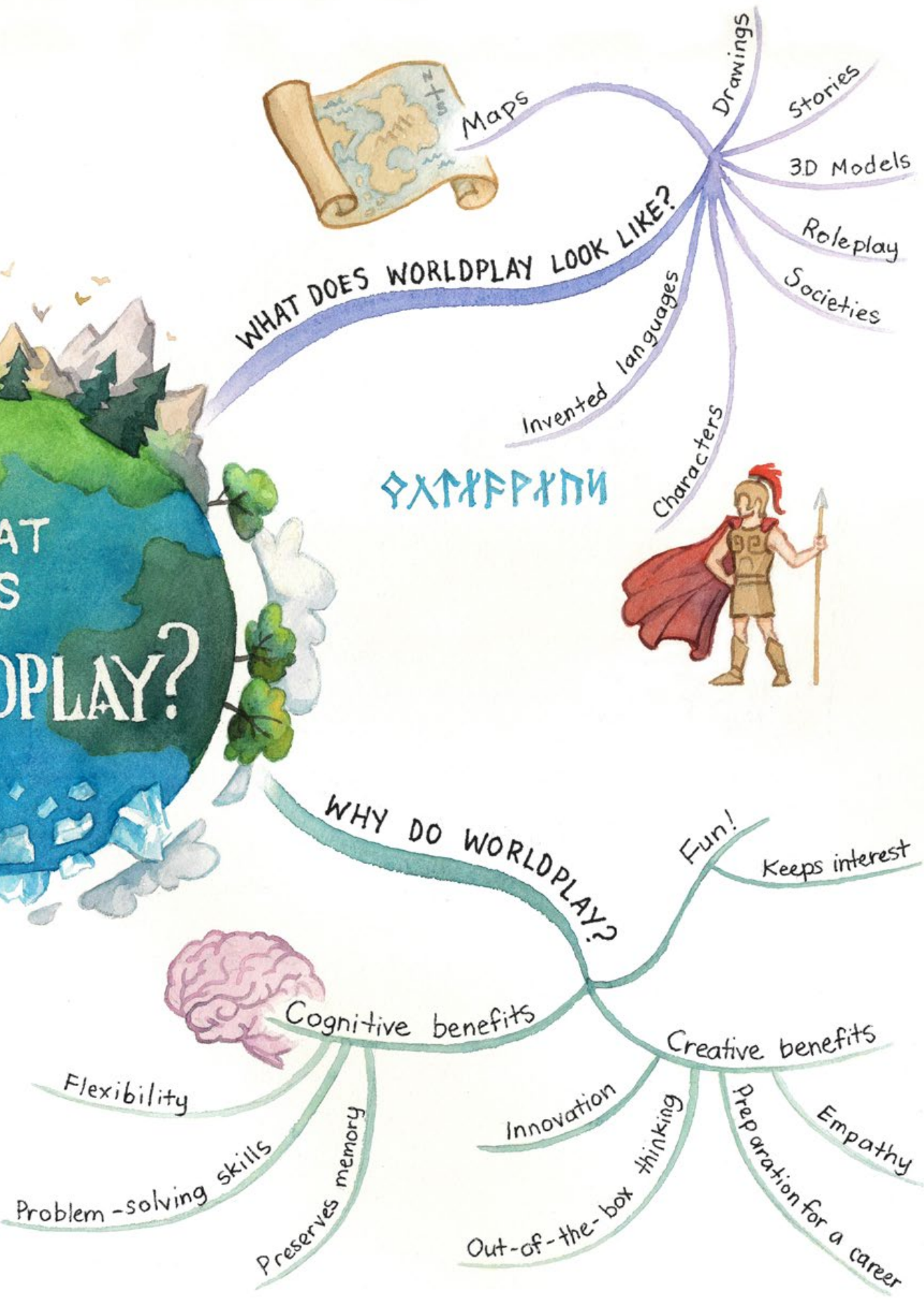
In order to present worldplay as a tool for building one's creativity, the visual solution will demonstrate the process of worldplay through the creation of an imaginary world, while also providing a basic instructional guide appropriate for middle school age children to help encourage their own worldplay. The visual solution will consist of chronicling the development of the world in addition to short explanations and helpful insight organized into a book, with a focus on implementing and defending the methods of utilizing play to generate creativity. The deliverables will include character designs, maps, histories, models, and environment illustrations. Ideation stages will be featured as demonstrating exploratory play, 3D prototypes will show constructive play, and roleplay techniques will be used to create convincing characters and environments. The aim of the final product will be the creation of an effective manual for worldplay beginners.

















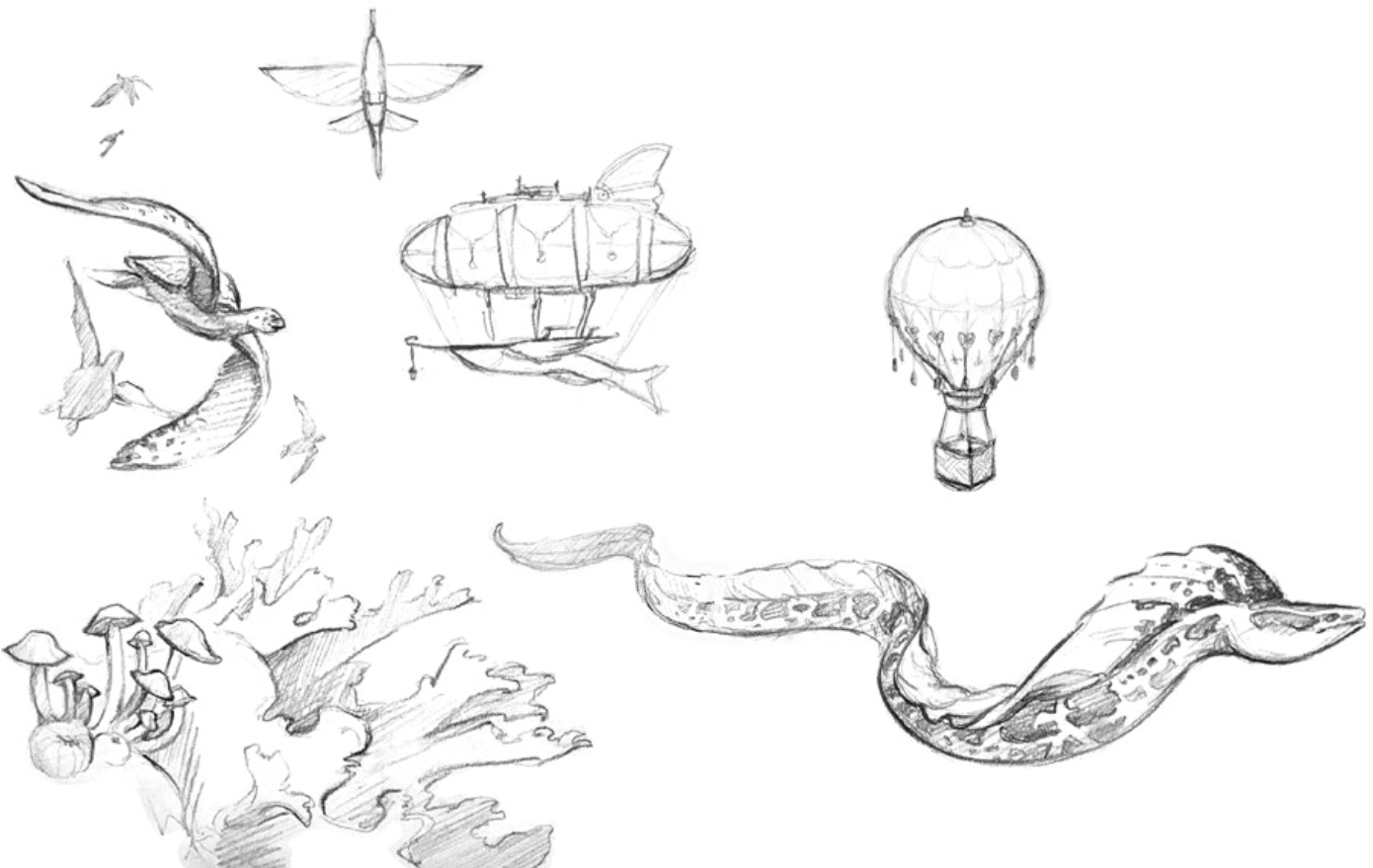
# Chapter 3

# Visual Process

# Visual Solution

In order to present worldplay as a tool for building one's creativity, the goal for the visual solution was to demonstrate the process of worldplay through the creation of an imaginary world, while also providing a basic instructional guide appropriate for middle school aged children to help encourage their own worldplay. The visual solution takes the form of a book that chronicles the development of an invented world, called Aerdyta, in addition to giving short explanations and helpful insight, with a focus on implementing and defending the methods of utilizing play to generate creativity.

Having researched some of the common worldplay activities, I determined that the deliverables would include maps, character designs, environments, historical documents, and 3D models. Ideation stages are featured as demonstrating exploratory play, 3D prototypes and sculptures show constructive play, and roleplay techniques are used to create convincing characters and environments. The aim of the final product is the creation of an effective manual for worldplay beginners.



## Initial Exploration

Before beginning any formal deliverables, I simply started sketching. At this point, my world was a mystery. I began brainstorming the world's potential landscape. The goal was to try to allow my creativity to push past the standard environments of forests, mountains, oceans, etc. I knew I wanted to create a fantastical world, with a unique landscape and interesting inhabitants. I started with the idea of huge trees, a vast jungle, filling the top of steep plateaus. Because people living in the jungle brought to mind tribal or primitive societies, I wanted to go a different direction for a unique approach. I pondered what a more advanced civilization would look like living in the jungle, which sparked the idea of societies that lived high in the tops of trees, people of the sky rather than the ground. This was my first opportunity to engage in roleplay, thinking about what it would be like for the people and creatures of this environment to live among the clouds. The creatures would have to be able to fly or climb. The people would need to create cities that followed the natural formation of the tree, using their technology to assist them.

As I continued sketching concepts, I found endless inspiration in the ocean, specifically the coral reef. Because exploratory play maintains no self-editing too early, I tried all ideas that came to mind even if they sounded silly, such as flying turtles, fungus coral, and giant pink salamanders. The thought occurred to me, what might the world look like if elements of the ocean were combined with the jungle? What if, instead of oceans of water, there were oceans of mist? And the 'islands' were enormous mountain-sized trees, the canopies of which were high enough to emerge above the mist? The populace could create vast cities that filled the treetops, relying on airships for transport between city trees.

Thus far, the developed setup generated an intriguing contrast between the bright and colorful, sunlit heights of the trees, full of life, and the cold, bleak, mysterious and sinister land under the mists. Satisfied that the world concept for Aerdyta had lots of creative potential, I turned my attention to the deliverables.



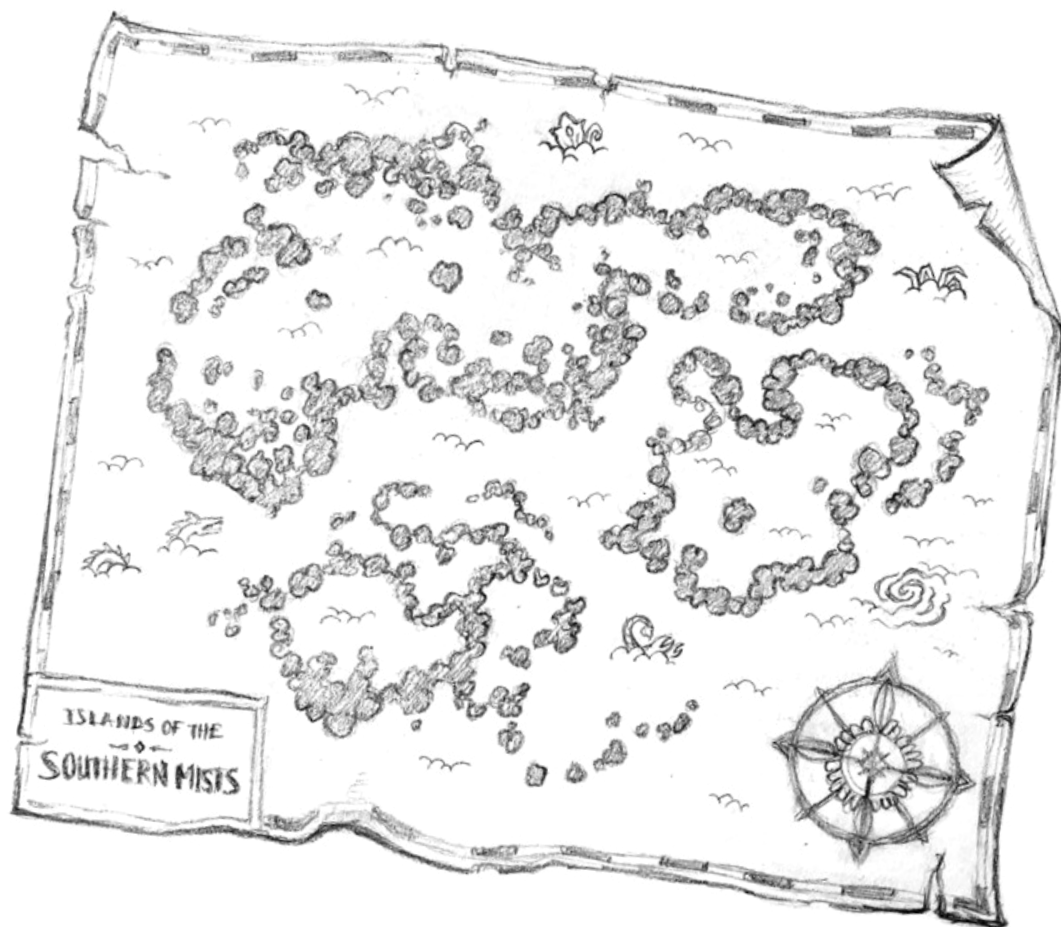


# Maps

Although the world's structure was still only a vague idea, I decided to move forward by creating a map of the region. I realized that I could not completely define the rules, landscape, history, or inhabitants of the world from the onset. Rather, I started with what I knew I wanted to include, and then allowed spontaneity to spark ideas and guide the next step in the creation of this imaginary world.

## *Exploration*

All of the thesis projects started with exploratory play. I brainstormed several ideas regarding the world's geography, eventually finding inspiration in the interesting pattern made by a coral reef viewed from the sky, which became the general shape of the landscape. I also explored many playful elements that could be included around the map, such as little sketches of mythological creatures and crests for each city.





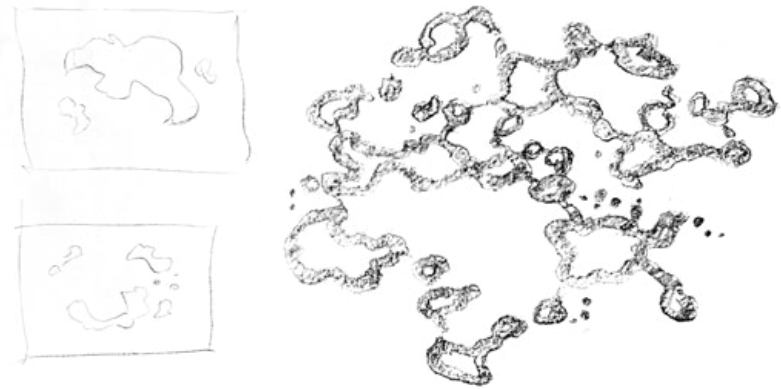
MIST HAVEN    ORANDA    WRASSE    MARBOA

NIMBUS BAY    WELKIN    LUNAS    ZELLE    MOLA

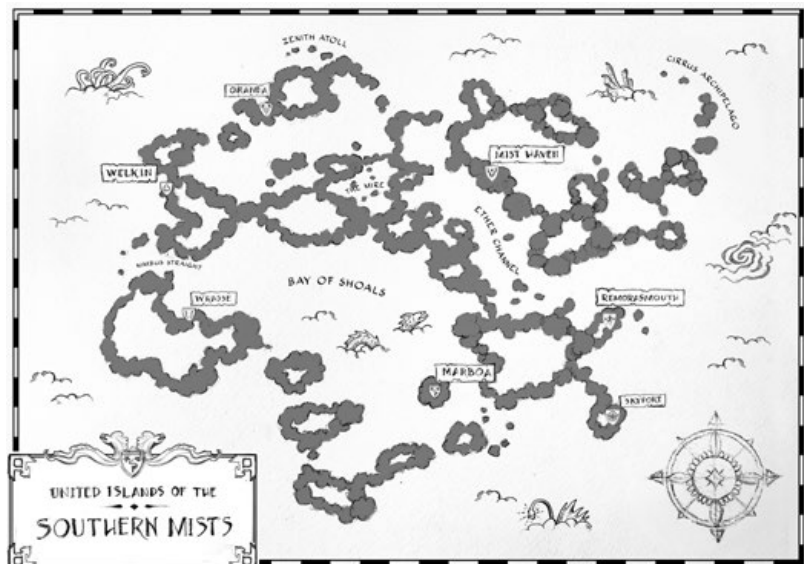
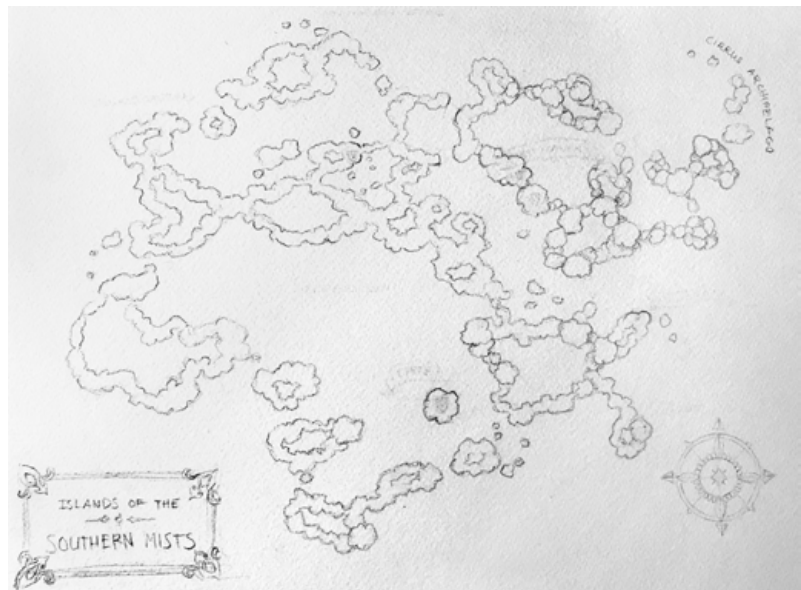
REMORASMOUTH    SKYPORT    SQUALLS LANDING

As a part of exploratory play, I experimented with several crest designs, tested out options for mythological creatures to include around the map, and brainstormed city names.

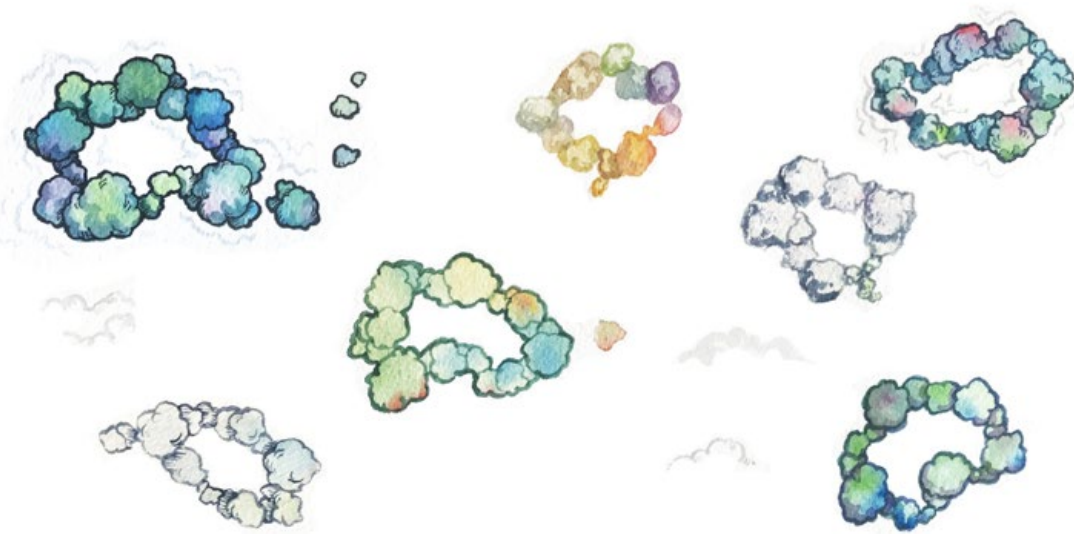




I did some preliminary map sketches to test out shapes for the land, then refined the shapes before making a more detailed mockup in Photoshop.

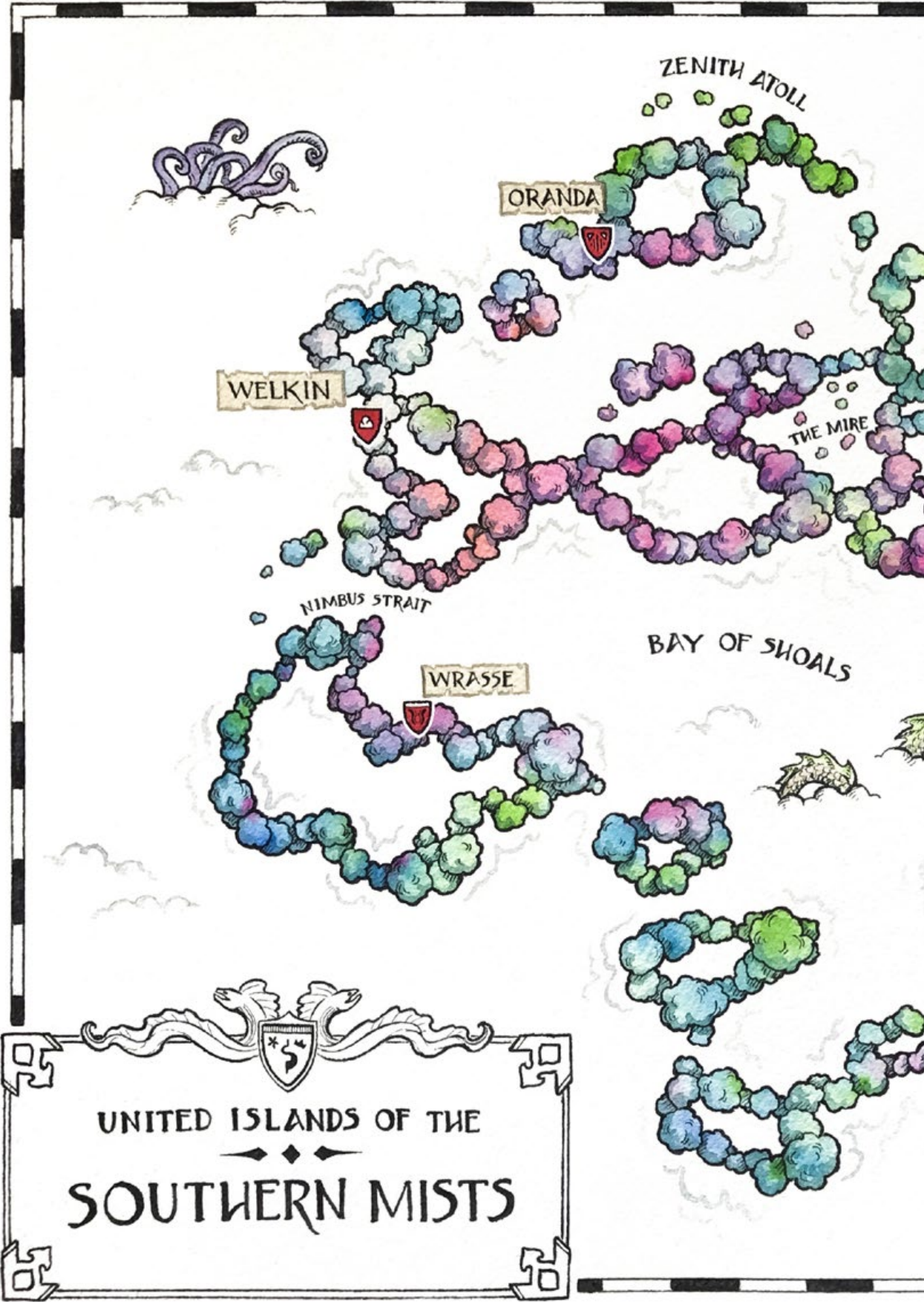




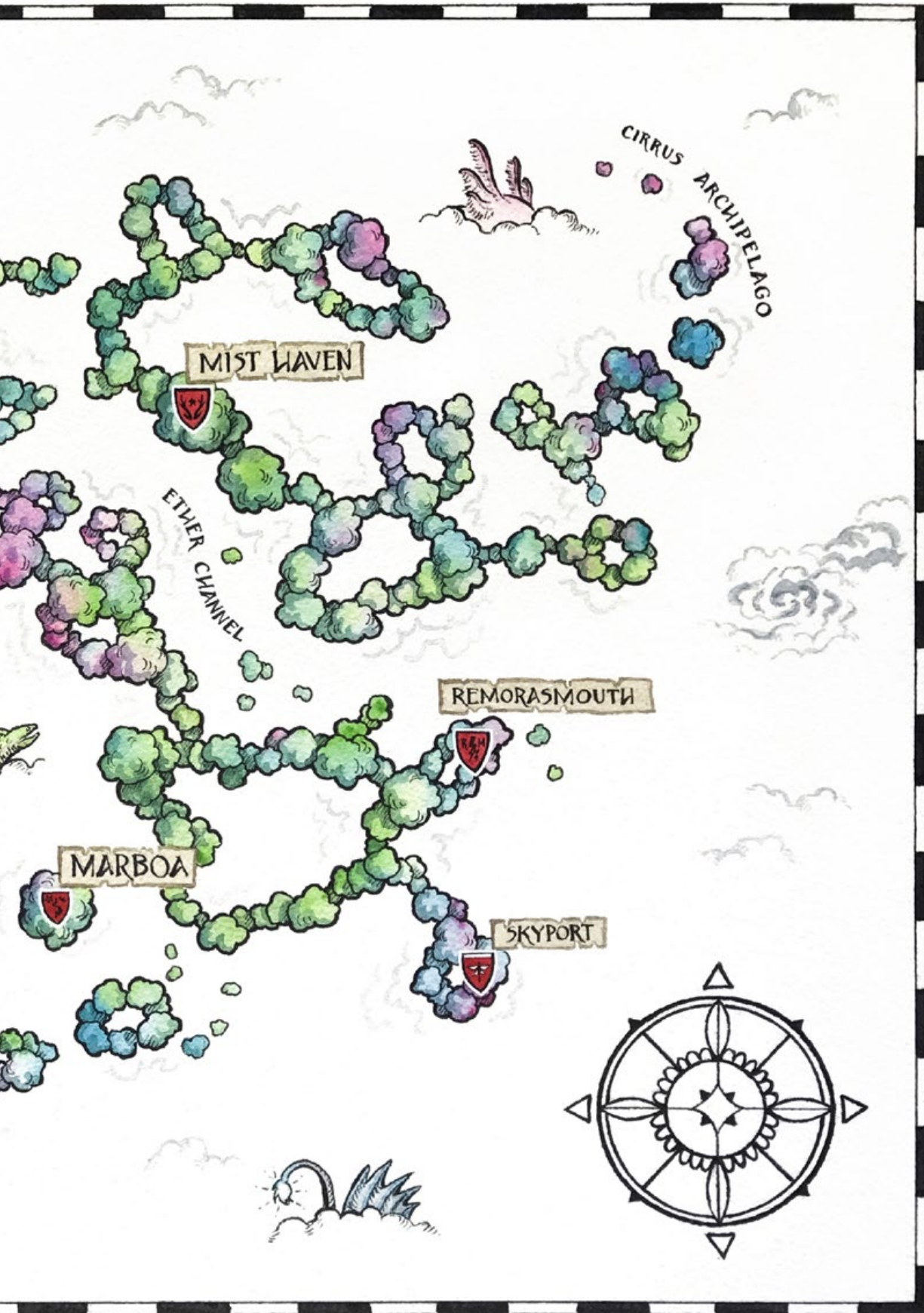


## *Construction*

After sketching out the rough shape of the map, photographing it and putting it into Photoshop to create a mockup, I moved on to the construction phase of this project. Starting out on a 9X12 inch piece of watercolor paper, I then realized this was too small, not allowing the desired level of detail. However, it provided a chance to prototype and brainstorm locations and names for cities and landmarks. The final piece was rendered in watercolor and ink on cold press watercolor paper.







# Character Designs

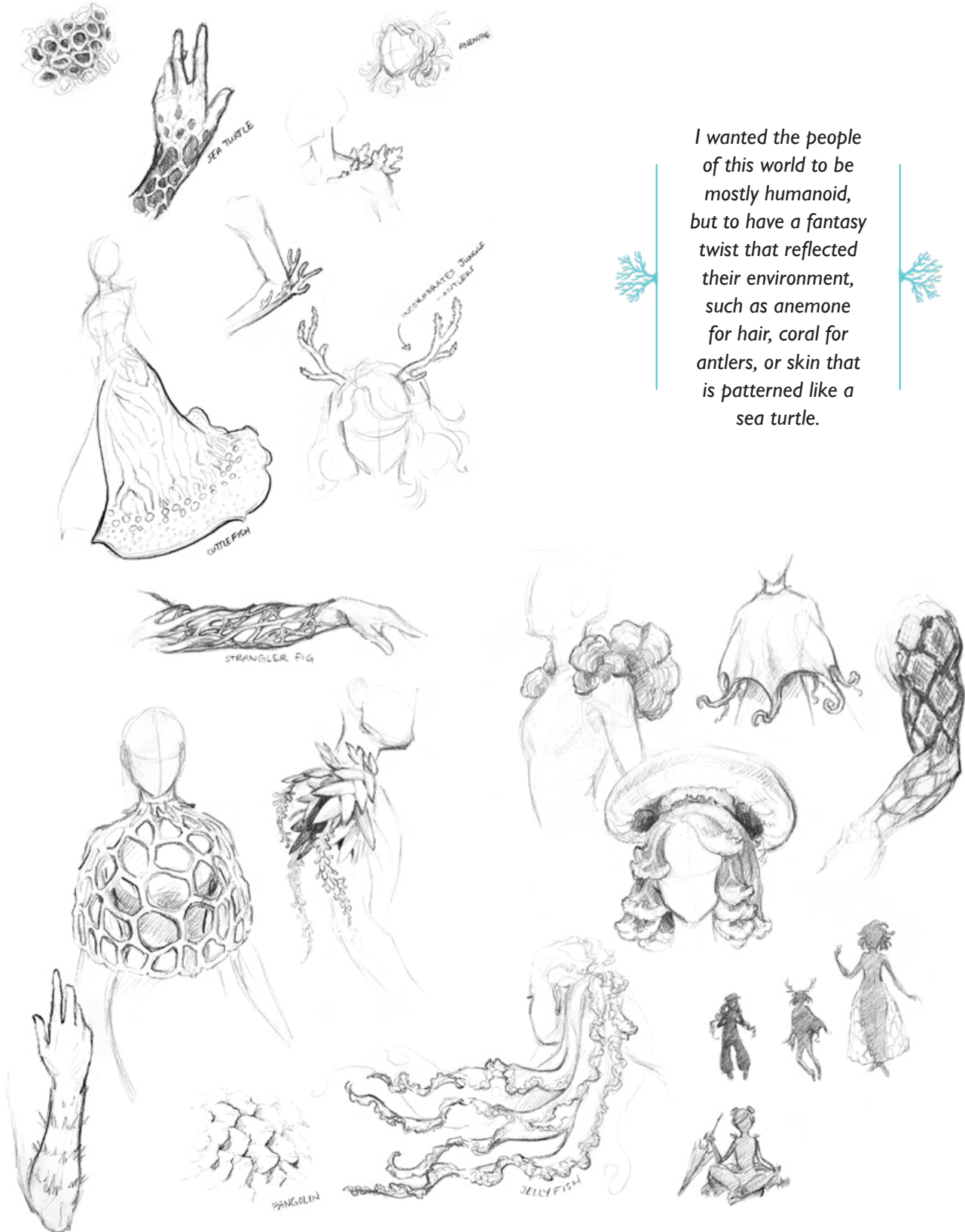
Character creation is a big part of worldbuilding, and provides a perfect opportunity to employ roleplay. Character design involves inventing the inhabitants who live in the world, designing their clothing, tools, and accessories, creating their home and surroundings, and telling their story. Roleplay is an effective tool to develop more creative and meaningful characters. Roleplay relies on the idea of stepping into someone else's shoes, either by physically playacting or just by thinking through what it would be like to be that person, which can prove beneficial when attempting to create convincing characters.

## Annelise Flinters

### *Exploration*

For the first character design, I started out by engaging in exploratory play. I filled several pages of my sketchbook with ideas, sketching as many concepts as possible. I looked at photographs of coral reefs for inspiration, drawing anything that caught my eye. I played around with how some of these coral reef or ocean elements could be integrated into a character design, experimenting with the idea of coral-like structures growing from shoulders or elbows, or perhaps from the head to form antlers. In addition, it was necessary to include elements of the jungle and ensure that both the jungle and ocean influences could be detected in the designs.





I wanted the people of this world to be mostly humanoid, but to have a fantasy twist that reflected their environment, such as anemone for hair, coral for antlers, or skin that is patterned like a sea turtle.







After exploring the general options of what the humans of this world might look like, I turned my attention to formulating a specific character. There were two main designs that inspired further experimentation as possibilities for my character. The first was a design based on a leafy sea dragon. This fish's unique fins resemble leaves, which presented an effective way to combine elements of ocean and jungle. I used the leafy fin design to replace the hair of the character, arranging these leaf-like shapes to form a bob hairstyle.

Although the first design was quite effective, investigating another option was necessary to fully explore possibilities. I played around with the concept of having a coral structure growing in the form of antlers. Using the shape language of antlers would bring in the element of the jungle, and having the antlers made of a brightly colored coral would incorporate the ocean.

### *Roleplay*

Before getting too far in the visual design for this character, I wanted to get to know my character more, to understand her background, personality, and role in the story of my imaginary world. In order to achieve this, I began employing roleplay techniques to



# 'NEL'

ANNELISE FLINTERS

## CHARACTER SHEET

**THESIS:** Nel, the headstrong 14-year-old daughter of the School of Crystallurgy headmaster, is an inquisitive, studious girl, with the power of crystallurgy binding.

**NAME:** Annelise Flinters

**AGE:** 14

**GENDER:** Female

**RACE:** Homocnidarian (human with coral characteristics)

**CLASS:** Upper magical class

**HOME CITY:** Mist Haven, seat of magic in the country

**HOME ENVIRONMENT:** Temperate coral jungle

**BUILD OR BODY TYPE:** Tall and thin

**HAIR COLOR:** Reddish brown

**DISTINGUISHING MARKS:** Leafy sea dragon markings on her skin and coral antlers

**SPECIAL ABILITIES OR POWERS:**

Crystallurgy binding

**ULTIMATE ABILITY:**

Best crystallurgist of her class

**WEAKNESS:**

Pride

**PERSONALITY:**

Confident, curious, honest, trustworthy, practical, determined

**LIKES:**

Knowledge, being in control, drawing, reading

**DISLIKES:**

Not knowing the answers

flesh out this character. What was my character's name? What did they look like? What did they do? What made them special or unique? The essence of roleplay is placing oneself in the shoes of another person. Thus, trying to take on the role of Nel, I began answering these questions and more, which was put together into a character sheet.

As I started to explore possible answers to these questions, it was important to keep in mind what I had previously established about Aerdyta. Because I had already created a map of the Southern Mists, I wanted my character to be from one of the coral tree cities marked on the map. I considered Marboa, which I wanted to be the capital city of this country and a busy central hub of industry, but was then drawn to the city of Mist Haven. I imagined this city as a peaceful and magical place to contrast the darker, more industrial capital city of Marboa. Having made my decision that my character would be from Mist Haven, this impacted how I answered the rest of the questions. I decided to name my character Annelise Flinters, Nel for short, and I knew I wanted her to be able to do magic, what I've called crystallurgy. She would be a student attending the crystallurgy school, and the daughter of the headmaster. I decided that the original design that incorporated leafy sea dragon fins for hair would actually be Nel's mother, explaining how Nel inherited leafy sea dragon markings on her face and arms. But she also has coral antlers, inherited from her father's side of the family.





## Construction

Satisfied that Nel's background and story was filled out with enough detail, I returned to the visual design. After many thumbnails and rough sketches, I took the sketch with the most potential into Photoshop to continue refining it. To test out color schemes, several mockups were created before selecting the most effective option. Using the mockup as a reference guide, the final illustration was completed in watercolor.

Nel's color palette consists mostly of natural colors like browns and greens, representing her practical, sensible personality, giving her a feeling of stability and strength. Red is used as an accent throughout her design, hinting at her fiery determination and intense curiosity.

Nel wears a school uniform coat, which is inspired by the design of a moth or butterfly. This is a nod to Nel's last name, Flinters, which comes from the Frisian word 'flinter,' meaning butterfly. Additionally, this makes sense in the lore of the world, because Nel's father is the headmaster of the magic school, and her ancestors have been involved in the leadership of the school for generations. You can see the school crest on the lapel, which contains the antlers from the Mist Haven crest seen on the map. On her belt, Nel keeps a case for a small sketchbook, as well as a pouch containing chalk made from bleached coral, which Nel uses as part of her crystallurgy to draw images in the air. She carries a couple of her school books, again hinting at her studious nature. The rest of her outfit, the corset, trousers, and boots, are designed to reflect the steampunk inspiration of the world.





# Kyte Bridgeman

## Roleplay

My second character is a young boy named Kyte who becomes friends with Nel. To begin the character design, I started with roleplay to put together a character sheet for Kyte. Again, roleplay was vital as I sought to create a character with depth and potential by trying to see from Kyte's point of view. Following the same format used for Nel, I asked and answered a series of questions that helped establish some of Kyte's background and personality. I decided that Kyte would be a tinker/toymaker, and an orphan. Although I created Nel first, Kyte became the main character of the story that takes place in Aerdyta. Kyte is special, a mystery. Although he doesn't know it at first, Kyte has a unique and powerful ability, something that takes an entire journey across, and beneath, the mists to fully realize.

Kyte's character sheet provided a helpful starting point for his visual design. Because Kyte would have to fend for himself as an orphan living in the darker, harsher districts of the capital city, this would impact not only his personality, but his appearance. He provides for himself, so he carries the tools of his trade around with



## 'KYTE'

KYTE BRIDGEMAN

### CHARACTER SHEET

**THESIS:** Kyte is a mischievous but kindhearted orphan living in the capital city, where he works as a tinker/toy-maker, fending for himself until he meets Nel, who helps him discover his powers of crystallurgy.

**NAME:** Kyte Bridgeman  
**AGE:** 11  
**GENDER:** Male  
**RACE:** Homocnidarian (human with coral characteristics)  
**CLASS:** Lower class  
**HOME CITY:** Marboa, the capital city  
**HOME ENVIRONMENT:** Tropical coral jungle  
**BUILD OR BODY TYPE:** Small and lean  
**HAIR COLOR:** Dark brown  
**DISTINGUISHING MARKS:** Clown fish markings on face, flying fish fins on arms and legs

**SPECIAL ABILITIES OR POWERS:**  
Able to use all three branches of crystallurgy  
**ULTIMATE ABILITY:**  
Full mistwalker able to fly  
**WEAKNESS:**  
Recklessness  
**PERSONALITY:**  
Mischievous, clever, loyal, courageous, risk-taker  
**LIKES:**  
Eating, working with his hands, protecting the other orphans  
**DISLIKES:**  
Bullies





him on his tool belt. None of his clothing or accessories are overly bulky so that he can move swiftly when he needs to. He wears his dad's old aviator jacket, but with the sleeves torn off because of the warm environment.

### Exploration

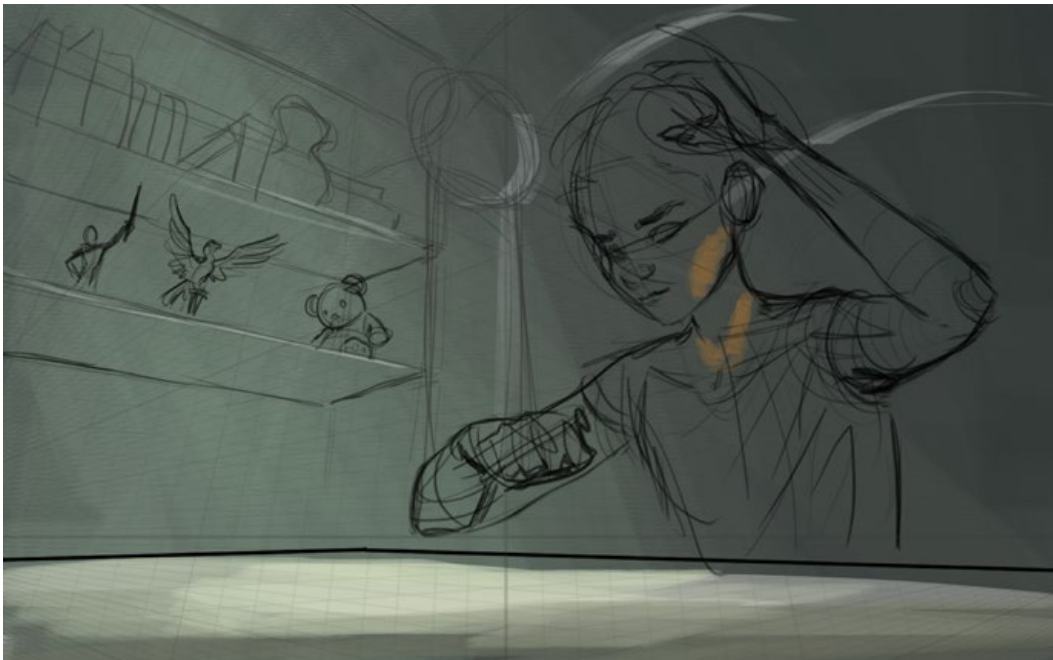
To begin exploring Kyte's design, I sketched a couple of faces and gesture poses to capture Kyte's personality. Because Kyte is a toymaker, I gave him goggles with extra lenses, similar to a jeweler's loupe. I liked the idea of hinting at Kyte's past by having him wear his dad's old aviator jacket. The jacket acts as symbolic armor, its texture looking as thick and rough as rhino skin, hinting at the fact that Kyte has had to take care of himself since his parents died.







*I wanted to give Kyte some characteristics of the coral reef, so played around in Photoshop, testing out fish markings on his face and potentially using sea slugs to look like hair. Clownfish markings seemed the most appropriate, the bright orange giving him a feeling of youth and energy. In addition, Kyte would have flying fish fins on his arms and legs, an ocean influence that also hints at the unique ability of flight.*





## *Construction*

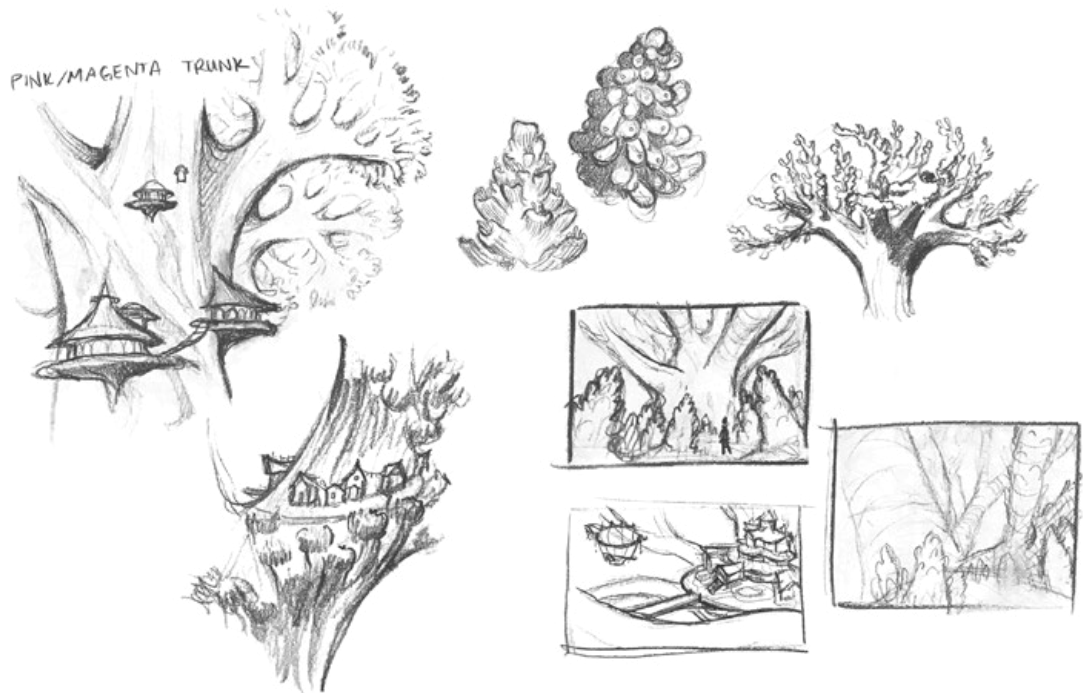
Once a solid idea for Kyte's physical appearance was in place, I began working on a digital portrait of Kyte in his workshop, surrounded by some of his handmade toys. My first attempt was lackluster and I ended up starting over fresh. The second try proved more successful, and I was able to develop a convincing sense of lighting and form. Working in Photoshop, I incorporated many of Kyte's distinct features, including his clownfish markings and flying fish fins, as well as his goggles and aviator jacket. Furthermore, the setting of a workbench with toys around him helped to convey his profession.

# Environments

Designing an environment piece provided the chance to flesh out what was begun in the map creation stage. When designing the map, I established that my world was covered in mist rather than water, and that giant colorful coral trees were the primary inhabitable landform. Now I got to visually explore what Aerdyta would actually look like within these general guidelines.

## *Exploration*

To begin the process, I sketched out several options for how the coral tree formation might look. Inspired by the idea of a fractal, the coral tree would divide into branches, and those branches would have branches, so that the design would continue to repeat itself, getting smaller and smaller each time. In this way, the coral tree would be covered in smaller coral 'foliage,' creating a habitat where animals could live. These giant coral trees would have function as a home for people as well as. The majority of the populace would live on the larger and flatter regions of the tree, creating the urban areas, and as one moved farther up and out onto smaller branches, this would be considered the rural or wild zones.

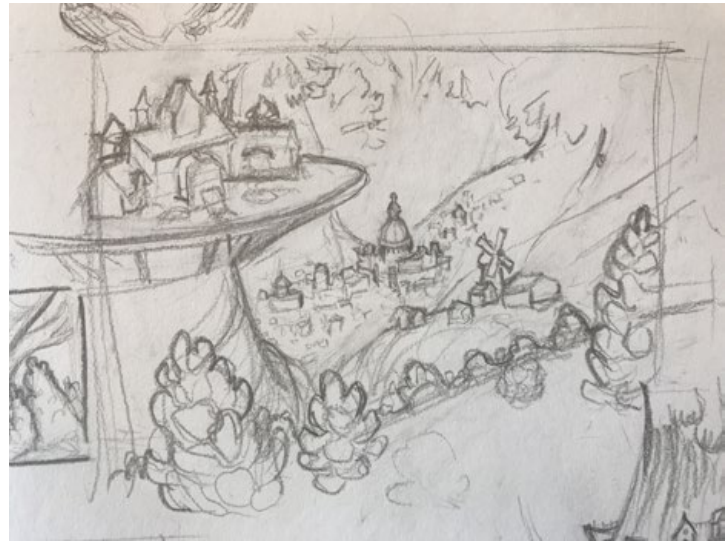




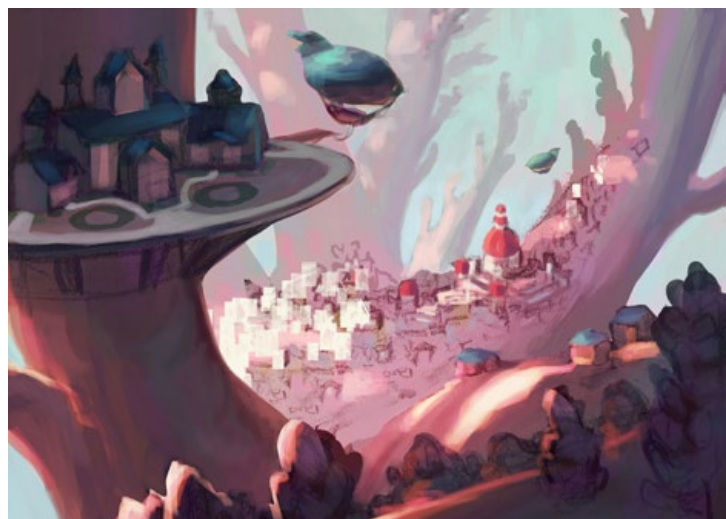
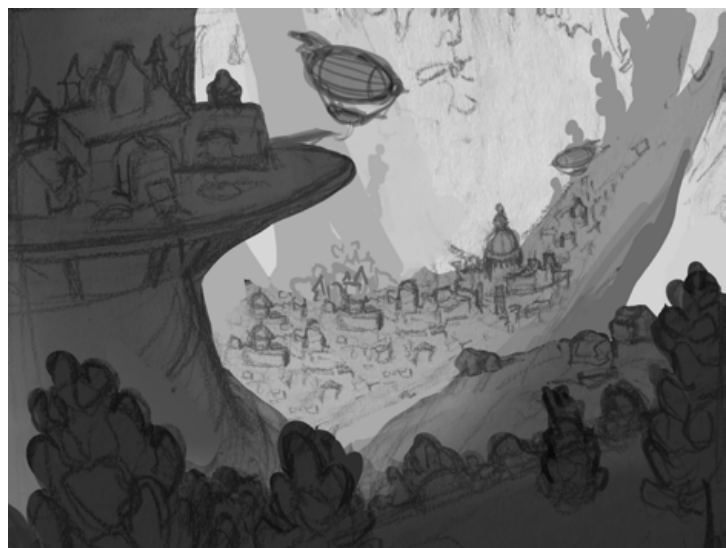
I decided that my environment piece would depict the city of Mist Haven, where my character Nel resided. After debating what kind of architecture to employ for the city, I decided to remain with a steampunk inspiration, a style reminiscent of Victorian London, with steep peaked roofs and numerous chimneys. Because this was a city in the sky, I included airships dotted around to show that the chief form of transport would be via flight.

For the structure of the tree itself, I explored many photographs of real coral, looking for ones that already possessed a tree-like formation. I found various examples of corals that seemed to fit this category, and was inspired by a type of flower tree soft coral that was bright magenta in color.





*I started with a rough sketch of the city in the branches of a coral tree. Then, in Photoshop, I created a simple value pattern before jumping into working with color.*



## Construction

The preliminary sketches were rendered in graphite, but I quickly moved into a digital format for this piece. Having already completed a few watercolor paintings, I chose to have the final environment be a digital illustration in order to encourage exploring a wide variety of mediums in the worldplay manual. I sketched out a busy city in the crook of several branches, with the imposing school building lifted higher on a foreground branch. Once satisfied with the composition in the rough sketch, I created a value study in Photoshop to ensure the layout would read clearly. Using aerial perspective to add a greater sense of scale, the foreground remained quite dark while distant branches faded into the background. The next step was to add color and detail.

There was much trial and error as I built up the different features of the environment. Rendering the city buildings in particular took several attempts to successfully suggest a large, busy city while not overwhelming the piece with infinite details and distracting from the focal point. The goal was to have the red-roofed city hall building provide the center of interest for the composition, with the school building in the top left being a secondary focal point. The final touch was to scatter some birds throughout the piece as well as a flying eel to add life and movement.









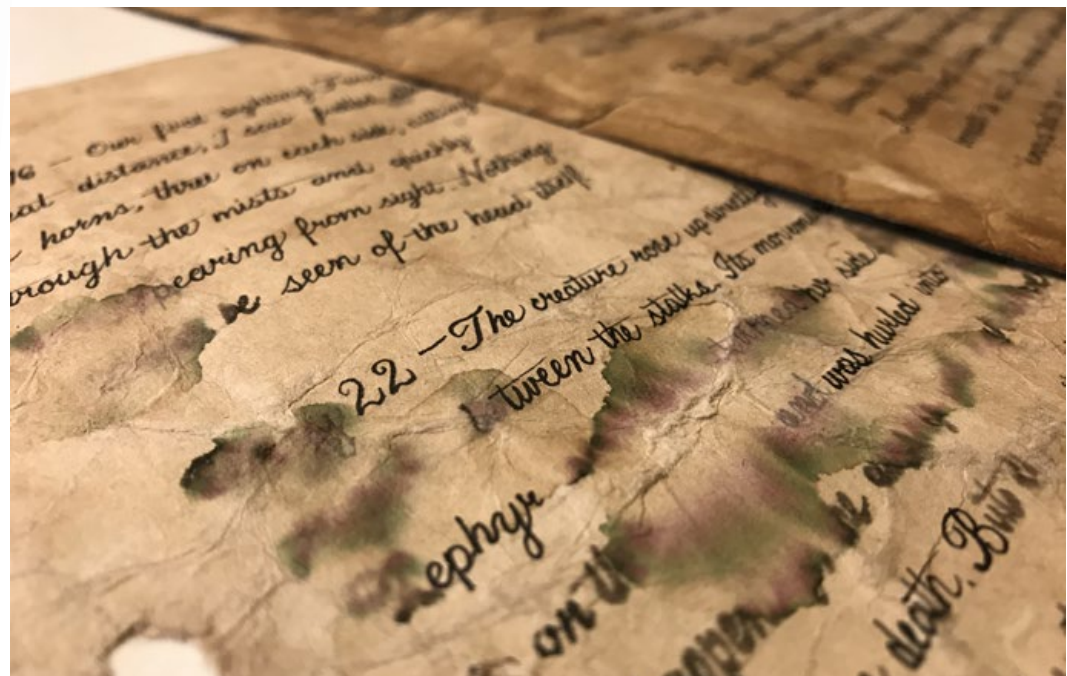


# Historical Documents

Because the research into childhood paracosms revealed that it was common to create historical documents for the invented world, it was something I wanted to incorporate into my own world's development as well. This could include documents such as the country's constitution, or ancient poetry that describes the world's origin, or any number of other written records that add to the world's lore.

## *Exploration*

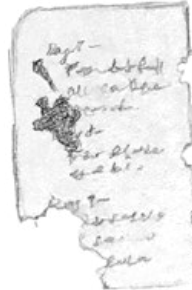
I began brainstorming many different ideas for what to create for some kind of historical document. I considered the idea of a constitution or ancient poetry or a song, but also wanted to explore other possibilities. I considered creating a document for my character Nel's magic school, such as 'The Seven Tenets of Magic,' describing the principles by which the magicians use their abilities. Another option was creating a genealogy, detailing Nel or Kyte's ancestors back to some powerful magician of the past. Creating a myth was another engaging idea, an opportunity to hint at an ancient legend of fantastic creatures or terrifying beasts. All of these options created the chance to flesh out the world, to reveal more of its history, beliefs, or natural laws by which the world functions.





HISTORICAL DOCUMENT

- TORN PAGE FROM EXPEDITION JOURNAL
- EXPLORERS/RESEARCHERS - WHAT LIES BEYOND THE MIST?
- NEL DISCOVERS PAGE IN HIDDEN LIBRARY
- TELLS STORY OF GIANT CREATURE OF THE MISTS
  - HINTS AT THE EXISTANCE OF "MISTWALKERS"
  - CREATURE GIVES A POWERFUL GIFT



I ultimately decided on creating a journal, a document written by an explorer a couple hundred years before the time of my characters. I loved the idea of Nel discovering these old torn pages in a hidden library inside her school, opening up a mystery that could be the driving force behind my characters' story.

In addition, I was drawn to the idea of developing my own myth, so I incorporated this idea into the journal. When creating the map of the country, sketches of giant creatures were included peeking above the mists. I imagined these as mythological creatures, similar to how mermaids or dragons can be seen on many maps of our own world. One of these drawings was based off an axolotl, a type of salamander with frilly gill stalks on its head. I decided to make this animal the source of the legend, but much larger and more 'magical.'

Beyond writing the text, including some ink sketches would add to the account and make the journal pages look more authentic. This offered the chance to develop a creature design for the axolotl inspired beast. To test the page layout, I did a few thumbnail sketches and planned what I wanted the ink drawings to look like.



## *Roleplay*

In a Word document, I planned out the script to include in the journal. I wrote it from the point of view of one of the explorers, or perhaps researchers, traveling by airship on an expedition to discover what lay beyond the mists. I tried to include aspects of my world that had already been defined elsewhere, such as landmarks and names of places on the map, as well as the airship style of transportation established in the environment digital painting.

Moreover, I used this opportunity to expound on the true nature of magic in Aerdya, which up until this point had only remained a vague notion. More than just a generic magic, I wanted there to be a reason for magic, a source of power that made sense within the world I was creating. Using the myth of a benevolent beast that gives those who find it a powerful gift allowed me to hint at this magic source. Once the written portion was complete, I then moved on to the creation of the document itself.

## *Construction*

The goal for this project was to create an artifact that looked like it was the actual document. The script needed to look like it was written with an ink nib on real parchment, and for the entire document to look weathered and hundreds of years old. Not knowing what would yield the best result, I did several tests using a variety of computer paper, cardstock, and sketch paper. I tried different techniques to create the texture that I was looking for, crumpling some papers repeatedly and others minimally. I created a mixture of coffee and tea in which to stain the paper, and placed the crumpled-up pieces of paper in the concoction. I sprinkled coffee grounds and tea leaves over the top, then allowed the paper to sit. I removed about half of the papers after three to four hours, and the rest was left overnight, testing to see whether the lightly stained or more stained looked better. Once the papers were removed from the liquid, they were laid out on a flat surface, carefully unfolded so they would not tear, though several were too thin of a material and dissolved with much handling. The cardstock and some of the sketchbook paper fared the best, holding up to the soaking, and drying with interesting textures and patterns of creases. The cardstock paper looked the most promising, but was too bumpy to write or draw on. After misting with water and ironing, the paper was perfectly flat while maintaining its interesting texture.







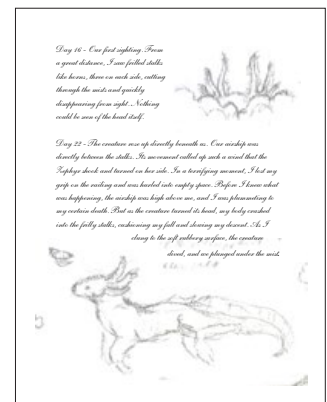
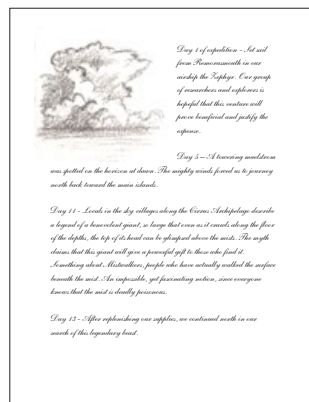
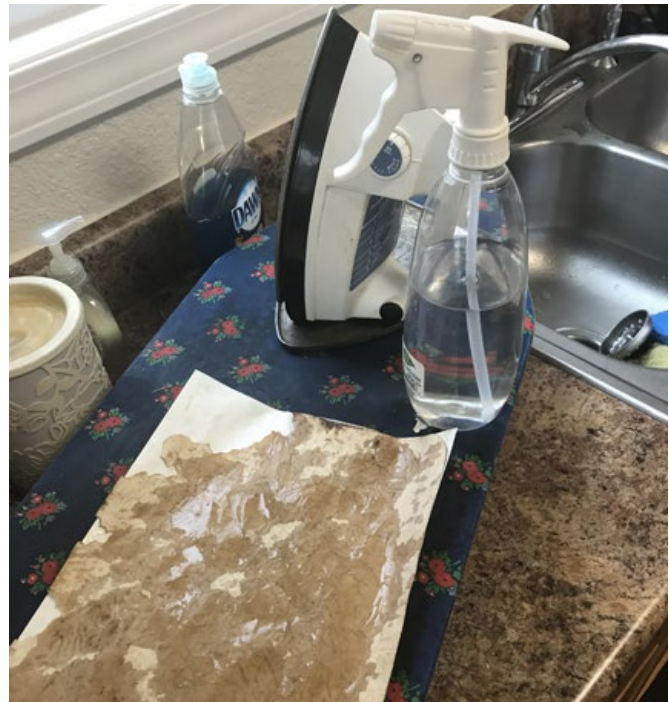
*I tested out several kinds of paper because I was not sure which would yield the best result. I placed the crumpled papers in a large pot with a mixture of tea and coffee, sprinkling extra coffee grounds over the whole thing, then left the concoction overnight.*







Most of the thinner papers disintegrated, but the cardstock was perfect, so I laid them out to dry. They had a bumpy texture, but after re-wetting and ironing them, they were perfectly flat while retaining the beautifully textured look.



peering from sight. Nothing  
is seen of the head itself.



22 - The creature rose up directly beneath us. It  
between the stalks. Its movement called up such  
ephye turned her side, flying  
on the and was hurled into space.  
was happening, he called me, and I  
creature turned its head

Using the Word mockup of the journal pages, I transferred a general guide for where the lines of text would go, then used water-proof pens for the majority of the script. I purposefully skipped over text that I wanted to look like had faded or had suffered water damage. The water-proof pens provided good control and I was able to write out the journal entries in a beautiful cursive script as well as draw the sketches around the page. I then switched to an old calligraphy pen to complete the sections that had been skipped. I used my fingertips to dab water over the ink in these sections, purposefully making the ink bleed, blurring and sometimes completely obscuring the words. This created an authentic appearance for an old written account while also adding to the mystery of the document. After the text and sketches were completed, I carefully tore off parts of the pages, making it appear even older, and as if the pages had been ripped out of a bound journal. The last step in the creation process was to splatter a few more drops of water and ink across the page for added character, and leave the pages to thoroughly dry and flatten under a stack of books.







Day 1 of expedition - Set sail from Remorasmouth in our airship the Zephyr. Our group of researchers and explorers is hopeful that the expedition will prove beneficial and justify the expense.

Day 5 - A towering maelstrom appeared on the horizon at dawn. The mighty winds forced us to journey back toward the main islands.

Day 11 - Locals in the sky villages along the Cirrus Arc describe a legend of a benevolent giant, so large that even as our airship flies floor of the depths, its head can be glimpsed above the mists. Local myth claims that this giant can give a powerful gift to those who find it. Something about Mistwalkers, people who have learned to walk the surface beneath the mist. An impossible, yet fascinating notion that everyone knows that the mist is deadly poisonous.

Day 13 - After replenishing our supplies, we continued north in search of this legendary beast.



Day 16 - Our first sighting. From a great distance, I saw frilled stalks like horns, three on each side, cutting through the mists and quickly disappearing from sight. Nothing was seen of the head itself.



Day 22 - The creature rose up directly beneath us. Our airship was between the stalks. Its movement called up such a wind that the *Lephyr* turned her side. In a dizzying moment, I lost my footing on the deck and was hurled into empty space. Before I knew what was happening, we were falling, and I was plummeting to my certain death. But as the creature turned its head, my body crashed into the frilly stalks, cushioning my fall and slowing my descent. As I clung to the soft rubbery surface, the creature dived, and we plunged under the mist.





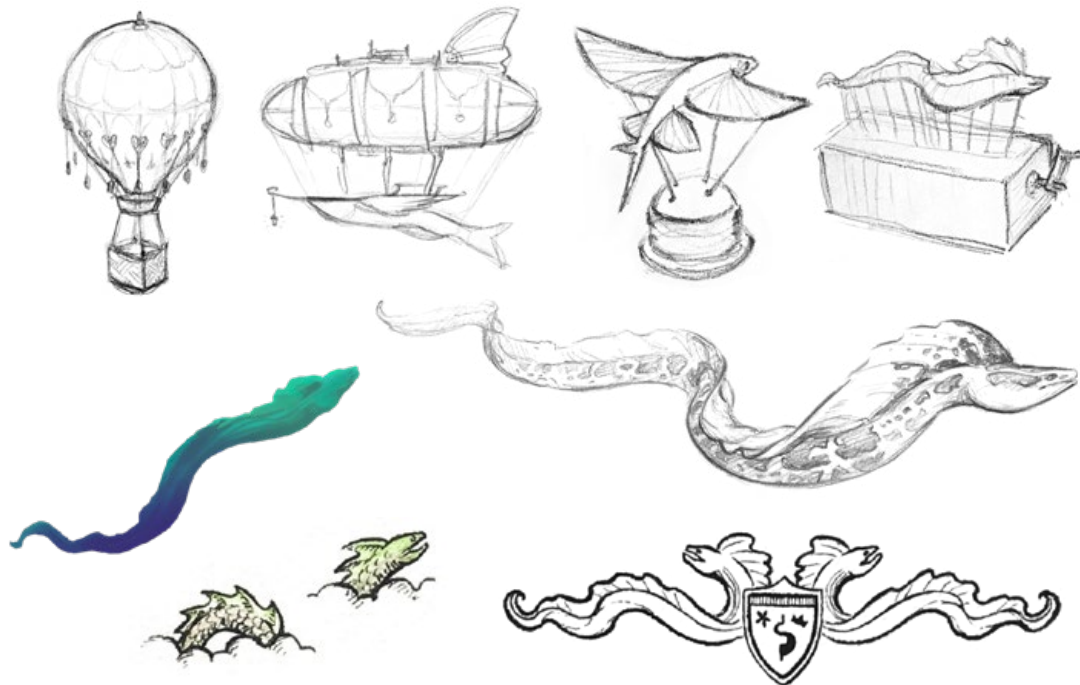
# 3D Models

## Toy Automaton

Because one of the main characters was a toy-maker, I thought it appropriate for one of the constructive play projects to be a toy, a design supposedly made by the character. To keep in the same vein as the steampunk-like world I was creating, I began looking into things like crank toys and automata. This is a fascinating style of toymaking that involves turning a crank that causes the toy to move. These toys can be fairly simple, or incredibly complex.

### *Exploration*

For the design I sought to create, a few different options were considered. I sketched a couple ideas, such as a hot air balloon or airship, or perhaps a flying fish that could flap its fins. Looking back at some of the things already created for this world, I took inspiration from the eel-like creature that can be seen in the environment digital painting as well as in the motifs throughout the country map. This is a creature that can fly through the air as if it were swimming through water. My idea for the toy was to create an eel that would slither back and forth as a handle was turned.





## Construction

To figure out the mechanics of such a toy, I began by building a working prototype from materials I found around my house. From a YouTube video of a crank toy where a caterpillar moved in an up and down motion, I gained an idea of the overall setup. The eel would need to be made of individual moving parts mounted on rods, supported by a box frame. The base of the rods would attach to a mechanism below that would turn with the crank. Having never designed or created a toy before, I had to work on each part bit by bit, solving one problem at a time. I started with what I knew, then built off of that to achieve the next step.

From the YouTube video, it was determined that the best place to start was to create a circular motion. With a circular motion, an object is moving both up and down, as well as side to side. After achieving a circular motion, I could then isolate just the side to side motion need for the eel. I started by cutting out 9 two-inch diameter circles from cardboard and poking a hole through each one in the same spot close to the rim of the circle. Using an old paint brush as a dowel rod, I pushed the cardboard circles onto the brush's handle. Securing the first circle in place with tape close to one end of the brush, the remaining circles were arranged equal distance apart along the rest of the length. I lined up the second circle in the same orientation as the first, but then slightly rotated it before securing it in place. I continued to do this with all of the circles so that when finished, the circles created a spiral around the dowel. This would ensure that each individual part of the eel would be slightly offset from its neighbor, so that as each part moves side to side, the eel will appear to slither like a snake.



The second step was to figure out the rods that would attach the dowel to the eel itself. Each rod would need to have a stable pivot point in the middle, so that as the bottom of the rod was pulled to the left, the top would lean to the right, creating the side to side motion I was aiming for. I used a toothpick as the rod, and created a loop from wire that I attached to the bottom of the toothpick. Only then did I realize that I had been too hasty to secure the cardboard circles in place, because the toothpick rods with their wire loops needed to be placed between each circle. I had to completely remove the circles and start again. This time the wire loop end of the rod was sandwiched between two cardboard circles before being taped in place. Close to the edge opposite the dowel, another toothpick was inserted through the 'sandwich,' with the toothpick running through the wire loop. Now, as the dowel turned, the toothpick rod was forced to slide around in a circle along its wire loop. This process was repeated eight more times.

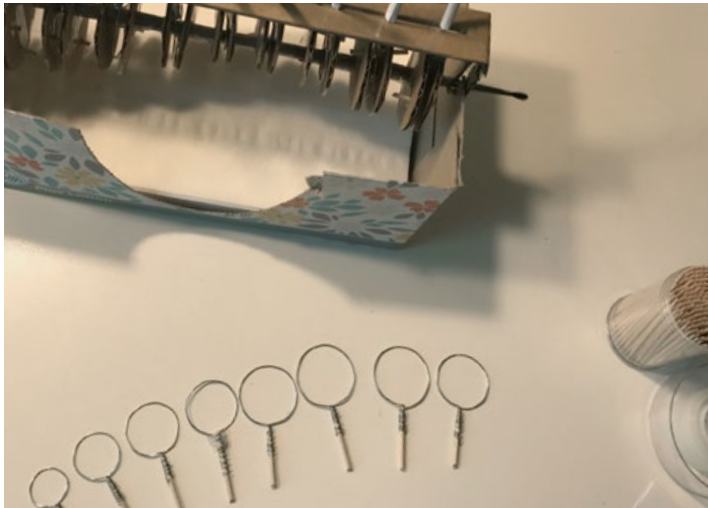
I mounted the dowel with its attached cardboard circles and toothpick rods inside an empty tissue box, removing the top plane of the box. After cutting out a small hole on each end of the box, I was able to insert the ends of the paintbrush through the holes. I taped a long piece of cardboard about the size of a ruler with a thin slit cut along its length across the top of the box. I inserted the tips of the toothpicks through the slit, keeping them upright. By placing tape across the slit in-between each toothpick, this left only a tiny hole for the toothpicks to rest in, essentially creating the stationary pivot point needed for each toothpick.

As the dowel was turned, the top point of the toothpicks moved in a circular motion. Now it was necessary to isolate just the side to side motion. To accomplish this, I rolled and taped tubes of paper around the toothpicks, making them just loose enough to slide easily on but snug enough not to wobble around, and about twice as long as the toothpicks. The base on these paper tubes was large enough that they sat on top of the cardboard with the slit running along it, not falling through the hole that the toothpicks came out of. The toothpicks could smoothly slide up and down inside the tubes, allowing the tubes to remain at the same height while being pushed side to side by the toothpicks inside them.

Now that the bottom half of the mechanism was complete, I moved on to constructing the eel itself. I decided to create a wire frame for the eel that I could cover in fabric. Similar to the toothpick rods used for the bottom mechanism, I wrapped wire around the end of toothpicks, creating a loop the size I wanted the body







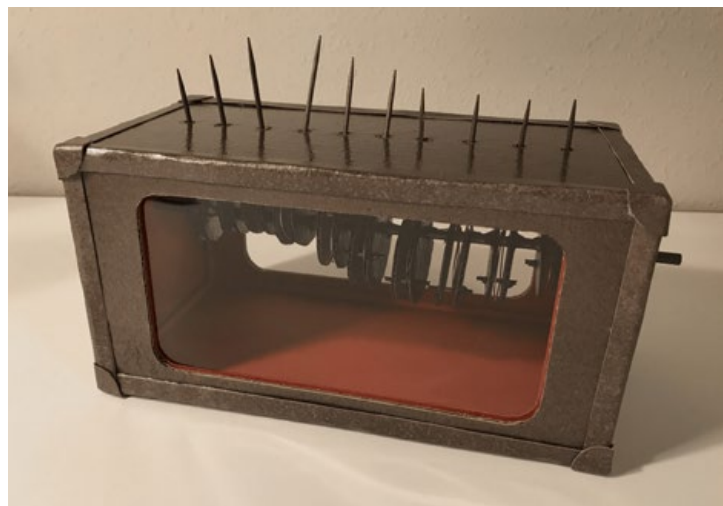
*For the prototype, I attached wire loops to the end of toothpicks to create the small rods, and used a paintbrush as the main dowel rod, which I mounted inside of a tissue box. The eel's body was made from stretchy thin fabric, and the head from polymer clay.*







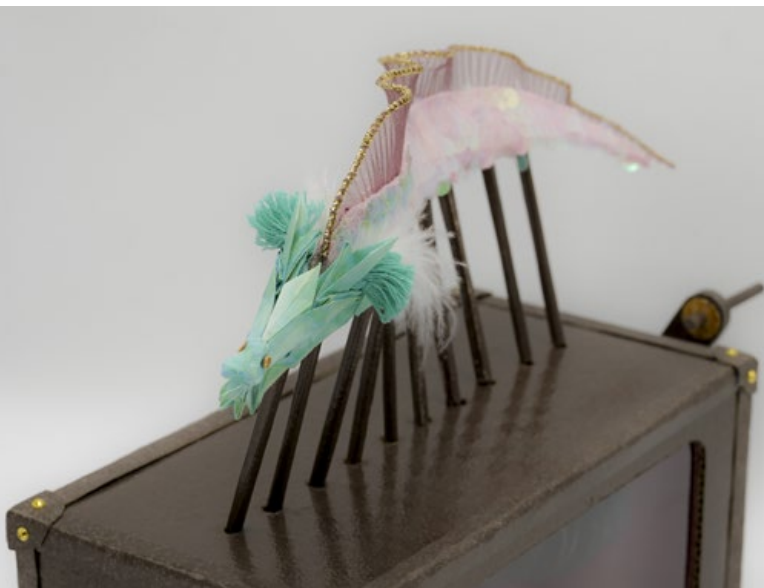
*I started with a rough sketch of the city in the branches of a coral tree. Then, in Photoshop, I created a simple value pattern before jumping into working with color.*



to be. I repeated this for all of the rods, each loop decreasing in size to form the tail of the eel. Measuring the distance between each rod and laying out the toothpicks in order according to size, I cut out the fabric needed for the skin of the eel from a pair of elastic tights. I snipped small holes for the toothpicks to slide through and wrapped the fabric around the frame, stapling the ends of the fabric together to form the ridge of the eel's top fin. I finished the eel by sculpting a rough approximation of the head out of polymer clay and attaching it to the body with wire. The final step was to slide the toothpicks holding up the eel into the top of the paper tubes.

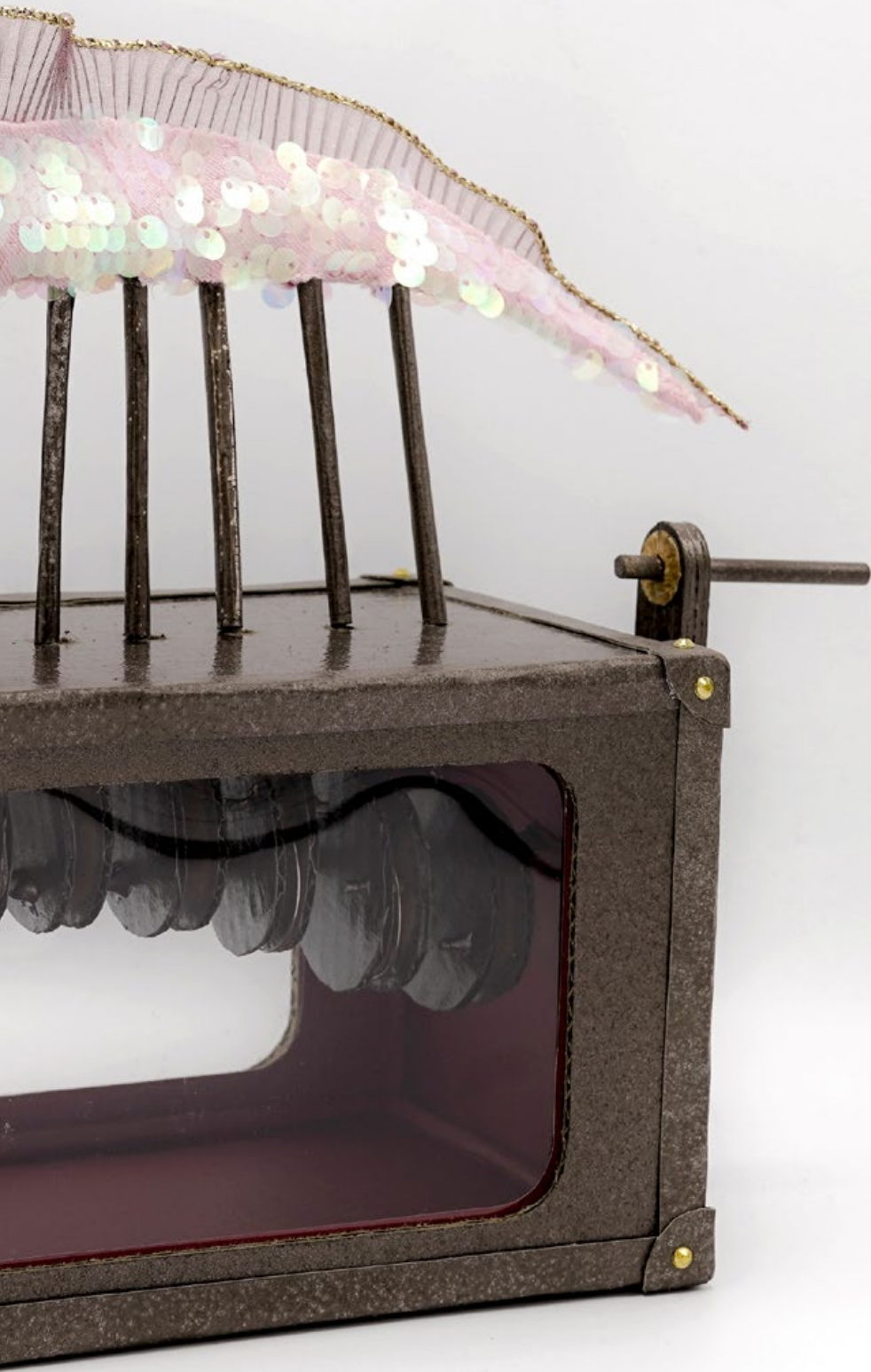
The creation of the crank-toy prototype was definitely a process. It involved a lot of trial and error, and taking things one step at a time. It was fun and satisfying to be able to work with one's hands out of any materials that happened to be available. The outcome was aesthetically ugly, but that was not the point. Using constructive play provided the freedom to try out an idea and quickly test possible solutions, resulting in a working prototype. Next, it was time to take what I had learned and apply it to a more finished product.

The second time through the construction of the automaton was focused on learning from the prototype and refining the visual aesthetics. This was accomplished by building a sturdy cardboard box frame, which was spray painted and trimmed with pieces of thin cardboard covering all joints. In addition, the interior was lined with red paper. Windows were included in the side of the box so that the inner workings could be viewed while turning the handle. The eel itself was sewn from sequined fabric and ribbon. The head of the eel is origami, which I developed by altering the design of an origami dragon head. Finally, I attached small tassels and feathers to create some sympathetic movement when the eel slides back and forth.







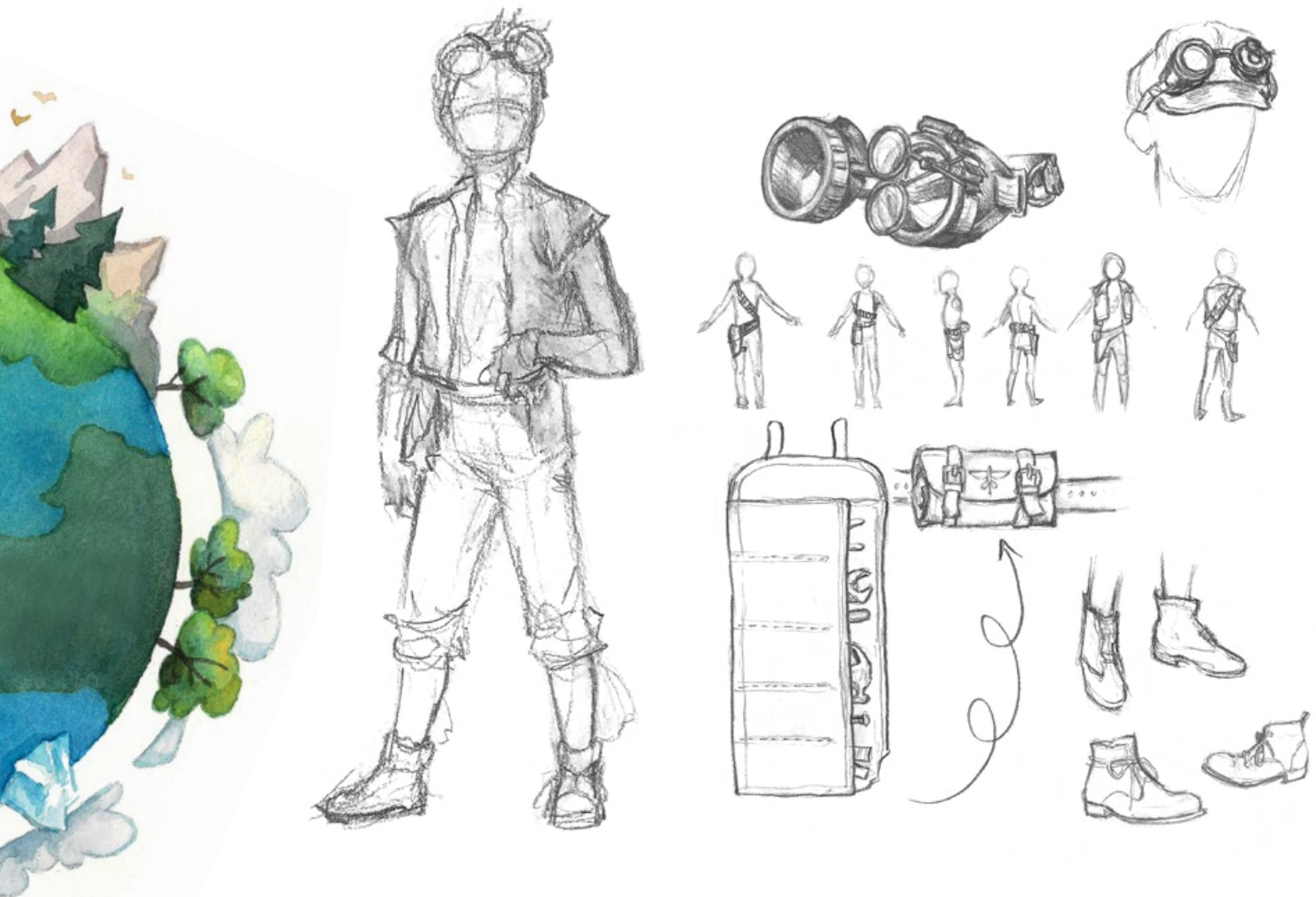


## Character Sculpture

Creating a sculpture of Kyte allowed me to flesh out his character in even more detail. Because a sculpture can be viewed from any angle, I needed to think about more than just the face and clothes from the front. It now became important to figure out what Kyte looked like in 360 degrees.

### *Exploration*

Although much of Kyte's character had been developed when creating his digital portrait, now that I was sculpting him, it was necessary to revisit some exploratory sketching to work out the details. Quite a bit of time was spent putting together Kyte's toolbelt. Additionally, I had to draw Kyte's shoes, goggles, and hat, as well as brainstorm his overall pose. Once the details of Kyte's design were developed, it was necessary to create a character turnaround sheet, a vital tool that could be used as a guide during the building of the sculpture. That finished, I was ready to jump into constructive play.



SPECIAL TALENT \*

CORAL REEF - FLYING FISH FINS  
- CLOWN FISH - COLORS  
JUNGLE - REMINISCENT OF  
BIRD WINGS



OLD AVIATOR JACKET  
- TORN OFF SLEEVES



TOO HEAVY



I sketched several options for how Kyte's toolbelt might be constructed, keeping in mind that it needed to remain fairly light and close to the body, allowing Kyte to move easily.





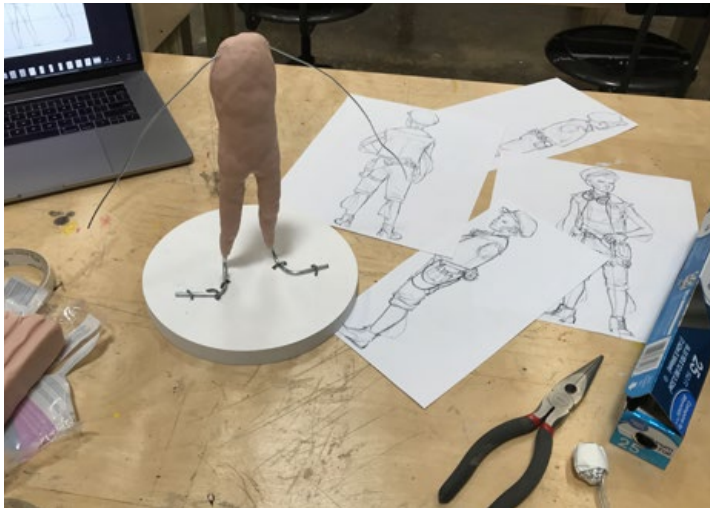


*Completing the character turnaround for Kyte forced me to think through what each aspect of his design looked like from every angle, preparing me for working in 3D. I tried to create a balance of big, medium, and small shapes. Big shapes included Kyte's shirt and jacket, medium shapes being the hat and toolbelt, and details like the goggles, tools and belt pouch made up the small shapes.*



## **Construction**

The first phase of construction was building an armature of thick wire and aluminum foil. I balled up the aluminum foil and attached it to the wire using masking tape. Once an approximate form was in place, I covered everything with a thin layer of beige polymer clay. I continued bulking out different areas with clay, trying to build up the body. Part way through, I realized my figure was looking too stiff, so pliers were used to twist the top of the armature, creating a contrapposto pose. As I began adding detail to the basic form, I constantly used the turnaround sheet as a guide, which I had printed out to size.



*I made the armature from wire and aluminum foil, which I covered in a layer of polymer clay before adding details on top. Kyte's jacket was created by cutting out the pattern from a thin layer of clay. Kyte's head was sculpted separately, allowing me to work more easily on the details.*





I continued refining the overall shapes and adding detail on top of them. Once a layer of clay was added across the base to cover up the wires of the armature, I realized I would need to adjust the proportions of the legs. It became apparent that the position of the knees would need to be raised to allow room for the feet, which I then sculpted into boots. One of the final steps was to add the tiniest details and textures. I experimented with several different textures, using a ball of aluminum foil to press a rough thick texture into the jacket, and I created a subtle fabric appearance on the pants by rolling over the clay with my textured sculpting tool.

Because polymer clay is easy to mold and never dries out, remaining workable until fired, it was the perfect material to use for engaging in constructive play, allowing me to come back to different areas and adjust things as I went along. Working in 3D was a different experience than drawing or painting, and challenged me in a new way. It was not only fun experimenting with a new medium, but being able to turn the character around and see the figure from all sides made him feel that much more real.









# Chapter 4

# Visual Solution



# Visual Deliverables

The research revealed that a decline in creativity often occurs around the sixth grade. To combat the creativity slump, the goal of the visual solution was to introduce methods of generating creativity, including exploratory play, constructive play, and roleplay, at this crucial time. The research suggested that Tim Brown's methods of imaginative play could be incorporated into common worldplay activities, leading to the decision to create a worldplay manual as the primary visual deliverable. My personal journey walking through the creation of an imaginary world would provide most of the manual content. The book would serve as a guide for worldbuilding beginners with a focus on teaching and demonstrating the methods of play that foster creativity.

The choice of which worldplay elements to include in the guidebook was based on the research into childhood paracosms. Using content analysis to chart the worldplay activities of ten well-known worldbuilders, I determined that many of the consistent worldbuilding themes fell into at least one if not all three of Tim Brown's methods of creativity. This included the creation of characters and creatures, maps, plants and environments, 3D models, and historical documents.

Maps and environments play a significant role in building a world.

## Maps and Environments

Perhaps the most common worldbuilding activity that I came across in my research was the construction of maps, including maps of continents, countries, cities, or even buildings. Because of the regularity of map making in worldplay, it was important to include maps in the guidebook. Going hand in hand with maps, environmental design also contributes to the development of a world's terrain and climate. Furthermore, maps and environments play a significant role in building a world, since a world's environment impacts almost every other aspect of the world's creation, from character and creature design to storylines and histories. Establishing the landscape of the world is often the first step in worldbuilding, and can greatly influence the direction of the overall design.

In addition, maps and environment illustrations provided an opportunity



to demonstrate both exploratory play and constructive play. Exploration could be employed to brainstorm not only the shape of the continent or country, but also for the design of the map itself, including the compass, the legend, decorative mythological creatures, city names and crest designs, and other embellishments to enhance the overall aesthetic. Beyond simply designing the map, the goal was to construct the map, demonstrating using tools and materials to produce a touchable, tangible artifact.

## Character Design

Again, a common worldplay practice, character design was an obvious choice when selecting what to include in the guidebook. Inventing characters to populate an imaginary world serves to make the world more intimate and relatable, and provides elements necessary for storytelling, another fundamental component of worldbuilding. Moreover, to ensure I was appealing to my target audience, I designed two characters, a girl and a boy. The girl I decided would be 14 years old, the upper end of my audience's age, and the boy would be 11, at the lower end.

In addition, character design is one of the activities of worldplay that integrated all three of the methods of generating creativity. Because roleplay functions as an effective strategy when developing characters, this would offer the perfect opportunity to demonstrate this method in the guidebook. Character sheets became valuable assets as a practical example of roleplay, demonstrating asking and answering questions from the point of view of a character to flesh out their background, personality, and unique characteristics. Exploratory play is also a key element of character development, especially during the early ideation phase. I featured numerous thumbnails and rough sketches in the guidebook, exhibiting my personal exploration of potential characters. To finish off these character designs, I presented constructive play as the process to complete a refined illustration. Using my chosen medium, I completed the designs by taking them from the ideation sketches to final product.

Character design is one of the activities that integrated all three of the methods of generating creativity.

## Historical Documents

To give a sense of depth and create the illusion of time, historical documents are frequently included in worldbuilding. Embellishing a world with a rich history was a key element found in the paracosms of worldbuilders such as J. R. R. Tolkien or C. S. Lewis.



Historical documents can play a vital role in developing the storylines that take place in the world, so I knew I wanted to bring these into the guidebook.

Because historical documents are first and foremost written records, this brought in a new area in which to work creatively. Although the guidebook focuses primarily on visual projects, I wanted to promote a wider approach to worldbuilding to remind readers that creativity is not limited to a single discipline. Charlotte Brontë practiced creative writing by exploring many styles and genres during her years building her world. Likewise, I wanted to encourage the exploratory play involved when experimenting with a wide variety of mediums, styles, subjects, etc.

In addition, I was able to integrate all three methods of play into the creation of the historical document for the guidebook. Exploratory play can almost always be incorporated, because of its usefulness during the early planning stages of any given task. Although I had not at first considered utilizing roleplay to create a historical document, I realized it was appropriate because it was written from the point of view of someone else. Finally, constructive play was particularly involved when trying to present the document as an authentic artifact.

### 3D Models

3D models were a clear choice for inclusion in the guidebook, as they provided the most apparent example of constructive play. Creating sculptures, models, and prototypes was found to be fairly common among worldbuilders, and offered the chance to demonstrate how working with one's hands can yield creative results. Developing a working prototype from materials found around the house to create an automaton was a perfect illustration of constructive play in action. By working with materials in 3D space, I demonstrated problem-solving through building with my hands. Initial exploratory play was used to spark a creative idea, but constructive play allowed that idea to come to fruition.

### Guidebook Structure

To organize the worldplay guidebook into a format that was easy to follow, it was broken down into several distinct sections. As an introduction to the guidebook, I defined worldplay and discussed the topic of creativity in order to establish the purpose for the book's existence. After describing the benefits of creativity, I introduced the three methods of play that I would be using throughout the rest of the book. The





goal was to present this book as more than a guide to worldbuilding, but as a tool to teach the readers how to practice their creative skills. I also took the opportunity in the introduction to inform the readers that I would be demonstrating worldbuilding through the creation of my own world, Aerdyta.

The majority of the rest of the guidebook was dedicated to the individual projects, maps, character design, environments, historical documents, and 3D models. Within each of these, I included a brief introduction to the topic, described the generation of the project, discussed the final piece, and finished with a tips and suggestions section. Wherever applicable, I inserted information about and examples of exploratory play, constructive play, and roleplay.

By including pictures of my own artwork, I hoped to demonstrate what was possible to achieve when utilizing the methods of play to construct an imaginary world. Understanding that my target audience was younger and likely less experienced than myself in terms of artistic skill, I presented the artwork as a source of inspiration and to help stimulate ideas for their own creative ventures. Furthermore, I created the tips and suggestions page as a practical way for readers to apply the principles taught within that section and to provide direction if they wished to start their own project.

As a form of sidebar, I used ribbons on some pages to add additional notes. I created one ribbon design for the primary audience, the child, but also a different style ribbon for the secondary audience, with text written specifically to the parent. Although the guidebook is written with middle school aged children in mind, I also needed to consider parents. As the decision-makers, parents will likely be the ones who purchase educational activities for their children. I included notes addressed to parents to make them aware of the benefits of creativity and how they can get involved in encouraging their children's creative growth.

To wrap up the guidebook, I wanted to conclude with a few reminders and encouragements. I stressed the ongoing nature of worldbuilding, urging readers to continue practicing creativity through worldplay. As a final thought I reminded the readers not to limit their imagination, but allow their creativity to lead them on to new and inventive ideas.

Initial exploratory play was used to spark a creative idea, but constructive play allowed that idea to come to fruition.



## Style and Typography

Because of the youth of my target audience, I did not want to rely too heavily on text in the worldplay guidebook. However, it was necessary to explain concepts related to creativity and the methods of play, as well as describe the creation process I took for each project. I took some inspiration for the guidebook's layout and style from Disney's *The Art of...* book series. *The Art of...* books do an excellent job balancing text and images, making each page interesting and appealing.

The overall visual design of the worldplay guidebook needed to reflect a fantasy, Old World influence. I chose to use an old paper texture in the background, similar to the parchment look I had created for the historical document project. Because the coral reef informed much of the artwork, I employed a coral theme throughout, adding a flat coral shape on low opacity as a decorative element to most pages and smaller shapes to mark image captions. I also used a consistent light teal as an accent color that went well with the yellowed parchment backgrounds.

The typeface for the guidebook needed to be appropriate for the target audience as well as consistent with the fantasy theme of worldbuilding. The font selected for titles and headings was Luminari, a decorative typeface that has an adventurous, medieval feel that fits the overall aesthetic. I also chose to include drop caps in Luminari as an extra design element and to grab the reader's attention at the beginning of each main section. The body copy throughout consisted of Minion Pro, a straightforward and readable typeface.

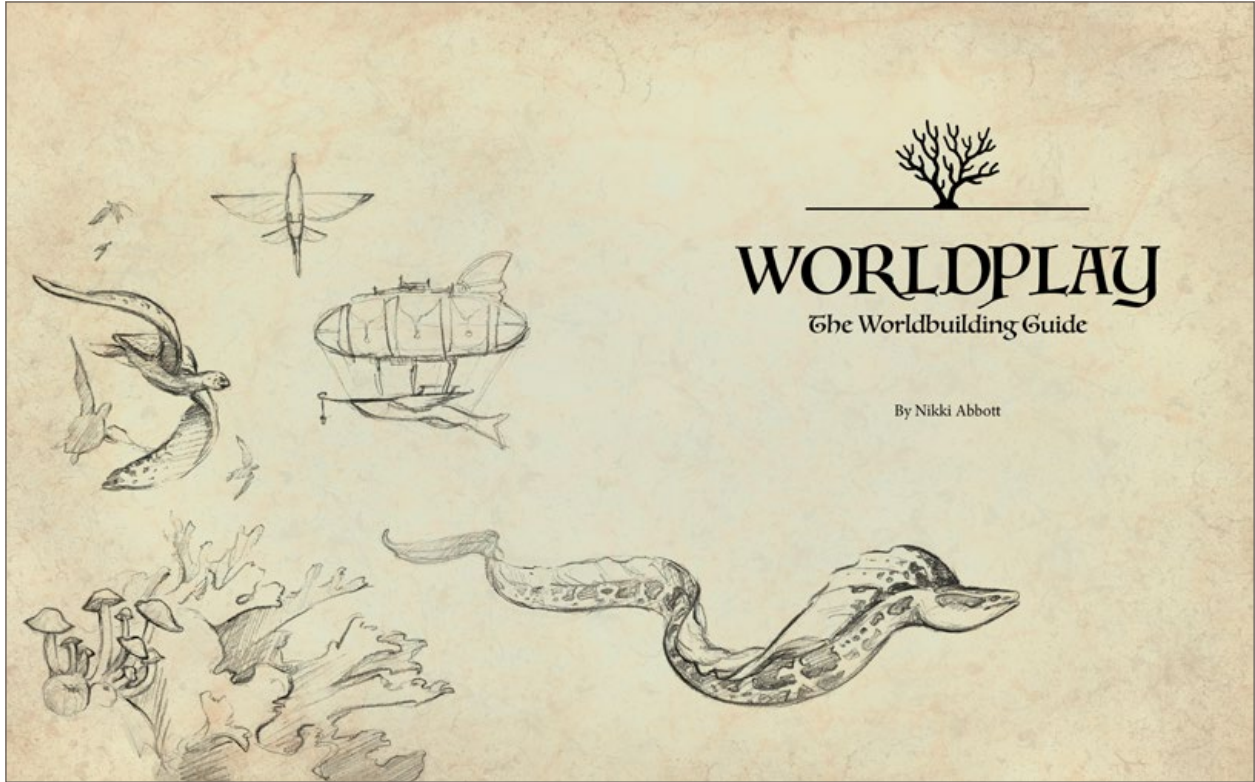


## Book Type

All throughout the guidebook, I chose to include as many images as possible from my construction of Aerdyta. Considering my target audience and because of the visual nature of what I was creating, the artwork needed to be a prominent feature of the book. Originally, I had planned on printing the guidebook as a small saddle stitch booklet as a more affordable approach. However, for the purposes of the thesis deliverable I decided to go with a high-quality print that would allow the images to be seen at their best. The final guidebook was printed as a layflat hardcover photobook, providing large spreads perfect for displaying artwork.







# Creativity

Everyone has the ability to be creative, but it is also something we can all get better at. Developing a creative mind helps you become a better problem-solver, and can teach you to be more flexible and innovative. As you grow up, being original and resourceful can help you in your future career, and doing creative activities can even keep your brain sharp throughout your life.

There are many fun ways you can develop your creativity, and I want to introduce you to three methods that we will be using throughout this book. The first is called exploratory play. This involves exploring as many ideas as possible, allowing your curiosity to drive your imagination in any and all directions. To be creative, you have to be prepared to try something new and different, even if it seems silly. Sometimes it takes wading through a lot of dumb ideas to spark that one brilliant concept.

The second method is constructive play, which is all about building with one's hands. It becomes easier to work on an idea if you can play around with real materials in 3-dimensional space.

The last method is roleplay. Taking on the role of another person provides the opportunity to step into their shoes and experience what it is like to be that person. Roleplay allows one to understand the thoughts and feelings of someone else, making it a valuable method of gaining a new perspective, which is a vital component in generating creativity.



# Worldplay A Tool for Creativity

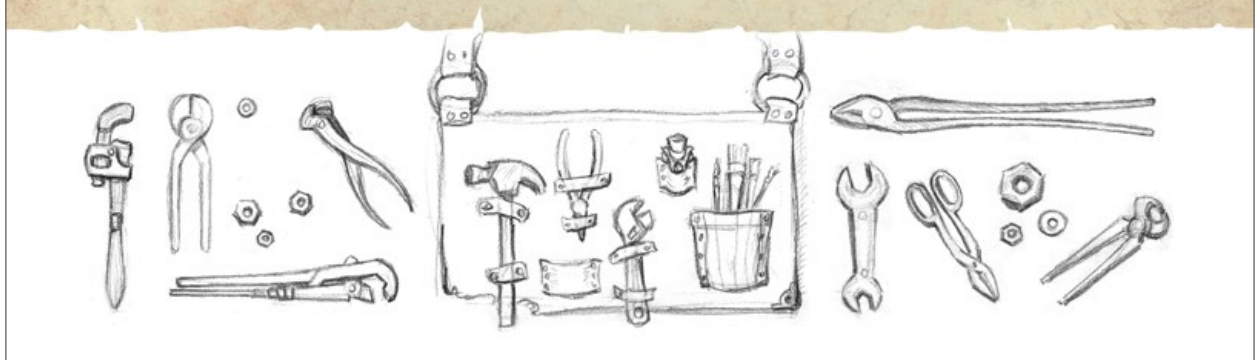
Worldplay, also called worldbuilding, is the creation of an imaginary world. This can include inventing the world's history, landscape, flora and fauna, civilizations and cities, characters, storylines, and so much more. Through the formation of a make-believe world, you can explore real world interests and incorporate them into your creation, whether you are interested in music, drawing, history, engineering, writing, or whatever it may be.

Now what does worldbuilding have to do with creativity and exploratory play, constructive play, and roleplay? Worldplay naturally stimulates creativity. You will find that the three methods of generating creativity are an integral part of the worldplay process.

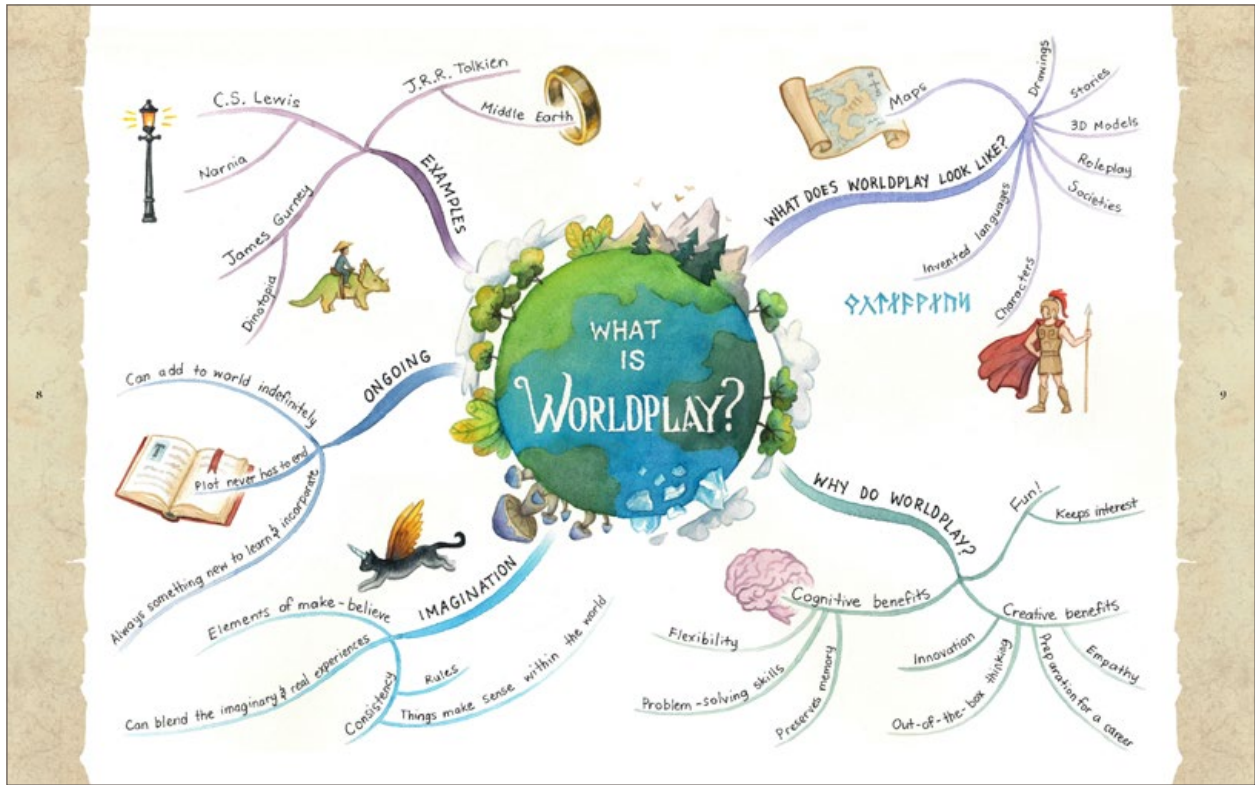
Through exploratory play you can brainstorm countless imaginative ideas to add to your world. Through constructive play you can build prototypes and 3D models of your concepts. And through roleplay you can develop authentic characters and story arcs. Furthermore, because you can always keep adding to your world, worldbuilding can be an ongoing source of fun and creativity.

**Parents**  
You can get involved helping your child grow in their creativity.

- Encourage worldplay activities
- Provide supplies
- Join in on the creation fun!







## Aerdyta



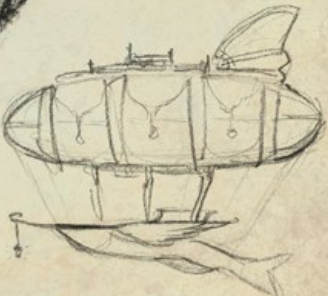
### A World of Coral and Sky

To provide a guide on worldbuilding, I have developed my own imaginary world, which I have named Aerdyta. This is a planet covered in mists rather than oceans, where inhabitants dwell in the tops of mountain-sized coral trees and travel by airship, and magic and technology combine.

I would like to walk through the creation of this world with you, giving examples from my personal worldplay and demonstrating the methods of utilizing play to generate creativity. Because I love to draw and paint, many of the projects I have created are best towards art. However, remember that worldplay expands well beyond a single subject, and can be tailored to your own interests.

Now, let the adventure begin, and watch Aerdyta come to life!

You do not have to do the projects in this book in the order presented. Start with what you care about the most or already know that you want to include in your world, and allow that to inform your future decisions as you build up the world.

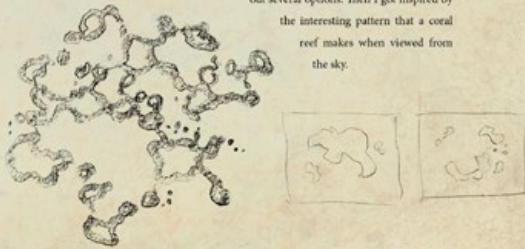


# Maps

The idea of creating an entire imaginary world can be daunting, so if you are not sure where to begin, maps are a great way to start the brainstorming process. There are many kinds of maps you can make, such as a map of an entire continent or country, or of a city or even a building. These maps provide your stories and characters with a more tangible setting. Having a general understanding of the layout of your landscape can stimulate ideas for other projects.

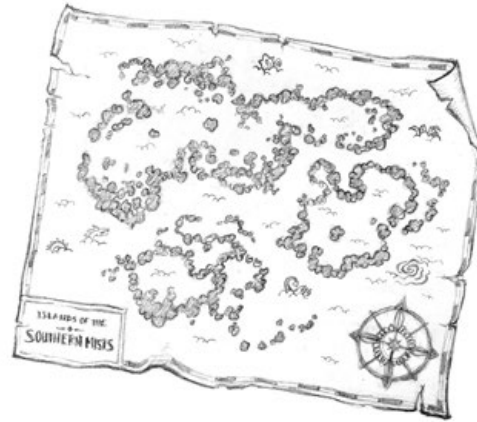
12

I began my development of Aerdya with some exploratory play, in other words, brainstorming. I knew that I wanted Aerdya's landscape to be unique, so I began playing around with the idea of a planet covered by mist, with islands of massive jungle trees being the only landform suitable for civilization. I sketched some potential shapes for some continents, testing out several options. Then I got inspired by the interesting pattern that a coral reef makes when viewed from the sky.



I explored many kinds of creatures that I could include as decorative elements around the map. Part of exploratory play is trying out many ideas without self-editing too early. Only after testing out all the options did I select the best ones to include in the final map.

13



## The Process

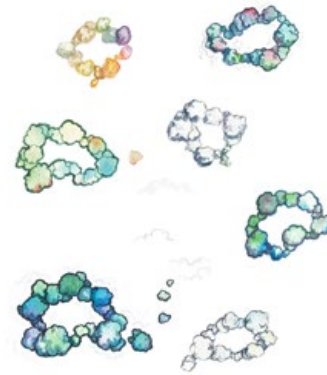
The country depicted in the map consists of numerous coral tree 'islands' that tend to run together in lines. But instead of oceans of water, these islands are surrounded by seas of mist. After drawing a rough sketch of the country, I drew the shape again at a larger size in order to refine it and add detail. I named the country the Islands of the Southern Mists, and brainstormed crest designs and names for cities around the map. Taking a picture of my sketch and opening it in Photoshop, I continued to work digitally on a mockup until all the planning was complete, and I was ready to move on to the final map.

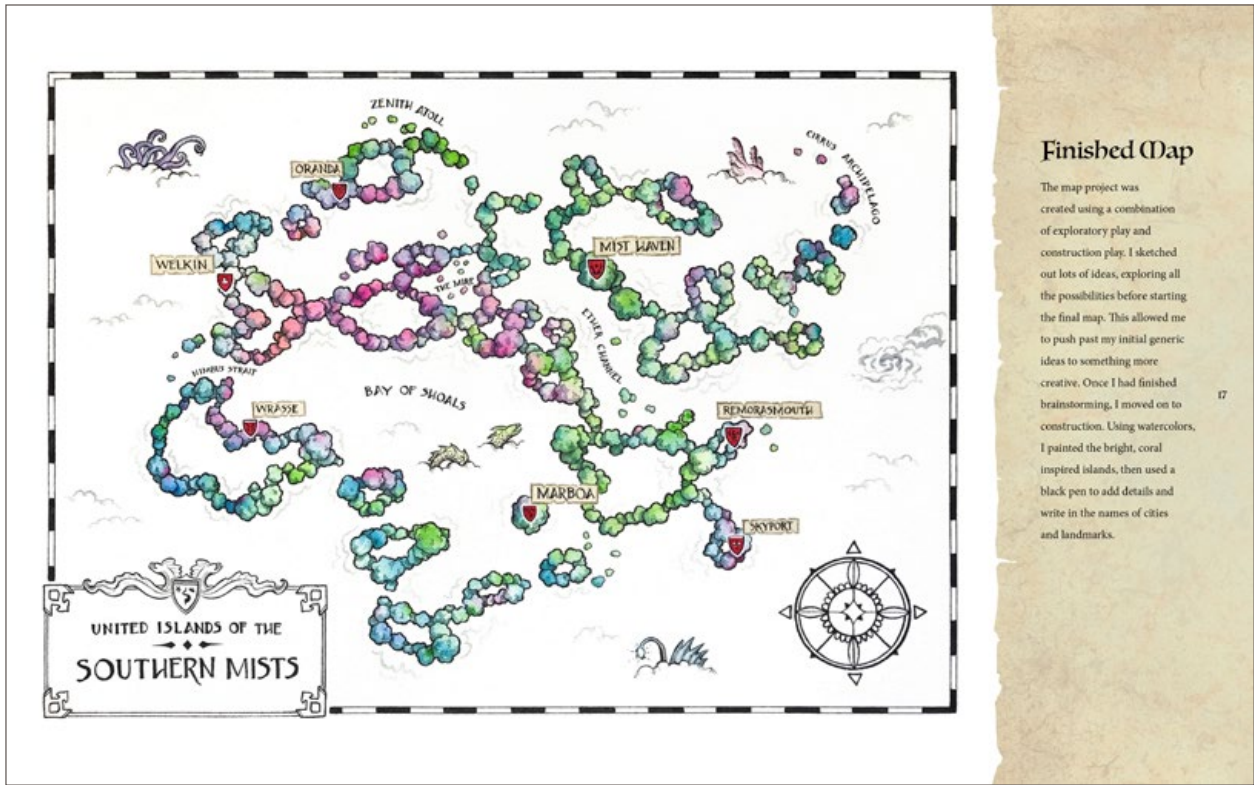
14



I chose to paint the map using watercolors because of the bright colors available in these paints, appropriate for a coral reef. I practiced a few different ways of painting the islands, seeing what I preferred and testing out colors and styles.

15





## Finished Map

The map project was created using a combination of exploratory play and construction play. I sketched out lots of ideas, exploring all the possibilities before starting the final map. This allowed me to push past my initial generic ideas to something more creative. Once I had finished brainstorming, I moved on to construction. Using watercolors, I painted the bright, coral inspired islands, then used a black pen to add details and write in the names of cities and landmarks.

17



## Maps

### Tips and Suggestions

Using paper and pencil, sketch out the general outline of your continent. Consider adding mountain ranges, with rivers flowing down them to the ocean. Find locations for different biomes, such as forests, bogs, plains, frozen tundra, deserts, plateaus, etc.

To make the map feel finished, use a fine tip sharpie or micron pen to trace over your lines, then erase the pencil marks underneath.

Try adding fun mythological creatures around the map. Make up family crests for each major town, and name the special locations.

19





# Character Design

Character creation is a big part of worldbuilding. You can invent a person who lives in your world, design their clothing, tools, and accessories, create their home and surroundings, and tell their story. Roleplay is an effective tool you can use to develop characters. Roleplay is all about putting yourself in someone else's shoes, either by physically playacting or just by thinking through what it would be like to be that person. This helps to create convincing characters with more depth.

20

Before designing any specific characters, I just started exploring what people from Aerdyta might be like. Because Aerdyta is a world inspired by elements of the jungle combined with the coral reef, I wanted to see those influences reflected in the inhabitants of the world.

I began with a lot of exploratory play to brainstorm ideas, such as coral growing from elbows or shoulders, jellyfish tentacles or anemones for hair, and sea turtle patterned skin. I also played around with different clothing options inspired by jungle mushrooms and lichen, cuttlefish patterns, and vines. Once I had explored Aerdytan people in general, I was ready to start thinking about my specific character.

You can find inspiration in the real world, such as a time period, location, or culture. I found endless inspiration in the coral reef, incorporating the plants, creatures, and structures into many of my designs.

21



## Annelise Flinters The Magician's Daughter

In order to create a character using roleplay, I began by asking a bunch of questions. What was my character's name? What did they look like? What did they do? What made them special or unique? Eventually, I settled on the name Annelise Flinters, Nel for short. I had a general idea that Nel could do magic, what I've called crystalurgy, and that she was the daughter of someone important. Trying to take on the role of Nel, I began answering more questions, which I put together into a character sheet.

22

### NEl ANNELISE FLINTERS CHARACTER SHEET

**NAME:** Annelise Flinters  
**AGE:** 14  
**GENDEr:** Female  
**RACE:** Non-magical (human with coral characteristics)  
**CLASS:** Upper magical class  
**HOME CITY:** Mist Haven, seat of magic in the country  
**HOME ENVIRONMENT:** Temperate coral jungle  
**BUILD OR BODY TYPE:** Slender  
**HAIR COLOR:** Reddish brown  
**DISTINGUISHING MARKS:** Leafy sea dragon markings on her legs and coral antlers

**THEM:** Nel, the headstrong 14-year-old daughter of the school of Crystalurgy headmistress is an inquisitive, studious girl with the power of crystalurgy bending.

**SPECIAL ABILITIES OR POWERS:** Crystalurgy bending  
**SKILLSET ABILITY:** Best crystalurgy of her class  
**WEAPONS:** None  
**PERSONALITY:** Confident, curious, honest, trustworthy, practical, determined  
**LIKES:** Knowledge, being in control, drawing, reading  
**DISLIKES:** Not knowing the answers



Starting with silhouettes helps you to quickly explore options without getting caught up in the details. Just work with shapes and play with the overall pose. And don't forget to be brave and try the silly ideas!

23

## The Process

Once I had a pretty good idea of who my character was, it was time to figure out what she looked like. I sketched out several quick silhouettes, some just in pencil and a few digitally in Photoshop. I liked the idea of Nel wearing a special coat, so I experimented with a few more detailed sketches. Giving Nel antlers was a way to reference the jungle influence on the world, and having them be made of coral was a nod to the ocean influence. After refining my favorite sketch, I photographed it and brought it into Photoshop so that I could easily test out some color schemes.







I tested out different color schemes by creating several mockups in Photoshop. Each color scheme gives a different feeling. Earthy tones and greens feel stable and calm. Purples feel magical and perhaps sinister. Pinks and reds feel passionate and emotional. The greens fit Nel's personality the best, so I ended up going with that option.

24

## Finished Character

The final illustration was done in watercolor. You can see many visual influences in Nel's character. The coral reef can be seen in the leafy sea dragon markings on her face and arms. Both the coral antlers and the moth inspired coat reflect the influence of the jungle. The style of clothing has a steampunk appearance, and drawing a glowing picture in the air shows that she is magical. Everything about her design reveals something about her personality, background, and special ability.



Nel's school coat bears the crest of Mist Haven, and reflects the design of a moth, her father the headmaster's symbol. The two pouches at her belt contain a small sketchbook and her crystalurgy chalk, made from bleached coral.

25

## Kyte Bridgeman The Toymaker

My second character is a young boy who becomes friends with Nel. He is a tinker/toymaker, and an orphan. Although I created Nel first, Kyte is the main character of the story that takes place in my world. Kyte is special, a mystery. Although he doesn't know it at first, Kyte has a unique and powerful ability, something that takes an entire journey across, and beneath, the mists to fully realize. Again, roleplay was vital as I sought to create a character with depth and potential by trying to see from Kyte's point of view.

26

### 'KYTE' KYTE BRIDGEMAN CHARACTER SHEET

**NAME:** Kyte Bridgeman  
**AGE:** 11  
**GENDE:** Male  
**RACE:** Non-mammalian (human with coral characteristics)  
**CLASS:** Lower class  
**HOME CITY:** Marbrox, the capital city  
**HOME ENVIRONMENT:** Tropical coral/jungle  
**BUILD OR BODY TYPE:** Small and lean  
**HAIR COLOR:** Dark brown  
**DEFINING MARKS:** Clown fish markings on face. Flying fish fins on arms and legs.

**TRAIT:** Kyte is a mischievous but lighthearted orphan living in the capital city, where he works as a tinker-toy maker, finding fun for himself and he needs not, who helps him discover the powers of crystalurgy.

**SPECIAL ABILITIES OR POWERS:** Able to use all three branches of crystalurgy.  
**WEAPONS:** Full mechanical able to fly.  
**PERSONALITY:** Enthusiastic  
**PERSONALITY:** Mischievous, clever, loyal, courageous, helpful  
**LIKES:** Enting, working with his hands, protecting the other orphans  
**DISLIKES:** Bullies



### Parents

Did you know?  
One of the greatest advantages of roleplay is its ability to foster empathy. Putting yourself in someone else's circumstances builds understanding and compassion.

### The Process

I wanted to give Kyte some characteristics of the coral reef, so I played around in Photoshop, testing out fish markings on his face and potentially using sea slugs to look like hair. Once decided that Kyte would have clownfish markings and flying fish fins, I began working on a digital portrait of Kyte in his workshop, with some of the toys he has made surrounding him.

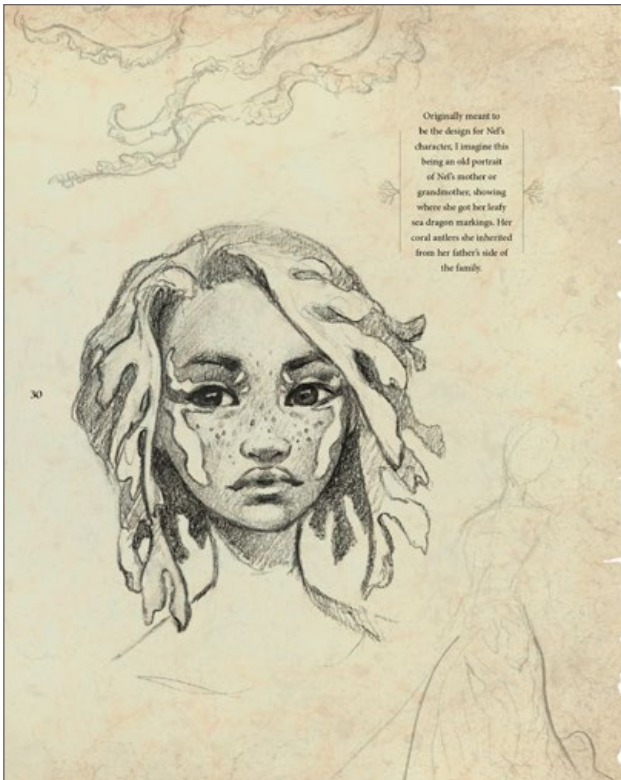
27



## Finished Character

Kyte's character sheet provided a helpful starting point for his visual design. Because Kyte has had to fend for himself as an orphan living in the darker, harsher districts of the capital city, I knew that this would impact not only his personality, but his appearance. He provides for himself, so he carries the tools of his trade around with him on his tool belt. He wears nothing too bulky so that he can move swiftly when he needs to. He wears his dad's old aviator jacket, but with the sleeves torn off because of the warm environment.

28



Originally meant to be the design for Nel's character, I imagine this being an old portrait of Nel's mother or grandmother, showing where she got her leafy sea dragon markings. Her coral antlers she inherited from her father's side of the family.

30

## Character Design Tips and Suggestions

**T**ry using a variety of mediums. You can experiment with colored pencils, watercolors, pastels, chalk, mixed media, acrylic paint, etc. You can create digital paintings or even animations. Or as you will see in future chapters, you can build 3D models of your characters. The possibilities are endless!

You can find inspiration for the design of a character by having them live in one of the places you created on your map. Knowing where the character is from will impact what they look like and how they act. For example, if your character is from a dry desert, maybe their clothing is light weight and pale to stay cool, they have water bags strapped to their belt, and they wear a hood and scarf to protect their face during sand storms.

A character sheet can be a helpful tool to get you started creating a character. Roleplay as your character and try answering the questions from their point of view.



31



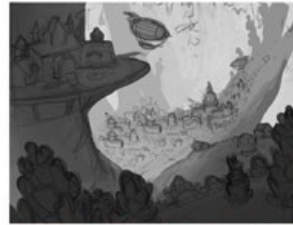


# Environments

Illustrating an environment can help start defining what your invented world really looks like. If you have already created a map, you should have a general idea of the world's landscape, but now you get to design a specific area in greater detail. This is also an opportunity to design some flora and fauna to inhabit the landscape.

For my environment illustration, I decided to explore what one of the cities on my map would look like. I chose Mist Haven, the home town of Nel and the seat of magic in the country, where the School of Crystallurgy is located. I started with exploration, playing around with how a city might look nestled in the limbs of a massive coral tree.

32



## The Process

I sketched out a busy city in the crook of several branches, with the fancy school building lifted higher on a foreground branch. Once satisfied with the composition in the rough sketch, I created a value study in Photoshop to make sure the layout would read clearly. I used aerial perspective to add a greater sense of scale, making the foreground quite dark and distant branches fading into the background. I then started adding color, taking inspiration from a photograph I found of a real world soft tree coral that was bright magenta.

33

## Finished Environment

I decided to complete the final environment illustration digitally in Photoshop. The sprawling city of Mist Haven and the magnificent red-roofed city hall fill the flatter area of the tree, while more rural structures can be seen on the branch in the foreground. The School of Crystallurgy can be seen towering above the main city, only accessible by airship. In addition, I scattered birds throughout the piece as well as a flying eel to add some life and movement.

34







36

## Environments

### Tips and Suggestions

**S**tart out simple with small rough sketches. You can always come back later and refine them. Having even a simple visual representation of your world will make it more tangible and can spark other creative ideas.

Try your hand at creature and plant design. Think about what kind of plants and animals could be native to the area and incorporate them into the landscape to bring the illustration to life. One fun way to create a new fantastical creature is to combine two or more real world animals, similar to manticores, griffins, or other creatures in mythology.

37



## Historical Documents

**P**art of inventing an imaginary world is developing the world's history. You can communicate that history through documents such as the country's constitution or a set of laws, or an ancient poem or song that describes the world's origin, or any number of other written records that add to the world's lore. All of these options create opportunities for you to flesh out your world, to reveal more of its history, beliefs, or natural laws by which the world functions.

38



**Parents**  
Developing a constitution or a set of laws can give your child the opportunity to think through what's fair, what's right, and how actions affect other people.

39

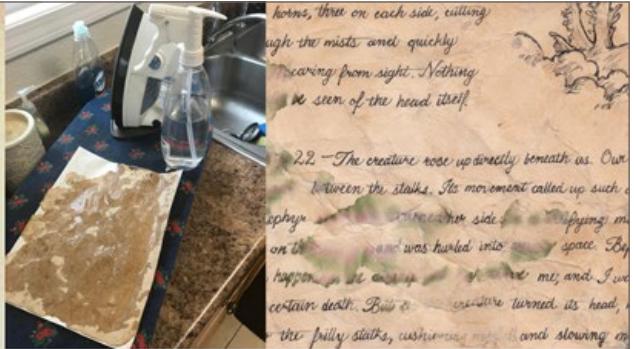
After brainstorming many possibilities, I decided on creating a journal, a document written by an explorer a couple hundred years before the time of my characters. I loved the idea of Nel discovering these old torn pages in a hidden library inside her school, opening up a mystery that could be the driving force behind my characters' story.

I was also drawn to the idea of developing my own myth, so I ended up incorporating this idea into the journal. When creating my map of the country, I had included sketches of giant creatures peaking above the mists. I imagined these as mythological creatures, like how mermaids or dragons can be seen on many maps of our own world. One of these drawings was based off an axolotl, a type of salamander with frilly gill stalks on its head. I decided to make this animal the source of the legend, but much larger and very magical.



40

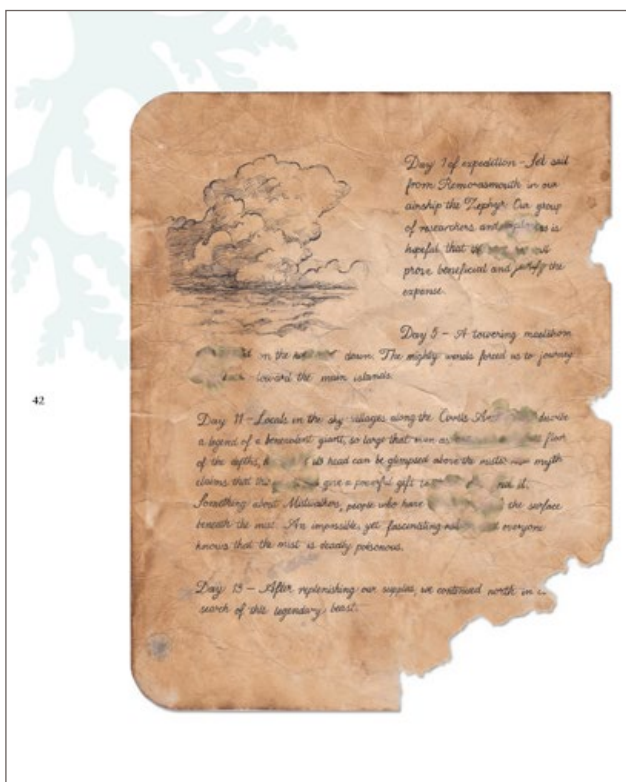
I tested out several kinds of paper because I wasn't sure which would yield the best result. I placed the crumpled papers in a large pot with a mixture of tea and coffee, sprinkling extra coffee grounds over the whole thing, then left the concoction overnight. Most of the thinner papers disintegrated, but the cardstock was perfect, so I laid them out to dry. They had a bumpy texture, so ended up re-wetting them and ironing them, leaving them perfectly flat while retaining the beautifully textured look.



41

### The Process

After figuring out the written content of the journal pages, I sketched out a plan of the document layout with a combination of text and drawings. Then I began preparing the paper I wanted to use for the final document. I wanted the final result to look like the actual journal pages, old and tattered as if they had been torn out of a diary. I used tea and coffee to stain the paper and give it an old parchment feeling. I then used a calligraphy pen to write out the text, purposefully blotting some of the ink as if the page had suffered water damage. I use a regular micron pen to add the sketches around the pages, finishing off by splattering everything with drops of watered down ink.



42



43



Throughout the creation of your world, keep a written journal of the decisions you make, any character or story developments, rules that the world follows, etc. Writing it down helps keep the world consistent. Everything needs to fit together and make sense within the world.

## Finished Document

The completed journal pages add a sense of history to Aerdyta, creating the illusion of time. These records harken back to antiquity, cultivating mystery and depth of narrative. Using constructive play, I was able to experiment with many different materials, get my hands messy, and have fun fabricating these artifacts. Simply playing with the materials led to many unintentional yet pleasing results.



44

## Historical Documents

### Tips and Suggestions

There are countless options for what kind of historical document you can create. Constitutions, poems, myths, origin stories, genealogies, ancient languages, journals, and laws are just a few. Find something that interests you!

Start with the written portion of your document. Once you have the content, you can make it more interesting by designing it to look like an ancient artifact, weathered and faded. Try making old parchment by soaking crumpled pieces of cardstock in coffee or tea overnight to stain the paper. Once flattened and dry, you can write or draw pictures on them.

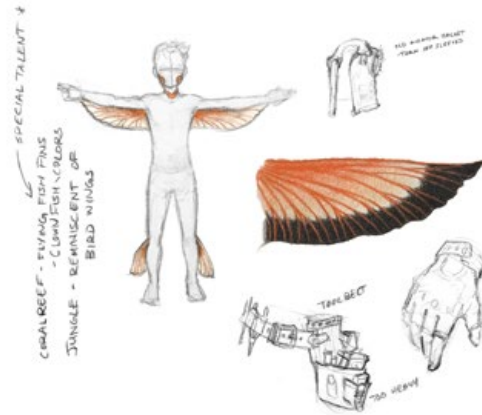
45



## 3D Models

Sculptures, models, and prototypes are common worldbuilding projects, providing a tangible, touchable aspect to your world. Working 3D can also prove highly beneficial to get you thinking outside the box. It can break you out of your typical approach and force you to see things from a new perspective and think creatively. When physically moving things around in 3D space, you can quickly test out possibilities, spot problem areas, and come up with inventive solutions.

46



47

## Sculpture

Kyte Bridgeman

Creating a sculpture of Kyte allowed me to flesh out his character in even more detail. Because a sculpture can be viewed from any angle, I needed to think about more than just the face and clothes from the front. It now became important to figure out what Kyte looked like in 360 degrees.





## The Process

48

Creating a character turnaround sheet was vital during the planning process for the sculpture. That finished, I was ready to jump into constructive play. The first step was to build an armature of thick wire and aluminum foil, then cover it with beige polymer clay. Part way through, I realized my figure was looking too stiff, so I used pliers to twist the top of the armature, creating a contrapposto pose. Constantly using the turnaround sheet as a guide, which I printed out to size, I began adding detail to the basic form. I experimented with different textures, using a ball of aluminum foil to press a rough thick texture into the jacket, and created a subtle fabric texture on the pants by rolling over the clay with my sculpting tool.



## Finished Sculpture

Polymer clay is easy to mold and never dries out, so remains workable until fired. This was perfect as I engaged in constructive play, allowing me to come back to different areas and adjust things as I went along. Working in 3D is a very different experience than drawing or painting, and challenged me in a new way. It was not only fun experimenting with a new medium, but being able to turn my character around and see the figure from all sides made him feel that much more real.

49

## Automaton

(Dist Eel)



Because Kyte is a toymaker, I loved the idea of designing one of his toys. Creating an automaton, something with moving parts, seemed appropriate, reflecting the steampunk inspiration found throughout Aerdya. I considered a few different ideas, such as a hot air balloon, or a flying fish, but settled on an eel, something that has become a motif seen in several of my projects.

50

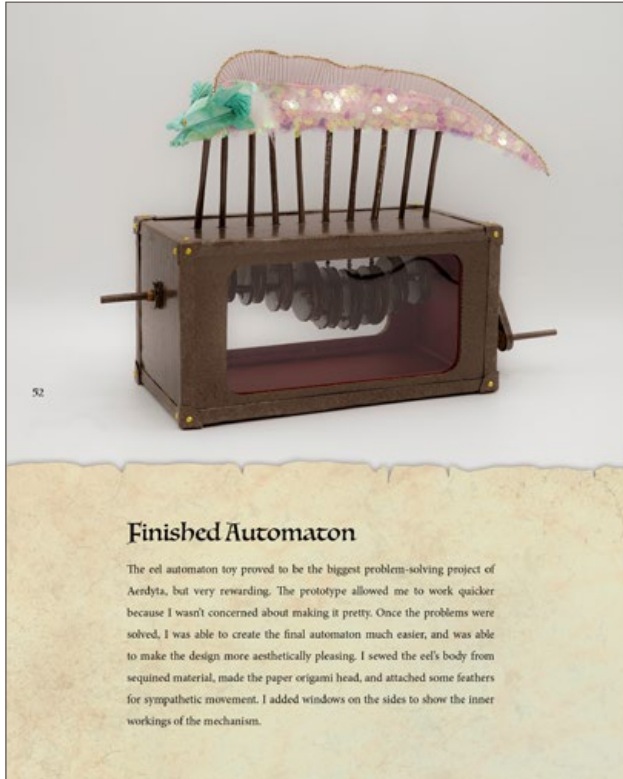


## The Process

Creating the automaton was a long process of trial and error, a matter of breaking down and handling one problem at a time. The goal was to make the eel slither back and forth by turning a handle. Using a crank toy as an example, I started by building a rough prototype using materials I found around my house. I used a tissue box as a frame, then taped circles of cardboard around an old paintbrush I used as a dowel rod. I figured out how to make the toothpicks supporting the body of the eel move in a circular pattern, but needed to isolate just the side to side movement. I solved this by allowing the toothpicks to slide up and down inside tubes of paper. In this way, the body was still pushed side to side while resting on top of the tubes of paper, creating the desired slithering motion.

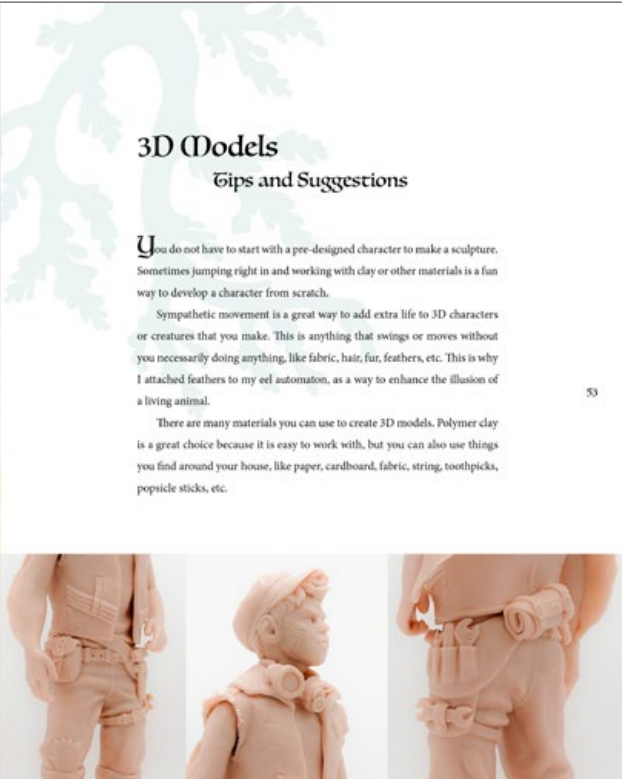
51





### Finished Automaton

The eel automaton toy proved to be the biggest problem-solving project of Aedyta, but very rewarding. The prototype allowed me to work quicker because I wasn't concerned about making it pretty. Once the problems were solved, I was able to create the final automaton much easier, and was able to make the design more aesthetically pleasing. I sewed the eel's body from sequined material, made the paper origami head, and attached some feathers for sympathetic movement. I added windows on the sides to show the inner workings of the mechanism.



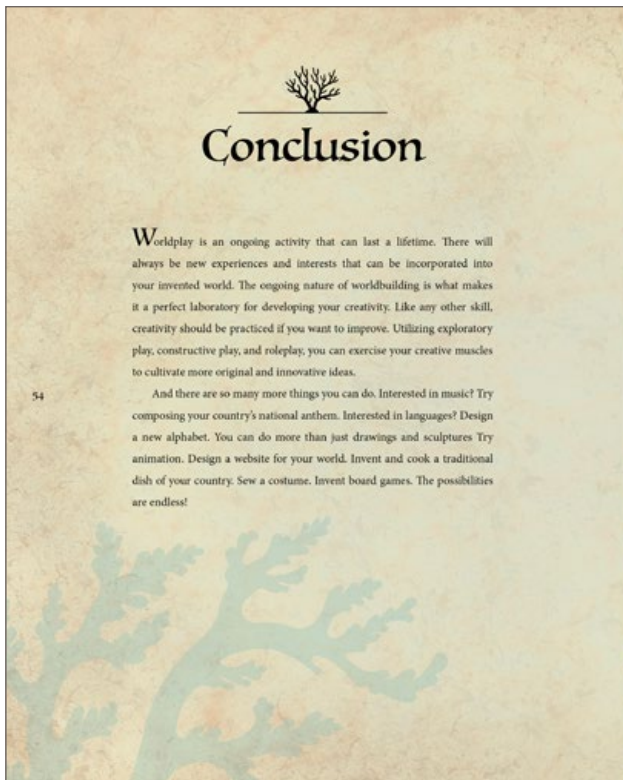
## 3D Models

### Tips and Suggestions

You do not have to start with a pre-designed character to make a sculpture. Sometimes jumping right in and working with clay or other materials is a fun way to develop a character from scratch.

Sympathetic movement is a great way to add extra life to 3D characters or creatures that you make. This is anything that swings or moves without you necessarily doing anything, like fabric, hair, fur, feathers, etc. This is why I attached feathers to my eel automaton, as a way to enhance the illusion of a living animal.

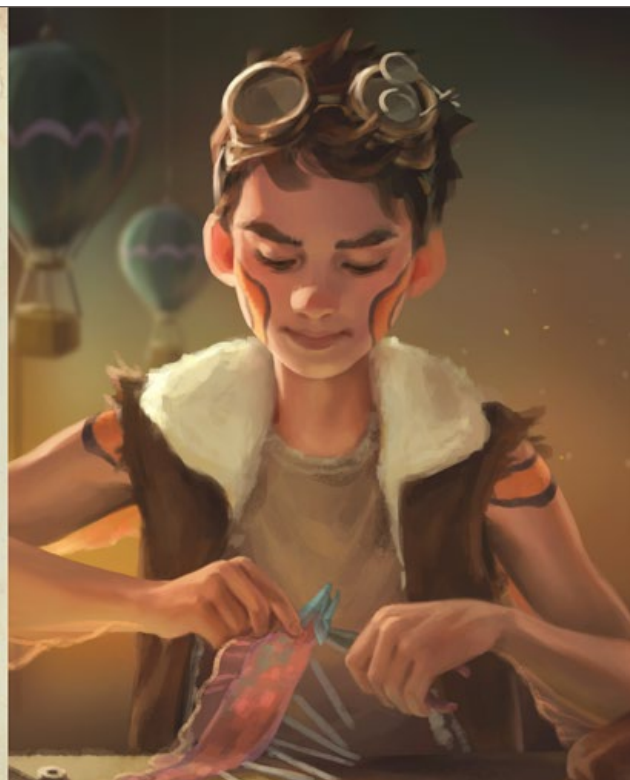
There are many materials you can use to create 3D models. Polymer clay is a great choice because it is easy to work with, but you can also use things you find around your house, like paper, cardboard, fabric, string, toothpicks, popsicle sticks, etc.



## Conclusion

Worldplay is an ongoing activity that can last a lifetime. There will always be new experiences and interests that can be incorporated into your invented world. The ongoing nature of worldbuilding is what makes it a perfect laboratory for developing your creativity. Like any other skill, creativity should be practiced if you want to improve. Utilizing exploratory play, constructive play, and roleplay, you can exercise your creative muscles to cultivate more original and innovative ideas.

And there are so many more things you can do. Interested in music? Try composing your country's national anthem. Interested in languages? Design a new alphabet. You can do more than just drawings and sculptures. Try animation. Design a website for your world. Invent and cook a traditional dish of your country. Sew a costume. Invent board games. The possibilities are endless!











# Chapter 5

# Conclusion

# Defense of Work

The thesis research began with an investigation into the problem of declining creativity in children around the sixth grade. As the dayspring of innovation, creativity is a valuable skill not only during the development years of childhood, but throughout one's lifetime. A decline in a child's imaginative play and curiosity can stunt creative growth, causing a deficiency in adulthood. Examining possible methods that could be utilized to develop creativity, the thesis discussed Tim Brown's three methods of exploratory play, constructive play, and roleplay.

How to introduce and teach the methods of generating creativity to children became the next focus of the thesis. Based on the research, it was determined that the process of worldbuilding provides an avenue for creative growth. Because many of the common activities involved in worldplay naturally incorporate the methods of generating creativity, worldplay acts as a laboratory in which to practice and hone those abilities.

The goal for the thesis deliverable, therefore, was to construct a guidebook for middle school age children that demonstrated worldplay while also conveying how to utilize the methods of creativity. It was necessary to develop my own imaginary world as an example to use in the guide, leading to the creation of a map, several characters, an environment illustration, historical journal pages, a sculpture, a working automaton, and countless pages of concept sketches. All of these projects came together, along with written explanations and insight, to form the worldplay guidebook.

## Further Development

Although sufficient for the purposes of this thesis, there is great potential for further development of this project in the future. As an artist and visual designer, the worldplay guidebook focused primarily on artistic activities, especially drawing and painting. However, creativity is not restricted to just the arts, nor is worldbuilding. Future development could include other worldplay guidebooks that delve into other disciplines, such as creative writing. Another option is to create a guidebook that goes into more detail on a single area. I touched briefly on 3D models, when a topic like this could easily fill a whole book.



There are also options regarding the form that the guidebook takes that could be addressed in the future. Although the layflat hardcover book provides a visually appealing result, this makes the product more expensive, which could limit its usefulness. I plan to look into more affordable options that would increase the accessibility of the book, such as a softcover saddle stitch booklet. Additionally, there is the option to go digital and create an ebook of the worldplay guide, which holds the potential to reach the most people.

## Final Thoughts

My love of art and narrative is what initially drew me to worldbuilding. I read books like *The Hobbit* and *The Chronicles of Narnia* as a kid, which inspired me to draw and invent fantastical characters and scenes. As an adult, I still acknowledge the motivation and inspiration that these fantasy worlds excited in me. Being able to develop my own imaginary world has reignited my passion for invention, and I have seen my work grow in imaginative quality over the course of this process. I feel like I have only scratched the surface into the development of Aerdyta, going to show that worldbuilding truly is an ongoing activity that can provide a place to experiment and develop creativity throughout a lifetime. My hope is that others will find the same joy in worldplay, and it will encourage them to foster their imagination and creative abilities.





# Bibliography

Alexe, Catalin-George, and Catalina-Monica Alexe. *The Importance of Creativity In Business Innovation*. Bucharest: Niculescu Publishing House, 2005. ProQuest. Web. 5 June 2020.

Brown, Tim. "Design Thinking." *Harvard Business Review*, vol. 86, no. 6, June 2008, pp. 84–92. EBSCOhost, search.ebscohost.com/login.aspx?direct=true&db=heh&AN=32108052&site=ehost-live&scope=site.

---. "Tales of Creativity and Play". Serious Play 2008 May 2008. Video, 27:36 <[https://www.ted.com/talks/tim\\_brown\\_on\\_creativity\\_and\\_play?language=en#t-640](https://www.ted.com/talks/tim_brown_on_creativity_and_play?language=en#t-640)>

Dalsimer, Katherine. "The Young Charlotte Brontë." *Journal of the History of Childhood and Youth* 3.3 (2010): 317,339,452. ProQuest. Web. 12 June 2020.

Firger, Jessica. "Which Hobbies Help an Aging Brain?" *CBS News*, CBS Interactive, 8 Apr. 2015. <<https://www.cbsnews.com/news/which-hobbies-help-an-aging-brain/>>

Hoff, Eva V. "The Relationship Between Pretend Play and Creativity." *The Oxford Handbook of the Development of Imagination*. : Oxford University Press, August 01, 2013. *Oxford Handbooks Online*. Date Accessed 6 June 2020. <<https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195395761.001.0001/oxfordhb-9780195395761-e-026>>

Keenan, Sarah F., and Punya Mishra. "Profiling Scholars of Creativity: Practicing the Process with Dr. Michele Root-Bernstein." *TechTrends* 60.3 (2016): 200-3. ProQuest. Web. 9 June 2020.

Kim, Kyung Hee (2011) "The Creativity Crisis: The Decrease in Creative Thinking Scores on the Torrance Tests of Creative Thinking", *Creativity Research Journal*, 23:4, 285-295, doi: 10.1080/10400419.2011.627805

Pecaski McLennan, Deanna Marie. "Using Sociodrama to Help Young Children Problem



Solve.” *Early Childhood Education Journal* 39.6 (2012): 407-12. ProQuest. Web. 10 June 2020.

Phillips, Richard. “Space for Curiosity.” *Progress in Human Geography*, vol. 38, no. 4, Aug. 2014, pp. 493–512, doi:10.1177/0309132513506271. Proper, Jennifer Rains. “C. S. Lewis’ Animal Images in “The Chronicles of Narnia”.” Order No. 3222217 Drew University, 2006. Ann Arbor: ProQuest. Web. 4 June 2020.

Richardson, Carmen, Danah Henriksen, and Punya Mishra. “The Courage to be Creative: An Interview with Dr. Yong Zhao.” *TechTrends* 61.6 (2017): 515-9. ProQuest. Web. 9 June 2020.

Roberts, Rosebud, et al. “Risk and protective factors for cognitive impairment in persons aged 85 years and older.” *Neurology* 84.18 (2015): 1854-1861. Journals@Ovid Full Text. Web. 4 June 2020. <<http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=ovftq&NEWS=N&AN=00006114-201505050-00007>>.

Robinson, Ken. TED2006 “Do Schools Kill Creativity?”. 2006. Video, 19:22. <[https://www.ted.com/talks/sir\\_ken\\_robinson\\_do\\_schools\\_kill\\_creativity#t-1128775](https://www.ted.com/talks/sir_ken_robinson_do_schools_kill_creativity#t-1128775)>

Root-Bernstein, Michelle. *Inventing Imaginary Worlds: from Childhood Play to Adult Creativity across the Arts and Sciences*. Rowman & Littlefield Education, 2014. Kindle Edition.

Runco, M. A. (2004). “Creativity.” *Annual Review of Psychology*, 55, 657-87. doi:<http://dx.doi.org.ezproxy.liberty.edu/10.1146/annurev.psych.55.090902.141502>

Singer, Jerome L., and Dorothy G. Singer. “Historical Overview of Research on Imagination in Children.” *The Oxford Handbook of the Development of Imagination*.: Oxford University Press, August 01, 2013. Oxford Handbooks Online. Date Accessed 6 Jun. 2020 <<https://www-oxfordhandbooks-com.ezproxy.liberty.edu/view/10.1093/oxfordhb/9780195395761.001.0001/oxfordhb-9780195395761-e-002>>.

Solomon, Maynard. *Mozart: A Life*. HarperCollins College, 1995. Kindle Edition.



Sutcliffe, Alistair. "Juxtaposing Design Representations for Creativity." *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments*, vol. 6, no. 1, 2010, pp. 38–54., doi:10.17011/ht/urn.20105241906.

Taylor, Marjorie, Candice M. Mottweiler, Emilee R. Naylor & Jacob G. Levernier  
"Imaginary Worlds in Middle Childhood: A Qualitative Study of Two Pairs of Coordinated Paracosms." *Creativity Research Journal*. (2015): 27:2, 167-174, doi: 10.1080/10400419.2015.1030318

Thibodeau, Rachel B., et al. "The Effects of Fantastical Pretend-Play on the Development of Executive Functions: An Intervention Study." *Journal of Experimental Child Psychology*, vol. 145, 2016, pp. 120–138., doi:10.1016/j.jecp.2016.01.001.

"Wow! Amazing DIY Cardboard Caterpillar Automata Toy." *YouTube*, uploaded by EHC Gear, 14 Jun. 2018, <https://www.youtube.com/watch?v=fUI4PJ-Ca2o>.

