

# Ancient Civilizations Adventure!

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Ancient Civilizations Adventure! is a point-and-click adventure set in the present day. In the introduction, an animation explains that wise men of the world broke up a magical statue and hid the pieces across the globe. The Player is a Junior Archeologist that is trying to find all of the pieces to this supposedly magical statue. The Player must travel to various locations to search for clues and find the hidden statue pieces. The Player must learn from several historical clues in order to find the pieces. There is a Rival Archeologist that you must outwit in order to build the statue and win the game.

## 1 Key Features

- Players learn several different methods used by historians to learn about the past
- Set in several exciting locations of historical significance around the world
- 5-10 unique levels to explore
- Story-driven gameplay with overarching goal
- Sub-games utilize problem-solving skills
- First-person perspective
- Players learn about different cultures by talking with characters in each level
- Rival encourages healthy competition

## 2 Key Requirements

- Must be able to save the game
- Levels must be beatable in 30 minutes
- Only include levels about the first three eras of history (up to the fall of Rome)
- Place a value on historical sources; customers' students should recognize that sources have a value to learning about history
- Problem-solving challenge at the end of each level should be fun
- Should not include violence

### 3 Design Goals

- Develop 5-10 levels
- Develop 5 clues in each level
- Develop a problem-solving sub-game in each level
- Develop 3 areas in each location (Example: Egypt could have a pyramids area, a Nile area, and a town area)
- Develop non-clue, interesting historical things to explore (Example: conversations with locals about history that don't necessarily point you to the main objective)

### 4 Unique Selling Points

- History game that includes problem-solving puzzles
- Player gets to learn about different, modern cultures while learning about ancient civilizations
- Competition that is not based on a points system
- History game that doesn't include quizzes or trivia questions
- Educational game with compelling storyline and main objective

### 5 Basic Game Play

- Player starts a new game and enters their private study, which is the homepage between levels
- Animation explains the myth of the magical statue that the Junior Archeologist is trying to find
- Player picks an area on a globe to explore
- Player explores level and finds clues that point to the hidden piece of the statue
- Once Player arrives at the statue's location (and all clues have been found), Player encounters their Rival Archeologist
- Player plays a problem-solving sub-game with their Rival to win the hidden piece of the statue
- If the Rival wins a piece of the statue, it will be regenerated in a new level so that the Player can still find all of the pieces
- The Player basically wants to find 5 pieces of the statue before their Rival
- Once all five pieces are found, the Player wins!

### 6 Penalties in Game

The rival archeologist, Otto, can beat the Player in sub-games. If Otto collects five pieces of the statue before the Player, Otto wins the game.

## 7 Competitive Analysis

In order to create an educational computer game, we did our initial competitive analysis on other educational games - especially those designed by the software engineers at The Learning Company. We also focused on social science or history games like Making History, Discover Babylon, and Virtual History Ancient Egypt. We attempted to thoroughly answer a few questions:

### *1. What is fun about these games? What is not?*

A common theme among the games is the fact that each one is predominantly story-driven. Discover Babylon is a scavenger hunt, which kids find fun. Carmen Sandiego, The Learning Company's one game based on geography and history, is another game that is focused on clues sprinkled throughout history. Kids enjoy hunting for things, so detective or mystery games in the history genre appear to be a good idea. The other fun thing about history games is that each level can look completely different and new. These are ideas that have been incorporated into Ancient Civilizations Adventure!, which includes unique levels and hunting for clues.

These games failed when they were too long. Carmen Sandiego has too many levels and everything begins to feel very repetitive. Even though each location should be totally new and different, developers tend to be lazy and just redesign buildings instead of layouts. Each level should be a unique experience.

### *2. Is the genre/interface/scoring/difficulty particularly appropriate to the games learning objectives?*

Carmen Sandiego has been around since 1985, and it's clear that the game has been perfected to reflect its audience's needs. An international spy thriller is an exciting genre to use for geography lessons. Discover Babylon utilizes time travel to promote history lessons.

However, Carmen Sandiego and Making History are a little difficult, since most children do not know much about other countries. The games themselves are very challenging to play without prior knowledge of other countries' histories and cultures.

A lot of social science games have quizzes or trivia games, which puts too great an emphasis on the learning aspects of games. We want the kids to be having fun and not aware of learning anything. The most successful games tend to be problem-solving or strategy games, which utilize skills that the children develop throughout gameplay. This is a key point, since kids will learn more if they enjoy playing the game and want to continue the story.

### *3. Do the games appeal to all members of your audience or are there gender/cultural/game-experience biases?*

Carmen Sandiego doesn't really have any biases. You are a detective chasing a very intelligent woman, but there are also a number of males along the way. The game should appeal to both genders equally, but more boys than girls may play simply because of the gender bias in gaming in general. Carmen Sandiego does all it can to prevent this, since it is easy to play without any prior game experience. Finally, the game is very politically correct and is remarkably unbiased towards any cultures. This is perhaps the crowning achievement among geography games. We have tried to do the same with Ancient Civilizations Adventure! by looking at different cultures around the world as being unique and interesting.

Discover Babylon and Making History did not seem to appeal to girls. Making History focuses on war, and neither game had any strong female characters. Furthermore, Making History had a steep learning curve for gameplay, so it may have been targeted at an older, more experienced audience.

### *4. What aspects of the games are particularly appropriate to your target demographic?*

Children like excitement, and Carmen Sandiego delivers a detective story. Making History is free and targeted to the appropriate age group. The different levels excel at keeping childrens attention. Again, Ancient Civilizations Adventure! tries to incorporate each of these by creating a clue game around the world.

The focus of the games is on trivia questions, which means the games do have a heavy emphasis on education. This is appropriate for the project, but we want to make the educational aspects of our game less obvious. Again, were looking to make an educational game that makes kids want to learn, as opposed to regurgitating facts.

However, since we recognize that this is a limited scope of computer games in general, we decided to compare Ancient Civilizations Adventure! to other, noneducational computer games in the same genre, point-and-click adventures. Below is a table comparing the pros and cons of Ancient Civilizations Adventure!, Myst, The Journeyman Project 3: Legacy of Time, and The Curse of Monkey Island.

Ancient Civilizations Adventure	Myst	The Journeyman Project 3: Legacy of Time	The Curse of Monkey Island
You are a Junior Archaeologist that is traveling to various parts of the world to explore ancient civilizations to find the hidden pieces to a magical statue.	You are “The Stranger” that is trying to solve a murder mystery by exploring a magical island through books.	You are a time-traveling agent that is chasing a villain through the mythical cities of El Dorado, Shangri-La, and Atlantis.	You are Guybrush Threepwood that is looking for a magical ring to save his love.
Pros: <ul style="list-style-type: none"> <li>• Lots of levels to explore</li> <li>• Educational</li> <li>• Non-linear gameplay (players choose which levels to go to)</li> </ul>	Pros: <ul style="list-style-type: none"> <li>• Expansive gameplay</li> <li>• Challenging puzzles</li> <li>• Top-of-the-line graphics</li> <li>• Engaging storyline</li> </ul>	Pros: <ul style="list-style-type: none"> <li>• Top-of-the-line graphics</li> <li>• Lots of levels to explore</li> <li>• Goal-driven gameplay</li> </ul>	Pros: <ul style="list-style-type: none"> <li>• Story-driven gameplay</li> <li>• Humorous</li> <li>• Mostly non-linear gameplay</li> <li>• There were a lot of things to do in each area</li> </ul>
Cons: <ul style="list-style-type: none"> <li>• Amateur Graphics</li> <li>• Low to medium replay value</li> <li>• History focus may be boring to some</li> </ul>	Cons: <ul style="list-style-type: none"> <li>• Some puzzles are too difficult to finish</li> <li>• Length of game was a little much</li> <li>• Limited character interaction</li> </ul>	Cons: <ul style="list-style-type: none"> <li>• Storyline was too fantastic to allow for suspension of disbelief</li> <li>• Length of game was a little much</li> </ul>	Cons: <ul style="list-style-type: none"> <li>• Some puzzles are very difficult to solve</li> <li>• The graphics were very dark for a children’s game</li> </ul>

## 8 Overview

### 8.1 Story

According to an ancient legend, thousands of years ago, there existed a magical statue that could take its owner through time. Wars were fought and cities destroyed, so wise men from every Great Civilization gathered together to destroy the statue. It was too powerful to obliterate completely, so they broke the statue into five pieces and hid each one in a secret place within Great Cities around the world. In the present day, the Player is a Junior Archeologist that has learned about the legend and narrowed down possible locations for the statue pieces to ten cities. The Junior Archeologist must travel around the world to search for the missing pieces before their rival, Otto the Archeologist, beats them to it. Each level will be a modern city (like Cairo or Rome) with historical relics to explore the secrets of the past. When the Junior Archeologist

has found all of the clues in a level, they are led to a hidden piece of the statue. They must defeat Otto in a problem-solving challenge in order to win the statue piece and beat the level. Once the Junior Archeologist or Otto has all five pieces of the statue, the game ends. If the Junior Archeologist has won the magical statue, credits may roll as the student watches an animation going back through time through the Ancient Civilizations they explored.

## **8.2 Player Motivation**

Ancient Civilizations Adventure! is designed to attract 6th grade students who may not want to learn history, but would be interested in playing a computer game. The story-driven game will include several, diverse locations to explore. There will also be several sub-games that focus more on problem-solving than history, which will keep the players attention.

## **8.3 Genre**

Point-and-click adventure

## **8.4 Target Customer**

Ages 10-12  
Educational, history

## **8.5 Hardware Platform Options**

Ancient Civilizations Adventure! is designed to run on a Windows-operated PC, since the customers indicated that the students will have access to HP Compaqs. Furthermore, Ancient Civilizations Adventure! must be quick to install, as the customers' computers are wiped every night.

## **8.6 Suitability for Learning Objective**

Since each level will include the different sources historians use (including artifacts, historical maps, things to radiocarbon date, things to run DNA analyses on, and ancient legends from locals), the games main focus is our learning objective. Each source is one of the five clues in each level, so players are motivated to collect all the clues and learn about these means of exploring the past. Furthermore, each level will include facts about that particular ancient civilization.

# **9 Rationale for the Game Design**

The goal for this software project is to encourage students to learn about history through various kinds of sources. The customer indicated that the product will be used as a jumping-off point to "actually learning" about ways to explore the past, so our game does not go into a lot of detail regarding the sources. The sources are given a value (they are the clues required to reach the end of each level), so the customer's students know that they are important. Furthermore, the customer indicated that the team should "err on the side of fun" and liked the idea of problem-solving challenges instead of trivia games or quizzes to win levels.

Since our audience is 10-12-year-olds with unknown amounts of game experience, we've kept our game-play simple. For instance, our game will not be timed, so they can spend as much time as they would like

exploring. Point-and-click adventures do remarkably well in that age bracket, so we feel confident in our decision to keep things easy. Furthermore, we plan to make the game very colorful in order to keep it visually stimulating, which is crucial for the target age bracket.

## 10 Concept Art

- The game is two-dimensional
- Each level should be colorful
- Each level should have a unique backdrop for each area
- Each level should include unique-looking characters
- No background items that are nonclickable

## 11 Proposed Project Overview

There are three major portions to the implementation of this project. First, there will need to be a research team that decides where the locations are and what the clues should be. This team will be in charge of making sure we keep to the learning objective and writing the script. Secondly, there will be the basic game mechanics that need to be programmed using a game engine. This team will be in charge of basic gameplay, and can make decisions regarding the problem-solving challenges based on difficulty of implementation. Finally, the graphics and audio of the game need to be created, along with any animation that will be needed. This team will work with the research time when designing the levels, since the research team will know what should be included. The files created by the graphics team will be handed over to the programming team in order to put Ancient Civilizations Adventure! together in one final package. A management team will oversee all transitions and have final decision-making powers.

### 11.1 Game Engine

The game engine we have chosen for Ancient Civilizations Adventure! is Adventure Game Studio, a game engine designed specifically for point-and-click adventures of any length. The game interface is customizable and can manage most game features included in point-and-click adventures. The programming team should have little trouble with dialogue, hotspots, scrolling rooms, walk-behinds, sprite mirroring, inventory, and save/load features. Furthermore, Adventure Game Studio's website includes numerous tutorials for implementations, in case the game engine has a high learning curve. This is the ideal option, since we aren't looking to reinvent the wheel; we want to focus on the aspects of our game that make it unique instead of laboring over processes that others have already created. For this reason, the programming team does not need to concern itself with the overall architecture of the game.

The greatest challenge for the programming team, in fact, may be implementing the puzzles at the end of every level, which are not usually in point-and-click adventures. These puzzles may require separate implementations, if the programming team can figure out a way to combine the engine with their own designs. It is advisable for the programming team to determine how to do this early on, as the game engine may need to be abandoned if the problem-solving puzzles will not work.

The scripting language should not prove to be a challenge either, since the engine utilizes a Java/C# style scripting language and has a Windows-based integrated development environment (IDE) with a debugger. The IDE is very intuitive and appears to take little time to learn.

It can be found at <http://www.adventuregamestudio.co.uk/acres.shtml>

## **11.2 Graphics/Audio Programs**

### **11.2.1 Static 2-D Graphics**

There are a variety of graphics programs available for use. We have chosen Inkscape for the product, an open-source vector graphics editor. Inkscape will allow the graphics team to create the backgrounds and characters for Ancient Civilizations Adventure! without a lot of prior graphics experience.

Since Inkscape utilizes vector graphics, shapes and objects can be described independent of specific resolutions. This sort of implementation is ideal for illustrations. The program is designed for “regular” or novice graphics users, so there should be a low learning curve. However, if the program proves difficult, the website provides a number of tutorials for beginners. Since Ancient Civilizations Adventure! will largely be two-dimensional, the graphics team will not have to focus on very extravagant designs. Their greatest concern should be that the levels are colorful, which Inkscape allows, and that important objects or clues are obvious. Making the clues obvious depends on the creativity of the graphics team, as it could be theoretically as simple as highlighting clues with a bright border to indicate their importance.

Inkscape does not support scalable vector graphics animation, since it is designed solely for static two-dimensional graphics. However, the graphics team can export Inkscape graphics to use in Flash or GIF animations.

Inkscape runs on Windows XP and Mac OS X, so the graphics team should have no trouble installing and running the program.

### **11.2.2 Audio**

Audacity is a free open source software for recording and editing sounds. The program allows users to edit ogg vorbis, MP3, WAV, and AIFF sound files, which can be imported by Blender. Audacity has many basic features for editing audio, including cut, copy/paste, mixing an unlimited number of tracks, fade volume, and a Drawing tool to alter individual sample points. Unfortunately, Audacity does not include a sound effects board, but the only audio software that includes sound effects boards are not available for free. The best option for the graphics team is to download sound effect files and edit them into audio tracks using Audacity. Audacity has a very low learning curve, so it should not be too burdensome to include it as a major responsibility for the graphics team. This software was chosen for its learning curve, and because it is likely that members of the graphic team will have had experience working with it before.

Audacity is available for Windows XP and Mac OS X, so the graphics team should have no trouble installing and running the program.

### **11.2.3 Animation**

Blender is a free open source three-dimensional content creation suite that the graphics team can use to animate graphics created in Inkscape. Blender can import scalable vector graphics data and extrude it to render three-dimensional graphics. It supports automated walkcycles along paths, which is ideal for local characters that the Player will meet. Furthermore, Blender has audio playback for mixing and editing support for sound synchronization. It can save all scene data in a single .blend file, including images and sounds. Since Blender can handle all kinds of data, including two-dimensional graphics and audio files, it seems to be the best software to use for putting the entire package together.

Blender runs on Windows XP/Vista and Mac OS X, so the graphics team should have no trouble installing and running the program. Its scripting language is based in Python, which the graphics team will be very familiar with.



## 12 Risk and Feasibility Analysis

### 12.1 Proposed Scheduling and Staffing

As mentioned above, the project has been split into three major portions for implementation, along with an additional management team. For each level, it is estimated that it will take 20 hours to do historical research and scripts for the story. The research team should consist of five creative-minded people, since they must be able to extract interesting historical information and write an engaging script for the story. The research team should also keep in mind that they will be working heavily with the graphics/audio team, since they must approve everything that goes in a level. They may also provide voicework for the graphics/audio team to manipulate.

An additional 25 hours will likely be needed for the graphics/audio of each level. The graphics/audio team should consist of seven artistic programmers, since they must be able to design bright, colorful levels that appeal to our target audience. They will answer to the research team. The graphics/audio team will also be in charge of adding sound effects and recorded dialogue to the graphics or video feed. The audio files should not take long to implement, although combining graphics and audio may be slightly challenging. If time permits, the graphics/audio team will also add minor animations to the game in order to keep the game visually stimulating. Furthermore, the graphics/audio team may want to appoint a team leader, since the levels should be uniform and have no discernible artistic differences. A team leader will be able to put everything together.

For the gameplay implementation in Adventure Game Studio, we estimate that it will take about 15 hours per level. The programming team should consist of six highly-proficient programmers that are comfortable with Java/C#-type languages. The programmers will have to accept graphics and audio from the graphics/audio team, which should be easy to handle using the game engine. The programmers will also have an additional 10 hours of testing per level, which they will handle with the management team.

The management team will consist of two even-tempered individuals that must be able to work with the products customer, along with the other teams. The management team will be in charge of greasing the wheels between teams, including file hand-offs and disagreements. The management team has final decision-making power, although they must be willing to work with others visions for the game. The managers will be expected to sit in on team meetings to make sure that all decisions and implementations go along with the overall vision of the product. These two individuals will also be highly involved in the 10 hours of testing per level, since they must approve all final implementations. When in doubt, the management team must check with the research team to make sure that all pedagogical objectives are being met.

The goal for the game is to have 8-10 levels for approximately 700 hours of total work. This is a reasonable estimate, since there are 20 members of the software development team working on this product over a period of seven weeks. The estimate may in fact be a little high, since the process may become much smoother after the first levels are completed. This gives the software development team enough leeway for mistakes and setbacks.

### 12.2 Major Risks

#### 12.2.1 Design and Development Risks

Due to time constraints, the developing team may not be able to produce several levels. Since each level requires several clues and different areas to explore, each level will take a large amount of time. The first level in particular may take additional time, since the programming team will likely have had zero experience working with Adventure Game Studio. This time can be afforded, assuming that subsequent levels take less and less time to implement, once the programmers have experience. We have decided that this is a safe assumption, since our estimate for the project of 700 hours is purposefully high. Furthermore, each level will contain a sub-game (like a maze, a memory game, etc) that may prove difficult to implement in Adventure

Game Studio. The programming team may have to spend a lot of time designing these sub-games to work within the architecture provided by the game engine.

### **12.2.2 Technology Risks**

We foresee one of our greatest risks being in the limited knowledge of graphics and artwork in our team. Since we do not have graphics experts on our developing team, our finished product will not have top-of-the-line graphics. The graphics programs selected should have low learning curves, but the graphics team may have to spend a lot of initial time learning how ray tracers and other graphics ideas work before they can even begin a level. Similar to the programming team, we expect the graphics/audio team will be able to quicken their pace once they are familiar with the program. Levels should be unique, but not so different from each other that everything must be created from scratch. Furthermore, animations are not a key requirement, so the graphics team may abandon the feature if there is no time to learn Blenders animation mechanisms.

### **12.2.3 Team Risks**

There are a lot of members on the developing team. Most members are inexperienced with large-scale projects; many Harvey Mudd students have only done pair-programming. Furthermore, there will be many schedule-conflicts among team members. Most team members have no prior experience in building game software development. The management teams purpose is to keep everybody working well together, settle conflicts, and create deadlines for the project to ensure everything is being designed at an appropriate pace.