Eloise Calandre

Sketchbook and Written reflection

Group Assignment –

The Old Order Changeth

Concept Document & First Person Modular Game design,

using the Unreal Engine 4, focusing on game-play mechanics.

Set by

Michael Williamson

William Latham

Andy Tomlinson

KEY ▢ = blueprint specific reflection

TELEMENT

Telement – The Temple of Elements is a first person puzzle platform game, built in a fabricated virtual historical environment.

At the start of the project, when the groups were selected, the programmers in our group already had some preliminary ideas for the concept. As a group we used these initial thoughts as a starting point to consider some individual ideas to pitch to the group in our first meeting. These starting point ideas were that the player's character or point of view was some kind of creator (scientific / deity / etc) in a game with reference to ancient civilisations, and the player would have a companion (a floating 'orb' perhaps) that would guide them and/or act as a tool within game-play.

From this starting point I sketched the following ideas for consideration:

IDEA 1

Obsession .v. mission (what is real)

You play a genius who suffers from amnesia, he built the companion to store important memories and information, so that he can escape or complete his mission.

The companion orb is like a manifestation of his mind, because it holds his thoughts and memories from before the last blackout.

The orb prompts your character/the player with information to help him navigate or find things in the game. This could manifest through speech (voice-over), movement (gesturing toward part of the space that you are in), or visual cues (displaying images)

The orb follows you around the space.

The character thinks he is imprisoned, but the space suggests that he is being kept safe from what's outside. The goal is to escape – but to what?!

The environment could be a fabricated space, part lab, part home, something unusual and unnerving, but familiar (could be hospital)

Ref:

Memento (film)

Wayward Pines (TV series)

Chocky (80s TV series)

Stranger Things (TV series based on 80s genre films), character named '11' child brought up in a lab to practice telekinesis and bridge gap between parallel dimensions.

Overall concept – goal of the game

Escape / discover the truth

Theme of 3 areas

Different parts of the fabricated caged environment

Game play – what can you do in the space(s)

Move around at floor level with your orb following you. Collect information , store it in the orb, access information from the orb, e.g. maps, notes you've made to remember things, objects that represent clues to the truth of what may be outside

The companion – its purpose and interaction with your character

Provide and store information, allow you to see into a room before you enter it. Because the orb communicates directly with the mind of the character, it can allow virtual access to spaces that you cannot physically enter (because you don't have the key, or you don't fit, or its dangerous, etc)

Aesthetics

Mix of clinical areas and disintegrated areas

IDEA 2

Awakening

You play and A.I. the game begins at your moment of awakening, being switched on, rebooted. At the start of the game you receive information about the reboot on the screen as if it were your vision (like terminator)

You have failed in the past or been thwarted, which has led to one or more re-boots. Each re-boot leaves a residue of the last, or you have been allowed to keep certain stored info, but the rest is missing.

You have to learn about your environment

The orb companion is either:

- your assigned companion within the world
- part of you – your physical manifestation
- the mind of your maker (she may have been killed) and who wants you to unlock the puzzle

The orb could help you to learn about matter

The three areas could be the places the A.I needs to understand to achieve its goal

The three areas could be:

Lab

Living area (unoccupied)

Virtual space

IDEA 3

Thinking about ancient civilisations and gods – used to be believed that your shadow was part of your soul, what happens to your shadow effects your physical body.

"When the shadow was not visible it was believed that your soul had retreated into your body in temporary state of hibernation"

You have lost your shadow and need to retrieve it to restore your soul. The companion is an orb of light.

You need to collect objects of different shapes that make a large flat jigsaw puzzle in the shape of your shadow.

There are disembodied demonic shadows floating around that could attach to you, because you don't have your own shadow. The orb of light can extinguish them, but if you don't get them and they attach to your character, then you die.

By shining the light orb on objects you collect there shadows. By shining the light orb on disembodied shadows they are killed/banished

You need to search among the shadows for objects. The objects that you need, may be objects that you have interacted with in your past?

The three areas are places that you have been:

Playground

House

School

Funfair

Whatever?

Ref: Tim Noble and Sue Webster artists

IDEA 4

Near future ultimate reality TV show, where you must complete the levels in order to win the prize, but failure means death.

You have to retrieve 3 (or multiples of 3) objects – for each area of the game. But you have a limited time to do so before you die.

Being the in the area will kill you if you take too long, e.g:

Suffocation from toxic fumes

Crushed under ceiling that in closing down on the room

Drowning

The companion is your helper in the game, helps to buy you more time by altering the state of the area, e.g protecting you from toxic fumes for 30 seconds, allowing you to breath underwater for 60 seconds, bouncing the ceiling back up a limited number of times (bounce it too many times and it escalates the ceiling coming down)

Ref

I'm a celebrity

Hunger Games

Running Man

IDEA 5

You are a deity or scientist and there has been an apocalypse where the elements have been split into physical entities which has messed up the earth

Your mission is to save the earth be reuniting the elements. You have air with you, personified by the companion ball, you need air to breath, so if air dies you die.

You can travel along the ground, but air can float and move through spaces that you can't access.

The air companion can affect assets in the game to help you move through the game.

You must find the water and fire elements and reunite them with air in the central chamber, in order to restore the balance and re-build the world.

Fire and water can move around all three areas of the game and could be capture anywhere. You must explore all areas of the game, turning switches in the right order to find the two lost elements.

e.g. if you go into the first room and trigger a switch you open another room in the same area of the game, but you have closed another. You it's a puzzle of finding the right pattern of switches

IDEA 6

You are a young physics geek/genius and have created a dark matter experiment in your bedroom and its gone wrong. The result is a split in the colour spectrum, white light has been lost. There are objects all around the game which each hold one of the colours from the spectrum. You have to find enough objects of each colour to repair the spectrum and restore light (which will restore the world)

The companion orb is a strange bi-product of the experiment. The orb is like a mini black hole, it sucks ups objects that it get close to, but doesn't harm you.

You have to suck up the colour objects with the orb in order to reverse the experiment.

But, if you suck up the wrong objects (colourless ones) you could make the situation worse! (maybe it grows each time and eventually consumes you)

There could be a limited time attached to the quest, the world is disintegrating around you. This could be visualised by objects, rooms, doors, (assets) becoming black, or disappearing leaving a black void, etc

The three areas of the game could be

Simply bedroom – energy focus of the experiment

Basement – - representing highest point of the house

Attic – representing lowest point of the house

You can't leave the house until the balance is restored

The three areas could have corridors that represent portals to each other

Or

parts of your home which have formed strange visual links or mixtures e.g. 1) bedroom and garden, 2) kitchen, and bathroom 3) basement and attic,

Ref: cellar door –

Donnie Darko

Alternative game areas

Earth, sky, sea

NEXT STAGE – PRODUCTION

Once we had decided on the game concept and principal game-play mechanics, each artist began modelling a kit for Unreal and planning the mechanics of their area of the game. The idea was to create a game which uses the elements water, fire and air as different puzzle chambers, with each element effecting the physics and game play within that particular chamber or area within the game.

We all came up with ideas for puzzles in our areas and how the element would effect the mechanics of game play. Here are some of the ideas that I drafted for my Water level:
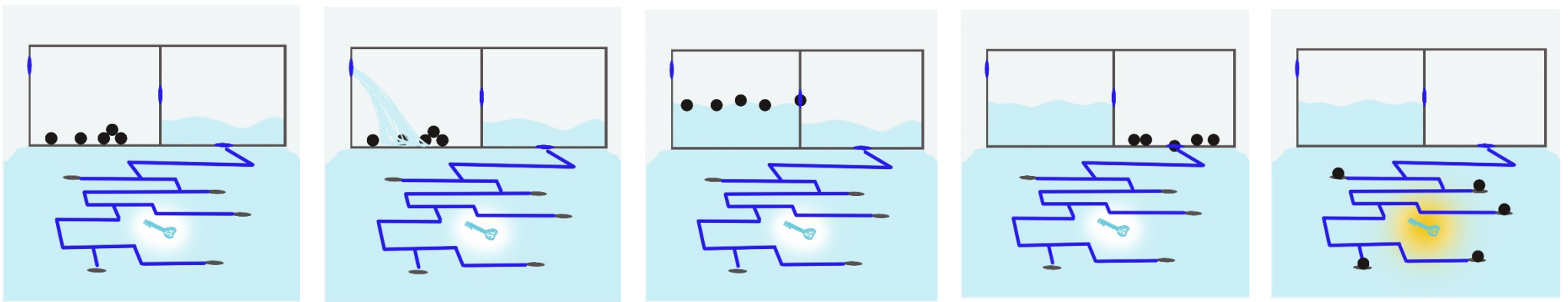
Initial puzzle ideas: above.

Idea for interaction mechanics with companion orb and water element: below
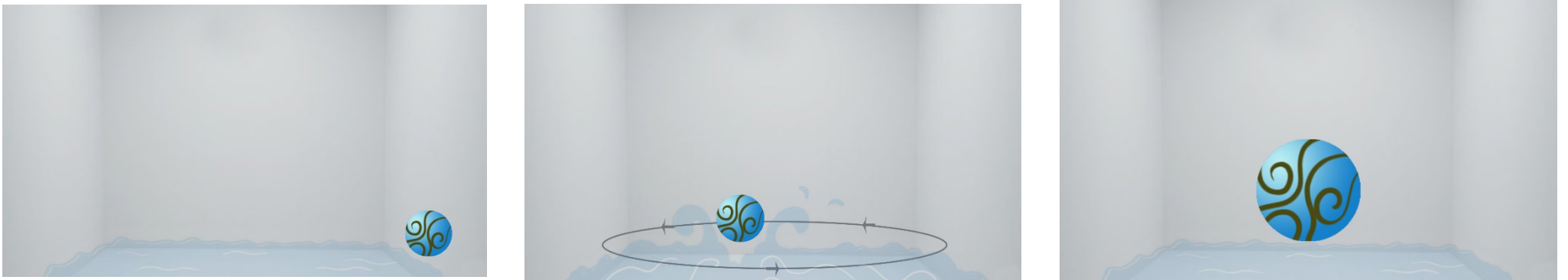
PART 5 - OUTDOOR COURTYARD AND TEMPLE (KEY WATER PUZZLE)

This is the puzzle shown on trello for the water area.

Please see detailed puzzle plan there...

The temple exterior mesh will be based on recognisable Aztec temple structure.

TEMPLE INTERIOR DESIGN FOR THE WATER PUZZLE

Double inverted temple steps create two pit shapes.
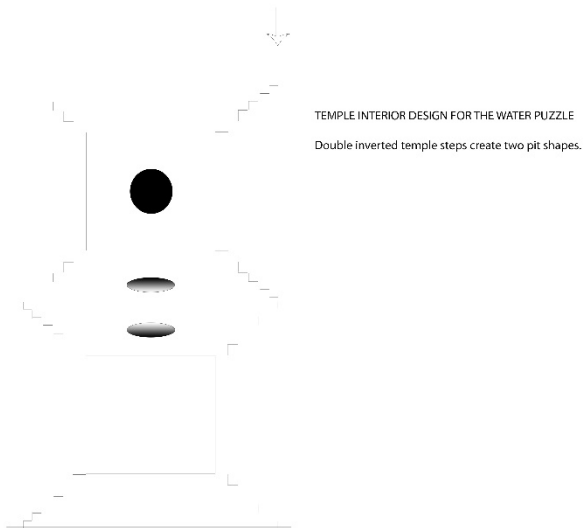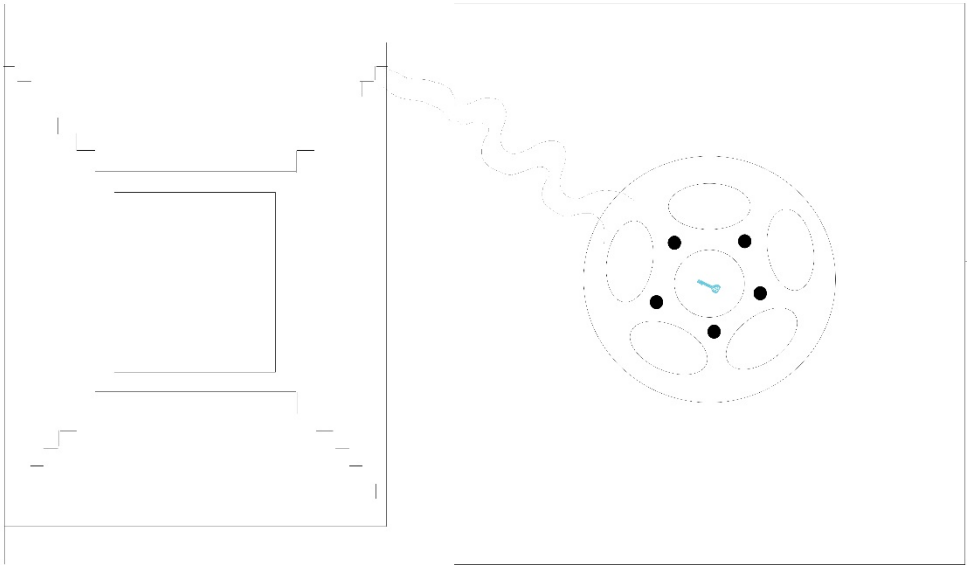
PART 4 - MAGIC WATER PIT

An egg shaped pit, you drop down into it as you enter.

there are steps on the other side and a closed door.

water begins to flood in (2 orb fulls of water) and the full amount will drown you.

Use the orb to suck up water and squirt it onto the ceiling, where it stays (defying gravity with a pool of water on the ceiling).

You must have half the water pool on the floor and half the water pool on the ceiling to open the door.

Two alert the player to the solution their can be a symbol on the wall of like this:

Aztec corridor

ceiling ring of spikes
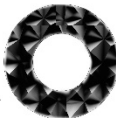
PART 3 - Chamber of Spikes

This is a circular chamber with crystal spikes which emit light.

When you enter the chamber you see a circle of spikes coming through the floor. if you attempt to touch these, you get damage.

There is also a ring of spikes jutting from the ceiling.

The player must use the trigger on one side of the rioom to open the exit door of the other side of the room, this also triggers the ceiling spikes to decend. you have a limited amount of time to get out before you are killed by the descending spikes.
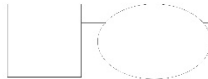
PART 2

Maze chamber & moving walls puzzle.

First set of moving walls follow looped pattern:

wall a) slide 1, slide 2 , pause for 3 seconds

wall b) slide 1, pause for 3 seconds

wall c) slide 1, slide 2. slide 3, pause for 3 seconds
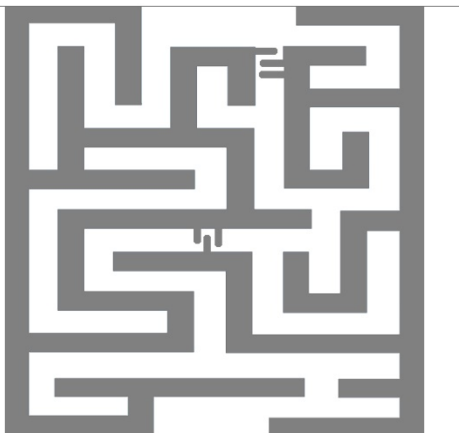
Second set of moving walls follow looped pattern:

wall d) slide 1

wall e) slide 1

d & e together) slide 1, pause for 3 seconds

wall f) slide 1, slide 2, pause 3 secs

*NOTE - 'pause' = open for player to pass

PART 1

Rolling bolder corridor

trigger box to open door to maze, but also unleashes the boulder.

ORB MECHANICS FOR WATER

- trigger switch to suck and
- trigger switch to squirt
- aim on an up/down axis

START

When activated the orb should center on the player's screen. When in use, the orb should follow the movement of the player's camera (this further supports aiming).

Once in Unreal, I began by creating a new game in Unreal with no starter content and used blueprints to set up First person actor with standard W,S,A,D pc controls. This was prior to setting up the group's github repository, therefore I have no commits to show these blueprints.

These were some of the first modular pieces that I created and imported into unreal with my own first person setup:
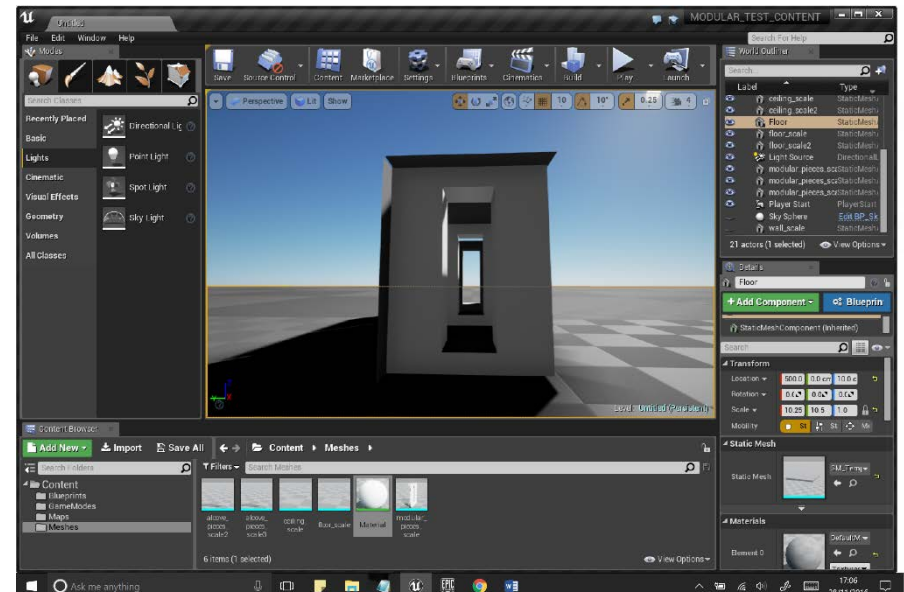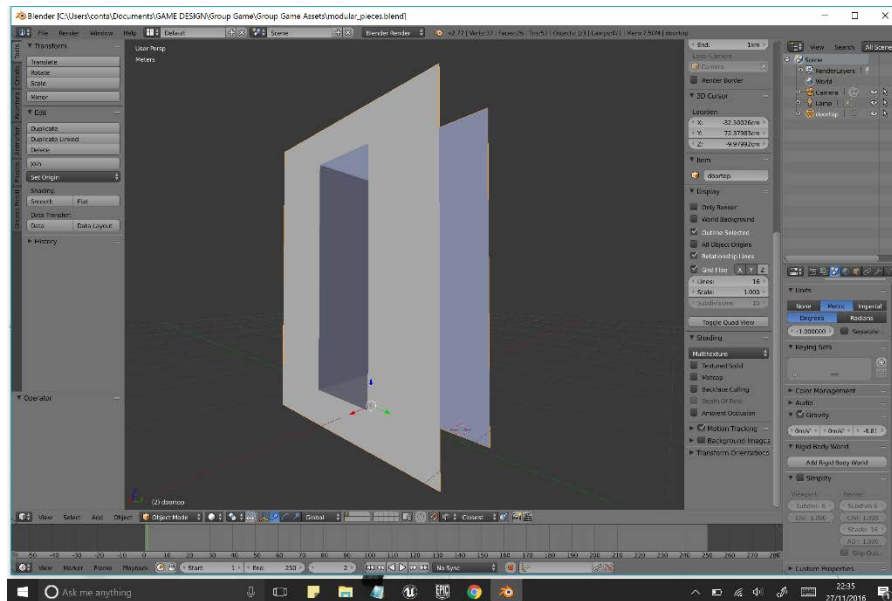
Once our group had set up a shared github repository for development of our game, I designed my water level architecture and mechanics. I created meshes using blender for my modular kit. Firstly I created and redrafted a maze that would be an interim section before entering the main water chamber. In blueprints I created moving walls in the maze. The walls were set on a continuous loop to move from point to point, I changed the timing so that they pulled back slowly then slammed closed quickly, in an aim to build some tension in the game-play. I also created a maze-like area out of crystal spikes (using Max's crystal meshes), and spent time resizing and angling the spikes to create an organic feel, the idea was that the spikes would trigger damage to the player when touched so that the player had to move carefully around the space, and collectable gems would be hidden around the area. There was also a water mechanic planned to allow the player to jump further when firing water/ice which I was planning with to create a water pool puzzle.
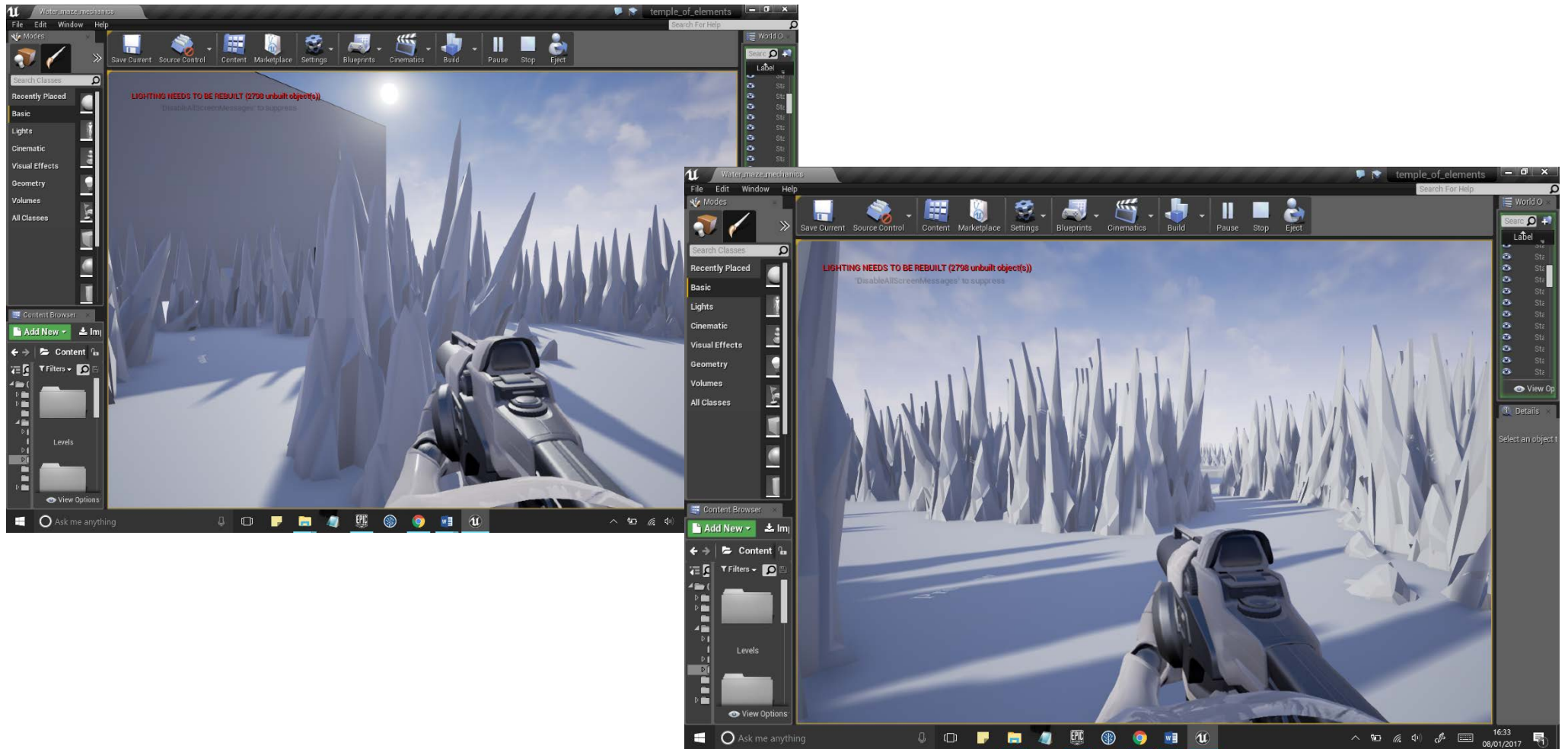
11

Here are some screen shots of the white box stage development of these two areas that I created in the game:
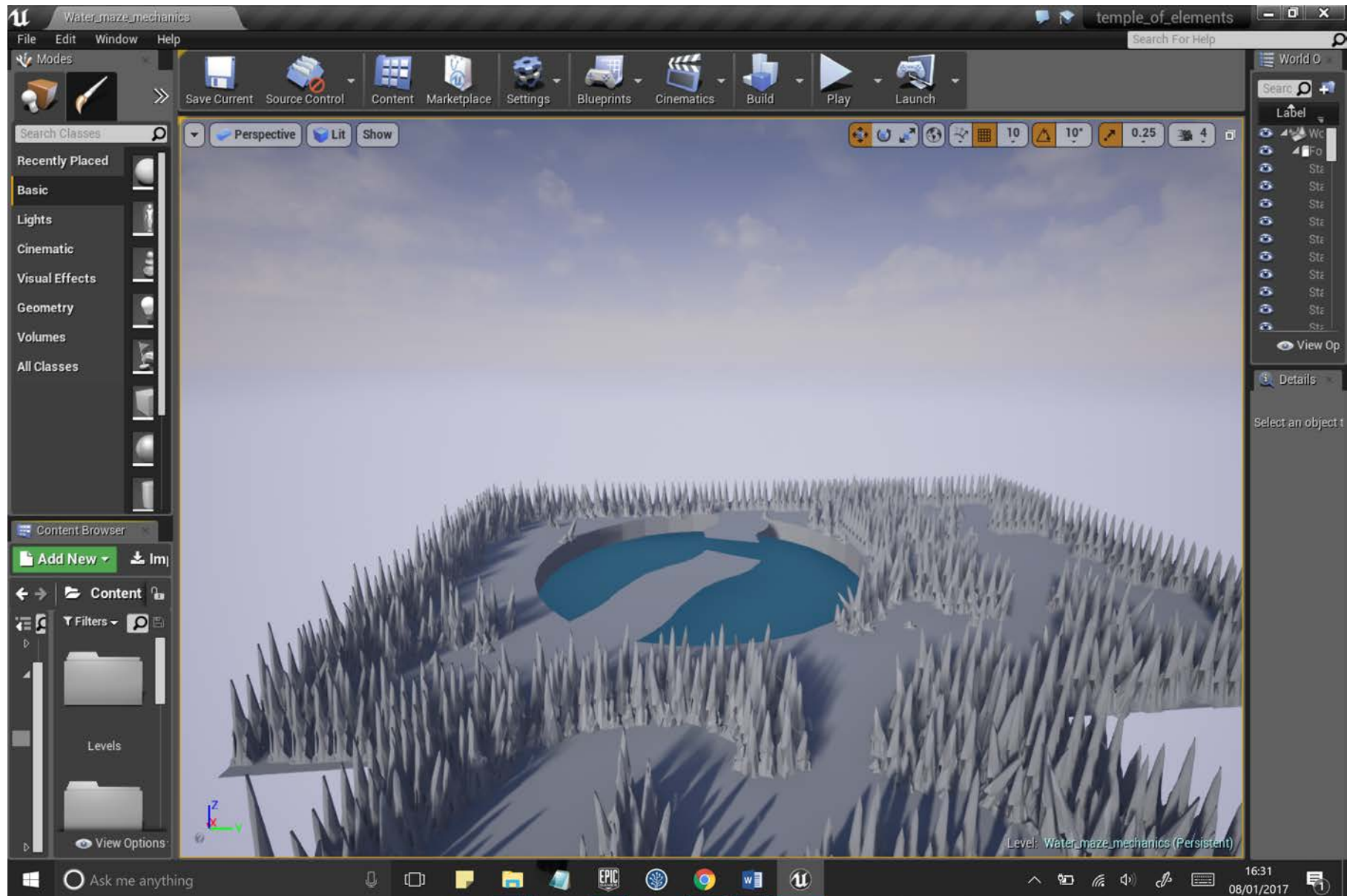
White box design of the maze.
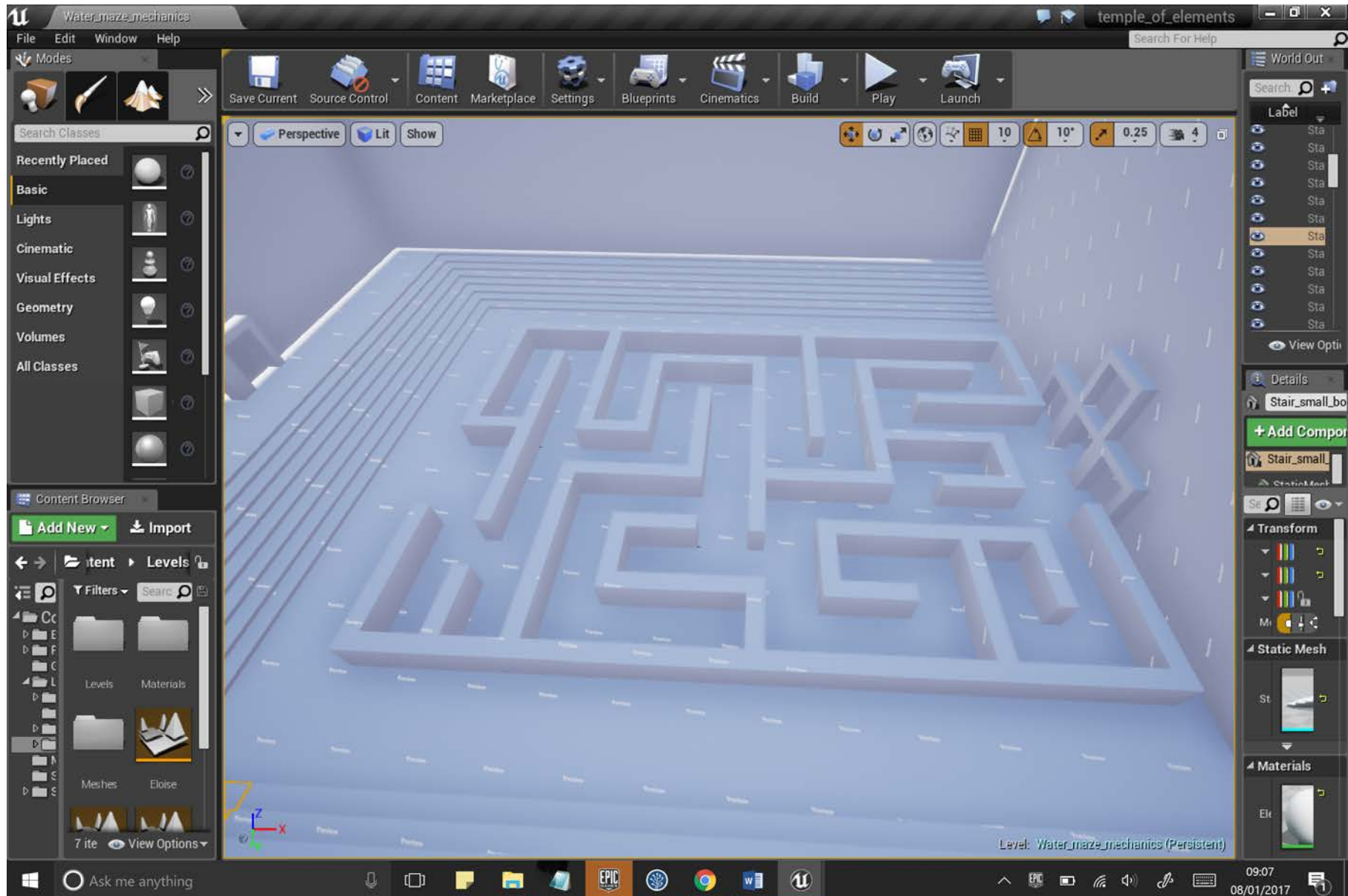
The crystal spikes and water area.

As the project developed the game was changed and adapted according to new ideas , timeline and technical development. Before I had finished modelling my whole water level we decided to change team roles to create more defined roles to ensure that the game could be completed on time. At this point I agreed to stop modelling and instead work on creating textures and material blueprints. Furthermore, due to change in planned mechanics my crystal spikes area was removed from the game, and my main maze was developed into a water puzzle area instead, with differing platforms.

I created many textures (60 approx) using photoshop, I made lots of seamless textures using copy-right free images found online, then offsetting them in photoshop to edit, and checking using pattern selection with the paint bucket tool to check the seamless quality before creating texture export files and normal maps.

I created the grass material for the landscape using textures that I had created and in blueprints I set up the material to create random looking texture across the large area. The blueprint set up that I created was to firstly set up a tiling texture image using a texture coordinate node to define the tiling size, then repeat the use of this image using a multiply node to adjust the colour slightly and change the texture coordinates in each instance, so that the image becomes layered in a style that appears visually randomised. I also added another texture image to the same blueprint to give a variation to the grass, so that there were darker, muddy patch type areas included. A single normal map was used within the blueprint.

Blueprint screengrab – Grass material:

15
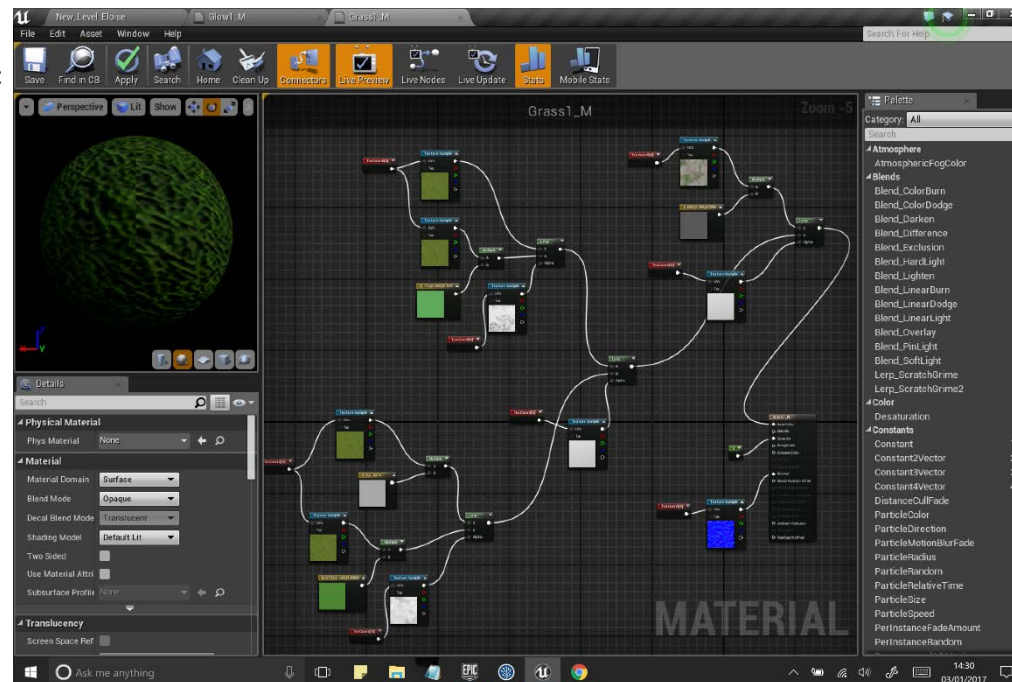
Here is an example me testing some of my textures in the maze, inlcuding a stone tiling texture, with vertex painting of moss over the top.
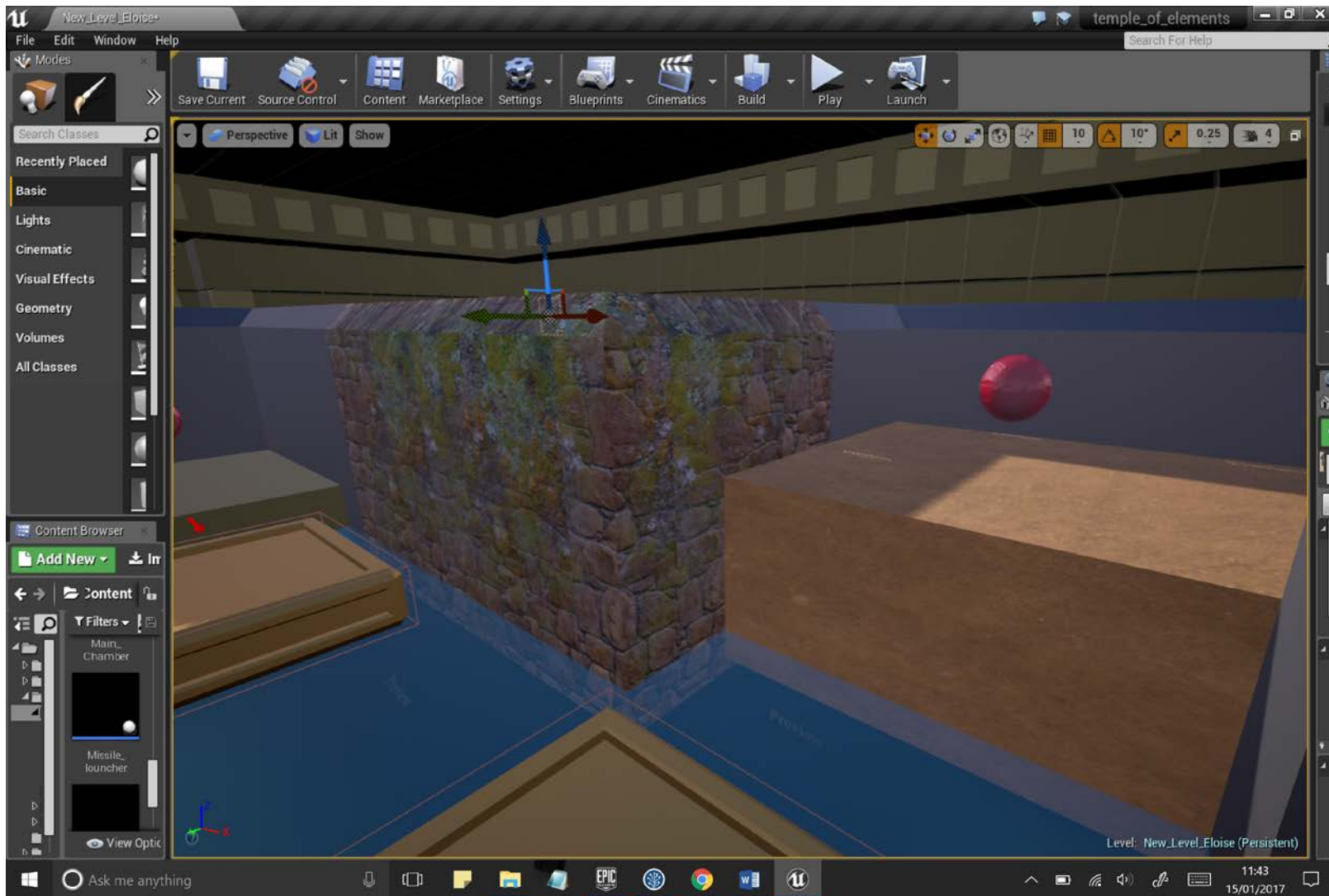
… and here testing some rocky stone texture, as well as a sandy wall stone texture with a layer of damage for vertex painting. For the grey stone, again I used layering of textures with different texture coordinates to try to create a varied texture.
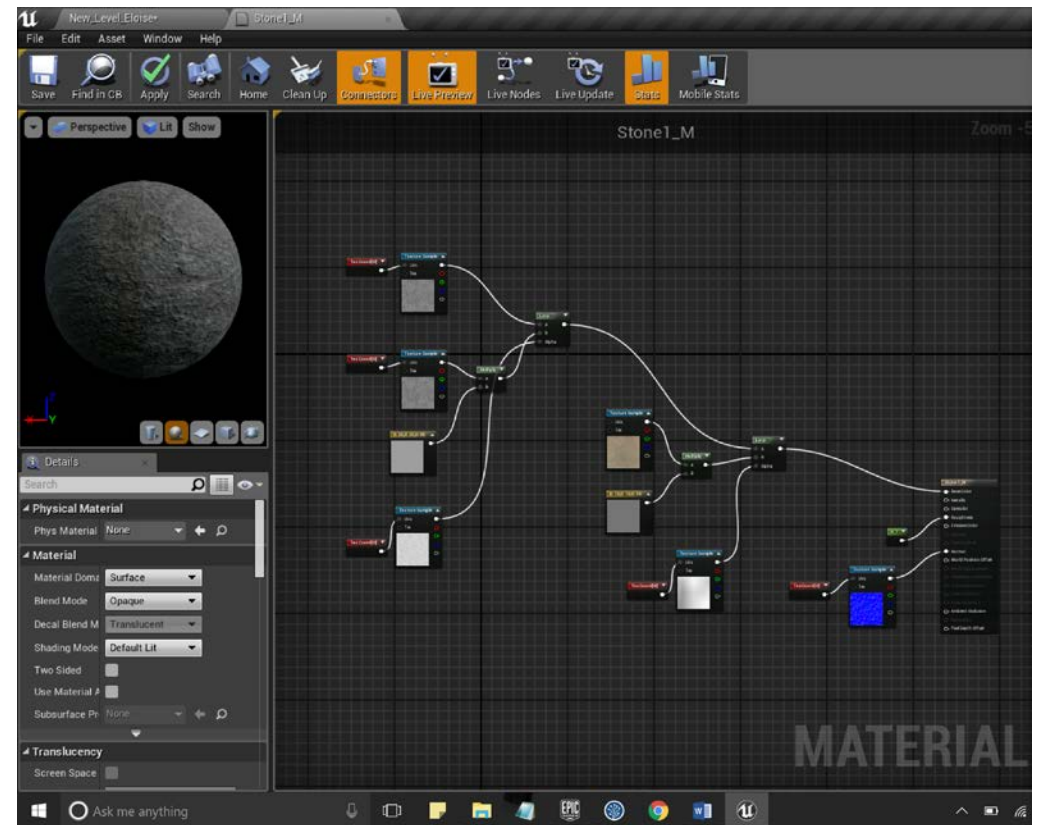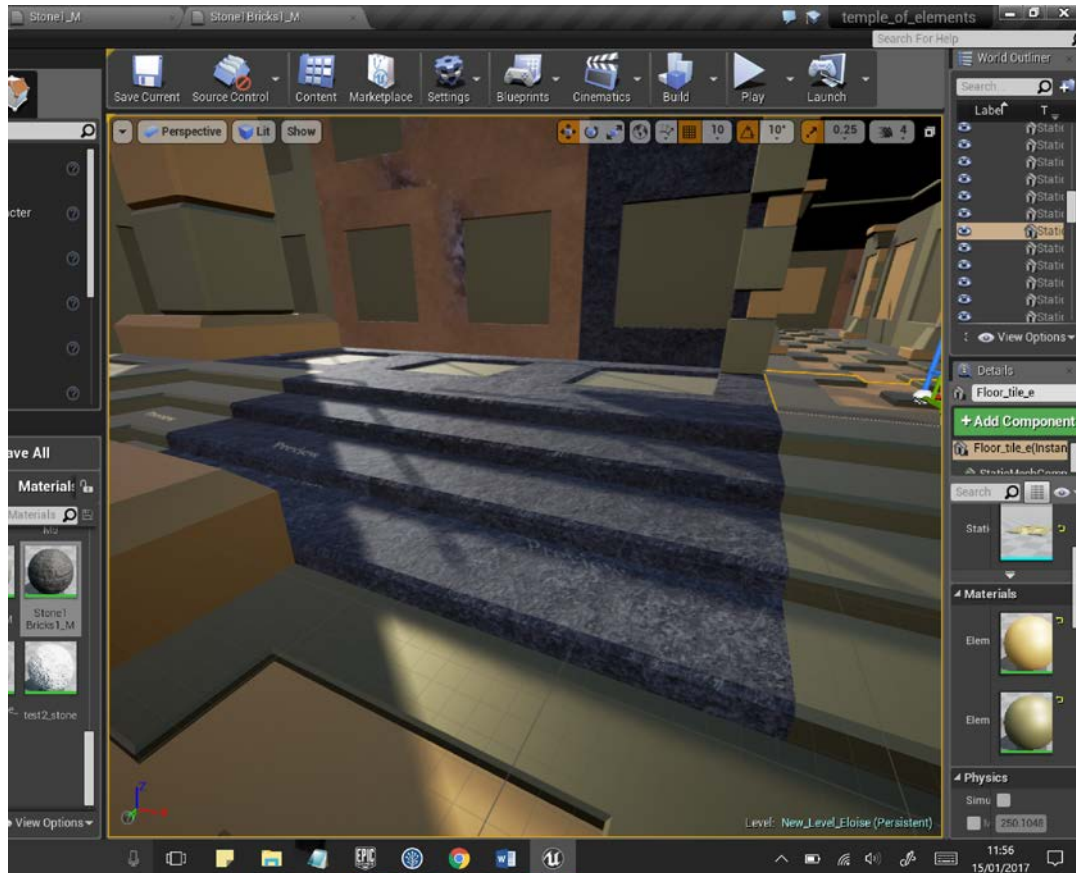
This is an example of another material that I created with variation using layers of texture samples. This time I used two normal maps, one to create the base texture and another to create the brick effect. I create a mask for the second normal map, however the mask uses on RB channels, therefore I needed to append a constant node to add a value to the B channel to complete the RGB channel.
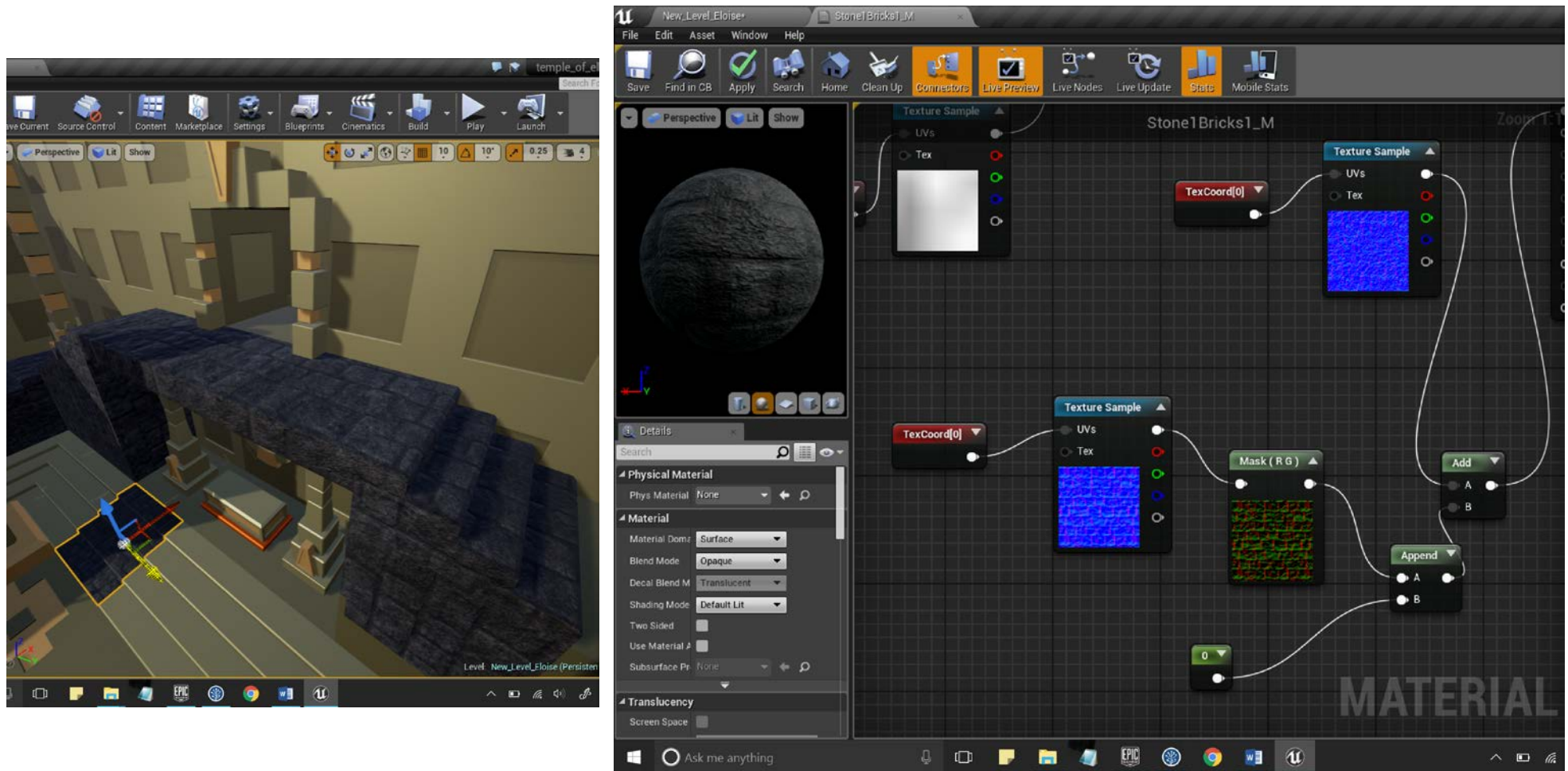
Again as the style of the game developed it was collectively agreed that we would use material colours instead of applying photoreal textures. Therefore, at this point I created a series of images in photoshop that I could use to create normal maps, and then used various blueprint designs to apply normal maps to Constant3Vector base coloured textures. This allows us to add damage or other details to the architecture whilst maintaining the use of a smooth fabricated visual style throughout the game.

When adding the glyphs to the wall, it was relatively tricky to get the symbol to sit in the centre of the mesh, and I had to use a texture coordinate of U 3.3, V 3.3 to manipulate the texture into the correct alignment. This was something that I had to play around with with different meshes when adding the normal maps to give texture to the base colours.

In material blueprints I set up vertex painting using Vertex Colour so that I could paint organically on meshes. I began this set up when still experimenting with the photo real textures, most of which were not used in the final version. However I developed this when using the normal maps to create details and damage, by using a 4-way blend vertex paiting setup. Initially I set up a 3-way blend, but realised that I needed the forth; alpha channel, to set a null channel that would leave the base colour unchanged:

The 4-way blend setup allowed me to paint a choice of 3 normal maps through the base colour, in order to apply damage in organic visual form to individual meshes. However there was no normal map attached to the base colour (for the Constant3Vector colour), this created a problem with the material colour overall when applied the 4-way blend, so I added a 50% grey placeholder normal map for the alpha channel, to provide a corresponding normal to the base colour that would not effect the actual colour value of the Constant3Vector.

I also created a rotating texture by accident when experimenting with material blueprints. I was aiming to rotate a static texture on a mesh, in order to create variation on different pillars between materials, and I called a Rotator node which added moving rotation. I decided to use this for another material on the central circular mesh above the door of the main chamber. Eventually I also managed to change the static rotation position for my pillar materials by calling a Custom Rotator node, and worked out that I needed a singular constant, plus a Constnant2Vector for the coordinates.

I created a glowing material for spikes in the game my manipulating the emissive colour with a GlowIntensity node set to 10.

To help me with blueprints, I used various tutorials from UE4 and DigitalTutors.

I have found the paint tool in Unreal to be quick tricky to use and the brush sizes don't function very well. If I set the brush size to large, the paint tool works, but that doesn't allow me to have control of fine details. If I make the brush size smaller (with an aim to have control to paint small, individual details) the paint tool just doesn't paint! I have googled this several times in frustration, but haven't found a solution. I have tried making the texture tile smaller in blueprints in case the brush work in relation to the 0:1 size of the texture sample, but it doesn't seem to have any impact. This has led to me spending a lot of time painting and undoing and tweaking blueprints, with not much difference to visual results. I can see that the visual quality of the vertex painting is best with a more detailed mesh. Often in our game I am vertex painting onto flat walls, and this is not the best use of the tool. It is difficult to use Texture Coordinates to get the tile size right for a material, because the same material is being applied to many different size and shaped meshes, so the material will tile differently on each different mesh design, making it difficult to create seamless materials on wall made of different mesh structures e.g. stairs attached to flat plane, attached to cut plane, etc..

Here are some examples of the Main Chamber of the game where the materials have been manipulated visually using blueprints:
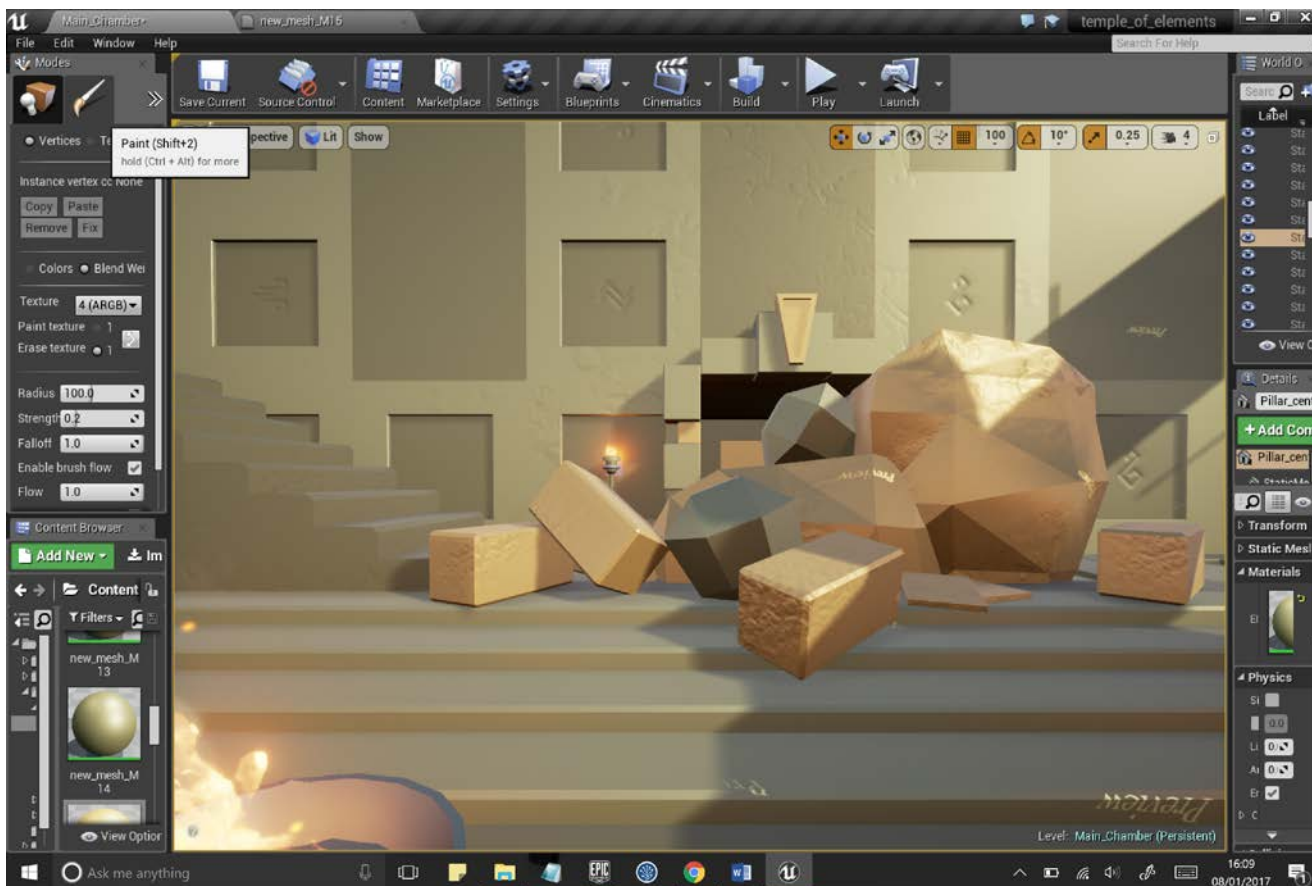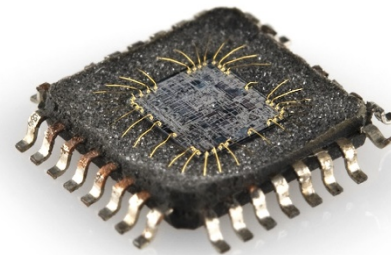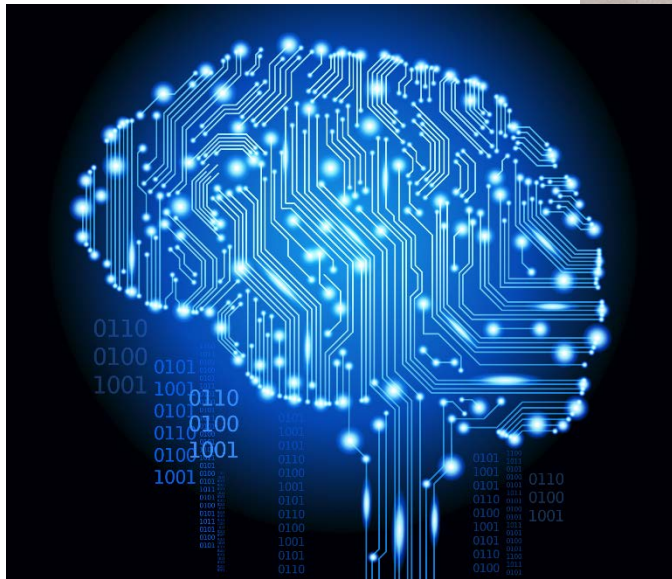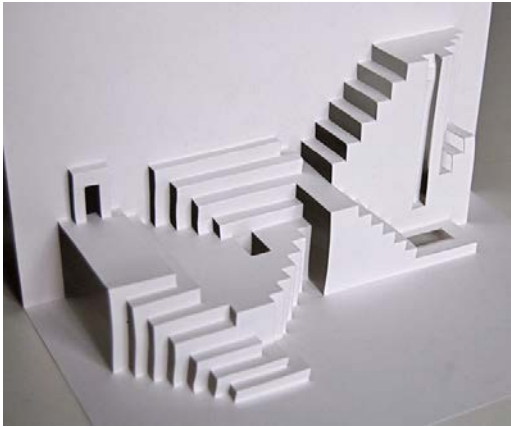
VISUAL RESEARCH

Types of Maze, and things that could relate to labrythine concepts

Inspiration for architecture - water chamber was planned to be inside large temple of Aztec goddess of water and furtility.

Inspiration for the spikes maze area