**This document contains hints written in invisible ink, to see the text highlight it with your cursor**

**Chapter 1**

**Hint 1**

The puzzle tells us to find something and then decode it. The Start and Finish text look like they connect to the maze - where have you seen N, S, E and W before?

**Hint 2**

 It looks like we need to collect the letters in the maze by using the directions given to us (North, South, East, West), noting down every letter we pass- not just the ones we land on. Once we do that we can decode it with the table.

**Hint 3**

In the table, each letter corresponds to another letter or number - what does the decoding spell?

**Solution**

Following the directions in the maze gives us GWVDZLANFS, which we can translate using the table into LOCKERD219.

**Chapter 2**

**Hint 1**

I think that MAGE want us to check out the Department’s instagram. Maybe they’ve left a clue for us there.

**Hint 2**

The date must show us which post to look at, which is directing us to an Instagram story, let’s watch that.

**Hint 3**

We have a table of missing numbers and MAGE have told us to listen to Amy - maybe she’s telling us something. MAGE also mentioned we needed a link to get to the right place to deduce the password, is there one in the story?Once you find it, go to that webpage and use the table to pick out the password.

**Solution**

The Biology at York department Instagram posted on 10.08.2020, telling us to look at their pinned story. In it, Amy talks about her university experience and provides us with the numbers needed to fill in the table, listen carefully and you’ll hear her say eight, seven, four, one, four, seven, one, two and three during her video. At the end, we get provided with a link to the year away information. Using the instructions on the table, note down the letters from the main text on this page, eg the first line of the table tells us to look in the first sentence of the first paragraph, at the 10th word, and it’s first letter is G. Continue this for each line of the table to get GOOGLEMAPS.

**Chapter 3**

**Hint 1**

It appears all the crossword answers are places or streets in York, several are well known tourist attractions, so information about them is freely available online.

**Hint 2, Individual Line Clues**

**1 down:** Try looking up university of york sunday student nights, or searching synonyms for uprisings and checking these words against bars on Coney Street in York.

**2 across:** How about searching the name of York Castle and comparing that against street names in York? Or, we know Kuda and York dungeons are on this street, maybe we should look where they’re based.

**3 across:** This is a cathedral, but it’s not called a cathedral. A quick internet search should tell you it’s title. If you’re confused it doesn’t fit the letters required, try putting the city name before the word.

**4 down:** This word is a historical word for meat market, and today it’s used to mean a state of total disorder. Try looking up words that fit this definition and search for this on a York map.

**5 across:** Searching for the location of York’s archaeology department should give you this answer.

**Crossword Solutions**

Revolution, Clifford Street, York Minster, Shambles, Kings Manor.

**Hint 3, Finding the password**

There’s also some coloured squares on the crossword, maybe the letters that fill these are important? Could they spell a word? Maybe it’s another clue to point us to where to go next!

**Solution**

BIOLAB

**Chapter 4**

**Hint 1**

What tool could you use? Think back to previous passwords you’ve unlocked, could one of them be useful here in order to map out the crossword answers?

**Hint 2**

Maybe we should see where these places are relative to one another and connect them using the instructions given. Try marking them on google maps or similar, by searching and saving each location. Join the points as the crow flies, don’t follow the winding streets or use the directions function on google maps.

**Hint 3**

If you haven’t been able to visualise what you’re looking for, the exact way you need to join the points on the map is by drawing three separate straight lines: one connecting Kings Manor to York Minster, a second connecting York Minster to Clifford Street, and a third connecting Revolution to the Shambles You can visualise these, or hold a piece of paper up to your screen and trace them. Then look for what you see in the lines.

**Solution**

Connecting the points as described above should create the number 7. So the password is LABSEVEN

**Chapter 5**

**Hint 1**

If you’re not familiar with gels like this, there’s a simple clue with the puzzle to provide you with some direction in order to read it.

**Hint 2**

Before you start translating your DNA, remember how to divide the sequence up. Your sequence should be 12 letters long, but your answer is only 4. It’s not called a triplet code for nothing.

**Hint 3**

Once you’ve got your DNA code, you need to translate it. If you haven’t used a circular codon table before, start in the centre and read outwards, following the sequence of letters until you reach your destination. If you get ALLV, this is an easy mistake to make, but your reading is a bit… backwards. Go back to hint 1 and look at things from a different angle.

**Solution**

You need to read the gel from bottom to top, noting down the letter each band falls under. This should give you CTGATCTTCACG. Then, split this into codons of three: CTG, ATC, TTC, ACG. Then use the codon table to decode this, for example for CTG, start in the ‘C’ quarter of the circle, then follow T, then G. This should lead you to Leu (L). Try this for each triplet of letters. The final code should be BIOLIFT.

**Chapter 6**

**Hint 1**

Make sure you read all the information you’ve been given. To reiterate- this series of events took place over several days, so it won’t necessarily be the case that all the morning entries happened before the afternoon entries, since someone could enter the following morning. Start by filling in any information you’ve been told, and narrow things down as much as you can.

**Hint 2**

You know the Student Employability Manager went to the labs immediately after the Disability Support Officer, but remember the same lab can’t be visited twice in a row. That means the Student Employability Manager can’t have gone to lab 7, but we get told they don’t go to lab 6 either. Remember to use what you know not to be true to narrow down what the answer must be.

**Hint 3**

To come up with the final order, you need to remember to alternate labs. Also remember the total number of entries to each lab, and during each time period, and everything should fall into place.

**Solution**

You can solve this in a number of ways, but here’s the most common method:

Starting with filling in the information we get straightforwardly told, we know the Lab Technician must enter first, the Technology Facility Director entered in the afternoon, the Department Manager went to lab 5, and was second, and the Disability Support Officer to lab 7. Lab 7 was only entered in the morning, so the DSO must have entered in the morning. Now, you know the SEM went to the lab straight after the DSO, which means they can’t have entered lab 7, and we’ve been told they didn’t go to lab 6, so it must be lab 5. Now, we only need to know which labs the LT and TFD went to. Based on the number of people that went to each lab, one of them must have entered lab 6, and one must have entered lab 7. We know lab 6 was entered last, and the LT entered the labs first, so it must be the TFD that entered lab 6, and the LT went to lab 7. Again, lab 7 was only entered in the morning. Putting them in the final order: LT, DM, DSO, SEM, TFD.

This means the missing letters for the url are T, u and A. In the video, you’ll see the lab technician goes into the lift. If you rewind, you’ll see that this lift is in BLOCKR.

**Chapter 7**

**Hint 1**

I swear we’ve seen these colours somewhere before.

**Hint 2**

Let’s look back at the previous puzzles, see if we find anything.

**Hint 3**

There seem to be letters hidden in the MAGE symbol, maybe we need to use them in the password.

**Solution**

Throughout the previous documents there’s been letters within the MAGE symbol. These colours correspond to the colours in the lift access panel, you need to put the coloured letters in order of the colours on the panel. This should give you ELIXIR.

**Chapter 8**

**Hint 1**

Within the lab documents you should find a note that provides a clue to the passcode. First, put the note back together, by copy and pasting the scraps onto the workbench document.

**Hint 2**

We need to find out when MAGE came from the stars? That phrase seems familiar. Try checking the other documents for it.

**Hint 3**

The Founding of MAGE document uses that phrase, perhaps it means that the founding year of MAGE is the passcode. That information must be on the founding document somewhere.

**Solution**

The wax seal on the founding document tells us that MAGE was founded on June 28th, 1968. Because the keycode is 6 digits long, we know that the password must be the date 280668. This is the door passcode.

**Magnum Opus Room 1**

**Hint 1**

Completing the sudoku is only the first part of this puzzle. If you’re needing some help with that, the remaining three numbers in the top row are 6, 8, 3. Once you’ve completed the sudoku, you need to use the numbers in the coloured squares to discover your passcode, using the rows of boxes that have been set out for you. Notice which two numbers are within the coloured squares- do you know of any type of code that uses these?

**Hint 2**

For further help with the sudoku: the missing numbers in the second row from left to right are 3, 6, 7, 0, 1, 5. The code you’re looking at is binary. Remember you need 7 letters for the password.

**Hint 3**

Fill in the rows of boxes by transferring the numbers from the sudoku to the squares with matching colours. Each row of boxes gives you one of the letters of the password. Use an online converter that converts binary code to text, like one found here: <https://www.rapidtables.com/convert/number/binary-to-ascii.html>

**Solution**

The rows of numbers once transferred across from the sudoku should look like this:

01110000

01100001

01101110

01100100

01101111

01110010

01100001

You can use a binary code translator online to convert each of these sequences into letters, giving you the password PANDORA.

**Magnum Opus Room 2**

**Hint 1**

Look for a pattern within the numbers that have already been filled in to figure out how you can continue filling in the pyramid.

**Hint 2**

8+1 = 9

**Hint 3**

Each number is the sum of the two numbers beneath it, shown by 9 being the total of 8 and 1. Starting from the top, 37 must be the total of 17 and another number. Use this process to fill in the pyramid.

**Solution**

37-17 is 20. Then, 20-9 tells us the middle number in the third row down must be 11. 17-11 tells us the righthand number must be 6. 6-3 is 3. Thus, the missing numbers are 20, 11, 6, 3, which gives us 6 digits for the passcode, in that order: 201163.

**Magnum Opus Room 3**

**Hint 1**

There’s a number of ways to solve these equations. You could use trial and error by picking numbers for x and y that work in the first equation, and then inputting these into the following equations to see if they work. However, we recommend a more mathematical approach for a quicker solution. Try rearranging the first equation so you only have one unknown factor on each side.

**Hint 2**

You can rearrange the first equation to find that x= 11-y. Now you ‘know’ what x equals, you can substitute this into the other equations, for example if we use the third one, it becomes 11-y +5y = 31. Try working from here.

**Hint 3**

The equation in the previous hint simplifies to 11 + 4y = 31. Then, 4y = 20. So y must equal 5. Use this information to find x.

**Solution**

There’s two main methods to solve these simultaneous equations. The hints have talked you through one. Given y = 5, x must be 6 so that the first equation works out as 11. The alternative approach is to use the ‘elimination’ method to solve, either by subtracting the first equation from the third, or multiplying up the first equation to solve with the second. Both methods shown below.

X + 5y = 31

-x + y = 11

4y=20

Y = 5

X + y = 11 becomes 2x +2y = 22

2x + 3y = 27

-2x +2y = 22

Y = 5

With x being 6, we must need the hexagon screw, and y being 5 means we need a pentagon. The password is therefore HEXAGONPENTAGON.

**Magnum Opus Room 4**

**Hint 1**

We need the wire that’s connected to the red socket. But we need to unplug it at the other end to where the colours are. How do we know which one is connected to the red one?

**Hint 2**

Maybe we should follow the wire down across the pages.

**Hint 3**

Make sure not to get confused by the tangled wires. At each page break, remember which socket you’re on, and make sure to follow the corresponding one on the following page.

**Solution**

Following the red wire will lead you to the fourth wire, meaning the password is WIREFOUR.