

MARIA THE MATHEMATICIAN

BREAKING THE BANK

Hey engineers! My name is Maria and I'm a mathematician! When I was in fifth grade, I would help my mom measure and count ingredients for different recipes. I was fascinated by math and wanted to learn more! I studied mathematics at Cal Poly. I was the first one in my family to go to college!

A mathematician is someone who studies math and how it relates to the world. Cryptologists use math to create and break codes. Cryptologists are very important because they make sure private information is kept safe, especially on the internet.

I work for a super secret spy agency where I break codes to help solve tough investigations! My agency just got word that an infamous thief, Harry Heist, is trying to break into the world's largest bank, World Enterprise, and steal all of the cash in the bank vault. I've been assigned to help the agency get into the vault and move the cash to a safe location before Harry Heist can get to it. This is an important mission so I'm going to need your team's help to crack the code! Let's get started, we don't have much time!

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Our team has intercepted some of Harry Heist's messages and gathered some information about his plan to rob World Enterprise. Unfortunately, the plans have been mixed up to make sure no one can read them. However, let's get our game face on by **setting the face pattern to have each other light on with a brightness of 255** and **making a sound expression of clear throat**. Let's do this!

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It looks like Harry plans to flee with the money as soon as he gets his hands on it, so we have to work quickly! In order to crack the code for the vault, we need to work on unlocking one latch at a time. To unlock the first latch, we must complete a series of specific movements. First, **move a distance of 15 at speed 30**. Then **animate a swerving oval**. Next, I need to complete three animated movements in the following order: **look around**, **walk forward**, and **walk backward**.

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If we hope to successfully complete our mission, we need to unlock this vault! Let's get started on the second latch; this latch has to be unlocked using a specific sequence of lights. First, **move a distance of 40 at speed 30**. Then **set my left ear light to blue**, **wait 1 second**, set my **right ear light to yellow**, **wait 1 second**, and my **chest light to green** and **wait 1 second**. Next, set my **left ear light to orange**, **wait 1 second**, my **right ear to purple**, **wait 1 second**, and my **chest light to red** and **wait 1 second**. Finally, **set all of my lights to a random color** and **wait 1 second**.

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Great news team! The agency got their hands on an encrypted code that can open the bank vault. It's up to us to decrypt the code and give it to the agency before Harry Heist can get there! Start by having **the circle button set all lights to red when pressed down**, **the triangle button set all lights to blue when pressed down**, and **the square button set all lights to yellow when pressed down**. Now to decrypt the code, change the lights by pressing the buttons in the pattern of: red, blue, yellow, blue, red.

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Great job decrypting that code, team! Now we can unlock the last latch! To do this, we must **move a distance 25 at speed 30**, then we have to **repeat a specific sequence 2 times**. The sequence is to **tilt my head to 45 degrees, turn a 190 degree angle, complete a forward spin, complete a head shake**, and **wait 2 seconds**. After that sequence is completed 2 times, the final step is to **make a mind blown expression!**

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We did it team! The agency told me that they were able to get to the bank vault and move the cash before Harry Heist could get to it. They even caught Harry Heist trying to break in! The agency could not have done it without all of your help. Thank you! I loved working with all of you and I hope you remember that no matter what challenges may be in front of you, you can conquer them if you put your heart into it and work hard! If you decide to go into mathematical cryptology and ever need help cracking a code, you know where to find me!