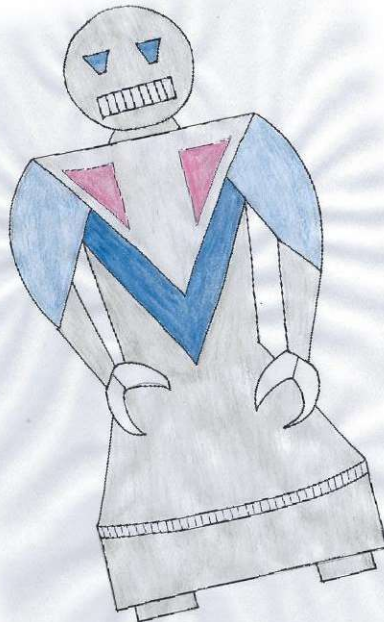




# END OF YEAR ESCAPE ROOM MATH



$$\begin{array}{r} 1.045 \\ +0.843 \\ \hline \end{array}$$



## ESCAPE THE SCHOOL CASE OF THE ROBOTS

# ROBOT TAKEOVER – MATH ESCAPE ROOM SCHOOL

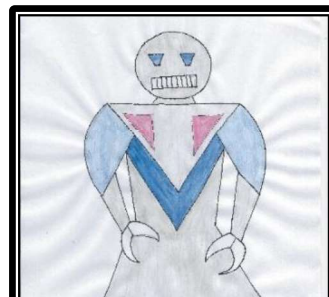
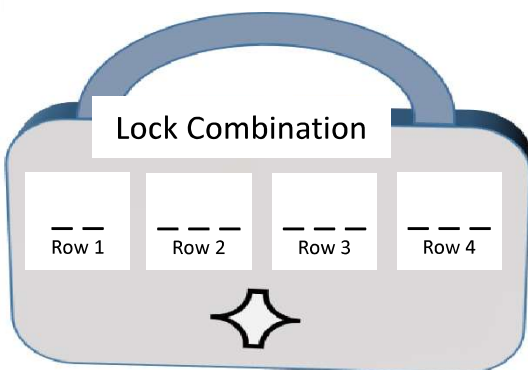
You are sitting in class, just watching the clock and waiting for the last few hours of school to pass by. It is the end of the school year and nearly the start of the long break. Think of all the things you can get up to during the weeks you will have off – swimming, sleeping in, watching TV, - sounds great!

Suddenly the loudspeaker crackles... Evil laughter is followed by a cold voice – “I have taken over the school with the help of the math teacher and dispatched my robots.” – you recognise that voice... oh no, it sounds like the technology teacher! The voice continues, “As you aware, the end of the school year is almost here... OR IS IT?!... we both think you need to stay at school and learn more math over the holiday break. Our robots will keep you from leaving... the only way to stop them is by proving your math ability by solving a series of math problems... you will never leave... ahahaha.”

A robot suddenly rolls into the classroom and blocks the door. It then starts loudly speaking math riddles and problems! Ohh no – it’s your worst nightmare – an evil math-speaking robot!

The loudspeaker crackles to life again. “In your classroom we have hidden a chest – in this chest we have locked away a special remote control allowing you to control the robot at your door.” Your first challenge is to figure out how to unlock this chest and get the remote control!

**You look around the room and notice a chest with a large padlock closing it shut. Your first task is to figure out the combination to this lock so you can get the remote to control the robot. When you figure out the answer to each clue, come back here to record the answers.**



ROBOT PASS-PHRASE

\_\_\_\_\_

MAP CLUE:  
ROBOT DRONE  
SHUTDOWN CODE  
WORD:

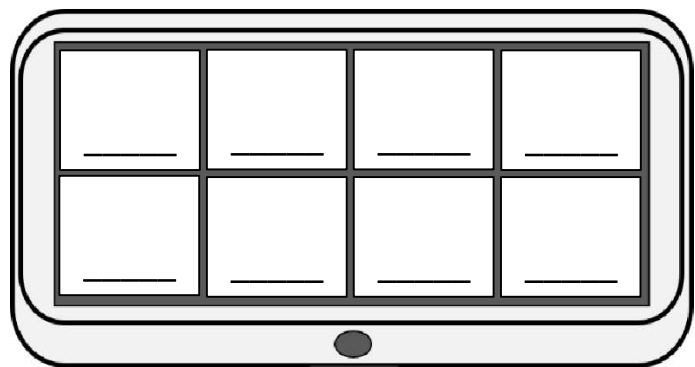
\_\_\_\_\_



Staff-room door code:

- Q1:
- Q2:
- Q3:
- Q4:
- Q5:
- Q6:

Q7:

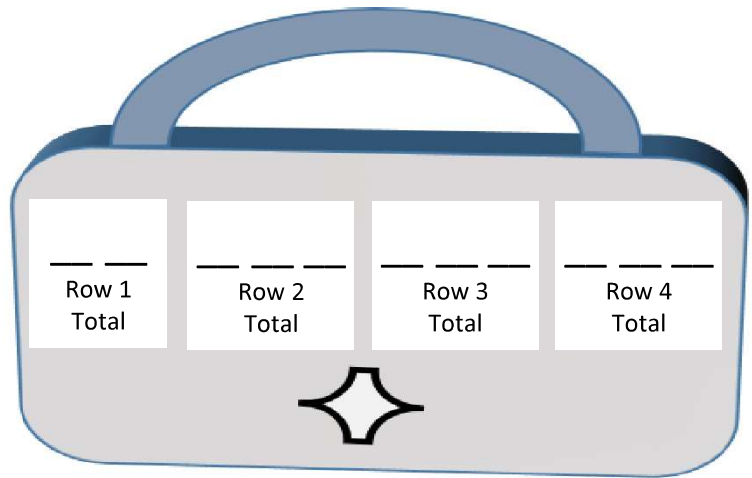


Hack the robot control system

# LOCK BOX – REMOTE CONTROL FOR ROBOT

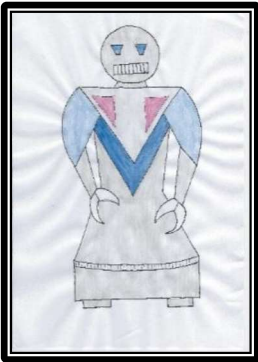
*OHH no! There is a large robot blocking the door and not letting you leave your classroom for the end-of-year break. The remote to control it is locked away in a chest with a big padlock! You need to figure out the code to the padlock to get the remote so you can control the robot. You start to search the room for clues and notice math problems scratched on every desk. On the last desk is a note which tells you to add up the answers in each row – this must be a clue to find out the padlock code!*

**To find the code to the lock, solve the multiplication problem on each desk. Then add up the answers in each row to get a total for each row. Then put this total into the lock in the correct place.**



Desk 1	Desk 2	Desk 3	Desk 4	
$3 \times 4$ =	$7 \times 5$ =	$6 \times 6$ =	$4 \times 4$ =	<b>Total of row 1:</b> Desk1: +Desk2: +Desk3: +Desk4: Total =
$8 \times 7$ =	$7 \times 3$ =	$9 \times 3$ =	$4 \times 6$ =	<b>Total of row 2:</b>  Total =
$8 \times 8$ =	$6 \times 3$ =	$3 \times 3$ =	$7 \times 6$ =	<b>Total of row 3:</b>  Total =
$9 \times 7$ =	$6 \times 8$ =	$7 \times 7$ =	$4 \times 9$ =	<b>Total of row 4:</b>  Total =

# ESCAPE THE CLASSROOM – ROBOT GUARD!



An annoying talking robot is blocking the classroom door and won't let you pass. You have found the remote control to this robot and on it is one big red button. You point the remote at the robot and press the button.

The robot goes silent for a few seconds... it then starts a low, mechanical laugh "... Ha. Ha. Ha. – Well done, you found the remote, but it will take more than that to get past me. I will only let you pass if you tell me what the pass-phrase is. To find this pass-phrase you must first answer a series of math questions and match them to these numbers." A piece of paper with a row of numbers then starts printing out from the robot's chest as the robot starts asking its math questions.

**Work out the answers to each math word problem and then match the letters to the numbers below to find the robot pass-phrase.**

122   3:05   7   23   12   122   3:05   72   230   3.49   12   3:05

There were seven robots. Three of the robots had five circuit boards each, and the other four had two circuit boards. How many circuit boards do all the robots have combined?

**A =**

A robot had 326 screws holding it together. 132 were on its body, 72 were on his arms and legs. The rest of the screws were on its face. How many screws did the robot have on its face?

**M =**

The amount of robots in the city is doubling every month! How many months does it take to go from 1 robot to 100 robots?

**T =**

Katie was a robot who ran out of battery power at 11:15am. It took her 3 hours and 50 minutes to fully recharge. What time was Katie the robot back to full power?

**= E**

Once there was a glorious robot king. He had 9 human servants who each spent 4 hours in a row, one at a time, polishing his fabulous metal body. They each did this twice a week. How many hours a week was the robot king being polished for?

**N =**

Tim the robot was sad because his robot arm was very heavy and was difficult to move. It weighed 6.23kg. Sam the robot maker helped Tim and gave him a new arm that was 2.74kg lighter than his old arm. How heavy was his new arm?

**= U**

There are 72 cans of oil and 6 robots. How many cans of oil does each robot get?

**L =**

There were 6 robots in the robot shop. Three of them bought a new arm for \$10. They all bought new robot laser eyes for \$20, and two of them bought a robot booster flyer pack for \$40. How much money did they spend altogether at the robot shop?

**= R**

# ROBOT DRONE SHUTDOWN CODE

You have successfully defeated the robot that was blocking your classroom door! Before you leave, however, the voice comes over the loudspeaker again: "Well done, you have gotten past the first robot, but you can't leave the school just yet. Robot drones are flying around guarding the perimeter of the school, but they can be shut down. I have left hidden letters around the school. Solve the following problems to find out where in the school to go. In each location you will find a letter. Put them all together to gain the password to shut down the drones.

**Work out the answer to each question and match with the correct answer. Go to this location on the map and record the letter found there. Put all the letters together to form the code word.**

e.g.  $2+3 =$ 

A1	2
B3	5
E5	6

  
The answer is 5, so go to B3 and record the letter.

	A	B	C	D	E	F	G	H	I
1	A	J	E	P	C	U	T	N	M
2	K	B	Q	I	O	K	S	B	R
3	T	I	O	N	E	J	H	L	P
4	T	R	N	J	A	N	E	A	E
5	L	M	I	C	M	I	S	G	A
6	H	B	D	J	E	V	K	W	

CODE WORD =

SCHOOL MAP

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9		
<b>Q1</b>	$1.37$ $+ 3.52$ =	$4.65$ $4.89$ $5.09$ $4.77$	<b>D1</b> <b>B2</b> <b>C4</b> <b>E5</b>	<b>Q2</b>	$2.54$ $+ 1.08$ =	$3.52$ $3.58$ $4.12$ $3.62$	<b>B1</b> <b>A2</b> <b>C2</b> <b>B3</b>	<b>Q3</b>	$8.74$ $- 4.51$ =	$4.23$ $13.25$ $5.23$ $4.75$	<b>C3</b> <b>B5</b> <b>E5</b> <b>A3</b>
<b>Q4</b>	$0.63$ $+ 6.48$ =	$7.11$ $6.68$ $6.93$ $7.21$	<b>C4</b> <b>D3</b> <b>F6</b> <b>B3</b>	<b>Q5</b>	$2.98$ $+ 2.07$ =	$4.98$ $4.95$ $5.05$ $5.15$	<b>C6</b> <b>D4</b> <b>C5</b> <b>A2</b>	<b>Q6</b>	$7.20$ $- 4.08$ =	$3.02$ $3.12$ $3.28$ $2.87$	<b>A3</b> <b>D5</b> <b>C6</b> <b>B5</b>
<b>Q7</b>	$13.638$ $+ 4.048$ =	$16.67$ $17.678$ $17.086$ $17.686$	<b>C5</b> <b>D6</b> <b>B4</b> <b>E5</b>	<b>Q8</b>	$0.1328$ $- 0.0952$ =	$0.1978$ $0.0376$ $0.0674$ $0.376$	<b>E7</b> <b>E4</b> <b>D5</b> <b>F2</b>	<b>Q9</b>	$10.032$ $+ 8.371$ =	$18.394$ $18.691$ $18.403$ $19.256$	<b>D6</b> <b>F3</b> <b>F4</b> <b>E3</b>

# BREAK INTO THE STAFF-ROOM!

You have found the code word to shut down the robot drones. Where you find the last letter you also find a note with more instructions. They read: "In order to shut down the drones, type this code word into the mainframe computer, which is located in the staff-room!"

Upon reaching the staff-room you find the door locked with a complicated lock system. You then notice a bunch of numbers scrawled all over the door. Ohh noo, you groan to yourself – more math problems!

**Work out what the mean, mode, or median is for each set of numbers and match it to the right question on the door. This will unlock it.**

The **mean** is the "average." Add up all the numbers and then divide the answer by the number of numbers.

e.g. 1, 2, 2, 4, 6

Add together  $(1+2+2+4+6)=15$   
Divide by amount of numbers = 5  
 $15 \div 5 = 3$

The "**median**" is the "middle" value in the list of numbers. First list the numbers from smallest to largest, and the median is the number in the middle of the list.

e.g. 1, 2, 7, 15, 32

The median is 7 because it is the middle number.

The "**mode**" is the value that occurs most often in a set of numbers.

e.g. 8, 4, 6, 3, 8, 8, 10

The mode is 8, because it occurs the most often (3 times).

**Q1**

11, 6, 1, 3, 9

Mean=

**Q2**

1, 4, 8, 3, 3, 5, 7

Mode=

**Q3**

1, 2, 8, 9, 12,  
17, 21

Median=

**STAFF-ROOM**

Q1: mean =

Q2: mode =

Q3: median =

Q4: mean =

Q5: mode =

Q6: median =

Q7: median =  
mean =  
mode =

**Q4**

2, 16, 12, 1, 10,  
7

Mean=

**Q5**

11, 41, 12, 8,  
19, 11, 37, 11,  
19, 11, 8.

Mode=

**Q6**

124, 24, 24, 26,  
88, 48, 82.

Median=

**Q7.** 2, 8, 10, 8, 9, 16, 17.

Mode=

Median =

Mean =

# HACK THE COMPUTER: ROBOT CONTROL CODE!

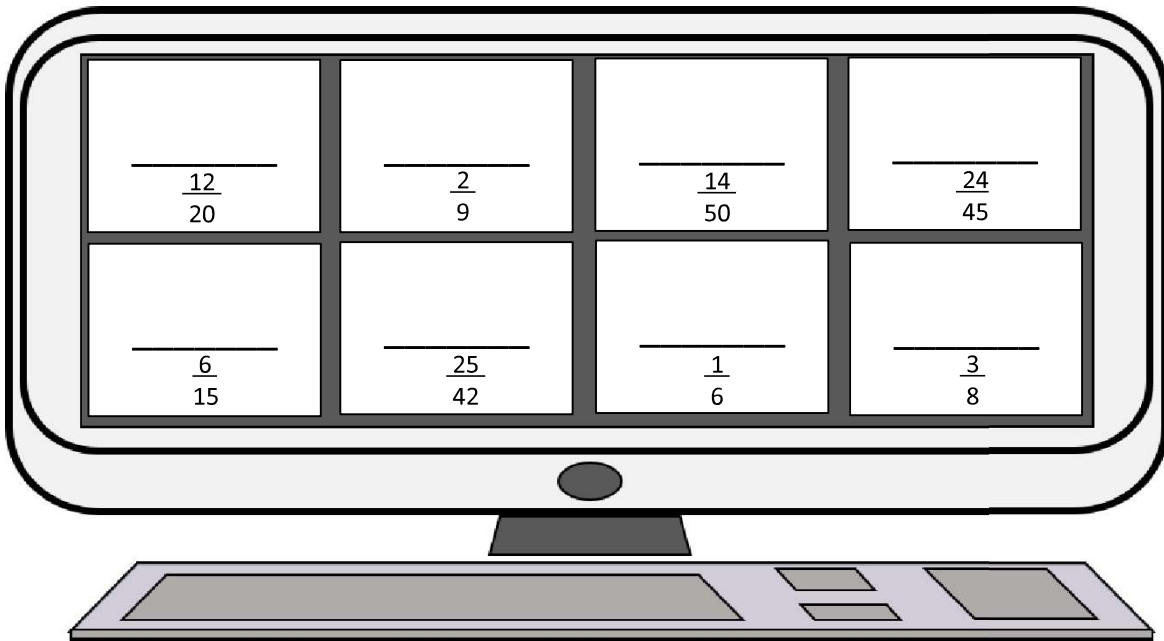
You bust into the staff-room and see the mainframe computer sitting on a table. At last, you think to yourself – I just need to enter the code word so I can stop the robots, and then I can go home! When you get to the computer, however, you notice the screen is locked. Attached to the computer is a note which reads, "To unlock the computer you must put the symbols in the correct order." Under the messages are a bunch of symbols and more equations! The symbols on the note match ones that can be seen jumbled up on the computer and you need to drag them into the right order before the computer screen will unlock.

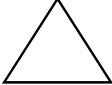





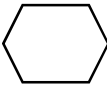

Solve the equations and then match/draw the pictures to the answers on the computer screen

## How to multiply fractions.

There was half of a cake left. James ate half of what was there. How much cake did James eat?

$\frac{1}{2} \times \frac{1}{2} = \frac{1 \times 1}{2 \times 2} =$  Multiply the top numbers together (numerators).  $\frac{1 \times 1}{2 \times 2} = \frac{1}{4}$  James ate a quarter of the cake  
 Multiply the bottom numbers together (denominators).



 $\frac{1}{2} \times \frac{1}{3} = \frac{1 \times 1}{2 \times 3} = \frac{1}{6}$	 $\frac{3}{4} \times \frac{1}{2} = \frac{3 \times 1}{4 \times 2} = \frac{3}{8}$	 $\frac{2}{3} \times \frac{1}{3} =$	 $\frac{3}{5} \times \frac{2}{3} =$
 $\frac{7}{10} \times \frac{2}{5} =$	 $\frac{4}{5} \times \frac{3}{4} =$	 $\frac{5}{6} \times \frac{5}{7} =$	 $\frac{8}{9} \times \frac{3}{5} =$

After unlocking the computer enter the codeword gained from finding the letters around the school.

CODE WORD = \_\_\_\_\_

Once the codeword has been inputted the robot drones will shutdown meaning you can escape the school for the holidays!

# EXTENSION: ROBOT CONTROL CODE!

You enter the robot drone shutdown code word on the computer and all the robot drones shut down around the school. Yay! – you are able to have a holiday break this year!

You are just about to leave the staff-room when the technology and math teachers enter. “Well done, you managed to solve the clues, defeat my robots, and escape the school. We have one final challenge for you. If you can solve this puzzle then we will grant you one dream holiday – anywhere in the world!”

**DIRECTIONS:** Fill in each circle with a number from the number bank. Each number can only be used once. Each set of three circles which connect to the middle circle must have numbers which add up to the middle number (57).

21	16	22	19	29
7	12	9	10	17

Where would you go and what would you do on your dream holiday?

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# HOLIDAY PLANS

What I am looking forward to most: \_\_\_\_\_

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Four ways I can help out around my home:

1. \_\_\_\_\_

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2. \_\_\_\_\_

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---

3. \_\_\_\_\_

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---

4. \_\_\_\_\_

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Draw a picture of something you will do during the break.

Five things I want to do during the holiday break.

1. \_\_\_\_\_

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2. \_\_\_\_\_

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3. \_\_\_\_\_

---

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4. \_\_\_\_\_

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5. \_\_\_\_\_

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# DESIGN A ROBOT

Design your very own robot. Draw and write about what he looks like and what its functions are.

**INFO ABOUT YOUR ROBOT**

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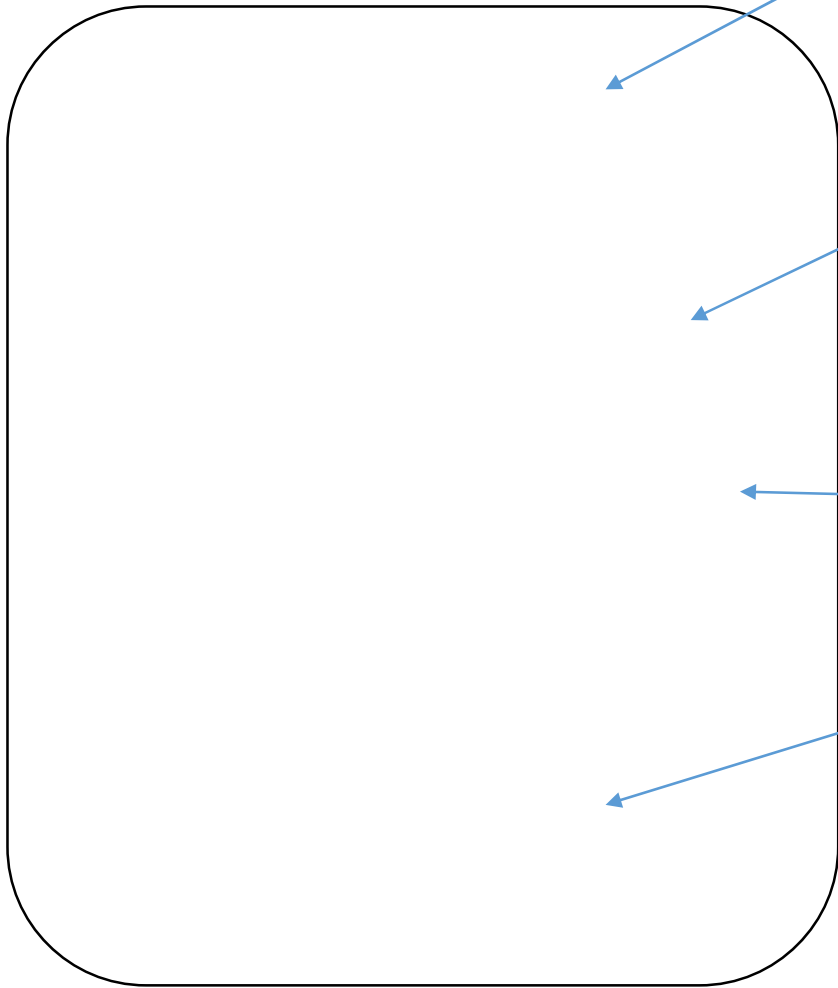
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**Write a motto for your robot.**

*What's a motto? – Nothing, what's a motto with you?*

Draw and write about what functions your robot has. Does it have laser eyes, or 4 arms?



**HEAD:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**BODY:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ARMS OR SPECIAL FUNCTION:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**BOTTOM PART (LEGS? ROCKETS?):** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# ROBOT BINARY CODE MESSAGE

Computers use a code made of ones and zeros called binary code. The way the 1 and 0s are ordered allows the computers to read information and determine what to do.

**Use the binary table below to find the hidden message.**

Be careful and make sure you get the right number. A good detective pays attention to detail and double checks.

A	100 0001	H	100 1000	O	100 1111	V	101 0110
B	100 0010	I	100 1001	P	101 0000	W	101 0111
C	100 0011	J	100 1010	Q	101 0001	X	101 1000
D	100 0100	K	100 1011	R	101 0010	Y	101 1001
E	100 0101	L	100 1100	S	101 0011	Z	101 1010
F	100 0110	M	100 1101	T	101 0100		
G	100 0111	N	100 1110	U	101 0101		

101 0010 100 1111 100 0010 100 1111 101 0100 101 0011      101 0111 100 1001 100 1100 100 1100

100 0101 100 1001 101 0100 100 1000 100 0101 101 0010      100 0010 100 0101      101 0100 100 1000 100 0101

100 0010 100 0101 101 0011 101 0100      101 0100 100 1000 100 1001 100 1110 100 0111      100 1111 101 0010

101 0100 100 1000 100 0101      101 0111 100 1111 101 0010 101 0011 101 0100

101 0100 100 1000 100 1001 100 1110 100 0111      101 0100 100 1111

100 1000 100 0001 101 0000 101 0000 100 0101 100 1110      101 0100 100 1111

100 1000 101 0101 100 1101 100 0001 100 1110 101 0011

**WHICH ONE DO YOU THINK IT WILL BE? WHY?**

(Write your answer and explain on another bit of paper)