Murder in the Mathematics Department

A murder has been committed in the Maths department at a nearby school.

Your job is to decode the clues to find

1. the identity of **the murderer**
2. the **murder weapon**
3. the **room** in which the murder took place

You may take notes on this piece of paper as you proceed through the investigation.

When you have finished you must be prepared to justify your decisions to the class.

The seven **suspects** are:

Mr Broome Dr France Mr Halai Miss Kaur

Mr Scotland Mr Sheppard Mr Smith

Code 1 says: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The **room** in which the murder was committed could be:

16 23 24 25 28 29 Computer room

The possible **murder weapons** are:

Metre ruler Chair Scissors Compass

Textbook Pencil Stapler

Code 2 says: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Code 3 says: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Code 4 says: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

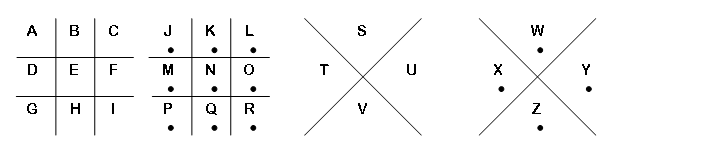
Code 5 says: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

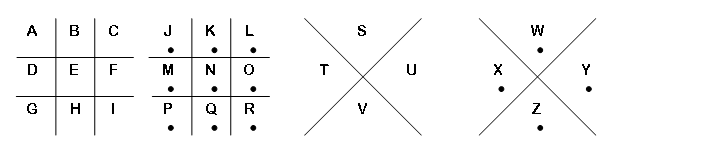
Code 6 says: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

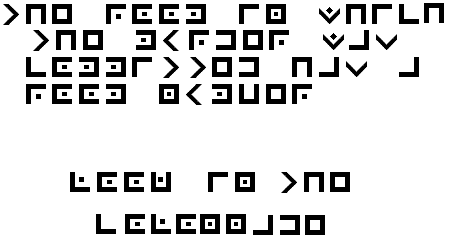
Code 7 says: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Code 1: Pigpen

This code uses the following **key**. You need to work out how to use the key to decode the message which follows.





Code 2:Polybius square

This code uses the following **key**. You need to work out how to use the key to decode the message which follows.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **5** | **A** | **B** | **C** | **D** | **E** | |
| **4** | **F** | **G** | **H** | **I** | **J** | |
| **3** | **K** | **L** | **M** | **N** | **O** | |
| **2** | **P** | **Q** | **R** | **S** | **T** | |
| **1** | **U** | **V** | **W** | **X** | **Y/Z** | |
|  | **1** | **2** | **3** | **4** | **5** |

(5,2)(3,4)(5,5) (3,3)(1,1)(3,2)(4,5)(5,5)(3,2)(5,5)(3,2) (4,5)(5,3)(5,5)(4,2) (4,3)(5,3)(5,2) (3,4)(1,5)(2,1)(5,5) (1,5)(4,3) (5,5) (4,4)(4,3) (5,2)(3,4)(5,5)(4,4)(3,2) (4,3)(1,5)(3,3)(5,5)

(5,2)(3,4)(5,5) (4,3)(5,5)(4,1)(5,2) (3,5)(2,3)(1,1)(5,5) (4,4)(4,2) (2,5)(5,1) (5,2)(3,4)(5,5) (3,3)(5,5)(5,2)(1,5)(2,3) (4,2)(5,2)(1,5)(4,4)(3,2)(4,2) (5,3)(1,2)(1,2)(5,3)(4,2)(4,4)(5,2)(5,5) (5,2)(3,4)(5,5) (1,5)(3,5)(1,5)(4,5)(5,5)(3,3)(4,4)(3,5) (5,5)(4,3)(2,4)(2,3)(4,4)(4,2)(3,4) (2,5)(1,1)(4,4)(2,3)(4,5)(4,4)(4,3)(2,4)Code 3

Each letter is represented by a different number in a simple way, using the key a = 1, b = 2, c = 3, d = 4, etc.

20,8,5 13,21,18,4,5,18 23,1,19 14,15,20 9,14 1 16,18,9,13,5 14,21,13,2,5,18,5,4 18,15,15,13

20,18,25 12,15,15,11,9,14,7 21,14,4, 5, 18 20,8,5 20,18,5,5

Code 4: Atbash

Each letter is represented by a different letter in a simple way.

GSV ILLN MFNYVI RH Z NFOGRKOV LU ULFI

MVZI GSV NVGZO TZGV YB GSV XLFIHV LUURXV

Code 5: Caesar Cipher

You will need a Caesar wheel to crack this code.

KYV DLIUVIVIJ ERDV NZCC KVCC PFL NYRK TFLEKIP YV ZJ WIFD

SP R SRX NFFUVE UFFI ZE KYV TFIEVI FW KYV HLRU

Code 6: Morse Code

This code uses the following **key**. You need to work out how to use the key to decode the message which follows.

|  |  |
| --- | --- |
| **A   .-**  **B   -...**  **C   -.-.**  **D   -..**  **E   .**  **F   ..-.**  **G   --.**  **H   ....**  **I   ..**  **J   .---**  **K   -.-**  **L   .-..**  **M   --** | **N   -.**  **O   ---**  **P   .--.**  **Q   --.-**  **R   .-.**  **S   ...**  **T   -**  **U   ..-**  **V   ...-**  **W   .--**  **X   -..-**  **Y   -.--**  **Z   --..** |

- .... . / .-. --- --- -- / -. ..- -- -... . .-. / .... .- ... / . .. --. .... - / ..-. .- -.-. - --- .-. ... /

.-.. --- --- -.- / -.. --- .-- -. ... - .- .. .-. ... / .. -. / - .... . / .- -.-. .- -.. . -- .. -.-. / . -. --. .-.. .. ... .... / -... ..- .. .-.. -.. .. -. --. / -... ..- - / -. --- - / .. -. / .- / -.-. .-.. .- ... ... .-. --- --- --Code 7: The final challenge

This looks disturbingly familiar, but there’s something weird about it...

**-.- -.. -.-. / --.- -..- ..-. / -- .-. --/ --.- -. / -- -..- / .-. -.-. / -.-- -. .-   
--.- .--- -.-- -... / ..-. .-. -.-. --.- / -... -..- ...- -. -.-. --.- .-. .— .--. /  
-.-. --.- .--- -.-. / -... -.-. -.. --   
-. .-- -.-. -... / .-.. .--- .-- / -...   
.-. -.-. / -..- .-- /**

Code 7: The final challenge

This looks disturbingly familiar, but there’s something weird about it...

**-.- -.. -.-. / --.- -..- ..-. / -- .-. --/ --.- -. / -- -..- / .-. -.-. / -.-- -. .-   
--.- .--- -.-- -... / ..-. .-. -.-. --.- / -... -..- ...- -. -.-. --.- .-. .— .--. /  
-.-. --.- .--- -.-. / -... -.-. -.. --   
-. .-- -.-. -... / .-.. .--- .-- / -...   
.-. -.-. / -..- .-- /**

**One Last Message**

Use all your cunning to break this final message left by the murderer. You might want to keep a track of which letters represent what using the provided grid.

XNFF OUMN! QUV SEKN TPULNM BSN AUON EMO AEVISB CN. WU TNRUPN H IU BU GPHWUM H XHFF PNXEPO QUV XHBS E FHBBFN THB UR CQ LMUXFNOIN ETUVB AUONW. BSNPN EPN CEMQ XEQW BU TPNEL E CNWWEIN BSEB SEW TNNM NMAUONO VWHMI E AHGSNP. SUXNKNP, BSN TNWB XEQ BU EBBEAL WVAS E CNWWEIN HW VWHMI RPNYVNMAQ EMEFQWHW. BSHW VWNW BSN REAB BSEB NKNPQ FEMIVEIN SEW ANPBEHM FNBBNPW BSEB UAAVP CUPN RPNYVNMBFQ BSEM UBSNPW. UR AUVPWN, MUB NKNPQ GHNAN UR BNJB SEW BSN WECN FNBBNP OHWBPHTVBHUM, WU BSN GNPWUM TPNELHMI BSN AUON SEW BU VWN E ANPBEHM ECUVMB UR HMINMVHBQ EMO GPUTFNC WUFKHMI WLHFFW BU APEAL BSN AUON. BSHW HW XSQ BSN WAHNMAN UR APQGBUIPEGSQ HW EM EGGFHNO WVTDNAB UR CEBSNCEBHAW.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Code Letter** | A | B | C | D | E | F | G | H | I | J | K | L | M |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | | |
| **Code Letter** | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Code Letter** | A | B | C | D | E | F | G | H | I | J | K | L | M |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | | |
| **Code Letter** | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Code Letter** | A | B | C | D | E | F | G | H | I | J | K | L | M |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | | |
| **Code Letter** | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Code Letter** | A | B | C | D | E | F | G | H | I | J | K | L | M |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | | |
| **Code Letter** | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Code Letter** | A | B | C | D | E | F | G | H | I | J | K | L | M |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | | |
| **Code Letter** | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| **Real Letter** |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Solutions**

Code 1 (Pigpen):

“the room in which the murder was committed has a room number”

Look in the Colonnade.

Code 2 (Coordinates):

“the murderer does not have an e in their name”

The next clue is by the metal stairs opposite the Academic English Building.

Code 3 (a=1, b=2, c=3 etc):

“the murder was not in a prime numbered room”

Try looking under the tree.

Code 4 (Atbash):

“the room number is a multiple of four”

Near the metal gate by the course office.

Code 5 (Caesar a → r):

“the murderers name will tell you what country he is from”

By a big wooden door in the corner of the quad.

Code 6 (Morse code)

“the room number has eight factors”

Look downstairs in the Academic English Building but not in a classroom.

Code 7 (Morse code with Caesar shift a → j)

“but how did he do it perhaps with something that students can sit on”

kdc qxf mrm qn mx rc ynaqjyb frcq bxvncqrwp cqjc bcdmnwcb ljw brc xw

Mr Scotland, room 24, chair

One Last Message (Substitution, "ETAONRISHDLFCMUGYPWBVKXJQZ")

“Well done! You have broken the code and caught me. So before I go to prison I will reward you with a little bit of my knowledge about codes. There are many ways to break a message that has been encoded using a cipher. However, the best way to attack such a message is using Frequency Analysis. This uses the fact that every language has certain letters that occur more frequently than others. Of course, not every piece of text has the same letter distribution, so the person breaking the code has to use a certain amount of ingenuity and problem solving skills to crack the code. This is why the science of cryptography is an applied subject of mathematics.”

