



# STATE DA VINCI DECATHLON 2017

CELEBRATING THE ACADEMIC GIFTS OF STUDENTS  
IN YEARS 5 & 6



## CODE BREAKING

TEAM NUMBER \_\_\_\_\_

## QUESTION 1: LAYMANS LETTER (15 MARKS)

Below is a letter written by a Mr Gustav to Mr Wearinkle that contains a hidden numerical message. Mr Gustav was trying to send Mr Wearinkle the code for his bank account to transfer betting money that was won the previous day before the authorities found out about the money. Decode the letter and write the message in the box below. Hint: The alphabet may be numbered.

*Dear Mr Wearinkle,*

*It has come to my attention that on December the first eighteen-forty-three you appeared to leave your horse and cart upon my access way into my home. In doing so you prohibited guests of mine, along with myself, from entering and exiting my home. Now my good friend, the inconvenience of such an act is hopefully quite clear to you. I will not take your act as a proclamation of war between our parties, or as a deliberate attempt to trespass my land. I ask that you remove immediately the offending article and henceforth remain off my property. If you do not act as requested by the third of this month, the wintery December, I shall be required to involve the local authorities whom are in very desperate need of new horse and carriages for their fleet of vehicles.*

*I thank you for your respectful understanding and wish your family a warm festive period full of clear passageways and happiness.*

*With kindest regards,*

*Mr Gustav*

|               |  |
|---------------|--|
| <b>Answer</b> |  |
|---------------|--|

## QUESTION 2: SUPERPOWERED CODING (12 MARKS)

The latest secret intelligence has revealed the existence of four superheroes. An expert of the information discovered has been found below. It is claimed that from this information it is possible to decode which superpower, place of origin and costume type matches each superhero. Use the matrix on page 4 to cross off pairs of items that do not go together to work out the correct combinations. Fill out the table at the bottom of this page when you have deciphered all the combinations.

1. Bruce, a superhero, wears a bear suit but does not have the superpower of night vision.
2. The superhero who wears a mermaid costume also has the power of superseep but does not live in New York.
3. The superhero who wears the Mona Lisa costume lives in Moscow but is not called Beacon.
4. The two superheroes who live in America were Starman and the superhero who wears a balaclava as their costume.
5. The superhero who has the power of being warm blooded doesn't live in Washington.
6. Deceiver has the power of a chameleon.

| Name     | Place | Costume | Power |
|----------|-------|---------|-------|
| Beacon   |       |         |       |
| Bruce    |       |         |       |
| Starman  |       |         |       |
| Deceiver |       |         |       |

|                 | Night vision | Warm blooded | Supersleep | Chameleon | Balaclava | Bear suit | Mermaid costume | Mona Lisa dress | New York | Barcelona | Washington | Moscow |
|-----------------|--------------|--------------|------------|-----------|-----------|-----------|-----------------|-----------------|----------|-----------|------------|--------|
| Beacon          |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Bruce           |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Starman         |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Deceiver        |              |              |            |           |           |           |                 |                 |          |           |            |        |
| New York        |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Barcelona       |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Washington      |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Moscow          |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Balaclava       |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Bear suit       |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Mermaid costume |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Mona Lisa dress |              |              |            |           |           |           |                 |                 |          |           |            |        |

### QUESTION 3: POWER PLAY (20 MARKS)

Codes are sent around the world to convey secret information and plans. Codes are the carriers of power and heavily influence who dominates during war time and, in the modern era, political forums. As an intelligence agent for Australia, decrypt the following intercepted messages from online sources to uncover powerful information about opponents.

- a) lwgolmoapd feouauctoo rnsclu dtutg irl na gs **(5 marks)**

|               |  |
|---------------|--|
| <b>Answer</b> |  |
|---------------|--|

- b) Z wvzo nfhg yv hgifxp yb nrwmrtsg glnliild. Dv droo kzb ml nliv gszm 2 nroorlm wloozih. **(5 marks)**

|               |  |
|---------------|--|
| <b>Answer</b> |  |
|---------------|--|

- c) Secivres ruo reffo ot teem dluosh ew. Osla ti ees nac yeht ylno fi – suoivbo si sisirc rewop sailartsua ot yek eht. **(5 marks)**

**Answer**

- d) Bprprd-nwdsstrnhdngtstrlnshrs. **(5 marks)**

**Answer**



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## CODE BREAKING SOLUTIONS

TEAM NUMBER \_\_\_\_\_

| Q1  | Q2  | Q3  | Total |
|-----|-----|-----|-------|
| /15 | /12 | /20 | /47   |

## QUESTION 1: LAYMANS LETTER (15 MARKS)

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*I thank you for your respectful understanding and wish your family a warm festive period full of clear passageways and happiness.*

*With kindest regards,*

*Mr Gustav*

**Answer**

T, P, E C, I, R, T, Y, E, F, F, A, A, I, P. Then convert to numbers: 20, 16, 5, 3, 9, 18 20, 25, 5, 6, 6, 1, 1, 9, 16 = 201653918202556611916.  
1 mark for each correct number in the code (15 marks).



## QUESTION 2: SUPERPOWERED CODING (12 MARKS)

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6. Deceiver has the power of a chameleon.

**One mark for each correct answer.**

| Name     | place      | costume         | power        |
|----------|------------|-----------------|--------------|
| Beacon   | New York   | balaclava       | night vision |
| Bruce    | Barcelona  | bear suit       | warm blooded |
| Starman  | Washington | mermaid costume | supersleep   |
| Deceiver | Moscow     | Mona Lisa dress | chameleon    |

|                 | Night vision | Warm blooded | Supersleep | Chameleon | Balaclava | Bear suit | Mermaid costume | Mona Lisa dress | New York | Barcelona | Washington | Moscow |
|-----------------|--------------|--------------|------------|-----------|-----------|-----------|-----------------|-----------------|----------|-----------|------------|--------|
| Beacon          |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Bruce           |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Starman         |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Deceiver        |              |              |            |           |           |           |                 |                 |          |           |            |        |
| New York        |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Barcelona       |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Washington      |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Moscow          |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Balaclava       |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Bear suit       |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Mermaid costume |              |              |            |           |           |           |                 |                 |          |           |            |        |
| Mona Lisa dress |              |              |            |           |           |           |                 |                 |          |           |            |        |

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- a) lwgolmoapd feouauctoo rnscru dtutg irl na gs **(5 marks)**

|               |  |
|---------------|--|
| <b>Answer</b> | If we go our landing must occur at Port Douglas – first letter of each word, second letter of each word etc..... |
|---------------|--|

- b) Z wvzo nfhg yv hgifxp yb nrwmrtsg glnliild. Dv droo kzb ml nliv gszm 2 nroorlm wloozih. **(5 marks)**

|               |  |
|---------------|--|
| <b>Answer</b> | A deal must be struck by midnight tomorrow. We will pay no more than 2 million dollars – alphabet reversed so A=Z, B=Y etc.. |
|---------------|--|

- c) Secivres ruo reffo ot teem dluosh ew. Osla ti ees nac yeht ylno fi – suoivbo si sisirc rewop sailartsua ot yek eht. **(5 marks)**

**Answer**

The key to Australia's power crisis is obvious – if only they can see it also. We should meet to offer our services – backwards.

- d) Bprprd-nwdsssstrnhdngtstrlnshrs. **(5 marks)**

**Answer**

Be prepared – new disease strain heading to Australian shores – no vowels.