能力指標：7-n-01

|  |  |  |
| --- | --- | --- |
| 7-n-01 | 能理解質數的意義，並認識100以內的質數。 | N-4-01 |

說明：

1. 能理解質數與合數的定義，並能檢驗100以內的任何數，哪些是質數，哪些是合數。
2. 能理解埃拉托賽尼(Eratosthenes)的方法，找出小於100的所有質數。

|  |  |  |  |
| --- | --- | --- | --- |
| 能力指標 | 下修建議 | 教學影片 | 協作設計人 |
| 7-n-01 | 6-n-01  | 質數是什麼http://s01.calm9.com/qrcode/2016-10/A9KQ4JLAFB.png合數是什麼http://s01.calm9.com/qrcode/2016-10/83CDT3KETB.png | 南平中學 黃唯銘 |

學習單-1

班級： 座號： 姓名：

一、**圈圈看**

|  |
| --- |
| 圈出下列數字中所有質數： |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

二、**數字迷宮**

|  |
| --- |
| 從起點開始連出質數路線，到達終點： |

 起點⬇

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2 | 21 | 27 | 47 | 61 | 55 | 7 |
| 31 | 17 | 29 | 63 | 91 | 33 | 93 |
| 1 | 39 | 53 | 51 | 37 | 13 | 73 |
| 11 | 56 | 71 | 93 | 47 | 57 | 83 |
| 80 | 75 | 23 | 5 | 89 | 87 | 3 |

 終點⬇

學習單-2

班級： 座號： 姓名：

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 一、**是非題**

|  |
| --- |
| 正確的畫ഠ，錯誤的畫X： |

|  |  |
| --- | --- |
| 1. ( ) | 質數都是奇數。 |
| 2. ( ) | 偶數都是合數。 |
| 3. ( ) | 任一個正整數不是質數就是合數。 |
| 4. ( ) | 2是質數中唯一的偶數。 |
| 5. ( ) | 質數的個位不能是0。(例如:50、120、890等等) |

二、**選擇題**

|  |
| --- |
| 選出最合理的答案： |

|  |  |
| --- | --- |
| 1. ( ) | 質數的正因數一定有幾個? (A) 偶數個 (B) 奇數個 (C) 不一定 |
| 2. ( ) | 質數乘以質數一定是(A) 質數 (B) 合數 (C) 不一定 |
| 3. ( ) | 合數加上合數一定是(A) 質數 (B) 合數 (C) 不一定 |
| 4. ( ) | 合數可以分解成兩個因數相乘，所以合數的正因數一定有幾個? (A) 偶數個 (B) 奇數個 (C) 不一定 |
| 5. ( ) | 偶數加上奇數一定是(A) 質數 (B) 合數 (C) 不一定 |

三、**做做看**

|  |
| --- |
| 圈出下列數字中所有質數： |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (1) | 97 | 53 | 39 | 41 | 89 | 57 |
| (2) | 43 | 87 | 31 | 79 | 83 | 99 |
| (3) | 81 | 23 | 77 | 73 | 2 | 13 |
| (4) | 37 | 71 | 59 | 67 | 51 | 93 |
| (5) | 29 | 91 | 63 | 19 | 47 | 61 |

四、**填填看**

|  |
| --- |
| 寫出下列數字之間中所有質數： |

|  |  |  |
| --- | --- | --- |
| (1) | 1~20 |  |
| (2) | 51~82 |  |
| (3) | 17~42 |  |
| (4) | 71~98 |  |
| (5) | 26~53 |  |

 |

學習單-3

班級： 座號： 姓名：

一、**改正題**

|  |
| --- |
| 正確的畫ഠ，錯誤的畫X；如有錯誤，將錯誤的地方圈起來並改正: |

|  |  |
| --- | --- |
| 1. ( ) | 1不是偶數也不是奇數。 |
| 改正 |  |
| 2. ( ) | 1不是合數也不是質數。 |
| 改正 |  |
| 3. ( ) | 質數可以是偶數。 |
| 改正 |  |
| 4. ( ) | 質數的正因數只有1。 |
| 改正 |  |
| 5. ( ) | 合數可分解成兩因數相乘，所以合數的正因數必為偶數個。 |
| 改正 |  |
| 6. ( ) | 質數的個位不能是5。(例如:55、125、895等等) |
| 改正 |  |
| 7. ( ) | 因為2是質數，89是質數，所以2加上89也是質數。 |
| 改正 |  |
| 8. ( ) | 每個質數之間至少相差2。(例如:19-17=2、41-37=4等等) |
| 改正 |  |
| 9. ( ) | 因為7是質數，41是質數，所以7乘以41也是質數。 |
| 改正 |  |
| 10. ( ) | 因為1到100有25個質數，所以1~100有75個合數。 |
| 改正 |  |

二、**圈圈看**

|  |
| --- |
| 圈出下列數字中所有合數： |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (1) | 126 | 123 | 167 | 140 | 109 | 175 |
| (2) | 166 | 139 | 49 | 163 | 141 | 121 |
| (3) | 131 | 107 | 91 | 147 | 143 | 195 |
| (4) | 180 | 149 | 172 | 103 | 125 | 57 |
| (5) | 87 | 101 | 111 | 177 | 197 | 187 |

|  |
| --- |
|  |