**Year 8 Digital Technologies.**

**Worksheet 1: Decimal / Binary conversion**

1. Convert the following decimal numbers to 8 bit binary numbers.

|  |  |
| --- | --- |
| 15 |  |
| 99 |  |
| 125 |  |
| 181 |  |
| 222 |  |
| 248 |  |
| 255 |  |

2. Patterns.

Convert the binary numbers into decimal, look for the pattern, complete the decimal line with the missing number and convert that value into binary.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 00000111 | 00001110 | 00010101 | 00011100 | 01000011 |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 00000010 | 00000011 | 00000101 | 00000111 | 00001011 |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 00000001 | 00000010 | 00000011 | 00000101 | 00001000 |  |
|  |  |  |  |  |  |

3. Words

Below are three binary strings. Break each one up into 8 bit bytes and use the table to find out what the words are.

0100010101000001010100100101010001001000

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

0101000001001000010011110100111001000101

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

0101001101001000010011110100010101010011

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F |
| 65 | 66 | 67 | 68 | 69 | 70 |
| G | H | I | J | K | L |
| 71 | 72 | 73 | 74 | 75 | 76 |
| M | N | O | P | Q | R |
| 77 | 78 | 79 | 80 | 81 | 82 |
| S | T | U | V | W | X |
| 83 | 84 | 85 | 86 | 87 | 88 |
| Y | Z |  |  |  |  |
| 89 | 90 |  |  |  |  |