Bronze

1a. 10 and 60; 3 and 15; 2 and 24
2a. False
3a. 8; 14; 18
4a. Various answers, for example: 9 and 15 (3); 4 and 12 (2); 40 and 60 (10); 15 and 30 (5)

1b. 24
2b. Shaded – multiples of 2; Circles – multiples of 5
3b. 54 is the odd one out because it is not a multiple of 5.

Silver

5a. 6 and 36; 8 and 32; 9 and 27
6a. False
7a. 49; 70; 77; 84
8a. Various answers, for example: 28 and 63 (7); 81 and 99 (9); 24 and 48 (12); 42 and 54 (6)

4b. 22 or 44
5b. Shaded – multiples of 8; Circles – multiples of 6 or 12
6b. 58 is the odd one out because it is not a multiple of 4.

Gold

9a. 6 and 78; 8 and 104; 7 and 98
10a. True
11a. 99; 117; 126; 144
12a. 91, 98 (7); 117, 126 (9); 156, 168 (12); 78, 84 (6)

Challenge

1. Look at the numbers below.

| 3 | 4 | 5 |

Which numbers in the grid below are multiples of all the numbers above?

401	402	403	404	405	406	407	408	409	410
411	412	413	414	415	416	417	418	419	**420**
421	422	423	424	425	426	427	428	429	430
431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470
471	472	473	474	475	476	477	478	479	**480**
481	482	483	484	485	486	487	488	489	490
491	492	493	494	495	496	497	498	499	500

Investigate how your answer might change if 5 was swapped with 6, 7, 8 or 9.
Various answers, for example: If 6 was used, 408, 420, 432, 444, 456, 468, 480 and 492 would be circled on the grid.

2. Harriet has these digit cards:

| 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Harriet also has the list of numbers below and their lowest common multiples (LCM). She needs to add a digit card to each list so that the lowest common multiples remain unchanged. Investigate which digit cards she could use.
Various answers, for example:

| 5 | 3 | 4 | 6 | LCM = | 60 |

| 6 | 3 | 7 | 5 | LCM = | 210 |

| 4 | 8 | 5 | 6 | LCM = | 120 |

What is the lowest common multiple of the digit cards Harriet does not use?
The unused digit cards would be 2, 5, 7 and 8. Their lowest common multiple is 280.