Third Task:

Magic Threes. Setting the scene.

1) Ask a student to pick FOUR numbers (integers).
2) Pick two of them whose difference is a multiple of three.
3) Write the pair beside the student's triple.
4) Repeat, building a table that looks like this:

4	1	5	7	7-1	6
7	21	7	6	21-6	15
80	2	5	3	80-2	78
8	7	6	5	8-5	3

5) Challenge students to spot what's special about the numbers in the last column.
6) Repeat (1)-(5) until someone sees the last column is always divisible by 3 (will be more obvious if they choose smaller numbers).
7) Applaud spotting the pattern.

Challenge: Is this always possible? Can I always find two with a difference a multiple of three?