sing divisibility tests

se knowledge of multiples and factors to conduct tests of divisibility

1 Use the tests of divisibility to write five numbers that are:

a between 300 and 600, and divisible by 5

b between 450 and 550, and divisible by 4

c between 400 and 450, and divisible by 3

d between 900 and 1300, and divisible by 6

e between 4000 and 5000, and divisible by 9

f between 1200 and 2000, and divisible by 8

Rule

Tests of divisibility

A number is divisible by:

2 if it is an even number and the last digit is 0, 2, 4, 6 or 8.

3 if the sum of its digits is divisible by 3.

4 if the tens and units digits are divisible by 4.

5 if the last digit is 0 or 5.

6 if it is even and is also divisible by 3.

8 if half of it is divisible by 4 or if its last three digits are divisible by 8.

9 if the sum of its digits is divisible by 9.

10 if the last digit is 0.

25 if the last two digits end in 25, 50, 75 or 00.

2 Look at the grid below.

- Choose a number from the grid and write it down.
- Roll the dice. If you roll 0 it represents 10.
- Work out if the number from the grid is divisible by the number rolled on the dice.
- If the number is divisible, draw a tick (✓) beside it. If not, draw a cross (✗).
- Your teacher will tell you how many numbers to choose.

You will need:
- 0–9 dice

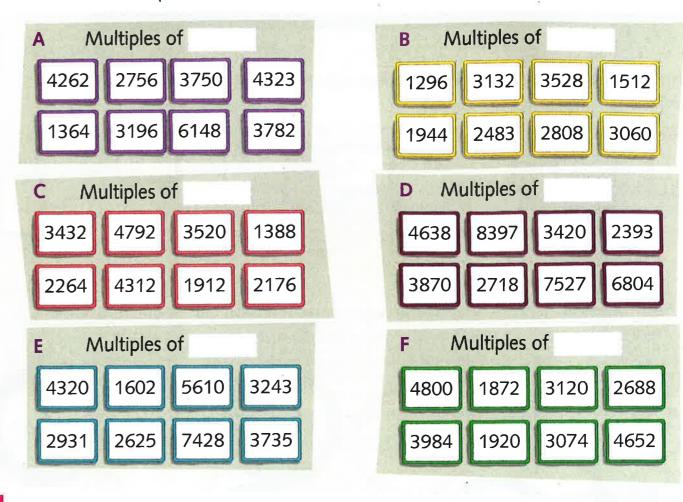| 62	523	142	287	83
34	618	864	43	2592
192	71	66	924	216
1677	759	353	864	3938
75	1728	89	497	5184
32	890	804	2580	21

I chose 759 and I rolled a 3. 759 is divisible by 3 so I've drawn a tick.

Challenge 2

The boxes below have lost their labels. Use the divisibility tests on the opposite page to find which set of multiples are in each box. However, one number in each box does not belong. Find the number that does not belong and write it down. Then complete the label for each box.

A Multiples of ____

| 4262 | 2756 | 3750 | 4323 |
| 1364 | 3196 | 6148 | 3782 |

B Multiples of ____

| 1296 | 3132 | 3528 | 1512 |
| 1944 | 2483 | 2808 | 3060 |

C Multiples of ____

| 3432 | 4792 | 3520 | 1388 |
| 2264 | 4312 | 1912 | 2176 |

D Multiples of ____

| 4638 | 8397 | 3420 | 2393 |
| 3870 | 2718 | 7527 | 6804 |

E Multiples of ____

| 4320 | 1602 | 5610 | 3243 |
| 2931 | 2625 | 7428 | 3735 |

F Multiples of ____

| 4800 | 1872 | 3120 | 2688 |
| 3984 | 1920 | 3074 | 4652 |

Challenge 3

Use your knowledge of divisibility tests to answer these questions. For each question, explain how you know.

a Leap years occur every 4 years. Will the year 2072 be a leap year?

b Write a list of all the leap years that will occur in the 21st century.

c Is it possible to make complete octagons using 3768 sides?

d A crate is filled with boxes of apples. There are 8 apples in each box. Could the total number of apples be 7504?

e 25 pictures per second are transmitted to television sets. This means that in 3 minutes, 4500 pictures are transmitted. Could this be true?

f There are 4 gills in a pint. Could full pints be made using 6596 gills?