Last Digits

• Objective •

Use last digits as a means of checking the output of a calculator.
Practice estimation and observe patterns.
Reinforce the concept of prime numbers.

• • • • • • • • • • • • • • • Explanation of the activity • • • • • • • • • • • • • • •

Perform a series of multiplication equations keeping the last digit of each of the multipliers constant; for example,　3 x 7,　13 x 7,　3 x 17, etc.

• • • • • • • • • • • • • • • • Using the calculator • • • • • • • • • • • • • • • • • •

Calculator functions used: Multiplication

Press the following buttons and then start operation.

[ON/C] [MODE] [0]

Enter the following equations into the calculator:

3 [×] 7 [=]

```
        DEG
 3×7=
N1
                  21.
```

13 [×] 7 [=]
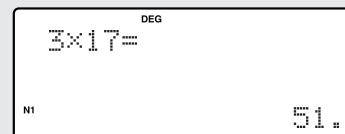
```
        DEG
 13×7=
N1
                  91.
```

3 [×] 17 [=]

```
        DEG
 3×17=
N1
                  51.
```

Find other last digit combinations that give answers ending in 1.

Which of the numbers in the following set can be made from the product of two numbers? (excluding equations using 1 multiplied by the number itself)

21, 41, 51, 61, 71, 81, 91, 101, 111, 121, 131, 141, 151, 161, 171, 181, 191, 201

Which of the numbers can be made in more than one way?

Make a collection of your calculations so that they can be displayed in order of answer size.

Name the type of numbers that cannot be made.

Last Digits

• • • • • • • • • • • Using the activity in the classroom • • • • • • • • • • •

It is probably best to first introduce the activity as a class to give the students an opportunity to make estimates before using their calculators. Once the class has shared their initial ideas, they can be given time to investigate any patterns they discover.

• • • • • • • • • • • • • • Points for students to discuss • • • • • • • • • • • • • • •

After investigating patterns on their own, students should share their discoveries with the rest of the class.

Further Ideas

• Examine the first 20 prime numbers. Except for the number 2, they all end with an odd last digit. Repeat the procedure for the last digits of 3, 7, and 9. Find all the prime numbers between 1 and 201.

• Find the last digits to:
1. the answers to the multiplication tables.
2. the square numbers.
3. other number sequences such as the cube numbers and triangle numbers.

• Find the two consecutive numbers whose product is 6006.