

# ROUNDING AND ESTIMATING MULTIPLICATION

MINI-LESSON

For the Rounding and Estimating Multiplication key concept



## Summary

Students use rounding to the nearest tens and base 10 blocks to estimate 2-digit multiplications.



Suitable for 2-6 students



Length 28 min (approximately)



## Lesson Preparation

- Print **rounding grid** ([download](#)) – one half page-sized grid *for each student*
- Print **multiplication organiser** ([download](#)) – one double-sided page *for each student*
- **Coloured pencils/pens** – 2 colours *for each student*
- **Base 10 blocks** – longs (10s), flats (100s) and cubes (1000s) *for each pair of students*
- **Deck of cards** – 1 deck *for each pair of students* with 10, J, Q, K and jokers removed  
OR  
**10-sided dice** – 1 *for each pair of students*

### Optional:

- **Calculators** – 1 *for each pair of students*

## LEARNING INTENTIONS

This activity helps students to:

- Understand how to round 2-digit numbers.
- Understand how to estimate 2-digit multiplications.

## CURRICULUM LINKS

- 3, 4, 6, 7, 8 and 9 times tables (ACMNA075)
- Rounding and estimating to the nearest 10 or 100 (ACMNA099)

## AFTER THE LESSON

In later lessons, you could follow up with related activities, such as:

- comparing the results of multiplications with estimated answers.
- rounding and estimating multiplication with larger numbers and applying this to real world contexts [*e.g. the number of students in the school given a class size*].
- rounding and estimating division.

**INTRODUCTION****3 MINUTES**

On the **Rounding grid** sheet, colour 1-4 (i.e. numbers that round down) in one colour and 5-9 (i.e. numbers that round up) in another colour. Don't colour the tens numbers (i.e. 0).



Explain that 'to the nearest ten' means the number of tens that is closest to your original number [e.g. 6 is closer to 10 than it is to 0]. Notice that 5 rounds upwards.

[This activity deals with whole numbers only and not rounding with decimals.]

**Whole group:**

Watching teacher introduction.

**DIRECT STUDENTS****5 MINUTES****Direct students to colour their own Rounding Grids.**

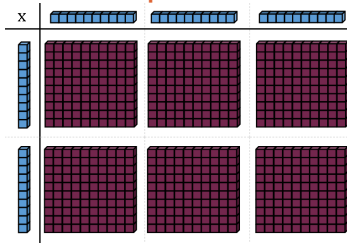
Hand out the **Rounding grid** sheet. Students use one colour for numbers that round down and another colour for numbers that round up. Tens numbers should not be coloured.

**Prompt student thinking: Ask questions about the nearest tens, e.g.:**

- What is 24 / 68 / 45 to the nearest 10?

**Individually:**

Colour numbers on the grid that round up/down.

**DEMONSTRATION****2 MINUTES****Show how to set out  $20 \times 30$  on a multiplication table with base 10 blocks:**

Ask students for a quick way to work out  $20 \times 30$ , e.g.:

- Use single digit multiplication, with this giving the number of hundreds
- $2 \times 3$  hundreds

**Whole group:**

Work out the blocks needed in the middle of the table, describe 'short cut' for solving  $20 \times 30$ .

**DEMONSTRATION****3 MINUTES****Present and discuss the multiplication  $22 \times 26$ :**

- Solve  $22 \times 26$  (by hand, calculator or using **base 10 blocks**)
- Round  $22 \times 26$  to  $20 \times 30$  and compare the 2 answers
- Ask, why someone might want to use rounding to estimate a multiplication [e.g. estimating the cost of a big purchase before you make it, the space of a room you want to fill].

**Whole group:**

Watching how to simplify multiplication by first using rounding.

**DIRECT PAIRS OF STUDENTS****10 MINUTES**

Give each student a **multiplication organiser**. To complete it, each pair of students uses **cards/dice** to create two 2-digit numbers (e.g. 47 & 92). Each pair rounds the numbers to the nearest tens and then multiplies them (e.g.  $50 \times 90 = 4500$ ).

Students may find it useful initially to use base 10 blocks and the multiplication table.

Set students a target number of multiplications, e.g. 10, to complete.

**In pairs:** Create 2-digit numbers and round to tens to estimate multiplications.

**DISCUSSION****5 MINUTES****Ask students questions about what they have learned, such as:**

- What does it mean to 'round to the nearest 10s'?
- How do you know when to round up/down?

**Whole group:**

Explain processes.