

# Rounding and Estimating Multiplication

## Summary

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

**Group Size:** Suitable for a group of 2-6 students. **Length:** approximately 30 minutes.

## Lesson Preparation

- Print *rounding grid* – one half page-sized grid for each student ([download](#))
- Print *multiplication organiser* – one double-sided page for each student ([download](#))
- *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.


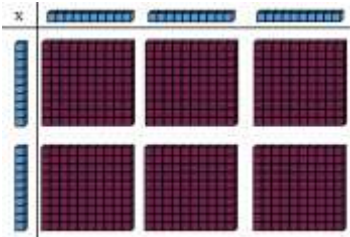
### Curriculum Links

- 3, 4, 6, 7, 8 and 9 times tables (ACMNA075)
- Rounding and estimating (ACMNA 099)
- Multiplication of large numbers (ACMNA100)

### 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.

Time	What the teacher is doing	What students are doing
3 min	Introduction: On the <i>Rounding grid sheet</i> , 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: Watch and listen.
5 min	Direct students: Hand out the <i>Rounding grid sheet</i> . 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.: <ul style="list-style-type: none"> <li>• What is 24 / 68 / 45 to the nearest 10?</li> </ul>	Individually: Colour numbers on the grid that round up/down.
2 min	Demonstrate: 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.: <ul style="list-style-type: none"> <li>• Use single digit multiplication, with this giving the number of hundreds</li> <li>• <math>2 \times 3</math> hundreds</li> </ul>	Whole group: Work out the blocks needed in the middle of the table, describe 'short cut' for solving $20 \times 30$
3 min	Demonstrate: Present and discuss the multiplication $22 \times 26$ : <ol style="list-style-type: none"> <li>1. Solve <math>22 \times 26</math> (by hand, calculator or using base 10 blocks)</li> <li>2. Round <math>22 \times 26</math> to <math>20 \times 30</math> and compare the 2 answers</li> <li>3. 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].</li> </ol>	Whole group: Watch how to simplify multiplication by first using rounding.
10 min	Direct pairs of students: Give each student a <i>multiplication organiser</i> . 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 using cards and round to tens to estimate multiplications. Do this 10 times.
5 min	Discussion: Ask students about what they have learned, such as: <ul style="list-style-type: none"> <li>• What does it mean to 'round to the nearest 10s'?</li> <li>• How do you know when to round up/down?</li> </ul>	Whole group: Explain processes for rounding and estimating