

## Whole numbers

When we round off, it is important that we understand 'place value'.

From right to left, we have **Units, Tens, Hundreds, Thousands, Ten Thousands, Hundred Thousands, Millions** and so on.

When we round to a certain place, we look at the digit directly after it. If it is a 0, 1, 2, 3 or 4 the digit of the place we are rounding to stays the same. If the digit after the place we are rounding to is a 5, 6, 7, 8 or 9 we round the number up.

For example **6 534 428** (six million, five hundred and thirty-four thousand, four hundred twenty-eight).

M	HTh	TTh	Th	H	T	U
6	5	3	4	4	2	8

When you are asked to round to a certain place value, you need to identify that place in the number first.

- Using the above number, if we were to round it to the nearest 100 000 (Hundred Thousand), we need to look at the 5 (500 000). The number after it is a 3. This means we round DOWN. Everything before this number stays the same. Everything after it becomes a 0.

So: 6 534 428 rounded to the nearest 100 000 will be **6 500 000**.

- If we round 6 534 428 to the nearest 1 000 000 (million), we look at the 6. The number after it is 5, so we round UP. The numbers after it become 0.

So: 6 534 428 rounded to the nearest 1 000 000 will be **6 000 000**.

## Decimal fractions

Decimals come after a comma. They have a different place value to whole numbers. The first decimal is in the tenths column. Next is hundredths, thousandths, hundred thousandths and so on.

Th	H	T	U	,	t	h	th	hth
4	4	2	8	,	3	4	5	6

- When we round off to a certain number of decimal places we need to keep that number of decimal places and then leave out the ones that come after.  
For example: round off the three decimal places. We look at the third decimal, the 5. After it is a 6, so we round UP. The 5 becomes a 6. Everything before it stays the same. The answer will be 4 428,346.

### Always remember

- When you are doing a sum that includes decimals numbers, only round off at the very end, as rounding too soon may change the answer.
- Read questions carefully so you know to what/which place to round off.
- If you are not told where to round off, use your discretion – money is always rounded to two (2) decimal places; percentages usually to one (1) decimal place or the nearest whole; area and volume can be to one (1) decimal place or the nearest whole.
- When working with things that can only be whole, always round to a whole. The context will tell you if you should round up or down.
- Include both the full answer and the rounded answer as both may be for marks.

## Activity

1. Round 132 678,93546 to:
  - a. The nearest 100
  - b. The nearest 10
  - c. The nearest 1 000
  - d. The nearest whole number
  - e. The nearest 100 000
  - f. The nearest 10 000
  - g. Two decimal places
  - h. Four decimal places
  - i. One decimal place
2. A square has sides of 2,65 m. Find the area of the square, rounded off to two decimal places.
3. A cube has sides equal to 12,35 cm. Calculate the the volume of this cube to 1 decimal place.
4. The area of a square is equal to 43,57 m<sup>2</sup>. Calculate the length of its sides to 1 decimal place.
5. A cubic candle has a volume of 1 233,576 cm<sup>3</sup>. Calculate the length of its sides to 2 decimal places.
6. There are 168 sweets available to divide between 25 children. How many sweets will each child get?
7. 480 bricks can be laid by 4 people. How many people are needed to lay 735 bricks?
8. Janice is calculating real-life distances using a map with a scale of 1:15 000. She measures a distance of 4,55 cm on her map and needs to find the answer to the nearest whole metre. She does the following calculation:  
4,55 cm on map = 5 cm  
 $5 \times 15\ 000 = 75\ 000$  cm in life/reality  
 $75\ 000 \div 100 = 750$  m

The actual real distance is 683 m. Explain why Janice is incorrect and do the correct sum.