Notes for parents.

**The purpose of the activity is to help your student to:**

- Learn commonly used fraction to percentage conversions.
- Recognise percentages as equivalent fractions.

Here is what to do:

Print the Copymaster on the last pages of this file and cut the rectangles into individual cards using scissors. Talk with your student to establish pairs, that is a fraction card that equals the percentage picture card.

Create a full set of pairs. Some pairs are relatively easy to match. For example, most students know that one half equals 50 percent. However, one half has an infinite number of names, including 50 hundredths (50/100).

As pairs are created discuss what other fractions would match the given percentage. Identifying equivalent fractions helps your student to recognise that a percentage is a special way to represent fractions of a quantity. For example, one quarter equals 25%.
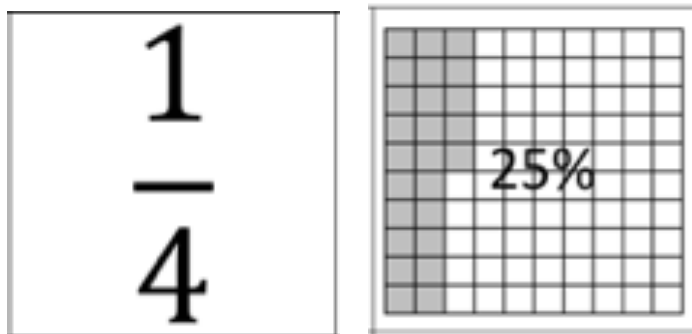
One quarter has an infinite number of other names such as, two eighths (2/8), three twelfths (3/12), and twenty-five hundredths (25/100).

The less commonly known percentages are 33⅓%, 66⅔%, 12½% and 37½%. One way to establish the fraction for 33⅓% is to consider how many times 33⅓ goes into 100, since 33⅓% means 'thirty-three and one third in every hundred' or (33⅓)/100. Three lots of 33⅓ fit into 100 so 33⅓% equals one third. Since 66⅔% is twice 33⅓%, it must equal two thirds.

By similar thinking, eight lots of 12 1/2% go into 100% so 12 1/2% equals one eighth. 37 1/2% is three times 12 1/2% so 37 1/2% equals three eighths.

Notes for parents (2). Activity next page.

After some practice of forming fraction and percentage pairs, play the game outlined in the instructions. Your student may enjoy competing against you by getting as many pairs as possible. Playing the game more than once will improve your student's fluency at recognising common percentage to fraction conversions.

Points to note

Percent literally means "for every one hundred" and the % symbol shows the / symbol for division and the two zeros from 100. Percentages are used in two main ways, to represent a proportion or to operate on another quantity. Here are examples of both uses.

1. Percentage as a proportion

Proportions are usually of different quantities, so percentages are used to compare proportions. For example, suppose Beth scores 14 goals out of 21 attempts while Mere scores 20 goals out of 32 shots. To establish who is the more accurate shooter percentages might be used.

14/21=2/3=66 2/3%   20/32=5/8=62 1/2%

Each fraction is converted to an equivalent fraction with a denominator of 100 so the fractions then have a common whole of 100.

2. Percentage as operator

Percentages, like other fractions, are often multipliers of other quantities. If you are charged 15% GST on a product the original price is multiplied by 15/100 to get the tax component. If you buy a clothing item at 30% off, you pay 70% of the usual price. The original price is multiplied by 70/100 to get the sale price.

For both uses knowing common percentage to fraction relationships is very useful. For example, knowing 30% is three amounts of one tenth is very useful for estimating or calculating the sale price of an item. Money amounts are easy to divide by ten. Knowing 60% is three fifths is handy for estimating that the lambing percentage for 149 ewes having 240 lambs is a bit more than 160% since 30 is one fifth of 150.

This is a card game for two players.

Print the cards from the following pages and cut them into separate cards.

Here is how to play:

1. Shuffle the cards.
2. Deal each player six cards and put the pack face down in the centre as well.
3. Players take turns to:

   Make a matching fraction and percentage pair from the cards in their hand. Put that pair to the side.

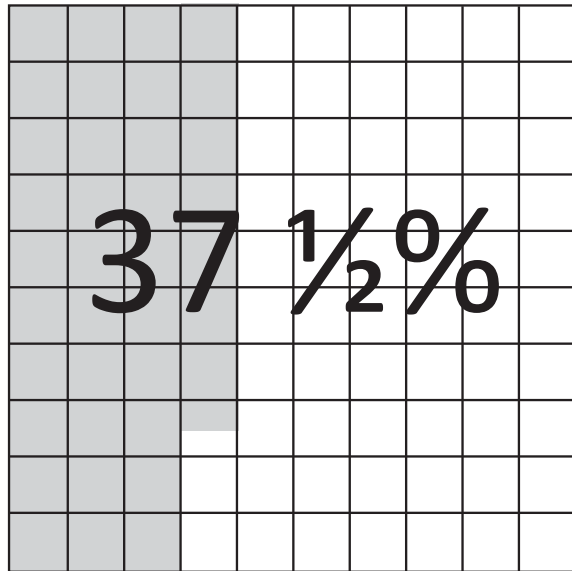   If the player makes a pair, then they take two new cards from the pack to refill their hand.
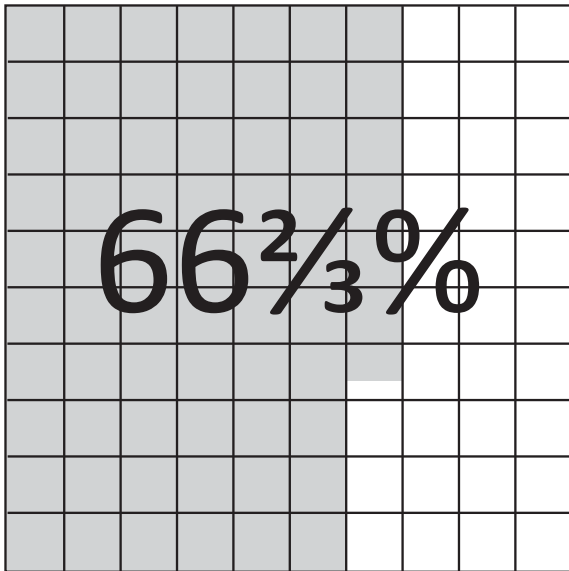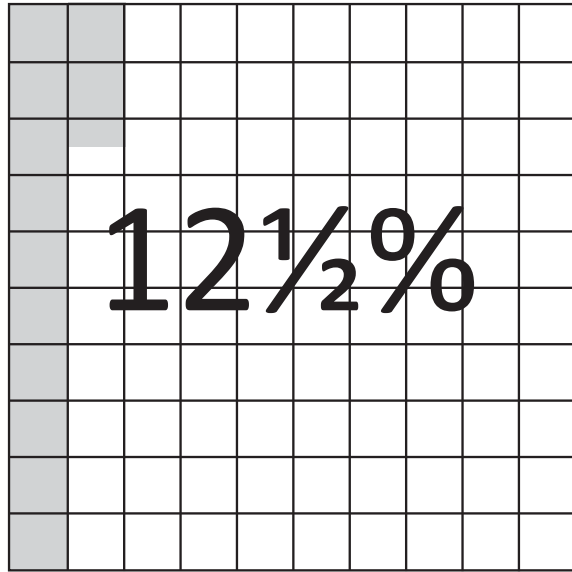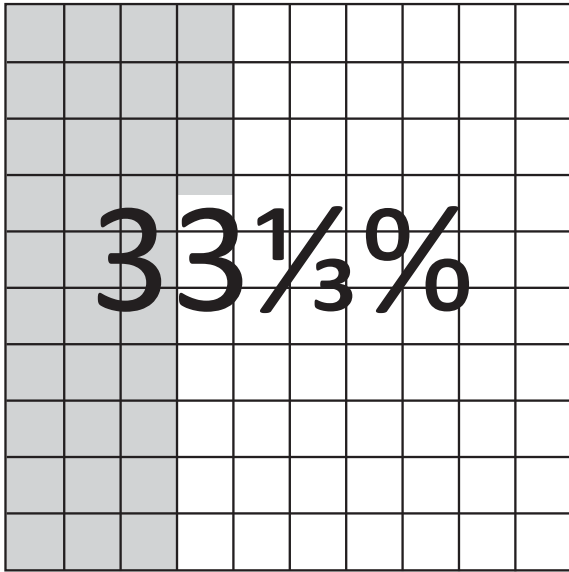
   If the player cannot make a pair, they take two cards from the pack and miss that turn.

4. Play finishes when the pack is used up. The player who makes the most pairs wins.

10%

20%

30%

40%

50%

60%

70%

80%

90%

100%

75%

25%

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33⅓%

12½%

66⅔%

37 ½%
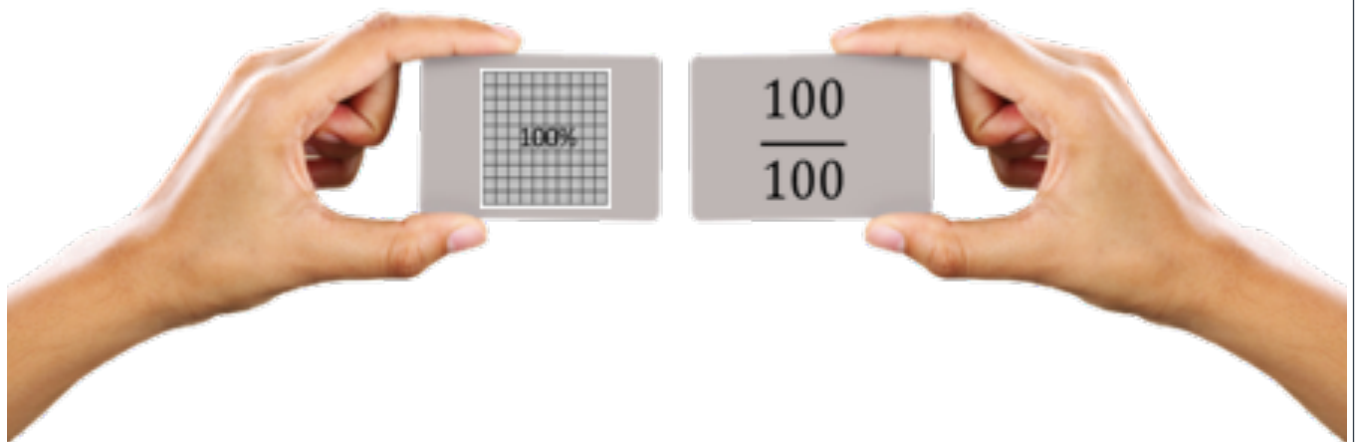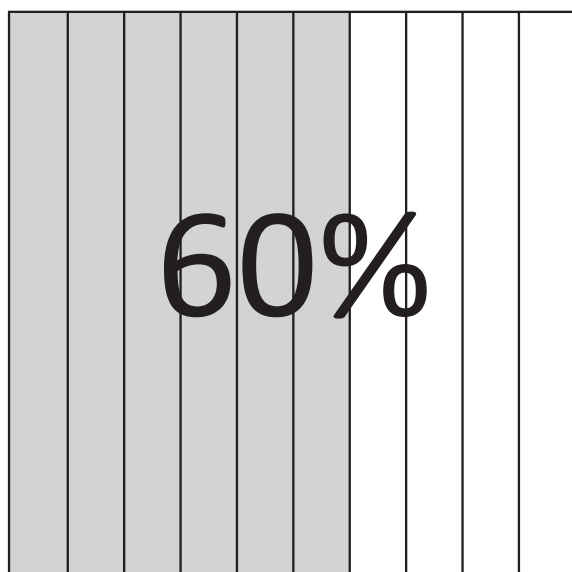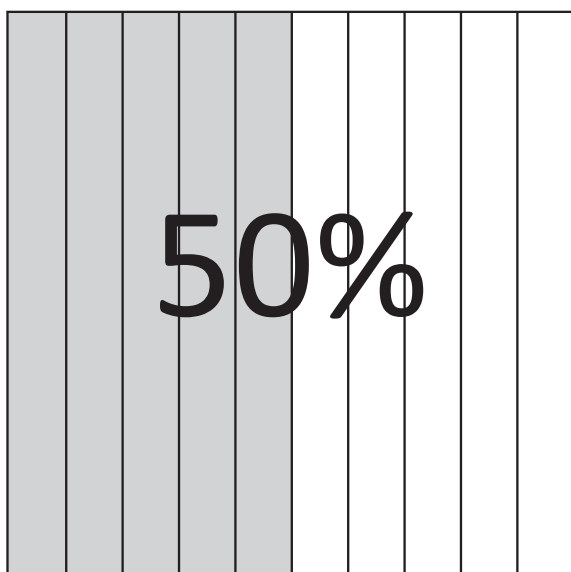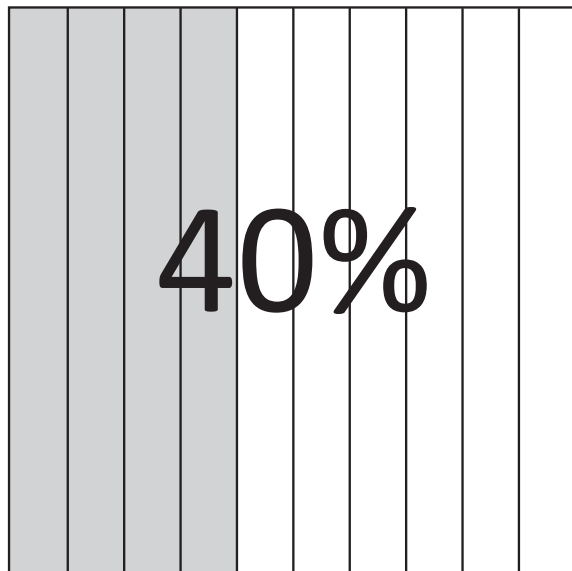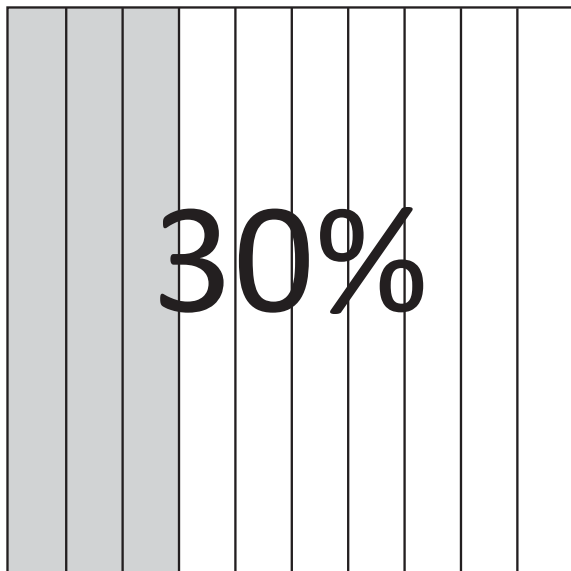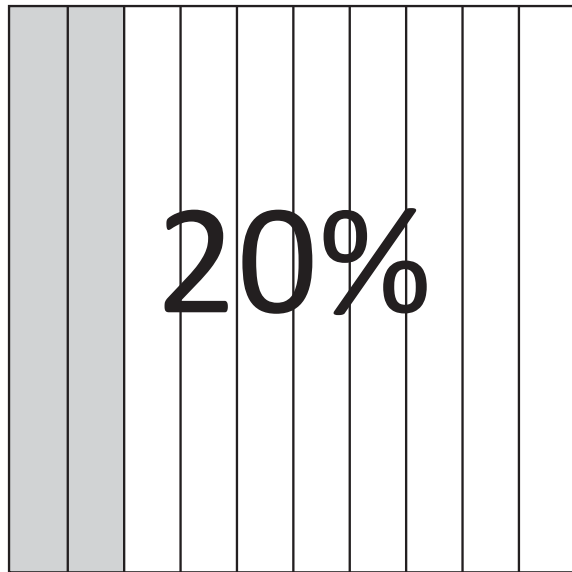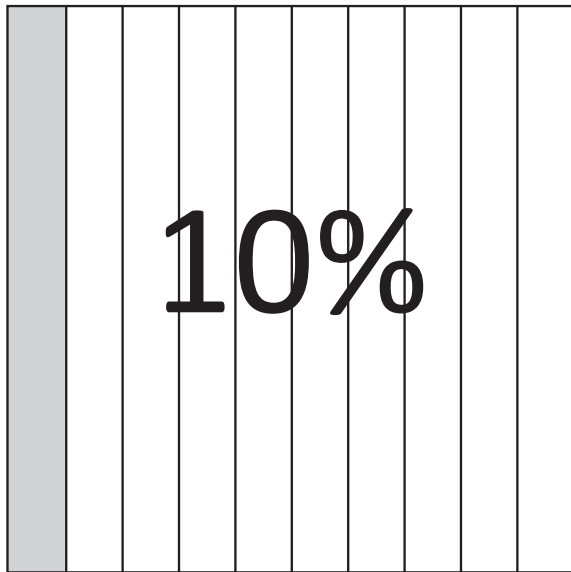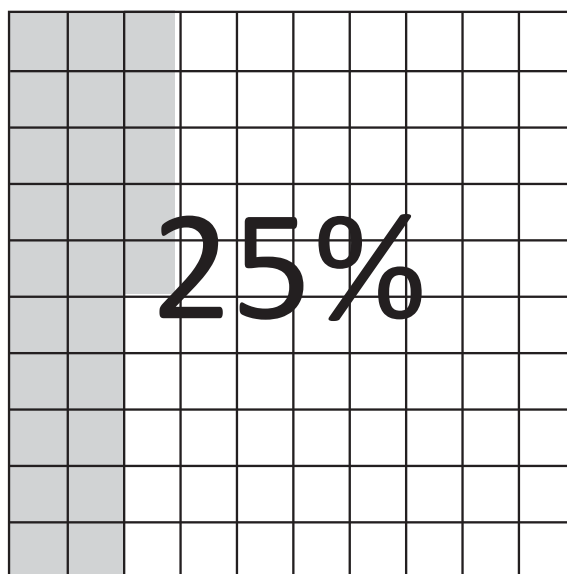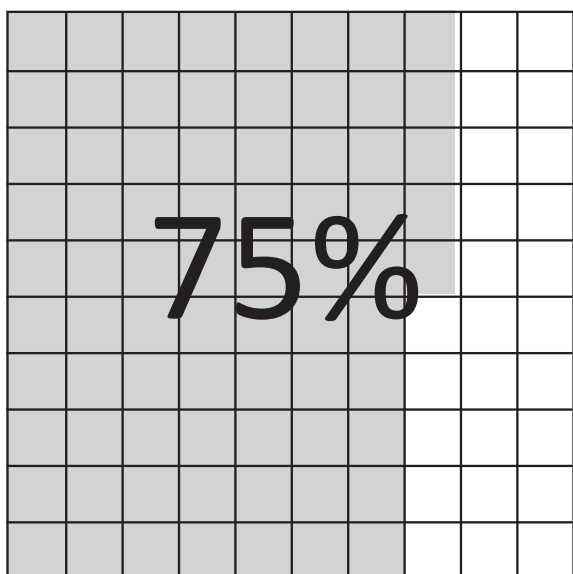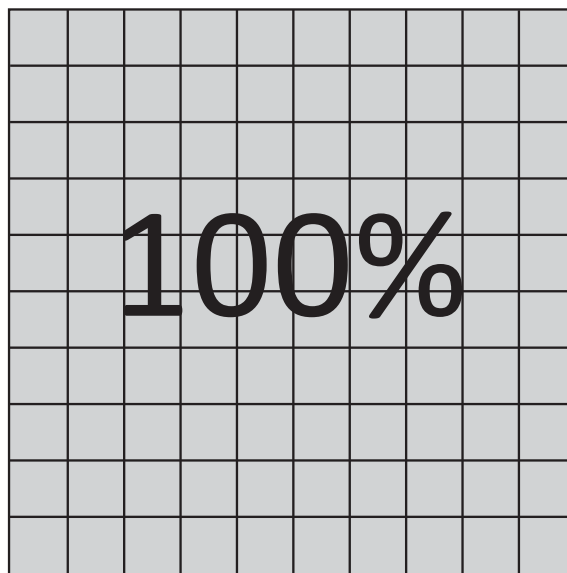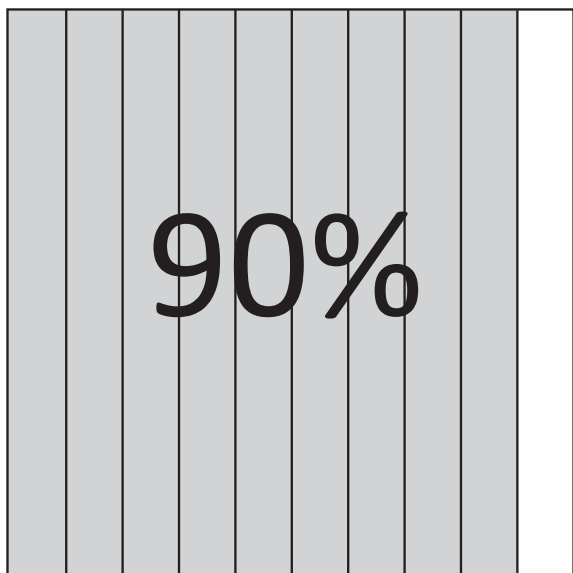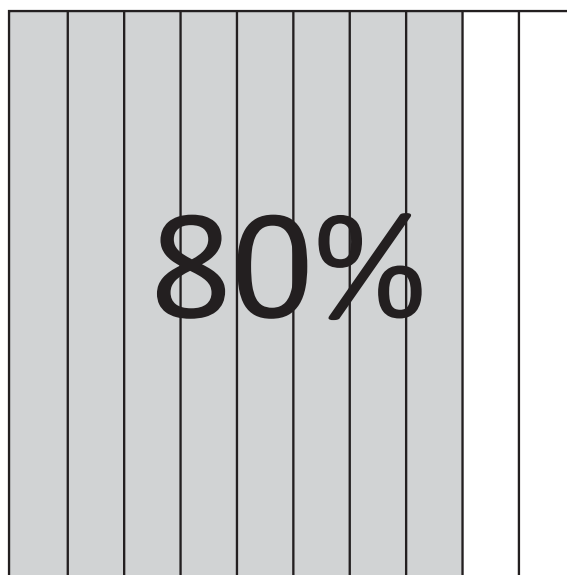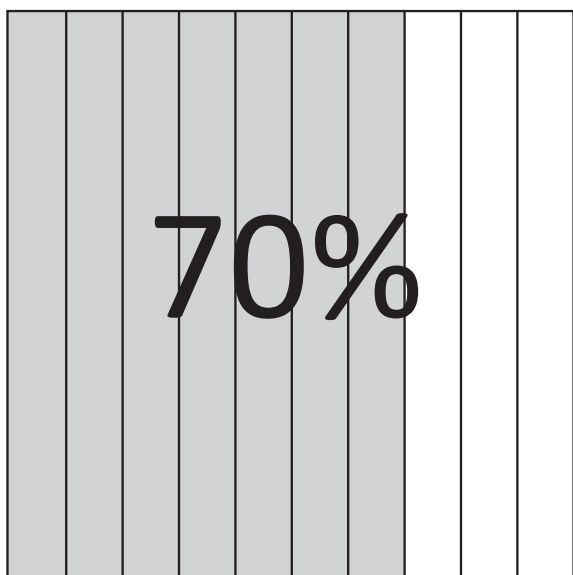
$\dfrac{1}{10}$	$\dfrac{1}{5}$	$\dfrac{3}{10}$
$\dfrac{2}{5}$	$\dfrac{1}{2}$	$\dfrac{3}{5}$
$\dfrac{7}{10}$	$\dfrac{4}{5}$	$\dfrac{9}{10}$
$\dfrac{100}{100}$	$\dfrac{1}{4}$	$\dfrac{3}{4}$

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$\dfrac{1}{3}$	$\dfrac{2}{3}$	$\dfrac{1}{8}$
$\dfrac{3}{8}$	$\dfrac{1}{10}$	$\dfrac{1}{5}$
$\dfrac{3}{10}$	$\dfrac{2}{5}$	$\dfrac{1}{2}$
$\dfrac{3}{5}$	$\dfrac{7}{10}$	$\dfrac{4}{5}$