

Closest to 100

Children first play a game with a partner, then work individually or together to find a solution.

Skills practised:

- Adding four numbers < 100
- Knowing number bonds to 10

Conjecture: *With four dice throws, we can find how many ways to make 100 following simple rules.*

What to do:

Children work individually or in pairs.

1. Use a dice with numbers 1-6.
2. Draw four spaces each (see below) to make an addition.
3. Take turns to play.
4. Throw the dice. Write either that number or 10x that number in your first space.
5. Keep playing.
6. After you have each had four turns, whose score is closest to 100? They win!
7. Repeat this. Can you do better this time?
When is it not sensible to multiply by 10?
When is it sensible to multiply by 10?
8. Keep playing till you have played five games.
9. Who won most games? Did the winner have a strategy?

Now work on your own or together to work out a sequence of four dice throws that will give you exactly 100. How many ways of doing this are there?

HINT: What number should the ones digits add up to?
So what number should the tens digits add up to?

Really challenging ... Suppose you had a 0-9 dice. How many ways now?

$$\square + \square + \square + \square = 100$$

Aims:

- To rehearse adding four numbers (totals around 100)
- To think logically about what answers you will get

Minimum number of calculations expected
12-20

Closest to 100

1. Work with a partner and take turns to play.
2. Each person copies the addition:
 $\square + \square + \square + \square =$
3. Throw a 1–6 dice. Write that number, or 10x that number, in the first space.
4. Now let your partner have a go.
5. Throw again filling in the next number in your addition.
6. After you have had four turns, add up your numbers.
7. Who is closest to 100?
The closest to 100 is the winner.
8. Play again. Keep playing until you have played five games.
9. Who won the most games?
Did the winner have a strategy?

<input type="radio"/>	$\square + \square + \square + \square =$
<input type="radio"/>	$5 \times 10 = 50$
<input type="radio"/>	$2 \times 10 = 20$
<input type="radio"/>	6
<input type="radio"/>	
<input type="radio"/>	
<input type="radio"/>	$50 + 20 + 6 + 30 = 106$
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Challenge

Work out a sequence of four dice throws that will give you exactly 100.