Sackful of 10s

Children play a game which requires that they add multiples of ten using their knowledge of number bonds. They then challenge themselves to work out the longest game possible.

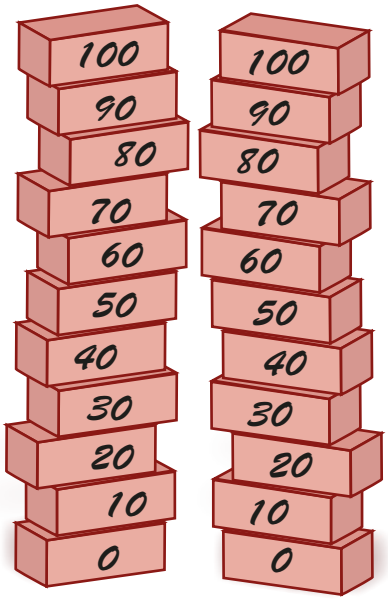
Skills practised:

- Adding two multiples of ten
- Spotting bonds to 10

Conjecture: *We can create a game which is the longest possible given the criteria.*

What to do:

Children work individually or in pairs.



1. Take turns to play.
2. Choose a number from either tower. (It is NOT one tower per player. You may choose a number from either tower.)
3. Write your number in the sack, and cross it off the tower.
4. Now your partner has a turn. They choose a number from EITHER tower. BUT they must NOT choose a number which adds to the number already in the sack to make 100, e.g. If you choose 30, they should not choose 70!
5. Now you have a turn. You choose a number from either tower to write in the sack. But if your number adds to any number in the sack to make 100, you lose the game!
6. Keep playing, taking turns to write a number in the sack and cross it off the tower.
7. The first person to write a number in the sack which adds to any of the numbers in there already to make 100 is the loser!

Discuss the game. Could you have played better? What pairs do you need to look at to help you?

8. Play again. This time, try to keep the game going as long as possible.

Discuss what you notice about the game? When is it not safe to choose 60? Or 30?
Can you see a way to win?

9. Play again, trying to keep the game going.

CHALLENGE: Create a 'pretend' game which goes on for as many turns as is possible. Can you demonstrate that this is the longest possible game?

Aims:

– To think ahead and plan what might happen
– To develop strategies to win a game

Minimum number of calculations expected

20

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   Write your number in the sack, and cross it off the tower.

2. Your partner must now choose a number from EITHER tower, BUT they must NOT choose a number which adds to the number that is already in the sack to make 100.

3. Choose another number from either tower to write in the sack. If your number adds to any number in the sack to make 100, you lose the game!

4. Keep playing, taking turns to write a number in the sack and cross it off the tower.

5. The first person to write a number in the sack which adds to any of the numbers in there already to make 100 is the loser!

   Discuss the game. Could you have played better?
   What pairs do you need to look at to help you?

6. Play again. This time, try to keep the game going as long as possible.

   What do you notice about the game?
   When is it not safe to choose 60? Or 30?
   Can you see a way to win?

9. Play again, trying to keep the game going.

Challenge

Create a 'pretend' game which goes on for as many turns as is possible. Can you demonstrate that this is the longest possible game?

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