

## Addition towers

*Children find the total number of spots on two dice in a game context, and consider why some totals come up more frequently than others.*

## Skill practised:

- Adding single-digit numbers

**Conjecture:** *There are some totals which occur more often when you roll a pair of dice.*

### What to do:







*Children work in pairs.*

*You will need six counters, three in each of two colours, a pair of 1-6 dice and lots of cubes.*

1. Copy this track onto a big sheet of paper.

1	2	3	4	5	6	7	8	9	10	11	12
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2. Each choose three numbers and put one of your counters in front of each number, for example like this.

1	2	3	4	5	6	7	8	9	10	11	12
											

3. Take it in turns to roll the pair of dice and find the total, e.g. roll 3 and 2, the total is 5. IF the total is one of your numbers, put a cube on it.
4. Carry on playing until one person has a tower of three cubes on one of their numbers. That person is the winner!
5. Play again, and see if you can do better this time!

Which were poor numbers to choose if you want to win? Why?

Which is the worst number to choose? Why?

Which are really good numbers to choose? Why?

Do the bigger numbers come up more often or not?

**HINT:** How many ways are there of getting a total of two spots? How many ways are there of getting a total of seven spots? How about twelve spots?

You could change this game to use a pair of 0-9 dice. Which numbers will you need on your track? Which numbers would be good to choose, and which would be rubbish? Test out your ideas!

### Aims:

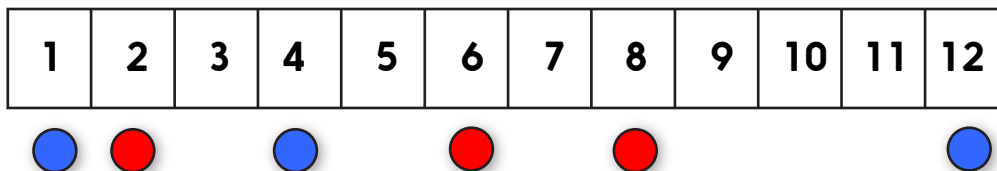
- To know totals of pairs of numbers from 1-6 by heart
- To begin to reason, make and test predictions

### Minimum number of calculations expected

20

## Addition towers

1. Play with a partner. Take the number track.
2. Each choose three numbers on the number track and put one of your counters in front of each, like this:



3. Taking it in turns roll the pair of dice and find the total, e.g. roll 3 and 1, the total is 4. IF the total is one of your numbers, put a cube on it.
4. Carry on playing until one person has a tower of three cubes on one of their numbers. That person is the winner!
5. Play again, and see if you can do better this time!

Which were poor numbers to choose if you want to win? Why?  
Which is the worst number to choose? Why?  
Which are really good numbers to choose? Why?  
Do the bigger numbers come up more often or not?

### Challenge

Change this game to use a pair of 0-9 dice.  
Which numbers will you need on your track?  
Which numbers would be good to choose, and which would be rubbish?!  
Test out your ideas!

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1	2	3	4	5	6	7	8	9	10	11	12
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