

## Maths

**Statistics** 

Maths | Year 6 | Statistics | Interpret and Construct Charts and Graphs | Lesson 1 of 1: The Mean



### Aim

# <u>I can calculate the mean</u>

## <u>as an average.</u>

#### **Success Criteria**

- I can use my preferred methods for addition and division.
- I can use a formula to calculate the mean of a set of data.
- I can use the mean to find missing data.

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What methods would you prefer to use for these different calculations?



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Now select two additions and two divisions to solve using your preferred methods.



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Let's look at the answers for the calculations, and some of the possible methods.

	1847		42
L L L L L L L L L L L L L L L L L L L	You could mentally add the hundreds, tens and ones in 843 to 1004.		You could use multiplication facts here. You know that 12 divided by 3 is 4, so 120 divided by 3 is 40. And 6 divided by 3 is 2.
	5		43
	You could count up in 15s: 15, 30, 45, 60, 75.	H d (t te	Here, you could use a written short ivision method. You could say, "30 ens) divided by 7 is 4 (tens) with 2 ens left over. We can regroup the 2 ens with the 1 to make 21 (ones). 21 (ones) divided by 7 is 3 (ones). 4 tens and 3 ones is 43.
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Let's look at the answers for the calculations, and some of the possible methods.

60	1122	
You could spot omplements to 10 here: 2 and 8 and 7 and 3. Add these, then add the tens.	Again, you could look for complements to 10. Here, the hundreds digits 8 + 2 = 10, therefore this would be 1000. Then, add on the tens and units.	
	200	
For this calculation, y add first the ones, t Alternatively, you co times table to add th	you could use a written method to hen the tens, then the hundreds. ould use your knowledge of the 3 e tens and then add the units on.	9
	land - while interest	
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#### What Is the Mean?

The mean is a way of calculating the average of a set of numbers.

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An average is a single value that represents a set of values.

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It is useful to find an average because it can summarise a larger set of data into a single value that is typical for that data set.

#### What Is the Mean?

For example, in a class of 35 children, there will be a range of different shoe sizes. Finding the average shoe size sums up the data set of 35 shoe sizes as one shoe size that is typical for that class.

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There are different ways of finding an average value of a set of data.

The **mean** is one of the ways of calculating an average value of a set of numerical data.

Numerical data is information that is presented as numbers.

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To calculate the mean of any set of data, there is a formula to follow:

mean = total ÷ number of items

Following this formula will give you the mean average of any set of numerical data.

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To calculate the mean of any set of data, there is a formula to follow:





To calculate the mean of any set of data, there is a formula to follow:



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To calculate the mean of any set of data, there is a formula to follow:



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Use the formula to find the mean average of each of these sets of data.

mean = total ÷ number of items

allester for the former and	1 ALIA	
Without a the state	Team Played	Goals Scored
- Appense .	Grantham Giants	6
1	Devon Dolphins	2
	Boscastle Bears	7
	Sheffield Storm	4
I Loner .	Accrington Alligators	9
seene !!!!	Leyburn Leopards	2
N IN A STATE OF A	Total	
M	Maria	, ,
		pera - 1
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Use the formula to find the mean average of each of these sets of data.





Use the formula to find the mean average of each of these sets of data.

mean = total ÷ number of items

MIL

mean = 720 ÷ 8

Michael played 8 cricket matches. His scores for the 8 matches were: 98, 103, 76, 132, 53, 83, 112 and 63.

mean score = **90** 

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Use the formula to find the mean average of each of these sets of data.

mean = total ÷ number of items



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Grandad

65

Kamil

10

Anika

7

Mum

34

Dad

37

Atif

3



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It isn't always helpful to find the mean average of a set of data.

For example, calculate the mean average age of the people in the Ali family:

Can you think of any other sets of data where it wouldn't be helpful to calculate the mean average?

This isn't helpful. The mean average of 26 is not a typical value for the age of the people in the Ali family because there is such a big range of ages. If you just looked at the mean average, you might think that there weren't any children in the family and you wouldn't know that Grandad lived with them.



Now that we understand how to find the mean, we can use our understanding to find missing values in a set of data when given the mean.

-			
1	Half Term	Score	
	1	13	
MA	2	15	
ent.	3	12	
	4		
	5	15	
	6	18	
	This table sh maths test each half ter for term 4 His mean s	nows Kamil's scores for m. The score is missing. score is 15.	How car the mis term 4 u and

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How can we work out the missing score for term 4 using the data and the mean?



Now that we understand how to find the mean, we can use our understanding to find missing values in a set of data when given the mean.

Half Term	Score
1	13
2	15
3	12
4	
5	15
6	18

This table shows Kamil's

maths test scores for

each half term. The score

for term 4 is missing.

His mean score is 15.

mean = total ÷ number of items

We can rearrange the formula like this:

total = mean × number of items

We know that the mean is 15, and there are 6 items in the set of data.

This means the total must be  $15 \times 6$ , so the total is 90.

We can add up the given scores and find the difference between this answer and 90. This will give us the missing test score. How can we work out the missing score for term 4 using the data and the mean?



Now that we understand how to find the mean, we can use our understanding to find missing values in a set of data when given the mean.

Half Term	Score
1	13
2	15
3	12
4	17
5	15
6	18

This table shows Kamil's maths test scores for each half term. The score for term 4 is missing. His mean score is 15. The given scores total 73.\_\_\_

90 - 73 = 17

The missing test score must be 17.

We can check by adding up all the scores and dividing by 6 to check that the mean is 15.



How can we work out the missing score for term 4 using the data and the mean?

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Now that we understand how to find the mean, we can use our understanding to find missing values in a set of data when given the mean.

Half Term	Score	13 + 15 + 12 + 17 + 15 + 18 = 90
1	13	$00 \div 6 = 15$
2	15	- 40 - 0 - 13
3	12	This proves that the
4	17	missing value is 17.
5	15	
6	18	
This table s maths te each half te for term 4 His mear	shows Kamil's st scores for erm. The score 4 is missing. 1 score is 15.	How can we work out the missing score for term 4 using the data and the mean?

	The	Mean	*	Т	he Me	an	÷.	The	Mean	
	I can calculate the	mean as an average.	I can calculate the mean as an average. I can calculate the mean a			he mean as an average.				
ome children from Clo oals and distances. 1. Find the mean ave	ass 6A took part in diffe rage of each set of data.	rent sporting activities an •	Some children from goals and distances 1. Find the mean	i Class 6B took part s. average of each set	in different sp of data.	orting activities an "	Some children from goals and distance 1. Find the mean	n Class 6C took part in dij s. average of this set of dat	ferent sporting activities an 1.	d recorded their sci
	mean = total ÷	number of items		mean =	total ÷ numb	er of items		mean = tota	÷ number of items	
Jance Competition		Long Jump	Gymnastics Compe	tition	Ne	tball Tournament	Dance Competition			
Child	Score	Child	Child	Score	-	Child	Child	Score	mean =	
dam	6	Emily	Monica	13	Le	evi	Arthur	19		
in	4	Joshua	Bev	16	Lo	uren	Alex	13		
ırij	8	Charlie	Sally	17	Ic	innis	Sioned	12		
arry	7	Anya	Martha	12	A	ny	Mary	18		
lla	5	Sofia	Asha	18	Ti	ana	Joseph	12		
melia	5	Μαγα	Leo	14	M	aggie	Phoebe	16	]	
afsa	7	Stefan	Jayden	15	r	nean =	Javid	15		
mean =		Ciaran	mean =							
		mean =	1.14-120.2020				2. Calculate how	many goals Joe scored a	ıd add his total to the table.	
		incurt					Football Tourname	nt		
ockey Tournament			2. Calculate how	far Raymond threw	the discus an	d add his measurem	Child	Goals Scored	mean = 6	
Child	Goals Scored		Discus				Alfie	6		
da	4		Child	Dis	tance (cm)	mann - tata	Oscar	8		
ebecca	6		Eimear	116		meuri – tota	Joe			
van	2		Jake	122		total = mear	Phil	5		
loss	6		Rosa	99		mean = 112	Amina	9		
ay	4		Raymond				Gemma	5	]	
ara	2		Terry	106						
			Courtney	119						
mean =			David	114						

7.14%

#### Solve It

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Use your understanding of the mean to solve this problem.





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