Chapter 3 / **Example 3**
Calculating statistics

a The number of ice creams sold over a period of 13 weeks is as follows:

146	151	158	158	161	149	160	147	158	160	216	225	238

Write down the mode, and use technology to find the mean and median for this data set.

b Two dice are thrown 100 times and their total score is recorded in the table:

Score	2	3	4	5	6	7	8	9	10	11	12
Frequency	21	9	8	4	7	20	13	9	6	2	1

Write down the mode, and use technology to find the mean and median for this data set.

c The weights, w kg, of 50 cats are recorded in the table:

Weight (kg)	Frequency
$2 \leq w \leq 3$	5
$3 \leq w \leq 4$	19
$4 \leq w \leq 5$	17
$5 \leq w \leq 6$	5
$6 \leq w \leq 7$	3
$7 \leq w \leq 8$	1

Find an approximation for the median and mean, and write down the modal class.

Press $\boxed{\text{stat}}$ 1:Edit and press $\boxed{\text{enter}}$

Type the numbers 146, 151, 158, 158, etc. in the first column. Press $\boxed{\text{enter}}$ or $\boxed{\blacktriangledown}$ after each number to move to the next cell.

Note: *If the list contains other numbers, you can clear it by pressing* $\boxed{\text{stat}}$ *4:ClrList and press* $\boxed{\text{enter}}$ *. The home screen displays* ClrList. *Press* $\boxed{\text{2nd}}$ $\boxed{1}$ $\boxed{\text{L1}}$ *and press* $\boxed{\text{enter}}$. *Press* $\boxed{\text{stat}}$ *1:Edit and press* $\boxed{\text{enter}}$ *to return to the table.*

L1	L2	L3	L4	L5	1
146	------	------	------	------	
151					
158					
158					
161					
149					
160					
147					
158					
160					
216					

L1(11)= 216

To find the mean and median

Press $\boxed{\text{stat}}$ and $\boxed{\blacktriangleright}$ to access the CALC menu.

Select 1:1-Var Stats and press $\boxed{\text{enter}}$.

Leave FreqList empty.

Navigate to Calculate and press $\boxed{\text{enter}}$.

```
1-Var Stats
List:L1
FreqList:
Calculate
```

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The GDC displays a list of statistics for the data. The mode is 158, although the GDC does not show this. The mean, $\bar{x}$, is 171.3.	**1-Var Stats** $\bar{x}$=171.3076923 Σx=2227 Σx^2=393865 Sx=32.09720812 σx=30.83800007 n=13 minX=146 ↓Q₁=150
Scroll down to see the median using ▼. The median is 158.	**1-Var Stats** ↑Sx=32.09720812 σx=30.83800007 n=13 minX=146 Q₁=150 Med=158 Q₃=188.5 maxX=238
Press stat 1:Edit and press enter Navigate up to the top of the first column. Press clear enter. This will clear the contents of the list L_1. Take care not to press del as this will delete the list, not its contents. Type the numbers 2, 3, 4, 5, etc. in the first column. Press enter or ▼ after each number to move to the next cell.	L₁ L₂ L₃ L₄ L₅ 1 2 ------ ------ ------ ------ 3 4 5 6 7 8 9 10 11 **12** L₁(11)= 12
Press ▶ to move to the next column. Enter the frequencies of each of the ages in the second column.	L₁ L₂ L₃ L₄ L₅ 2 2 21 ------ ------ ------ 3 9 4 8 5 4 6 7 7 20 8 13 9 9 10 6 11 2 12 **1** L₂(11)= 1
To find the mean and median Press stat and ▶ to access the CALC menu. Select 1:1-Var Stats and press enter. Enter L_2 as the FreqList by pressing 2nd 2 [L2]. Navigate to Calculate and press enter.	**1-Var Stats** List:L₁ FreqList:L₂ Calculate
The GDC displays a list of statistics for the data. The mode is 2, although the GDC does not show this. The mean, $\bar{x}$, is 5.82.	**1-Var Stats** $\bar{x}$=5.82 Σx=582 Σx^2=4172 Sx=2.815469532 σx=2.801356814 n=100 minX=2 ↓Q₁=3

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Scroll down to see the median using ▼. The median is 7.	```1-Var Stats``` ↑Sx=2.815469532 σx=2.801356814 n=100 minX=2 Q₁=3 Med=7 Q₃=8 maxX=12
Press $\boxed{stat}$ 1:Edit and press $\boxed{enter}$ Navigate up to the top of the first and second columns. Press $\boxed{clear}$ $\boxed{enter}$. This will clear the contents of lists L_1 and L_2. Take care not to press $\boxed{del}$ as this will delete the lists, not their contents. Enter the midpoints of the groups: 2.5, 3.5, etc. in the first column. Press $\boxed{enter}$ or ▼ after each number to move to the next cell.	L1 L2 L3 L4 L5 1 2.5 3.5 4.5 5.5 6.5 7.5 L1(7)=
Press $\boxed{\triangleright}$ to move to the next column. Enter the frequencies of each of the ages in the second column.	L1 L2 L3 L4 L5 2 2.5 5 3.5 19 4.5 17 5.5 5 6.5 3 7.5 1 L2(7)=
The Modal class $= 3 \leq w < 4$. To find the mean and median Press $\boxed{stat}$ and $\boxed{\triangleright}$ to access the CALC menu. Select 1:1-Var Stats and press $\boxed{enter}$. Enter L_2 as the FreqList by pressing $\boxed{2nd}$ $\boxed{2}$ $\boxed{L2}$. Navigate to Calculate and press $\boxed{enter}$.	```1-Var Stats``` List:L₁ FreqList:L₂ Calculate
The GDC displays a list of statistics for the data. Approximation for the mean = 4.2 kg.	```1-Var Stats``` x̄=4.2 Σx=210 Σx²=942.5 Sx=1.111167799 σx=1.1 n=50 minX=2.5 ↓Q₁=3.5

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Scroll down to see the median using ▼.

Approximation for the median = 4.5 kg.

```
1-Var Stats
↑Sx=1.111167799
 σx=1.1
 n=50
 minX=2.5
 Q₁=3.5
 Med=4.5
 Q₃=4.5
 maxX=7.5
```