Definition: The standard deviation summarises the spread of data around the mean

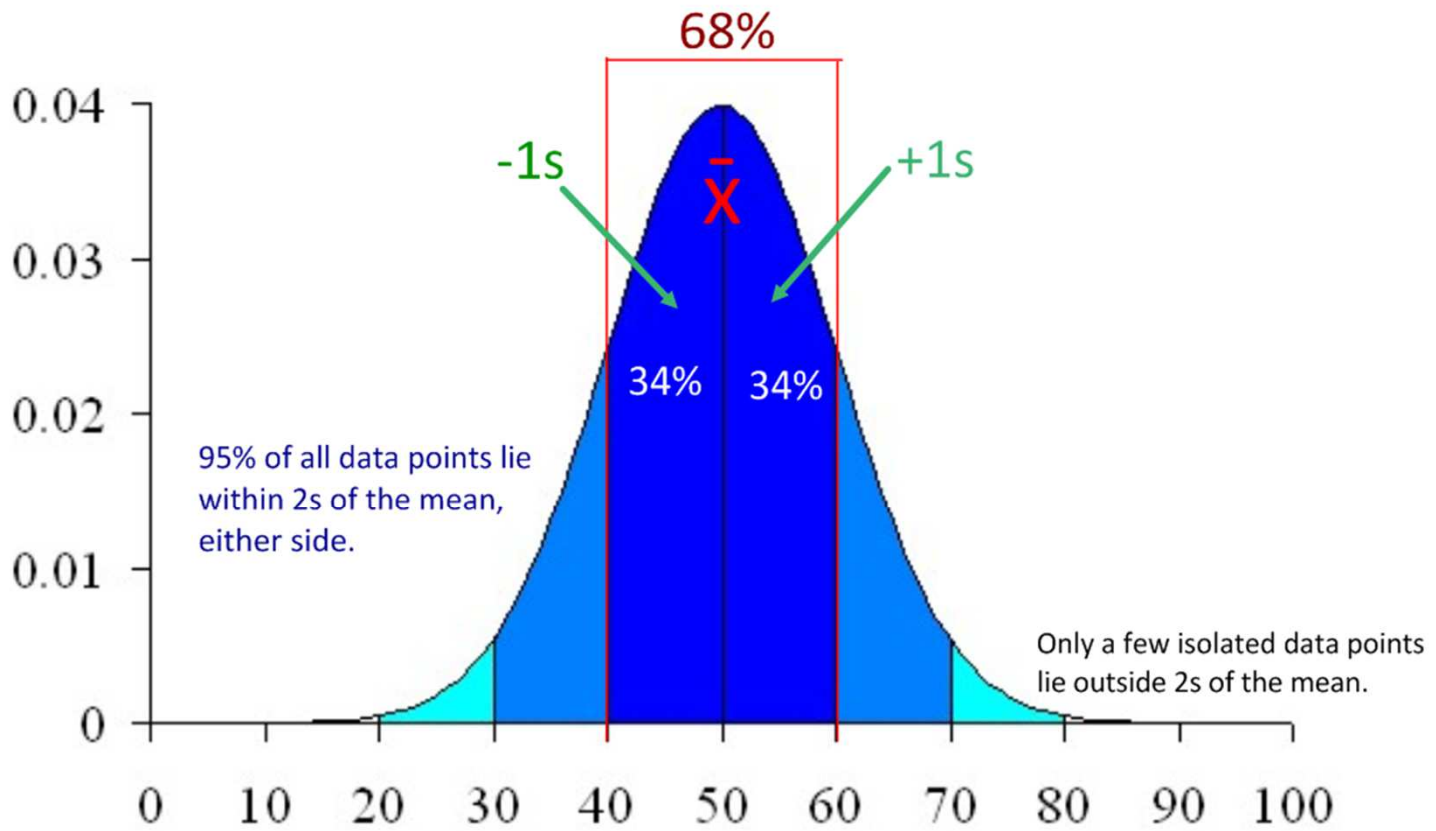
- The standard deviation measures how widely spread the vales in a set of data are.
- If the data points are close to the mean, then the standard deviation is small.
- Conversely, if many data points are far from the mean, then the standard deviation is large.
- If all values are equal, then the standard deviation is zero.

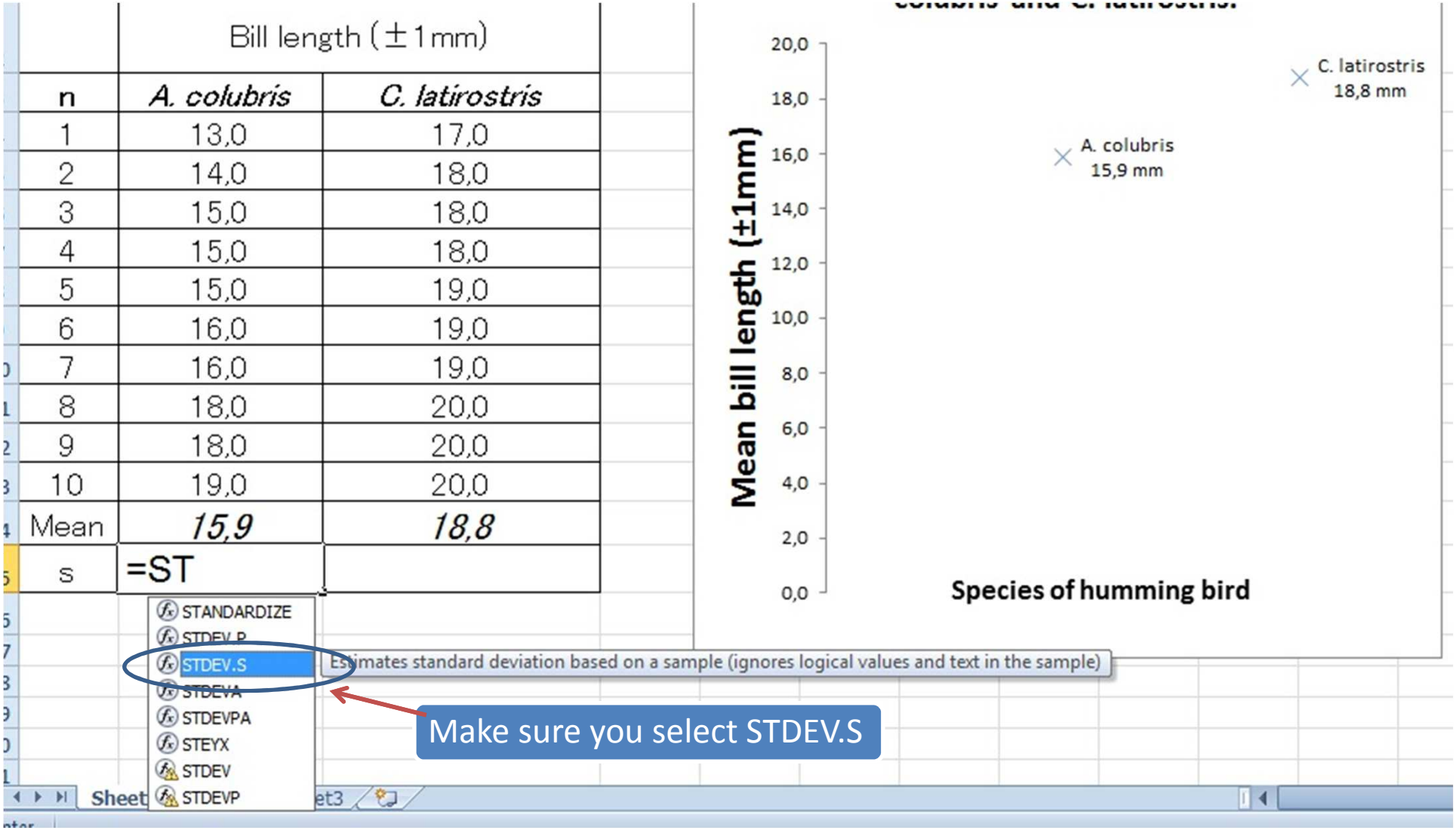
1.1.3	State that the term standard deviation (s) is used to summarize the spread of values around the mean, and that 68% of all data fall within (±) 1 standard deviation of the mean.	1

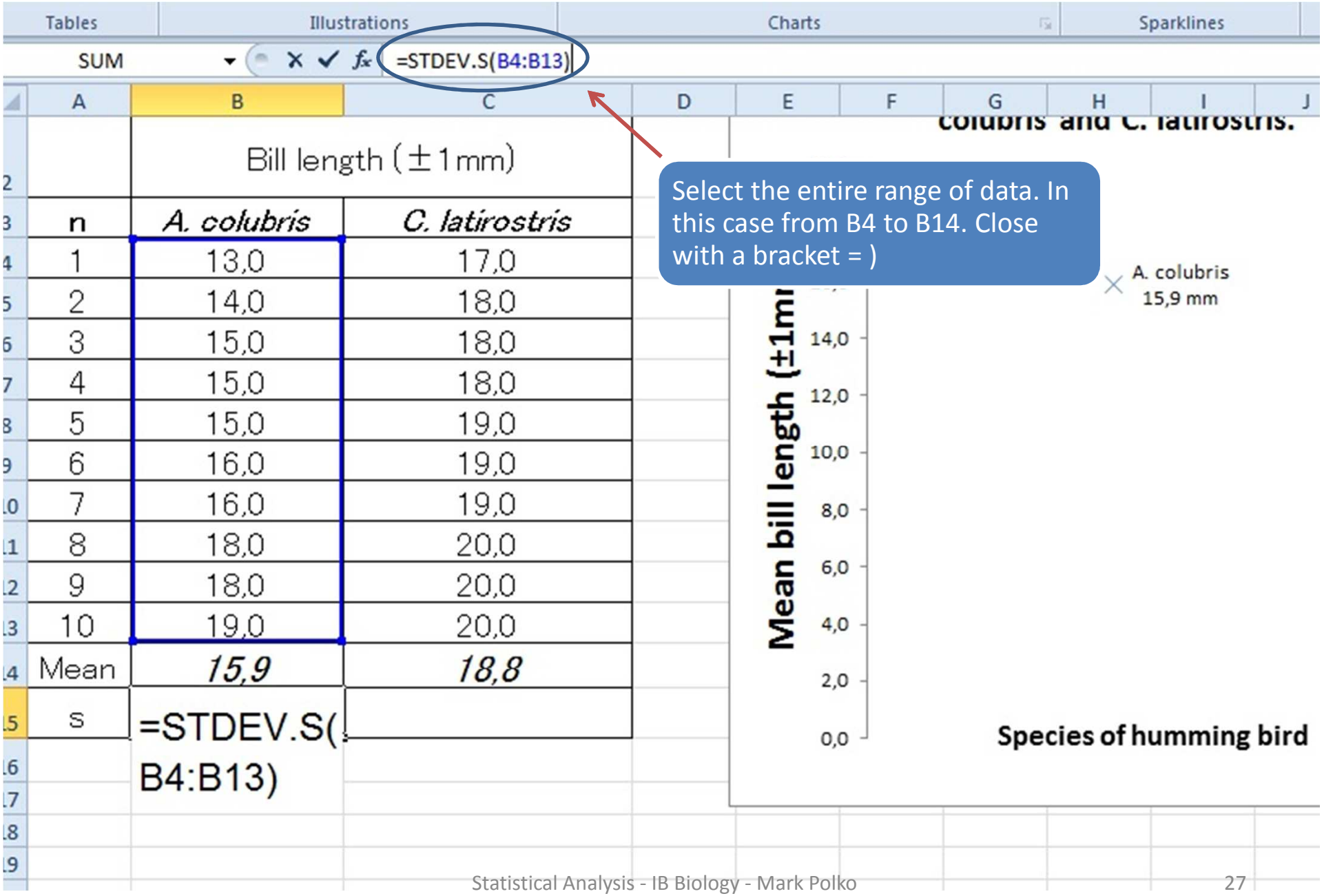
Standard deviation is a measure of the spread of most of the data.

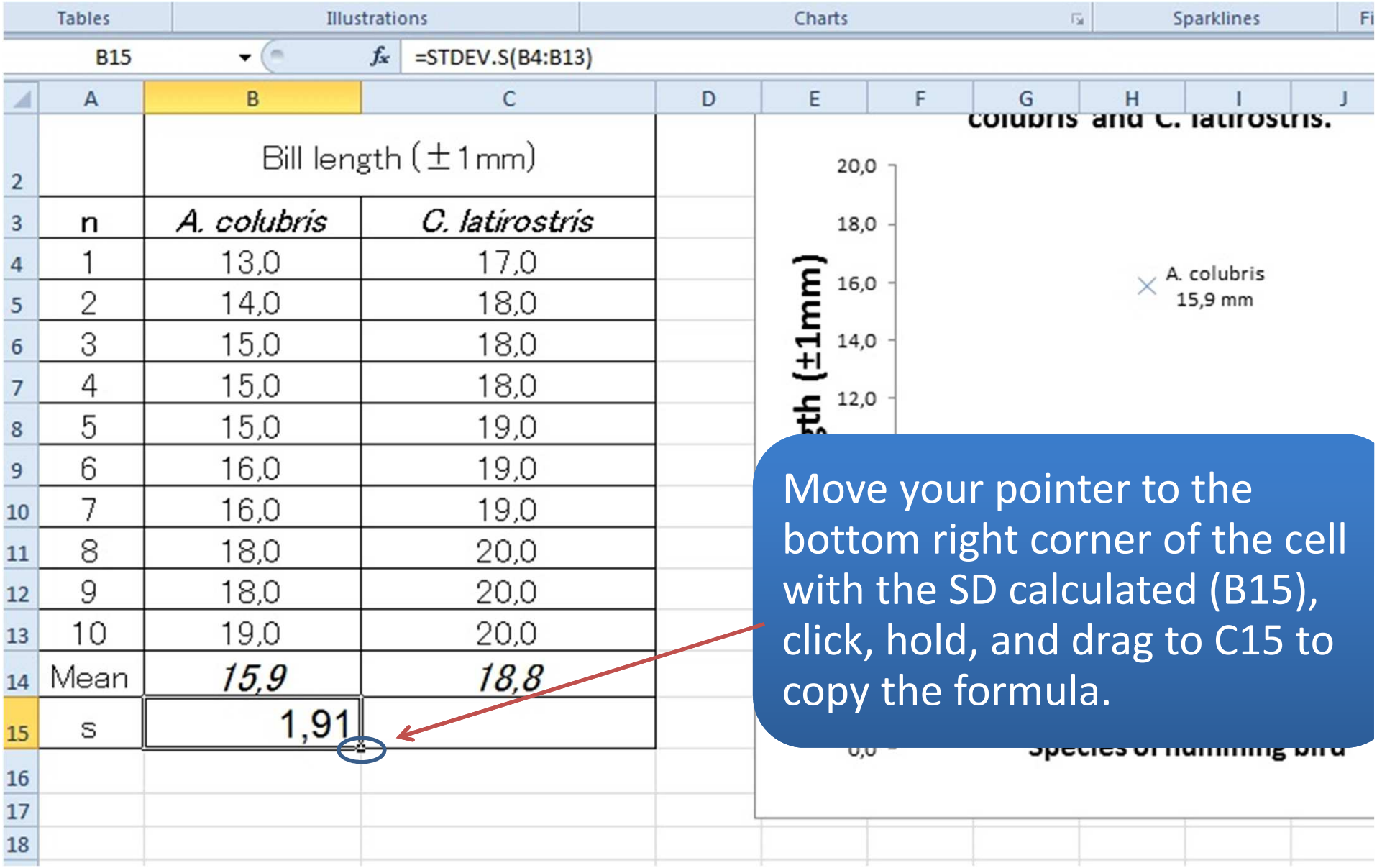
68% of all data fall within ± 1 standard deviation (s) of the mean

This gives us a more reliable view of the 'true' spread of data - it is not affected by one or two anomalous results.




Bill length (±1mm)
n
A. colubris
C. latirostris
1 13,0 17,0
2 14,0 18,0
3 15,0 18,0
4 15,0 18,0
5 15,0 19,0
6 16,0 19,0
7 16,0 19,0
8 18,0 20,0
9 18,0 20,0
10 19,0 20,0
Mean 15,9 18,8
s =ST
STANDARDIZE
STDEV.P
STDEV.S
STDEVA
STDEVPA
STEYX
STDEV
STDEVP
Estimates standard deviation based on a sample (ignores logical values and text in the sample)
Make sure you select STDEV.S
Mean bill length (±1mm)
20,0
18,0
16,0
14,0
12,0
10,0
8,0
6,0
4,0
2,0
0,0
C. latirostris
18,8 mm
A. colubris
15,9 mm
Species of humming bird
Sheet
et3


Tables
Illustrations
Charts
Sparklines
SUM
=STDEV.S(B4:B13)
Bill length (±1mm)
n
A. colubris
C. latirostris
1 13,0 17,0
2 14,0 18,0
3 15,0 18,0
4 15,0 18,0
5 15,0 19,0
6 16,0 19,0
7 16,0 19,0
8 18,0 20,0
9 18,0 20,0
10 19,0 20,0
Mean 15,9 18,8
s =STDEV.S(B4:B13)
Select the entire range of data. In this case from B4 to B14. Close with a bracket =)
A. colubris
15,9 mm
Mean bill length (±1mm)
14,0
12,0
10,0
8,0
6,0
4,0
2,0
0,0
Species of humming bird


Tables
Illustrations
Charts
Sparklines
B15
=STDEV.S(B4:B13)
Bill length (±1mm)
n
A. colubris
C. latirostris
1 13,0 17,0
2 14,0 18,0
3 15,0 18,0
4 15,0 18,0
5 15,0 19,0
6 16,0 19,0
7 16,0 19,0
8 18,0 20,0
9 18,0 20,0
10 19,0 20,0
Mean 15,9 18,8
s 1,91
20,0
18,0
16,0
14,0
12,0
A. colubris
15,9 mm
Move your pointer to the bottom right corner of the cell with the SD calculated (B15), click, hold, and drag to C15 to copy the formula.

Standard deviation is a measure of the **spread of most of the data.**

Table 1: Raw measurements of bill length in *A. colubris* and *C. latirostris*.

	Bill length (±0.1mm)	
n	*A. colubris*	*C. latirostris*
1	13.0	17.0
2	14.0	18.0
3	15.0	18.0
4	15.0	18.0
5	15.0	19.0
6	16.0	19.0
7	16.0	19.0
8	18.0	20.0
9	18.0	20.0
10	19.0	20.0
Mean	*15.9*	*18.8*
s	1.91	1.03

=STDEV.P (highlight RAW data).

Which of the two sets of data has:

a. The longest mean bill length?

a. The greatest variability in the data?

Standard deviation can have one more decimal place.

Standard deviation is a measure of the **spread of most of the data.**

Table 1: Raw measurements of bill length in *A. colubris* and *C. latirostris*.

	Bill length (±0.1mm)	
n	*A. colubris*	*C. latirostris*
1	13.0	17.0
2	14.0	18.0
3	15.0	18.0
4	15.0	18.0
5	15.0	19.0
6	16.0	19.0
7	16.0	19.0
8	18.0	20.0
9	18.0	20.0
10	19.0	20.0
Mean	*15.9*	*18.8*
s	1.91	1.03

=STDEV (highlight RAW data).

Which of the two sets of data has:

a. The longest mean bill length?

C. latirostris

a. The greatest variability in the data?

A. colubris

Standard deviation can have one more decimal place.