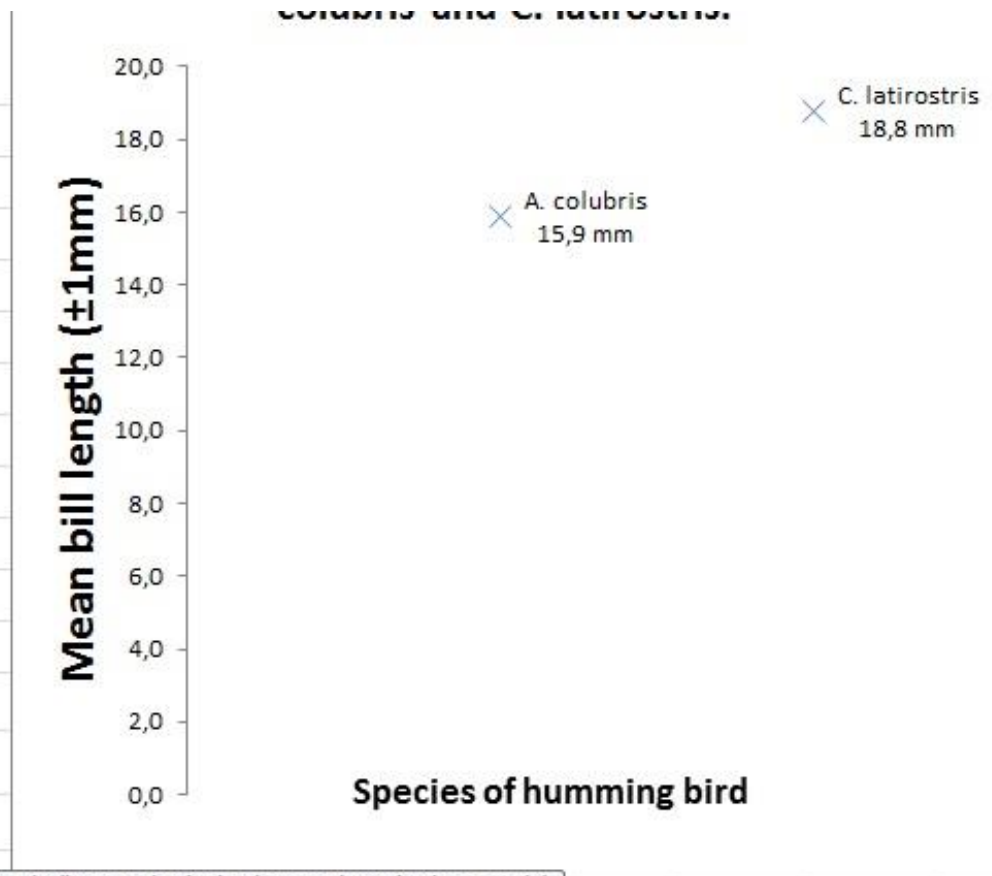


Definition: The standard deviation summarises the spread of data around the mean

- The standard deviation measures how widely spread the values 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.

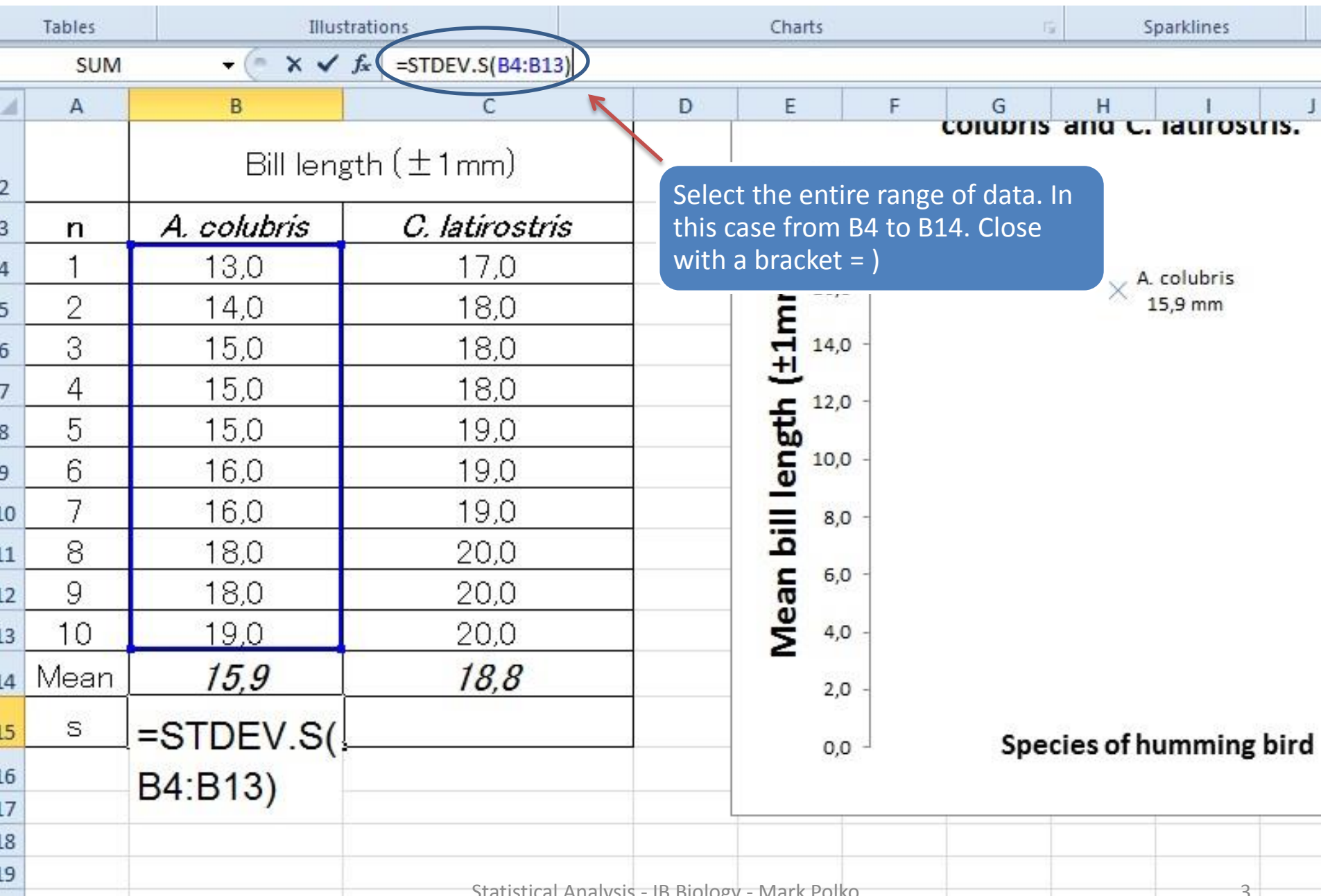
Write in the column of *A. colubris*, in the row names 's' (Standard Deviation) -> = STDEV.S

Bill length (± 1 mm)		
n	<i>A. colubris</i>	<i>C. latirostris</i>
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 Estimates standard deviation based on a sample (ignores logical values and text in the sample)
 STDEVA
 STDEVPA
 STEYX
 STDEV
 STDEVP

Make sure you select STDEV.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

B15

fx =STDEV.S(B4:B13)

	A	B	C	D	E	F	G	H	I	J
		Bill length (± 1 mm)					colubris and <i>C. latirostris</i> .			
2										
3	n	<i>A. colubris</i>	<i>C. latirostris</i>							
4	1	13,0	17,0							
5	2	14,0	18,0							
6	3	15,0	18,0							
7	4	15,0	18,0							
8	5	15,0	19,0							
9	6	16,0	19,0							
10	7	16,0	19,0							
11	8	18,0	20,0							
12	9	18,0	20,0							
13	10	19,0	20,0							
14	Mean	15,9	18,8							
15	s	1,91								
16										
17										
18										

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 (± 0.1 mm)	
n	<i>A. colubris</i>	<i>C. latirostris</i>
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	<i>15.9</i>	<i>18.8</i>
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.

1.1.4

Explain how the standard deviation is useful for comparing the means and the spread of data between two or more samples.

3

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

n	Bill length (± 0.1 mm)	
	<i>A. colubris</i>	<i>C. latirostris</i>
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	<i>15.9</i>	<i>18.8</i>
s	1.91	1.03

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.