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GRAPH MULTIPLE ANIMALS BY AGE

ZIMS has two graphing options to compare animal weights. The Weight Comparison Report (a global resource) allows you to compare a graph of a single animal's weight with the weights of other animals in the global database of the same age and sex. The Animal Graphing Tool (a local tool) allows you to view multiple animal weights with the x axis display by the date the weight was recorded. Species360 would like to thank Sjoukje Vaartjes, ZAA Training Convenor and Species360 Adjunct Trainer for sharing her method for graphing multiple local animals by age using the data in ZIMS.

Contact support@Species360.org

The Steps

Step 1: Prepare Your Data

Step 2: Use the Animal Graphing Tool

Step 3: Configure the Data in Excel

Step 4: Create a Graph

The Scenario:
You had three red pandas born at your institution over a period of 17 years. You want to produce a graph that will compare their growth rates over their first year.

Step 1: Prepare your data

1. The Unit of Measure must be the same for all animals and throughout the selected Date Range.
2. Your date display preferences must be in numbers and not text. For example, 07/15/2006 and not 15 Jul 2006. ZIMS will not export text as numbers and Excel will not recognize the text. You can change this display in My Preferences > Language, Date/Time and Separator Formats.
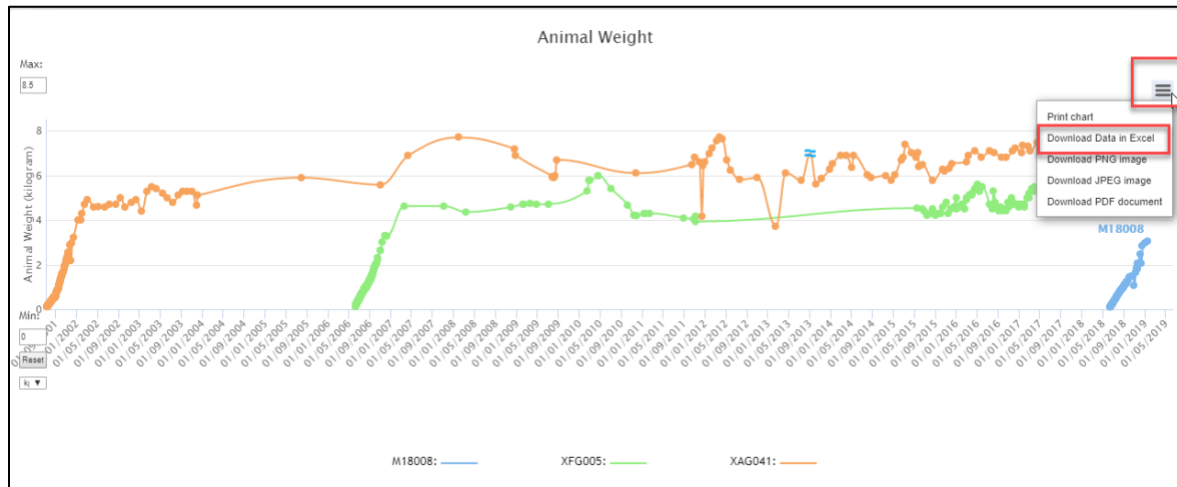
Step 2: Use the Animal Graphing Tool

The Animal Graphing Tool is found under Start > Tools > Animal Graphing Tool.
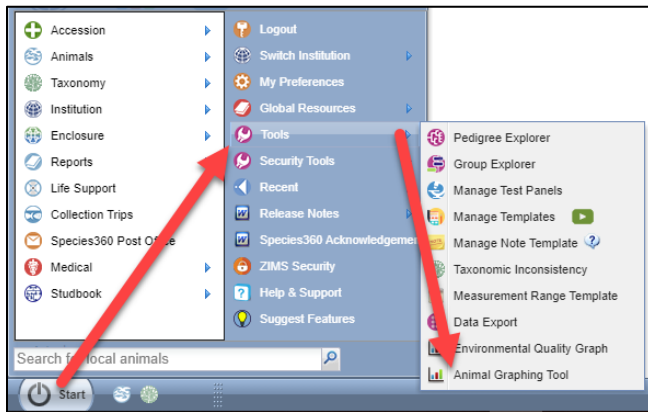
Enter Date Range, Animal IDs and select Animal Weight. In our scenario, the date range would start with the Birth Date for the first red panda (July 9, 2001) and end with the date 1 year after the Birth Date of the last red panda (June 12, 2019).
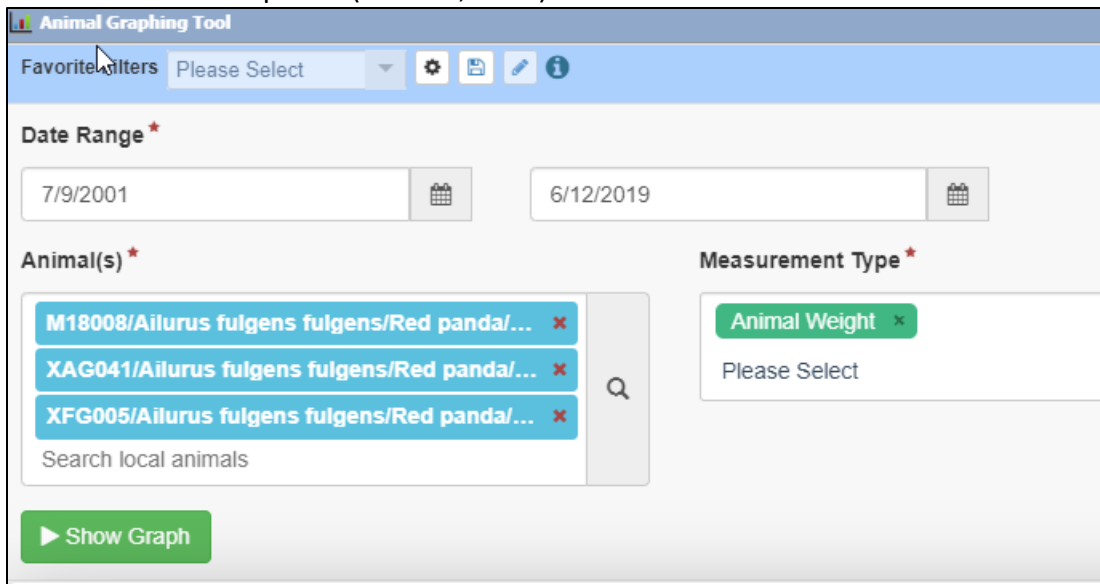
Click on Show Graph.

At first glance it looks like they grew at about the same rate, but we can do some data manipulating to get a graph that compares their weights by age for the first year. Select the hamburger icon and choose Download Data in Excel.

Back to The Steps

Step 3: Configure the data in Excel

When ZIMS downloads the data from Excel the rows are in order of newest to oldest. To create a graph of oldest to newest you will need to resort the rows by oldest to newest. The easiest time to do that is when you create separate sheets for each animal. Instructions to do this are included at that step.

Enable Editing and remove the columns for Time, Measurement Type, UOM and Notes

A	B	C	D	E	F	G
Date	Time	Entity	Measurement Type	UOM	Value	Note
06/13/2002	00:00	25733048/XAG04	Animal Weight	gram	4600	
05/07/2002	00:00	25733048/XAG04	Animal Weight	gram	4600	
04/12/2002	00:00	25733048/XAG04	Animal Weight	gram	4600	
03/03/2002	00:00	25733048/XAG04	Animal Weight	gram	4900	
02/13/2002	00:00	25733048/XAG04	Animal Weight	gram	4700	
01/30/2002	00:00	25733048/XAG04	Animal Weight	gram	4300	
01/22/2002	00:00	25733048/XAG04	Animal Weight	gram	4000	
01/10/2002	00:00	25733048/XAG04	Animal Weight	gram	4000	
12/11/2001	00:00	25733048/XAG04	Animal Weight	gram	3200	
12/03/2001	00:00	25733048/XAG04	Animal Weight	gram	2980	
11/28/2001	00:00	25733048/XAG04	Animal Weight	gram	2200	
11/24/2001	00:00	25733048/XAG04	Animal Weight	gram	2900.0	
11/12/2001	00:00	25733048/XAG04	Animal Weight	gram	2570.0	
11/06/2001	00:00	25733048/XAG04	Animal Weight	gram	2350.0	
11/04/2001	00:00	25733048/XAG04	Animal Weight	gram	2280.0	
11/02/2001	00:00	25733048/XAG04	Animal Weight	gram	2220.0	
10/31/2001	00:00	25733048/XAG04	Animal Weight	gram	2100.0	
10/29/2001	00:00	25733048/XAG04	Animal Weight	gram	2110.0	
10/27/2001	00:00	25733048/XAG04	Animal Weight	gram	2030.0	
10/25/2001	00:00	25733048/XAG04	Animal Weight	gram	2000.0	

A	B	C
Date	Entity	Value
06/13/2002	25733048/XAG041/XAG041/Ailur	4600
05/07/2002	25733048/XAG041/XAG041/Ailur	4600
04/12/2002	25733048/XAG041/XAG041/Ailur	4600
03/03/2002	25733048/XAG041/XAG041/Ailur	4900
02/13/2002	25733048/XAG041/XAG041/Ailur	4700
01/30/2002	25733048/XAG041/XAG041/Ailur	4300
01/22/2002	25733048/XAG041/XAG041/Ailur	4000
01/10/2002	25733048/XAG041/XAG041/Ailur	4000
12/11/2001	25733048/XAG041/XAG041/Ailur	3200
12/03/2001	25733048/XAG041/XAG041/Ailur	2980
11/28/2001	25733048/XAG041/XAG041/Ailur	2200
11/24/2001	25733048/XAG041/XAG041/Ailur	2900.0
11/12/2001	25733048/XAG041/XAG041/Ailur	2570.0
11/06/2001	25733048/XAG041/XAG041/Ailur	2350.0

Remove any rows for weights recorded on dates that are not desired. For example, our first red panda was born July 9, 2001. We want to compare weights for the first year. We removed any rows for dates after July 9, 2002 for that animal. If more than one weight was recorded on the same day, remove one of them. There can be only one weight per day.

Alternate flow You will eventually need to make each record have the same number of rows. You can do that now to save on the number of times you need to copy something, or follow the recommended flow as detailed in this document.

> Replace Entity Details with Local ID.
> This can quickly be done by copy
> and paste.

Insert a column to the left of Date and another one after Date. Column A will be Birth Date and column C will be Age.

Record the Birth Date for each animal in column A. This is easily done by copy paste several at a time if the list is long.

In the Age column (C), enter the following formula in the first row:
  =DATEDIF(A2,B2,"y") & "y" & DATEDIF(A2,B2,"ym") & "m" & DATEDIF(A2,B2,"md") & "d"
This will convert the date that the weight was taken against the date of birth and return the age of the animal as of that date.

	A	B	C	D	E
	Birth Date	**Date**	**Age**	**Entity**	**Value**
	7/9/2001	06/13/2002	0y11m4d	XAG041	4600
	7/9/2001	05/07/2002		XAG041	4600
	7/9/2001	04/12/2002		XAG041	4600
	7/9/2001	03/03/2002		XAG041	4900
	7/9/2001	02/13/2002		XAG041	4700
	7/9/2001	01/30/2002		XAG041	4300
	7/9/2001	01/22/2002		XAG041	4000
	7/9/2001	01/10/2002		XAG041	4000
	7/9/2001	12/11/2001		XAG041	3200
	7/9/2001	12/03/2001		XAG041	2980
	7/9/2001	11/28/2001		XAG041	3300

There are two ways to convert the remainder of the Age column. Way 1 is to left click on the cell with the age, grab the lower right hand corner and drag down row by row. The correct age will be calculated for each row.

	A	B	C	D	E
1	**Birth Date**	**Date**	**Age**	**Entity**	**Value**
2	7/9/2001	06/13/2002	0y11m4d	XAG041	4600
3	7/9/2001	05/07/2002	0y9m28d	XAG041	4600
4	7/9/2001	04/12/2002	0y9m3d	XAG041	4600
5	7/9/2001	03/03/2002	0y7m22d	XAG041	4900
6	7/9/2001	02/13/2002	0y7m4d	XAG041	4700
7	7/9/2001	01/30/2002		XAG041	4300
8	7/9/2001	01/22/2002		XAG041	4000
9	7/9/2001	01/10/2002		XAG041	4000
10	7/9/2001	12/11/2001		XAG041	3200
11	7/9/2001	12/03/2001		XAG041	2980

Way 2 is to left click on the cell with the age, hold the shift key and scroll to the bottom of the column highlighting the entire column. Select Fill (upper right) and Down.
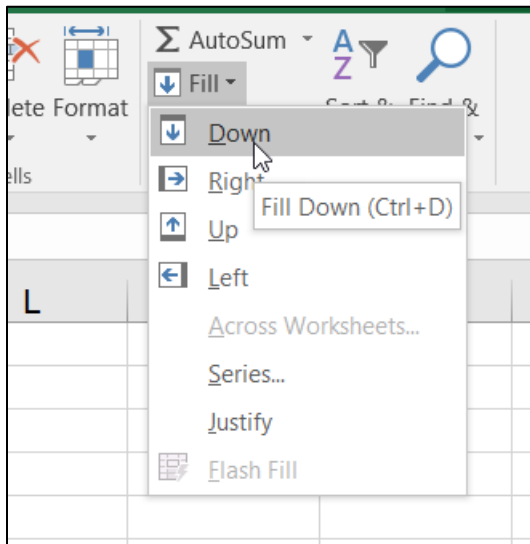
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The entire age column will be populated with the correct ages.

2	6/6/2006	06/21/2006	0y0m15d	XFG005	334.7
3	6/6/2006	06/20/2006	0y0m14d	XFG005	315.7
4	6/6/2006	06/19/2006	0y0m13d	XFG005	317.0
5	6/6/2006	06/18/2006	0y0m12d	XFG005	302.5
6	6/6/2006	06/17/2006	0y0m11d	XFG005	280.5
7	6/6/2006	06/16/2006	0y0m10d	XFG005	262.7
8	6/6/2006	06/15/2006	0y0m9d	XFG005	238.7
9	6/6/2006	06/14/2006	0y0m8d	XFG005	232.5
0	6/6/2006	06/13/2006	0y0m7d	XFG005	222.6
1	6/6/2006	06/12/2006	0y0m6d	XFG005	203.8
2	6/6/2006	06/11/2006	0y0m5d	XFG005	197.2
3	6/6/2006	06/10/2006	0y0m4d	XFG005	172.5
4	6/6/2006	06/09/2006	0y0m3d	XFG005	157.7
5	6/6/2006	06/08/2006	0y0m2d	XFG005	140.6
6	6/6/2006	06/07/2006	0y0m1d	XFG005	130.7
7					
8		As of 11/19/2019			
9		© 2019 Species360			
0					

Copy each animal into their own worksheet so that they are separated. You can name each sheet by the identifier that you prefer. It is recommended that you keep the master worksheet with all the animals in case you need to redo one of the single animal worksheets.

0	10/27/2001	0y3m18d	XAG041	2030.0
1	10/25/2001	0y3m16d	XAG041	2000.0
2	10/23/2001	0y3m14d	XAG041	1960.0
3	10/21/2001	0y3m12d	XAG041	1910.0
4	10/19/2001	0y3m10d	XAG041	1850.0
5	10/18/2001	0y3m9d	XAG041	1800.0
6	10/15/2001	0y3m6d	XAG041	1700.0

All | Daisy | Marie | **Cyril** ...

Add a row for column headers if needed. Rename the column headers for the individual animal sheets as needed. What you record for the header in the weight column is what will display in the graph. Delete the Entity column as it is no longer needed. DO NOT delete the Birth Date or the Date column, even though they are not needed for the graph, as the Age column is calculated from them.
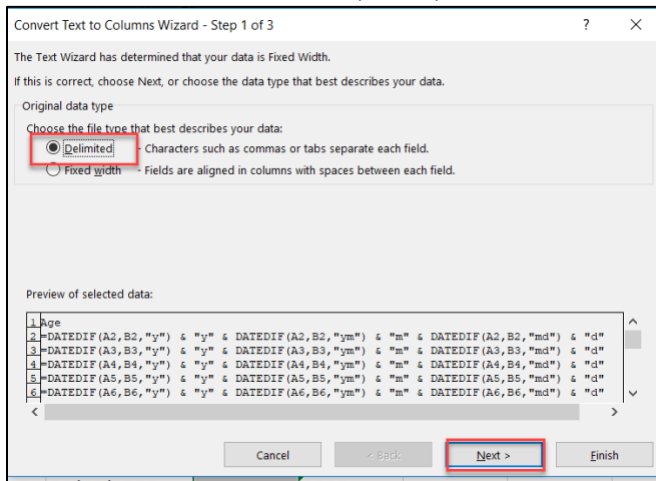
	A	B	C	D	E
	Birth Date	**Date**	**Age**	**Daisy Weight**	
	6/6/2006	03/17/2007	0y9m11d	4628	
	6/6/2006	12/07/2006	0y6m1d	3280	
	6/6/2006	11/29/2006	0y5m23d	3300	
	6/6/2006	11/11/2006	0y5m5d	3000	
	6/6/2006	10/31/2006	0y4m25d	2630	
	6/6/2006	10/16/2006	0y4m10d	2300	
	6/6/2006	10/14/2006	0y4m8d	2240	
	6/6/2006	10/09/2006	0y4m3d	2060	
0	6/6/2006	10/07/2006	0y4m1d	2040	
1	6/6/2006	10/04/2006	0y3m28d	2020	
2	6/6/2006	10/01/2006	0y3m25d	1930	
3	6/6/2006	09/29/2006	0y3m23d	1890	
4	6/6/2006	09/27/2006	0y3m21d	1870	
5	6/6/2006	09/25/2006	0y3m19d	1800	
6	6/6/2006	09/23/2006	0y3m17d	1760	
7	6/6/2006	09/19/2006	0y3m13d	1660	
	6/6/2006	09/17/2006	0y3m11d	1630	

This is a good time to reorder your rows to be oldest to newest if you haven't already. Select the Age column, select Data from the top menu bar and select Text to Columns.
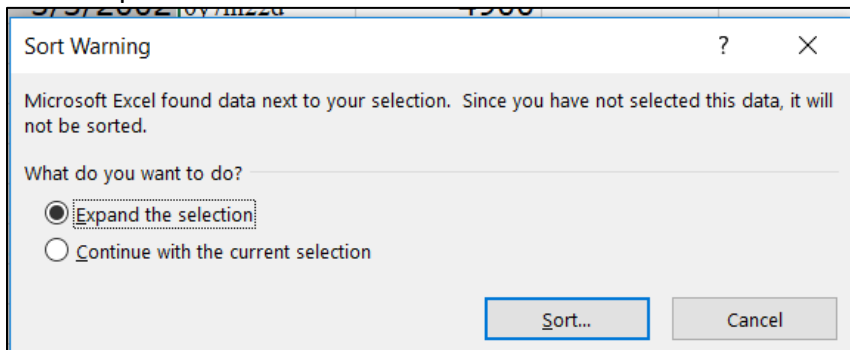
Choose Delimited and Next, Next, Finish.

Do this for the Date and Weight columns as well and repeat for all animals. This will allow you to sort oldest to newest.

To reorder, select the Date column, select the Data tab and select Sort.
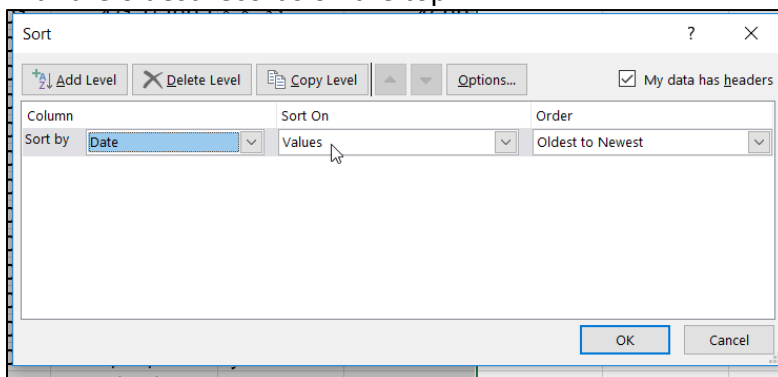
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Select Expand the selection and then Sort.

Select to sort by date, order Oldest to Newest and select OK. Your rows should now be displayed with the oldest records on the top.

To create a graph, the number of rows you want to graph for each animal needs to be the same, so you may need to do a bit of deleting to get the number of rows to match. Alternately, you can add a filter to the column headers and select the dates you want.

Alternate Flow

You can do this deleting before you record the Birth Date, change Entity to Local ID or perform the Age calculation to reduce the number of times you have to copy something, but it is recommended to work with the single animal worksheets to do this.

Back to standard flow

Daisy had 109 weights, Marie had 70 weights and Cyril had 116 weights. To make the number of rows match we need to delete 39 rows from Daisy and 46 rows from Cyril. Some recommendations for determining what rows to delete are:

- Don't delete any rows with weights that don't appear to be following the progression as they may be an indicator of other issues to consider and you may want that weight displayed.
- If weights were recorded several days in a row and then not until a week later, remove some of the rows for the daily weights.
- If weights remain the same over a period of time, keep the first and last weight and remove the ones in between.
- Otherwise, remove rows at even intervals to maintain the progression.

Copy each animal into a new sheet or copy the other animals into an existing individual sheet. Double check that your number of rows is the same for each animal.

|	A	B	C	D	E	F	G	H	I	J	K	L
	Birth Date	Date	Age	Daisy Weight	Birth Date	Date	Age	Marie Weight	Birth Date	Date	Age	Cyril Weight
	6/6/2006	6/7/2006	0y0m1d	130.7	6/12/2018	6/13/2018	0y0m1d	103	7/9/2001	7/9/2001	0y0m0d	127
	6/6/2006	6/9/2006	0y0m3d	157.7	6/12/2018	6/14/2018	0y0m2d	106	7/9/2001	7/10/2001	0y0m1d	121.5
	6/6/2006	6/11/2006	0y0m5d	197.2	6/12/2018	6/15/2018	0y0m3d	120	7/9/2001	7/11/2001	0y0m2d	120.8
	6/6/2006	6/12/2006	0y0m6d	203.8	6/12/2018	6/16/2018	0y0m4d	133	7/9/2001	7/13/2001	0y0m4d	138
	6/6/2006	6/14/2006	0y0m8d	232.5	6/12/2018	6/17/2018	0y0m5d	147	7/9/2001	7/14/2001	0y0m5d	142.6
	6/6/2006	6/15/2006	0y0m9d	238.7	6/12/2018	6/18/2018	0y0m6d	164	7/9/2001	7/17/2001	0y0m8d	174.4
	6/6/2006	6/17/2006	0y0m11d	280.5	6/12/2018	6/19/2018	0y0m7d	179	7/9/2001	7/18/2001	0y0m9d	189.2
	6/6/2006	6/18/2006	0y0m12d	302.5	6/12/2018	6/20/2018	0y0m8d	197	7/9/2001	7/19/2001	0y0m10d	198
0	6/6/2006	6/20/2006	0y0m14d	315.7	6/12/2018	6/22/2018	0y0m10d	218	7/9/2001	7/21/2001	0y0m12d	223
1	6/6/2006	6/21/2006	0y0m15d	334.7	6/12/2018	6/24/2018	0y0m12d	248	7/9/2001	7/23/2001	0y0m14d	246.5
2	6/6/2006	6/24/2006	0y0m18d	378.7	6/12/2018	6/25/2018	0y0m13d	254	7/9/2001	7/24/2001	0y0m15d	251.3
3	6/6/2006	6/25/2006	0y0m19d	394.5	6/12/2018	6/26/2018	0y0m14d	263	7/9/2001	7/27/2001	0y0m18d	270.9
4	6/6/2006	6/28/2006	0y0m22d	440.1	6/12/2018	6/27/2018	0y0m15d	272	7/9/2001	7/31/2001	0y0m22d	312.9
5	6/6/2006	6/30/2006	0y0m24d	467.5	6/12/2018	6/29/2018	0y0m17d	298	7/9/2001	8/1/2001	0y0m23d	321
	6/6/2006	7/1/2006	0y0m25d	478	6/12/2018	7/3/2018	0y0m21d	342	7/9/2001	8/3/2001	0y0m25d	340.1

Back to The Steps

Step 4: Create a Graph

Select the Age and Weight columns for the first animal, hold the Ctrl key down and select those columns for the other animal(s).

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Birth Date	**Date**	**Age**	Daisy Weight	**Birth Date**	**Date**	**Age**	Marie Weight	**Birth Date**	**Date**	**Age**	Cyril Weight	
	6/6/2006	6/7/2006 0y0m1d		130.7	6/12/2018	6/13/2018 0y0m1d		103	7/9/2001	7/9/2001 0y0m0d		127	
	6/6/2006	6/9/2006 0y0m3d		157.7	6/12/2018	6/14/2018 0y0m2d		106	7/9/2001	7/10/2001 0y0m1d		121.5	
	6/6/2006	6/11/2006 0y0m5d		197.2	6/12/2018	6/15/2018 0y0m3d		120	7/9/2001	7/11/2001 0y0m2d		120.8	
	6/6/2006	6/12/2006 0y0m6d		203.8	6/12/2018	6/16/2018 0y0m4d		133	7/9/2001	7/13/2001 0y0m4d		138	
	6/6/2006	6/14/2006 0y0m8d		232.5	6/12/2018	6/17/2018 0y0m5d		147	7/9/2001	7/14/2001 0y0m5d		142.6	
	6/6/2006	6/15/2006 0y0m9d		238.7	6/12/2018	6/18/2018 0y0m6d		164	7/9/2001	7/17/2001 0y0m8d		174.4	
	6/6/2006	6/17/2006 0y0m11d		280.5	6/12/2018	6/19/2018 0y0m7d		179	7/9/2001	7/18/2001 0y0m9d		189.2	
	6/6/2006	6/18/2006 0y0m12d		302.5	6/12/2018	6/20/2018 0y0m8d		197	7/9/2001	7/19/2001 0y0m10d		198	

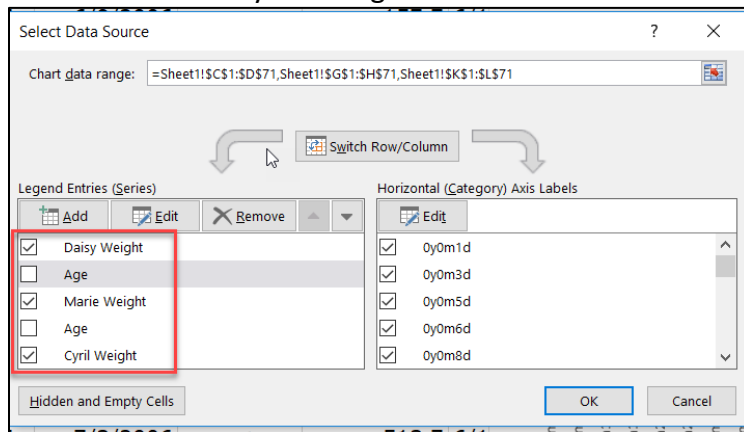Select a line chart from the Insert tab.
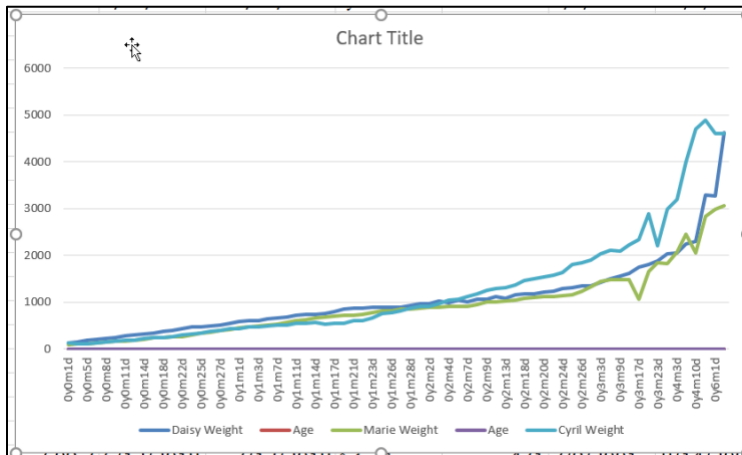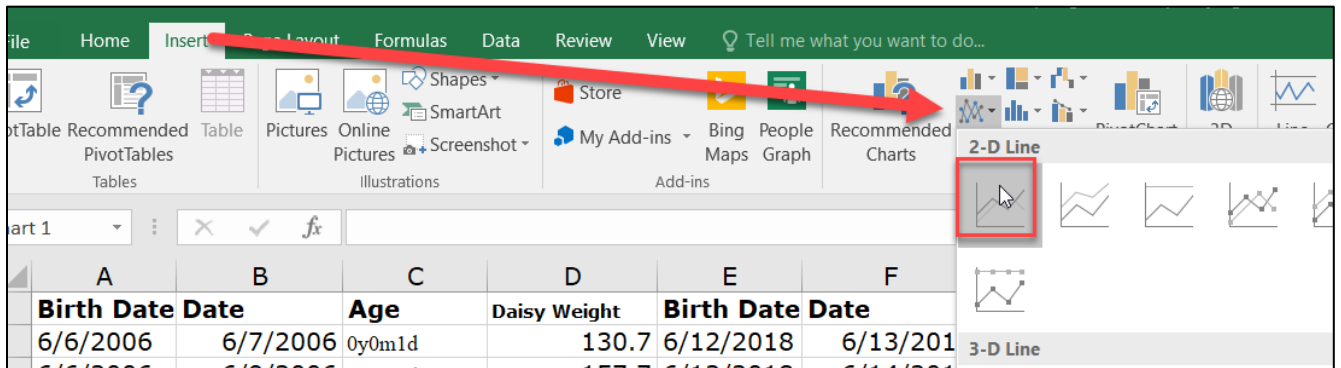
To edit the graph, click on the chart and choose Design > Select Data from the Chart Tools menu.

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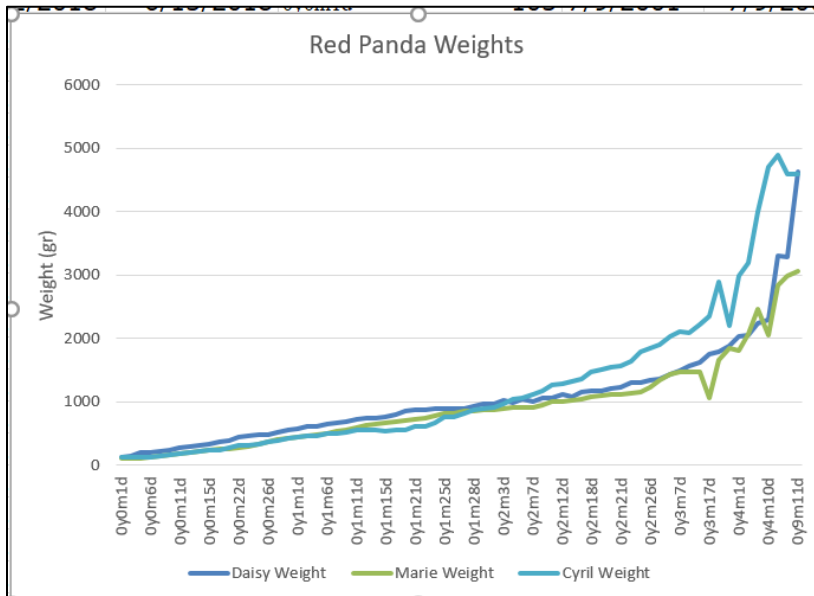
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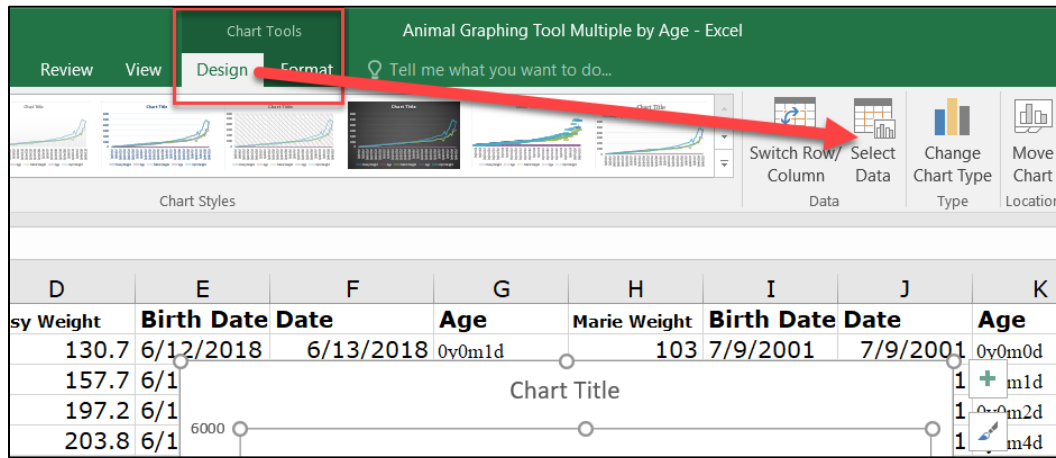
Make sure that only the weight series are checked. Select OK.

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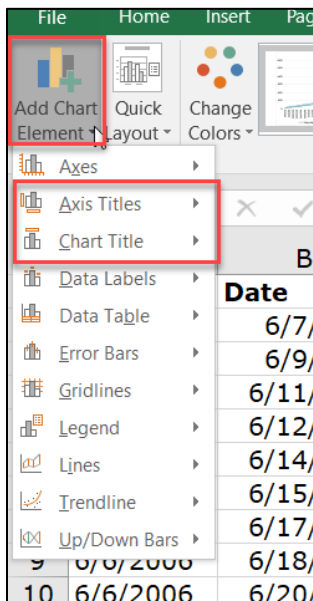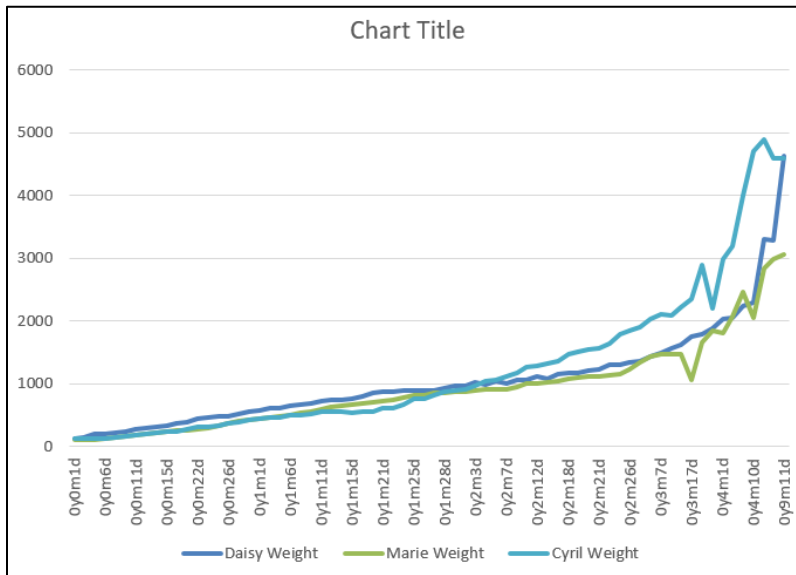
You can add the Chart Title and the Y axis Unit of Measure by selecting Add Chart Element.

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And you are done!!!! The red pandas gained almost the identical weight at the beginning. You can review their records to determine what may have contributed to the differing weight gain towards the end of their first year.

Back to The Steps

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