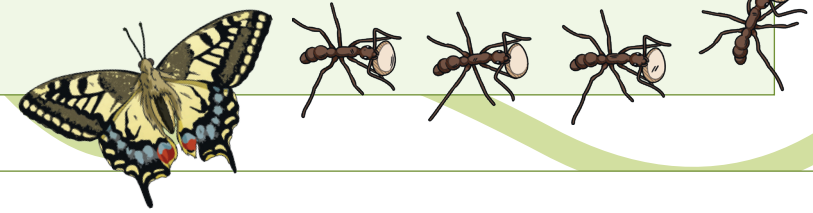
Soil Biodiversity: **Linear Graphs Activity**

Two researchers were investigating how many invertebrate species were living in their backyard soil. Researcher One lives in Antsville and Researcher Two lives in Bugstown. Both researchers chose to complete this biodiversity count in a two metre by two metre soil contained area.

They spent two weeks collecting data.



The following data was collected:

Antsville

Day	Number of Invertebrate Species
1	18
2	26
3	34
4	42
5	50
6	58
7	66
8	74
9	82
10	90
11	98
12	106
13	114
14	122

Bugstown

Day	Number of Invertebrate Species
1	30
2	36
3	42
4	48
5	54
6	60
7	66
8	72
9	78
10	84
11	90
12	96
13	102
14	108

Question One

Plot the data points of Antsville on the set of axes below and draw a line through the points. Label this line 'Antsville'.

Question Two

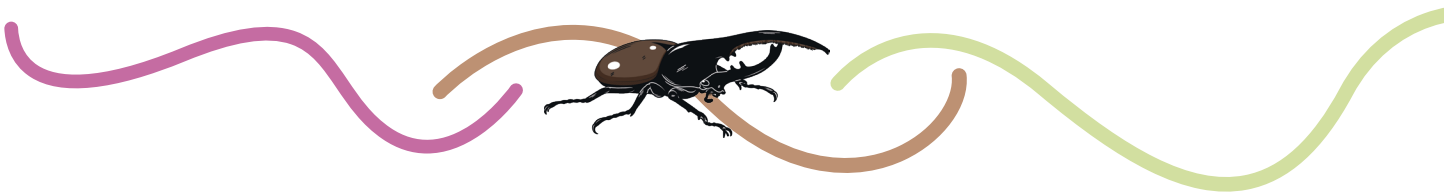
Plot the data points of Bugstown on the same set of axes and draw a line through the points. Label this line 'Bugstown'.

Question Three

Describe the trends that you can see in the graphs.

Question Four

Derive a rule for the Antsville data where D represents the day and N represents the number of invertebrate species.



Question Five

Derive a rule for the Bugstown data where D represents the day and N represents the number of invertebrate species.

Question Six

Determine a solution (D, N) that is true for both of the Antsville and Bugstown equations. Show that it satisfies both equations.

Question Seven

Deduce from the graph, the day where these two lines intersect. Explain what this means in terms of the data.

Question Eight

Calculate the number of invertebrate species in the Anstville soil on Day 20 using your rule.

Question Nine

Using your rule, determine the day that Bugstown will have 114 invertebrate species living in the soil.