

Life Expectancy



Aim

- I can record complex data using graphs and models.
- I can identify the relationship between variables.

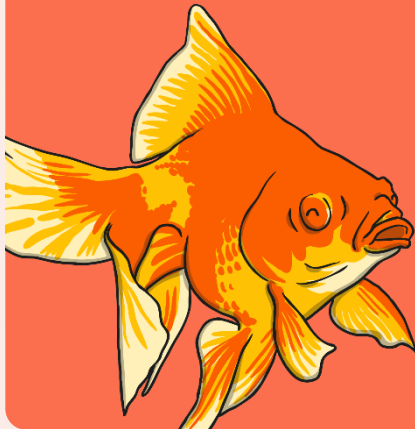
Success Criteria

- I can create bar and line graphs to record data.
- I can suggest the best way to record complex data.
- I can compare two datasets.
- I can analyse findings.
- I can demonstrate I understand the different relationships between variables.

Life Expectancy

What is life expectancy?

Definition: Life expectancy is the length of time, on average, that a particular animal is expected to live.



Is the following statement correct?

‘Animals with longer life expectancies have longer gestation periods.’









How can we find out?

What data do we need? Why?



Life Expectancy of Animals

Do any of these life expectancies surprise you?









Animal		Life Expectancy
human		68 years
lizard		1 year
salmon		3 years
snake		10 years
parrot		70 years
frog		5 years
whale		70 years
goldfish		15 years

Gestation Periods

A **Gestation period** is the amount of time that an animal carries her offspring, or babies, inside her body before giving birth.

The length of **gestation** is different for each type of animal.

Larger animals usually have longer gestations than smaller animals.

Animal	Gestation Period
human 	9 months
lizard 	3 – 4 months
salmon 	40 days
snake 	2 – 3 months
parrot 	3 – 4 weeks
frog 	1 week
whale 	12 – 16 months
goldfish 	2 – 7 days

Graphing Two Datasets

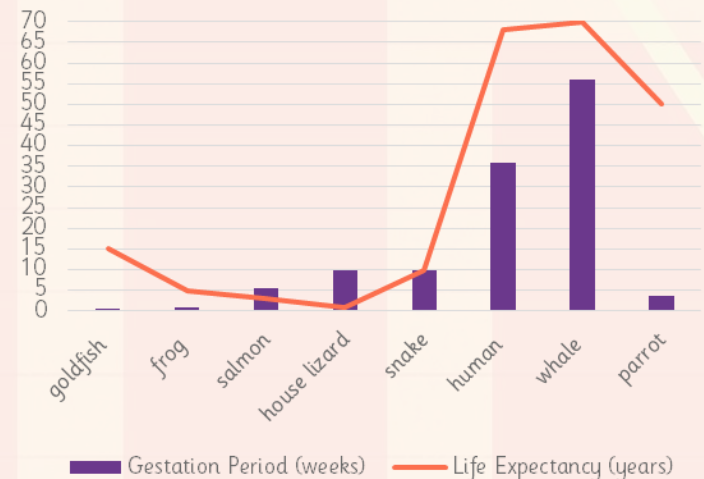
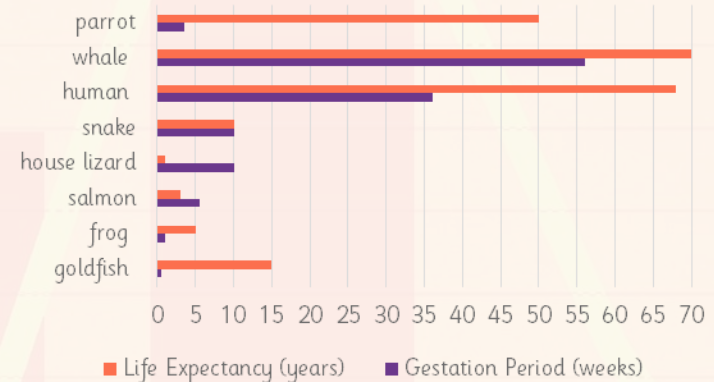
There are many different ways of graphing two datasets to compare:

Considerations when choosing a graph:

- Is the data clearly shown?
- Can the data be understood?
- Can patterns be seen?
- Does it help to answer the question?

Other considerations:

- Is the scale correct?
- Can all the data be seen?
- Does it show the information from both datasets well or just one?



Graphing Two Datasets

Task One

You are going to draw a graph which has two data sets on it – gestation periods and life expectancy. Use the data provided in slides 4 and 5.

This will help you to find out if the statement posed earlier is true:

‘Animals with longer life expectancies have longer gestation periods.’

Once you have drawn your graph you should be able to see if there is a relationship between the length of gestation period and how long an animal is expected to live.

Look at the examples of graphs on the next 4 slides and decide which graph will help you to answer the statement. You only need to draw 1.

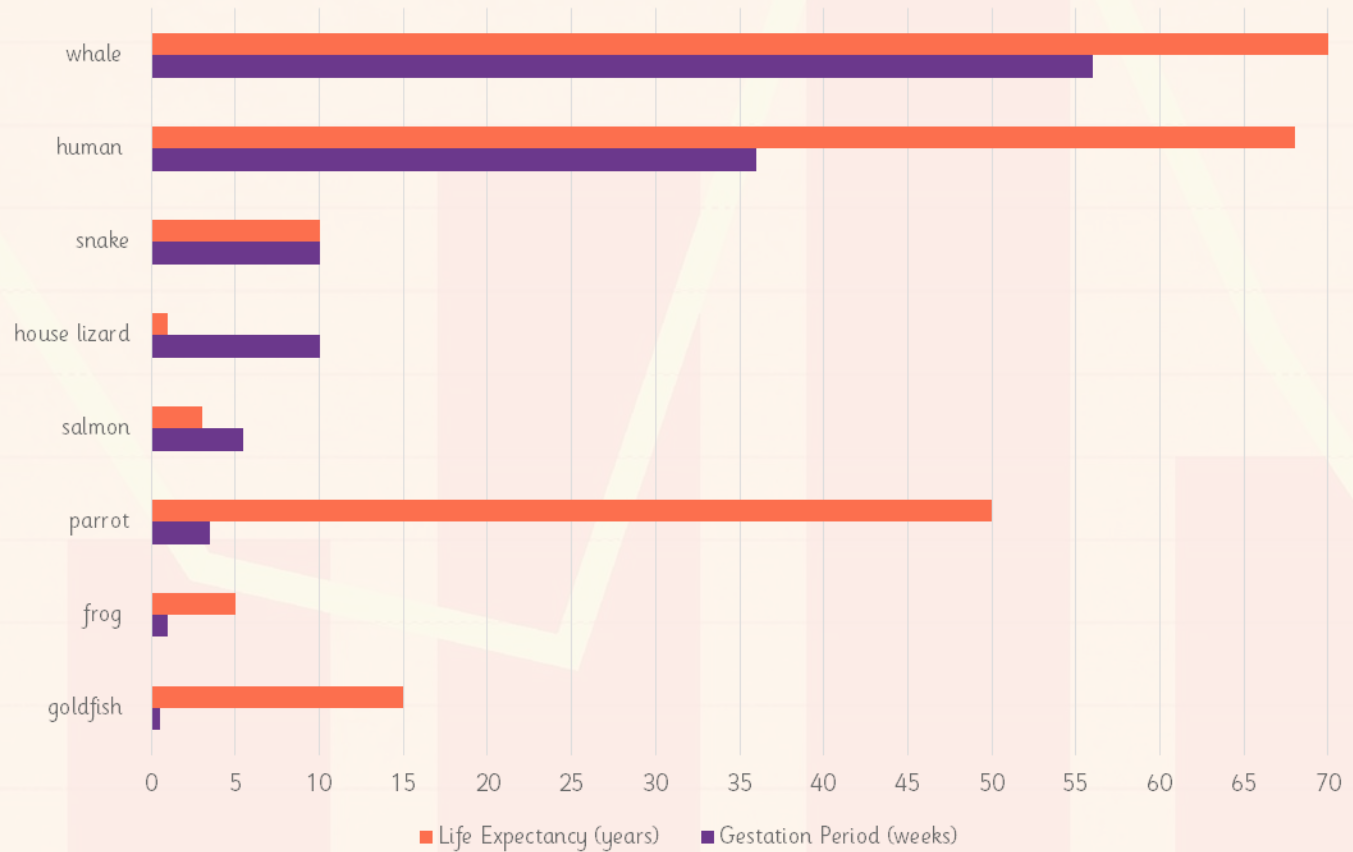
Vertical Bar Graph

Do animals with longer life expectancy have longer gestation periods?



Horizontal Bar Graph

Do animals with longer life expectancy have longer gestation periods?



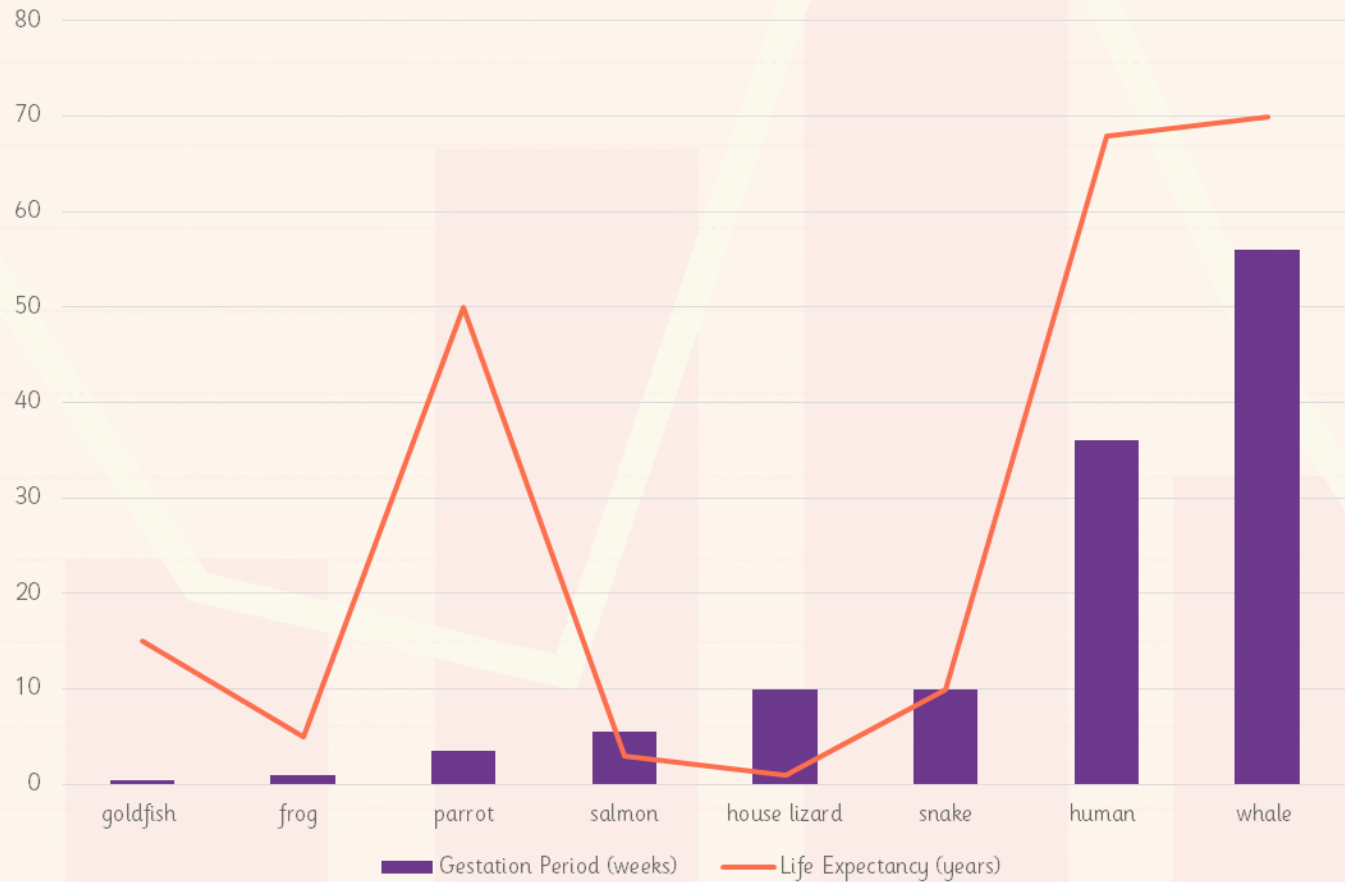
Line Graph

Do animals with longer life expectancy have longer gestation periods?



Mixed Bar and Line Graph

Do animals with longer life expectancy have longer gestation periods?



Presenting Data

Now decide which graph style you are going to draw – vertical bar chart, horizontal bar chart, line graph or mixed bar and line graph.

Use the squared paper provided. Remember to:

- Choose your scale carefully
- Use a key – drawing your bars/lines in those colours
 - Use a ruler



Analysing Data

What does the data tell us?

When you compare two different sets of data, you are attempting to see if there is a relationship between the two different variables you are analysing.

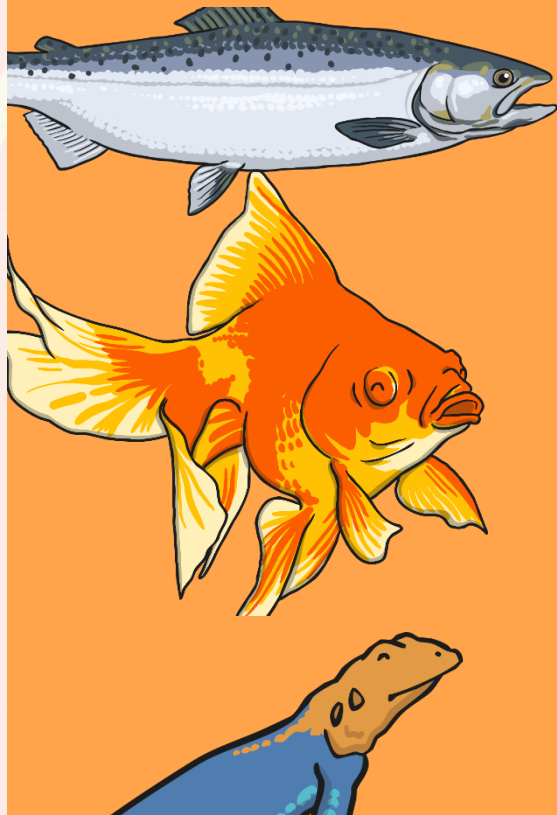
What types of relationship are there between variables?

1. **Association:** There is a relationship between the two variables as one affects the other but in a general way (not in every example).
2. **Correlation:** There is a relationship between the two variables but one does not necessarily cause the other.
 - Positive correlation** – one variable goes up and so does the other.
 - Negative correlation** – one variable goes up and the other one goes down.
3. **Causal:** One variable causes the other to change and this can be observed in all cases.

Reporting Findings

Task Two:

Now you have drawn your graph – look carefully and see if you can find a relationship between animals gestation periods and life expectancy. Complete the Reporting Findings sheet.



Reporting Findings

1. What type of graph(s) did you create? _____

2. Which type of graph best presented your data? _____

3. What type of relationship do the two variables have? Tick only one:

No relationship

Association

Positive correlation

Negative correlation

Casual

4. Give examples from your data that proves it has the relationship you indicated in Q.3.

5. 'Animals with longer life expectancies have longer gestation periods.' True or False?

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