Birds - patterns and trends?

The **British Trust for Ornithology** carries out a lot of research into birds. One important part of this is bird ringing. Every year qualified 'ringers' catch birds at many locations throughout the UK. The ringers carefully take a variety of measurements and then put a small numbered ring on the bird's leg before releasing them. The unique ring number and the data for each bird is stored at the BTO.

This gives us an enormous amount of information about each bird and if they are caught at a later time we can find out about the way the birds move about. This information provided the first scientific proof about the migration of birds.

If you want to find out more:

Take a look at the BTO website ringing page.
http://www.bto.org/volunteer-surveys/ringing/ringing-scheme
They usually display the story about a bird shown by the ring data base on this page.

Ringing data

For each ringed bird the BTO record its species, male/female, and the measurements of the bird including wingspan, the distance between its outstretched wings, and its mass (that is how heavy the bird is).

Here is some data for some birds of prey. All of these birds catch and eat other animals!

BIRD SPECIES	MASS /g	WING SPAN/cm
OSPREY	1500	155
KESTREL	200	79
RED KITE	1000	160
BUZZARD	1100	125
PEREGRINE FALCON	780	102
SPARROW HAWK	250	75
HEN HARRIER	450	110
HOBBY	250	80
GOSHAWK	1050	115

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Patterns and trends

1. Is there a pattern in the data? Can you describe a link between the wingspan and the mass of the birds?

2. Can you suggest a reason for this link between mass and wingspan?

3. A better way to see patterns is to draw a graph.
   (a) Draw a scatter graph with mass/g on the horizontal(x) axis and wingspan/cm on the vertical(y) axis. You can do this using Excel.
   (b) Draw a best line of fit through the points to show the "trend" in your graph. Excel can do this for you.

4. Does the best line of fit agree with your answer to question 1?

5. Is there a species that does not seem to fit the line of best fit very well?

How good is the mass and wingspan data?

Your data is from 10 different species. Accurate measurements of wing span and mass were made of one bird for each species.

6. Using data from just one bird is not very reliable when you look for patterns or trends. Suggest 3 reasons why birds of the same species may show variation in mass and wingspan.

7. Explain how you could make your data for each species of bird of prey more reliable.