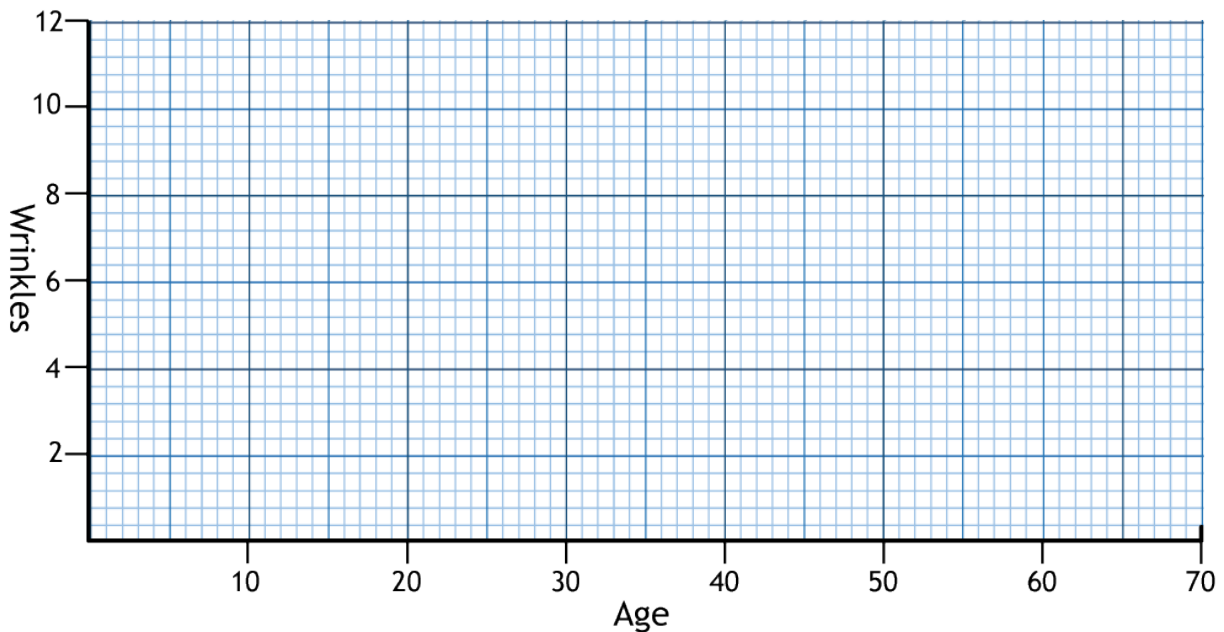


Student sheet A - how wrinkly?

A cosmetics company wanted to see if there was a relationship between your age and how wrinkly you are. They asked some of the teachers in your school their age and counted how many wrinkles they had.

Age	Number of wrinkles
30	5
40	12
50	9
60	11
70	12

1. Use the grid below to plot a line graph of the results



2. One of the variables is 'age'. What is the other variable? .....

3. Circle a word to describe the pattern:

As the teachers get older, the number of wrinkles that they have increased / decreased.

4. Which result does not fit the pattern? .....

5. Can you think of any reasons why this result might not fit the pattern?

.....  
 .....

Student sheet B - how wrinkly?

A cosmetics company wanted to see if there was a relationship between your age and how wrinkly you are. They asked some of the teachers in your school their age and counted how many wrinkles they had.

Age	Number of wrinkles
25	3
30	5
35	8
40	12
45	10
50	9
55	2
60	11
65	12

1. Plot a line graph of the results on graph paper.

Suggestions:

- Age along the bottom (x-axis)
- Number of wrinkles up the side (y-axis)
- Start both axes at '0'
- The numbers on the axes should have even steps e.g. 0, 5, 10 etc. on the x-axis and 0, 1, 2 etc. on the y-axis

2. Name the two variables in this experiment.

.....

3. What is the relationship between the two variables? Use the word **decreases** or **increases** in your answer at least once.

.....

.....

4. Which results don't fit the pattern? Explain your answer. ....

.....

5. Can you think of any reasons why these results might not have fitted the pattern?

.....

.....

.....

Student sheet C - how wrinkly?

A cosmetics company wanted to see if there was a relationship between your age and how wrinkly you are. They asked some of the teachers in your school their age and counted how many wrinkles they had.

Age	Number of wrinkles
25	3
30	5
35	8
40	12
45	10
50	9
55	2
60	11
65	12

- Plot a line graph of the results on graph paper. Include a line of best fit.
- Name the two variables in this experiment.  
.....
- Describe the relationship between the two variables.  
.....  
.....
- Are there any anomalous results? If so, explain why you think they are anomalous.  
.....  
.....
- Can you think of any reasons why these results might not have fitted the pattern?  
.....  
.....
- How could you increase the reliability of the experiment?  
.....  
.....  
.....

### Teaching notes

This task was designed for students to practice drawing and interpreting graphs. Students usually love to guess which teacher is which - it's usually fairly easy to convince them that the data is real! Using this silly data has always seemed to make a lesson on graphs significantly more enjoyable!

The resource is differentiated for lower, middle and higher ability students. It would be suitable at any level (KS3/4) where students need to refresh their graph skills.

Differentiation is mainly by support - the final outcomes should be similar, but there is more help (e.g. axes drawn, help with describing a pattern, guidance on how to do the scaling on the graph) on lower and middle ability tasks. This allows all students to complete similar work and feel involved.

It may be worth doing a starter on 'drawing a line of best fit' - not dot to dot, leave out 'anomalous points', equal numbers above and below line, whether to start at 0,0. Do some clearly erroneous 'lines of best fit' and get the students to correct them. This will help when doing their wrinkly graph lines.

**The following marks and comments are expected from students:**

1. Line graph, showing a positive correlation.

A discussion could focus on correct scale (for standard and challenge sheets), accuracy of plots, appropriate line.

The line should not be 'dot to dot' and should not take into account the clear anomalies at 55,2 and 40,12.

2. Age and number of wrinkles

3. As the teachers get older, the number of wrinkles that they have increases.

4. 55,2 and 40,12 could be considered anomalies. There are other results that don't exactly follow the pattern but not sufficiently to consider them anomalous.

5. Suggestions may include the following. 55,2 - low stress, good diet, good sleep, less sun, botox, face-lift, genetic factors etc. 40,12 - high stress, poor diet, less sleep, lots of sun / sun burn, smoker, genetic factors etc.

This resource is one of a set of six resources that are perfectly complemented by our Maths skills in Science posters. For more information: [www.teachitscience.co.uk/maths-skills-in-science-posters](http://www.teachitscience.co.uk/maths-skills-in-science-posters)