

3. Reporting to the industry



2 hours activity

The work continues with regular observation and recording of the progress of the mould growth.

OBJECTIVES

- The children draw conclusions from their results, using line graphs to inform their decisions as to the best conditions for mould growth.
- They present their findings for discussion.
- They write an e-mail/letter to the industry suggesting ways the industry could most effectively grow mould

RESOURCES

- Activity sheet 1
- Computer
- Spreadsheet/graphing program, e.g. RM Windowbox *Starting Graphs* or Microsoft *Excel*

OR

- Graph paper
- Rulers and pencils

INTRODUCING THE ACTIVITY (15 minutes)

Using the newspaper article as a reminder, discuss what has been done to try and help the company. Explain that the information must now be presented to the company so that they can easily understand the investigation, and what the results show. The information about the mould growth was collected using drawings and/or numbers (fractions, percentages, amount of cover). The best way of presenting the numerical information is by making bar and line graphs. Discuss with the children what the graph will look like if the mould grew quickly, compared to the graph showing slow growth. (*You would expect to see the line or bars rising steeply for rapid growth, but much less steeply for slow growth.*)

MAIN ACTIVITY (90 minutes)

Children producing numerical data begin by graphing their results. (Those producing drawings could perhaps join other groups, if appropriate.) Examples of spreadsheet programs available include the RM Windowbox *Starting Graphs* or Microsoft *Excel*. This is more appropriate for more able children. For those producing a table of results, these will need to be copied into a spreadsheet, as the example overleaf, using *Excel*, shows.

Each group then presents their findings. Where appropriate data can be collected on the board, so that the class can discuss and compare them to conclude which set of conditions will lead to best mould growth.

Finally, the children can write an e-mail or letter to the company, explaining which conditions they should use to grow their antibiotic mould and giving their reasons. The e-mail/letter should include attachments depicting their test and recorded data.

Bread	Number of Squares with mould				
	Day	Warm	Cold	Dry	Moist
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	3	0	1	1	
8	4	0	1	3	
9	11	0	1	4	
10	17	0	3	6	
11	45	0	3	6	
12		0			
13	55	0	10	13	
14		0			
15		0			
16		0			
17	90	0	49	23	

Note: blank squares on days 12, 14-16 indicate that no measurements were made. The Chart Wizard will take these into account when it generates the graph or bar chart. Some sample graphs are shown in [Appendix 3](#).

PLENARY (15 minutes)

To draw together all their findings, ask the children:

- Did all the tests give similar results, or did some tests, supposedly identical, give different results?
- Why do you think this was?

It can be stressed that this does not mean that their tests were 'wrong', just that living things do not always do what is expected. When scientists set up tests, they have constructed some idea of what they think causes the events to take place, and run the tests to confirm their ideas. It can be very interesting when things do not go according to plan, and something unexpected happens! The scientist then has to go back and check the work for obvious errors, before reconstructing the ideas in the light of the new facts. The new ideas are then tested to see if they work.

Appendix 3

CHART 1

The bar chart was generated by highlighting the column of figures for warm conditions, and going to the Chart Wizard in Microsoft Excel to generate this chart.

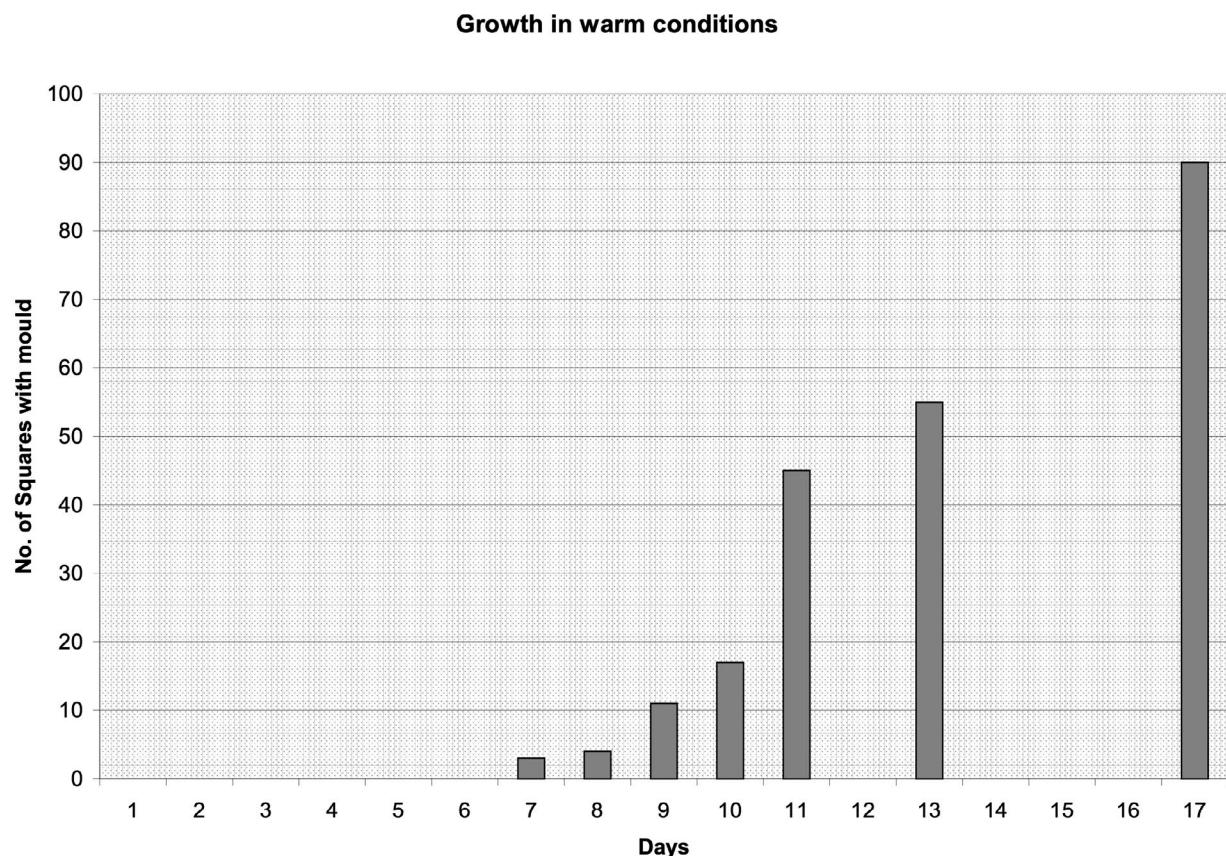


CHART 2

To produce a line graph two sets of data are being used, 'Days' and 'Number of squares containing mould,' which are highlighted, before clicking on the Chart Wizard. From the chart type options presented, choose 'Scatter' and press and hold the Preview button to see the graph. Follow the instructions, leaving the second step, the Data Range as it stands, and putting the titles and axis names in the spaces provided in the third step. Always ensure that the button for a 'New Sheet' is highlighted before clicking Finish. This ensures that the graph or chart will be displayed separately from the Table of Results. The graph of the above is shown below.

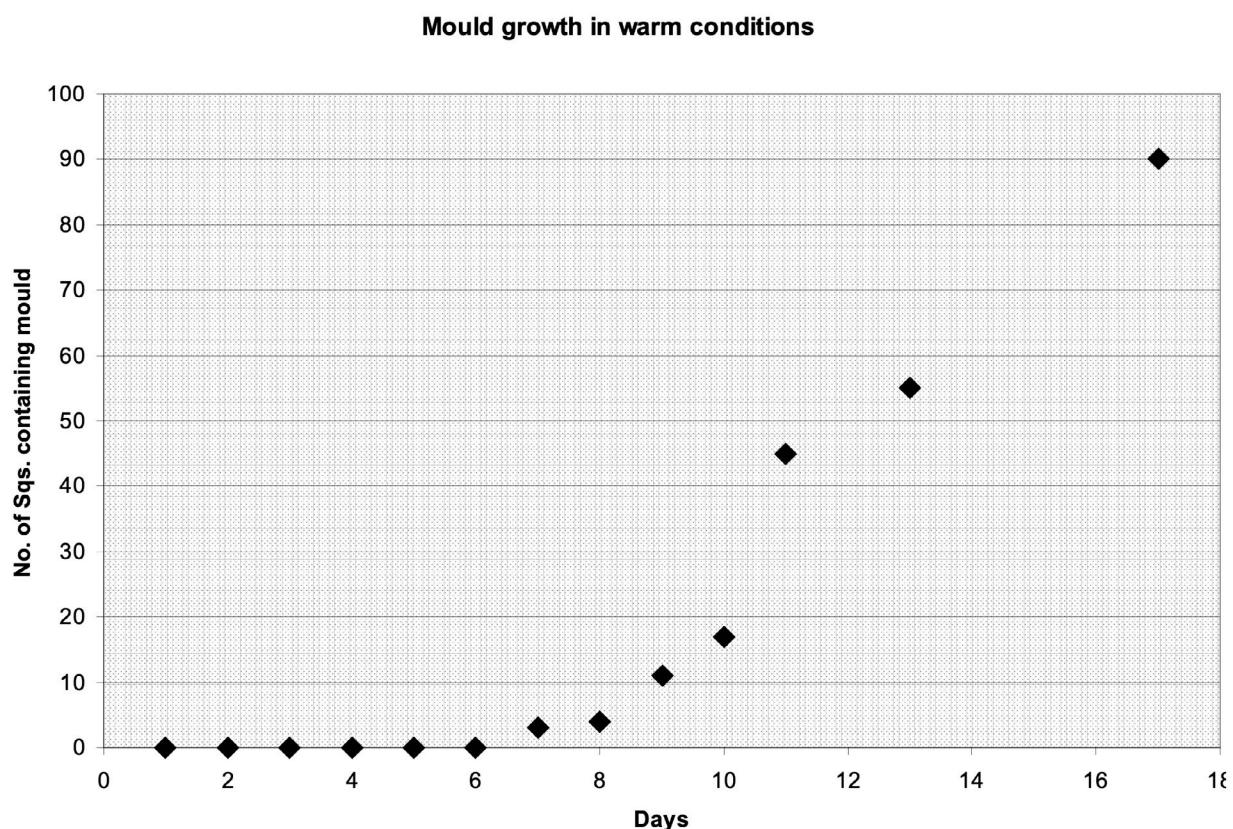


CHART 3

The conditions of growth, and their effect rate of mould growth can be compared by highlighting the whole table, choosing 'Scatter' as before, without any joining lines, and producing another separate chart. Again, the example below illustrates the type of graph generated.

