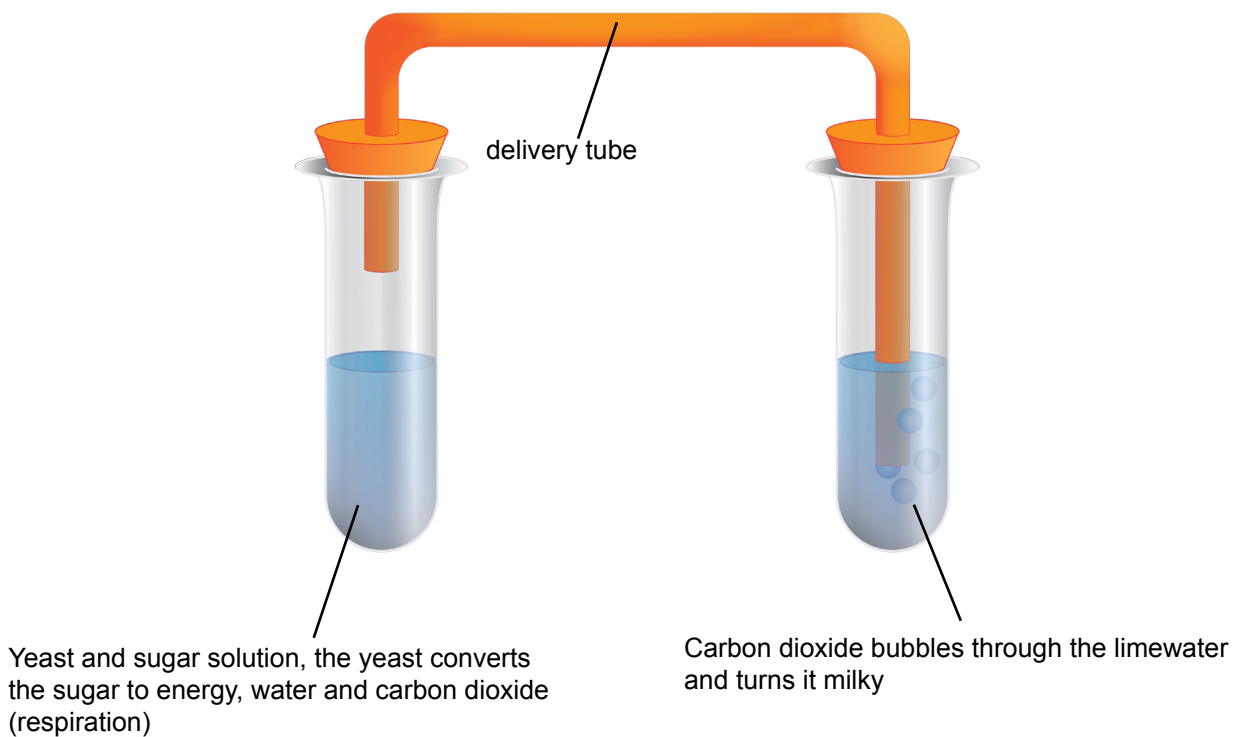


MODULE: *Cells*

Activity Sheet 1.7: Growth conditions of yeast inquiry

Our client, Sir Paul Nurse and his colleagues has asked you for your advice. They want to optimise the growth of the yeast they use in their research and want you to advise on the best parameters for growing yeast. You will need to carry out a scientific inquiry to advise the company on the best conditions for fermentation.

This equipment can be used to carry out the enquiry.



The yeast cells are growing at the greatest rate when the respiration rate is at its highest – when the cells are producing most energy. Think about the things that could affect the rate of respiration and thus the growth rate of the yeast. The rate of bubble production or clouding of the limewater is related to the growth rate of the yeast.

As a group you will need to investigate a number of different variables. Make sure you use the same method and control the control variables using the same parameters.

Your scientific inquiry is going to be so important to cancer research!

Carry out an inquiry and produce a research poster for Paul and his team.

A bit of advice

- try things out first before thinking of your question and hypothesis, and planning in detail
- plan a fair test
- plan for precision, accuracy and reliability
- control the control variables
- think quantitatively
- record your results in an appropriate table and draw appropriate graphs
- analyse and interpret your results
- give reasons for your conclusions and recommendations by using your data
- evaluate your inquiry

I have provided you with a further help sheet, should you require further support.

I look forward to seeing your posters.

Inquiry Help Sheet (Generic Sheet)

STEP 1 – Getting Started

Try things out first!

What are you trying to find out (Question)?

What could you change (the variables)?

What will you change (independent variable)?

What do you think will happen (hypothesis)? Why?



STEP 2 – Planning and Designing

What are you going to change (independent variable)?

How will you change it?

What things will you keep the same every time (control variables)?

How will you keep them the same?

What will you measure/observe (dependent variable)?

How will you measure it?

How will you make sure your results are reliable?

What equipment will you use?

What preliminary work are you planning to carry out to help you plan your enquiry?

How will you make your enquiry safe?

Produce a plan of what you are going to do for your teacher.



STEP 3 – Carrying Out

How will you make your measurements precise enough?

How will you make your readings accurate?

How will you record your results? Can you draw a table for recording your results?



STEP 4 – Processing, Analysing, Interpreting and Inferring

Can you draw a graph of your results?

Can you see any patterns in your results?

Explain your results.

What can you conclude from your inquiry?



STEP 5 – Evaluation

Were your results what you expected? If not, why?

Were there any results that didn't fit the pattern (outliers/anomalies)?

How could this have happened?

Were your results reliable?

Did you make sure you kept everything the same every time? How?

Did you make sure your measurements were accurate and precise each time? How?

How could you improve your inquiry?

What further inquiries would you like to carry out?



STEP 6 – Communicating

How will you report your inquiry so that others could repeat what you did?