8Cb/1 Rising dough 1

Which temperature is best for dough to rise?

You are going to investigate how temperature affects the rising of bread dough. Yeast is a microbe which is added to bread dough. When the yeast cells respire they produce carbon dioxide which makes the dough rise. Respiration is a chemical reaction that happens in all living cells including yeast cells.

8 C b

Prediction

1 Do you think the dough will rise furthest in cold or warm conditions?

2 Why do you think this?

P

Apparatus

- **Sugar**
- **Bread flour**
- **3 measuring cylinders**
- **Tablespoon**
- **Stirring rod**
- **Dried yeast**
- **Water**
- **Large beaker**
- **Thermometer**

Do not try to eat any of your dough.

Method

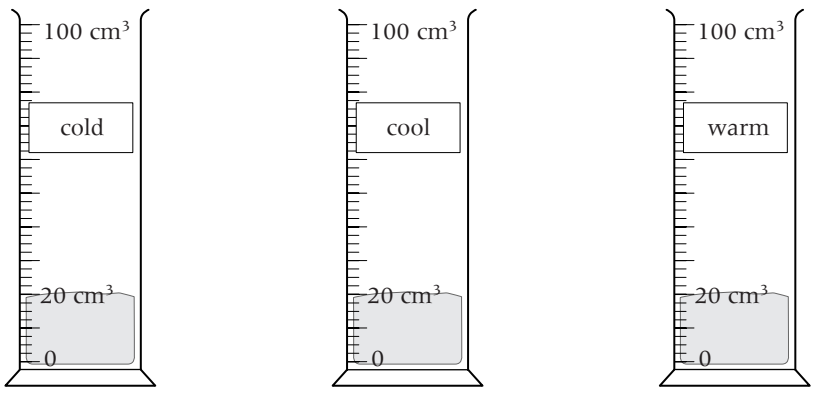
1 Measure out 5 g of sugar, 3.5 g of yeast and 100 g of bread flour. Add them all to a large beaker.

2 Now measure out 65 cm^3 of water.

3 Pour the water, a little bit at a time, into the beaker. Each time you have added some water, stir the mixture using the spoon.

4 Keep stirring until the mixture is a smooth paste. Now very slowly pour or spoon 20 cm^3 of the mixture into a measuring cylinder. Put another 20 cm^3 of mixture into each of the other two measuring cylinders. Any bits which get stuck to the side you can push down to the bottom with the stirring rod.

5 Label the cylinders to show the different temperatures they will be placed at – 'cold', 'cool' and 'warm'.



Rising dough 1 (continued)

6 Record the volume of dough in each cylinder.

7 Put the cylinders in the different places for the different temperatures. Use a thermometer to measure the exact temperature in each area.

8 Leave them for 1 hour.

9 Now read the new volume of the dough in each cylinder.

Recording your results

3 Record your results in a table like this:

Temperature of the area the dough was left in	Volume of dough at the start of the experiment (cm^3)	Volume of dough at the end of the experiment (cm^3)	Increase in the volume of the dough (cm^3)
cold (°C)			
cool (°C)			
warm (°C)			

Considering your results/conclusions

4 Draw a bar chart to show the increase in volume of the dough at each temperature.

5 **a** Which was the best temperature for the rising of dough?

b How do you know this?

6 **a** Why does the dough rise?

b Why do you think it rises faster at some temperatures than others?

Evaluation

7 **a** Which was the most tricky part of the experiment?

b How do you think this might have affected your results?

c Try to think of a way of improving this part of the experiment.

8 How would you show that the bread needs yeast to make it rise?

knowledge, observing, presenting, considering, evaluating