

Starter:

1. Which of the following factors **enhance** enzymic browning in fruit?

Oxygen Low temperature Copper and iron tools

Glass and plastic tools Chopping them finely

Leaving them whole and intact [2 marks]

2. What type of flour already has baking powder added to it?
[1 mark]

3. Identify three vitamins that are considered to be antioxidants [3 marks]

Starter:

4. Explain why bicarbonate of soda has to be used in combination with an acid when baking muffins [2 marks]
5. Identify two dishes in which steam is used as a LEAVENING agent. [2 marks]

Revision- Food Science- Raising Agents

Learning Objectives:

Recall information about Raising Agents

Address any misconceptions

Apply knowledge to exam questions

In depth look- Raising Agents

- ▶ Definition- RAISING AGENT= is an ingredient or process that incorporated a gas into a mixture to lighten it.
- ▶ Heat a mixture+ raising agent → gas expands+ mixture rises
- ▶ Gases- air, steam and CO_2
- ▶ 3 types of raising agents- chemical, mechanical, biological



In depth look- Chemical

- ▶ Chemical raising agents produce Carbon Dioxide when heated with a liquid
- ▶ Examples are- bicarbonate of soda and baking powder
- ▶ Baking powder is a mixture of bicarbonate of soda (alkali) and cream of tartar (acid) which are neutralised in the reaction, providing lift.
- ▶ What foods would you add bicarb to when making and why?



In depth look- Mechanical

- ▶ These use air and steam as the leavening agent
- ▶ Methods include:

Whisking (trapping air- e.g. roulade/meringue)

Beating (air bubbles trapped- e.g. batter)

Folding (layers of air trapped between layers of pastry- e.g. puff pastry)

Sieving (flour particles trap air- e.g. cakes)

Creaming (beating fat and sugar incorporates tiny bubbles, heating sets mixture- e.g. cakes)

Rubbing in (air trapped in mechanical action- e.g. pastry/scones)

- ▶ **Steam-** used in making Yorkshire puddings, choux, puff and flaky pastry (high water content products)



In depth look- Biological

- ▶ Yeast is a biological raising agent
- ▶ It produces CO_2 by fermentation. It needs warmth, food and moisture to ferment
- ▶ Definition- FERMENTATION= the process in which yeast eats sugar and respire creating CO_2 and alcohol
- ▶ Different types of yeast: fast acting easy blend yeast, fresh yeast and dried yeast



Plenary- Exam question

List three gases which are used as leavening agents in cooking. [3 marks]

Identify one raising method used when: [4 marks]

- i) Making a meringue
- ii))Baking Yorkshire pudding
- iii) Baking puff pastry
- iv) Preparing sponge cake

Explain how yeast works as a raising agent and provide an example of where yeast is used in the food industry. [4 marks]

Mark Scheme

Air, steam (vapour), carbon dioxide

(1 mark for each correct, max. 3 marks)

Only one raising method is required for each point:

(1 mark for each correct, max. 4 marks)

- I) Mechanical – whisking
- II) Mechanical – beating and steam
- III) Mechanical – folding and steam
- IV) Mechanical – beating and sieving, chemical – baking powder might be used (depending on the recipe)

The answer may include a reference to:

*(1 mark for each correct statement, max. 3 marks,
and 1 mark for a suitable example, max. 1 mark)*

- Yeast uses sugar present in food (ferment) for energy.
- As a result carbon dioxide and alcohol are produced.
- Carbon dioxide expands within the mixture (e.g. cake batter) and causes it to increase in volume.
- Examples could include: bread, wine, beer, panettone, or any other suitable answer.