

Topic Exploration Pack

Pastry

SECTION D - Skills requirements: preparation and cooking techniques (dough). Topic 7.

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ABC – This activity offers an opportunity for English skills development.

123 – This activity offers an opportunity for maths skills development.

When distributing the Student Activity section to students either as a printed copy or as a Word file you will need to remove the teacher instructions section.

FOOD PREPARATION AND NUTRITION

Teacher Instructions

Pastry explained

Definition

Pastry has many different uses, from savoury starters to delicious desserts. The ingredients and proportion of fat to flour affects the pastry and what it can be used for.

A wide variety of different pastries can be used to produce dishes using a vast range of skills, to develop differing flavours and textures.

Function and working characteristics of the main ingredients

Scientific explanation

The main ingredients used in pastry making are, flour, fat, water and a little salt.

Flour

Generally a soft flour with a low gluten content is used. The exceptions are choux pastry and flaky pastry. For these pastries, a high gluten content flour is used.

There are many important types of protein in flour.

There are two insoluble proteins called **gliadine** and **glutamine** which are important in baking. When they are mixed with a liquid a substance called **gluten** is formed. The amount of gluten in flour depends on its use.

Gluten is vital in baking because it is elastic enough to hold pockets of air in the mixture and strong enough to support the structure and stop the air escaping.

Fat

Shortening: This term is used when rubbing in fat and flour. It gives a waterproof coating to the grains of flour, which prevent gluten in the flour from developing and forming long molecules and produces a short, crumbly texture.

Plasticity: This term is used to describe the fact fats do not melt at fixed temperatures, but over a range. This property is called plasticity. It gives all fats unique character.

The plasticity is due to the mixture of triglycerides, each with its own melting point. Some products are formulated with fats with lower melting points so they can spread from the fridge, e.g. margarine.

Other fats have a higher melting point and are used for cooking, for example pastry.

Flakiness: This term is used for flaky and puff pastry which use the fat to help separate layers of gluten and starch formed in the dough. This is called lamination. The fat melts during cooking, leaving minute layers. The liquid present produces steam which evaporates and causes the layers to rise. The fat prevents the layers sticking together.

Water: Helps to bind flour and fat together to make a dough. In choux pastry water is converted to steam or water vapour, which acts as the raising agent.

Salt: provides some flavouring.

FOOD PREPARATION AND NUTRITION




Teacher Instructions

The most common types of pastry are:

- Shortcrust
- Flaky/rough puff
- Choux

Different types of pastry use similar ingredients but are combined in different ratios using varied methods to produce a variety of textures and finishes.

Information about the main types of pastry

Type of Pastry	Basic Recipe	Ratio of fat to flour	How fat is mixed	Texture quality
Shortcrust 	200g plain flour 100g hard fat mixture of margarine and white fat water	1:2	Fat is rubbed into flour	Light texture which is crisp and short
Flaky/rough puff 	200g strong flour 150g fat mixture of margarine and white fat 2tsp lemon juice water	3:4	A $\frac{1}{4}$ of the fat is rubbed into the flour, water is added. Pastry rolled and folded adding $\frac{1}{4}$ of the fat each time	Layers of crisp pastry
Choux 	75g strong plain flour 50g butter 2 eggs 125ml water	1:3	Fat is melted in the water	Hollow inside, well risen with a crisp texture

Useful links

<http://www.bbcgoodfood.com/howto/guide/pie-minister-top-10-pastry-making-tips>

<http://www.britishfood.com/>

<https://www.jusrol.co.uk/pastry-tips>

FOOD PREPARATION AND NUTRITION

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Dough

In this section you will need to cover:

- The use of technical skills of shortening.
- How to roll out pastry.
- Create layers for example, palmiers.
- Ways of glazing dishes.
- Piping for example choux pastry.
- A range of finishing techniques for example, lattice and decorations.

Activity 1 Using different pastries to make a range of recipes

Ask your students to complete Student Activity 1 on page 15 by selecting a range of recipes which use each of the three types of pastry above. List the recipe and skill level required to make each different pastry item.

FOOD PREPARATION AND NUTRITION

Teacher Instructions



Activity 2 Functions of ingredients in shortcrust, flaky and choux pastry

Ask your students to complete Student Activity 2 by completing the key functions of ingredients when making three different types of pastry. Answers are shown below.

Ingredient	Shortcrust	Flaky	Choux
Flour 	Why is plain flour used? Plain flour. Low gluten content to produce short crumbly texture.	How is a crispy texture with flaky layers achieved? Strong plain flour. High gluten content to produce crispy, flaky layers .	Explain why is a flour with a high gluten content used? Strong plain flour. High gluten content which stretches to hold the expanding steam and air .
Fat 	What function does fat have in pastry making? Use of hard margarine, white fat or butter Fat coats the flour granules to reduce the water mixing with the gluten.	What function does the fat have in this pastry? Mixture of white fat and margarine. Small pieces of fat are placed on the dough the fat traps air between the layers of dough.	Name the two fats used? Butter or margarine for flavour.
Water 	What is the key function of water in pastry making? Binds the rubbed-in fat to the flour.	How is elastic dough achieved? Combines with gluten to form stretchy, elastic dough. Why is lemon juice added to this pastry? Lemon juice is added to strengthen the gluten.	Explain what happens when the flour is heated to 100 degrees? Boiled at 100°C so the heat causes the starch in flour to gelatinise . Mixes with flour to develop the gluten.

FOOD PREPARATION AND NUTRITION

Teacher Instructions

Ingredient	Shortcrust	Flaky	Choux
Salt 	Why is salt added? Helps develop the flavour .	What two reasons is salt added? Helps to develop the flavour and strengthen the gluten.	
Egg 			What are two key functions of using egg in choux pastry? Helps to hold air in the starch mixture. Gives a smooth, glossy finish and aids piping of the mixture.



FOOD PREPARATION AND NUTRITION

Teacher Instructions

Points to remember for making successful pastry

Keeping cool

When preparing pastry except for choux pastry it is most important that you keep everything cool including ingredients, utensils, hands and pastry.

Rolling out

- Rolling out any pastry carefully is important to create an even surface. The pastry needs to be as cool as possible.
- Rolling out should be undertaken on a lightly floured surface. Flour the rolling pin before rolling out.
- The pastry should be rolled in even strokes and then turn it through a quarter turn and continue rolling. Pastry should never be turned over.
- Choux pastry is not rolled out, but piped or spooned into the designed shapes. This illustrates a high level of skill.

Accurate weighing and measuring

Accurate weighing and measuring is essential to ensure consistency.

Baking blind

This term is used when you want to pre-cook a pastry case before adding the filling, for example, quiches and lemon meringue pie.

Heat oven to 180°C fan/gas 6. Fill the **pastry** case with a round of **baking** paper and add **baking** beans. **Bake** for 15 mins, then remove the paper and beans and **cook** the **pastry** for 5 mins more.

Useful links

How to make shortcrust pastry and bake it blind - www.youtube.com/watch?v=yzY4yh06bTY

How to blind bake pastry | BBC Good Food - www.bbcgoodfood.com/videos/techniques/how-blind-bake-pastry



FOOD PREPARATION AND NUTRITION

Teacher Instructions

Activity 3 Recognising faults when making pastry

Ask your students to complete Student Activity 3 by completing the chart of common faults with reasons when making pastry. Some faults have more than one reason. Here is the fault/reason list which is also in the student section; you may want students to complete the table on page 19 and 20 with or without the aid of this fact sheet.

Fault	Reason
Pastry is sticky and very soft making it difficult to handle.	A soft fat was used, for example, a margarine spread. Too much liquid was used. The mixture had been over handled.
Cooked pastry is dry, brittle and crumbly.	Not sufficient liquid was added.
Cooked pastry is hard and tough.	Pastry was handled too in the making. Too little fat was used. Pastry was over rolled. Too much water had been added and the gluten in the pastry was over developed.
Pastry is soft and oily when cooked.	The temperature of the oven was too low.
Pastry shrinks when it is cooking.	The stretched was stretched during the handling and rolling out
Pastry is soft and crumbly.	Too much was fat was used Too much baking powder, if this ingredient had been added. Not sufficient water was used.
Pastry blisters.	Fat not rubbed in sufficiently Too much water was used.
Pastry is very pale.	Not baked for a long enough time. Oven temperature was not hot enough.
Pastry is too dark.	Cooked too long. Oven temperature was too high.

FOOD PREPARATION AND NUTRITION

Teacher Instructions

Skills and finishes for making pastry dishes

There are a number of skills that can be used to create a range of attractive and exciting dishes.

- Create layers for example, palmiers
- Piping for example, choux pastry
- A range of finishing techniques for example, lattice and decorations.

Palmiers

Useful links

<http://www.bbcgoodfood.com/videos/techniques/how-make-and-shape-palmier-biscuits>

www.marthastewart.com/339389/palmiers

www.foodnetwork.com (for recipes and how to...)



Top tips for making palmiers

- Palmiers are made with puff pastry and some sugar.
- Use demerara or another coarse-grained sugar.
- Brown sugar or granulated sugar work well and make a sweeter palmier.

Folding and shaping the palmiers

- Fold the left and right sides of the pastry to the middle
- Fold the dough in half again length-wise

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- Sandwich the first folds inside
- Cut into individual palmiers
- This is what gives the palmiers their distinctive "palm" or elephant-ear shape.



Different fillings can be explored to give a different taste

Sweet palmiers



You could add the following:

- cinnamon
- crystallized ginger
- lemon peel
- dried chopped fruits, for example currants, apricots
- cranberries, sultanas, cherries

Savoury Palmiers



- pesto
- tapenade
- cheeses
- dried tomatoes

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Choux pastry

Piping - useful links

Piping techniques – how to pipe choux cream puffs - <https://www.youtube.com/watch?v=d4JC-EmOGZ4>

Piping and baking choux buns – illustrated recipe – http://www.bbc.co.uk/food/techniques/using_piping_bags

Choux pastry - <https://timetocookonline.com/2012/01/22/choux-pastry/>



Choux pastry is made in a different way to other pastries although the basic ingredients are flour, margarine, water and egg.

Choux pastry has the lightest, crispiest, airiest texture.

It can be used to make profiteroles, éclairs or savoury gougères.

It puffs up in the oven until it is set by the heat.

The airiness, is caused because choux pastry has a high water content, which is turned into steam during baking. Steam, which is a gas (also known as water vapour) starts to be produced at 100° C.

This pushes the pastry shell outwards and gives it volume. Water vapour expands to 1,600 times its original volume and therefore it is an effective raising agent.



Top tips for making choux pastry.

Piping bags: Not compulsory. For choux buns, the batter can be spooned out using just a couple of teaspoons.

If you want a consistent appearance, you can use a piping bag with a plain or star shaped nozzle – 1cm diameter.

An alternative is a re-sealable freezer bag with the corner snipped off.

Strong plain flour is recommended as it has a higher gluten content, which gives crisper results than ordinary soft, plain flour.

Add the flour in one go while you beat the mixture using a wooden spoon, or an electric hand whisk will save you lots of energy and time.

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Teacher Instructions

Make sure the paste forms a soft ball in the saucepan.

Cool to blood heat (37°C) before adding the eggs and add a little at a time.

When the pastry is cooked, pierce the side of each one to let out the steam.

Cool on a wire rack.



Presentation and styling

As part of the Non Examined Assessment (NEA) Task 2, 25 marks are awarded for the presentation, finish and styling of the final dishes.

Useful links

<https://www.jusrol.co.uk/pastry-tips/puff-pastry-pie-top>

<http://www.greatbritishchefs.com/search?search=pastry&type=How+to+cook+articles>

<http://www.onlinepastrytrainingschool.com>

There are a number of ways to decorate and improve the appearance of your pastry dishes.

Short crust pastry is often used for a range of pie making.

These dishes can be made to look more appealing / attractive by having some type of decoration and / or finishing technique applied.

Glazing

Egg, milk or a mixture of both and sugar and water mixed are the key ingredients for glazing pastry dishes.

- Egg white
- Egg yolk
- Whole eggs
- Milk
- Water
- Sugar syrup
- Fruit glaze
- Fruit juice

FOOD PREPARATION AND NUTRITION

Teacher Instructions



They should be lightly brushed on the surface of the finished pastry dish before cooking.

The purpose of glazing gives the finished dish a glossy attractive look!

To provide a fabulous finish, glaze with an egg before putting it in the oven.

Milk or cream glaze provides a reddish brown colour with a flat finish.

Egg white glaze provides little colour but a shiny finish.

Beaten egg yolk glaze provides a golden brown finish.

Whole egg beaten provides a concentrated glossy golden finish.

Sugar syrup glazes provide a shiny semi caramelised finish



Left over pastry can be used to make simple and cost effective decorations, for example:

- leaves
- hearts braids
- lattice strips

To personalise your dish you could create a name, birthday message or greeting.

Finishing techniques – these can also add a skill to your dish. For example:

- honeycomb pie crust
- crimping the edges
- making a pattern.

Activity 4: Pastry dishes can lack appeal: Ways to make pastry dishes more appealing

Ask your students to complete Student Worksheet 4 on page 21 by suggesting ideas to improve the presentation and/or styling of pastry dishes.

FOOD PREPARATION AND NUTRITION

Teacher Instructions

Food science activity to support Task 1 – Food Investigation

Testing the strength of gluten.

Try this:

A squeeze test to test the strength of flour.

Is the flour soft or strong?

Squeeze some flour in the palm of your hand. If the flour holds together it is soft, if it falls apart it is strong.

Recipes and practical activities to support Task 2 – Food Preparation

Dishes using pastry

Useful links

www.iusrol.co.uk/pastry-recipes/

www.bbc.co.uk/food/recipes/shortcrustpastry_

<https://www.bakingmad.com/pastry-recipes>

- All day breakfast tartlets
- Spiced lamb and apricot filo pie
- Cheese Roquefort , celery and walnut tiny tartlets
- Pork, apple and mustard roll
- Savoury lattice pie with butternut squash , leek and ricotta
- Pizza puffs
- Mushroom and cheese parcels
- Cheese twist straws
- Sausage plait
- Weekend brunch – egg brunch with spicy tomato salsa
- Pesto and roasted vegetable puff rounds
- Fish pie
- Spiced Pineapple puff ring tart
- Pear and walnut tart Tatin
- Cherry almond tart
- Honey and lavender panna cotta tartlets
- Multi-Cultural twist

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- Baklava
- Mexican chicken fajita tart
- Chocolate, hazelnut and banana croissant

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Topic Exploration Pack




Pastry

Student Activity section

Activity 1 Using different pastries to make a range of recipes



Pastry	Three recipes	Justify skills Level High/Medium/Low
Short crust pastry	1 2 3	
Flaky/rough puff	1 2 3	
Choux	1 2 3	

FOOD PREPARATION AND NUTRITION**Student Activity****Activity 2 Functions of ingredients in shortcrust, flaky and choux pastry**

Ingredient	Shortcrust	Flaky	Choux
Flour 	Why is plain flour used?	How is a crispy texture with flaky layers achieved?	Explain why a flour with a high gluten content is used.
Fat 	What function does fat have in pastry making?	What function does the fat have in this pastry?	Name the two fats used?
Water 	What is the key function of water in pastry making?	How is elastic dough achieved? Why is lemon juice added to this pastry?	Explain what happens when the flour is heated to 100°C.

FOOD PREPARATION AND NUTRITION

Student Activity

Ingredient	Shortcrust	Flaky	Choux
Salt 	Why is salt added?	Why is salt added? (Two reasons.)	
Egg 			What are two key functions of using egg in choux pastry?

Key facts

Shortening: this term is used when rubbed in fat and flour gives a waterproof coating to the grains of flour, which prevent gluten in the flour from developing and produces a short, crumbly texture.

Choux pastry: is not rolled out but usually piped or spooned into desired shapes for example, eclairs and profiteroles.

Other types of pastry include:

Filo pastry: originally came from Greece.

Puff pastry: similar to flaky pastry which many people buy as chilled or frozen product as it is quick to use and saves a length preparation time.

FOOD PREPARATION AND NUTRITION

Student Activity

Activity 3 Recognising faults when making pastry

There are a number of common faults which can occur when pastry making. Complete the chart below matching the fault with possible reasons.

Fault	Reasons
Pastry blisters.	
	Not sufficient liquid was added.
Cooked pastry is hard and tough.	
	The temperature of the oven was too low.

FOOD PREPARATION AND NUTRITION**Student Activity**

Fault	Reasons
Pastry shrinks when it is cooking.	
Pastry is soft and crumbly.	
	Fat not rubbed in sufficiently. Too much water was used.
	Not baked for a long enough time. Oven temperature was not hot enough.
Pastry is too dark.	

FOOD PREPARATION AND NUTRITION

Student Activity

Activity 4 Pastry dishes can lack appeal: Ways that dishes can be improved

Complete the tables below, suggesting ways dishes can be made more appealing.

1. By **decorating and finishing** when preparing and cooking.

	Recipe/pastry type	Appeal
1	<i>Cornish pasty/shortcrust.</i>	<i>Crimp and glaze.</i>
2		
3		

2. By providing suitable **accompaniments** to enhance the dish.

	Recipe/pastry type	Appeal
1	<i>Spring rolls/filo pastry.</i>	<i>Serve with green salad and lemon and mustard dressing.</i>
2		
3		
4		

FOOD PREPARATION AND NUTRITION

Student Activity

Activity 5 Practical application

Aims:

- To work in an organised and methodical manner following a recipe independently and accurately.
- To apply the correct method and skills within a practical lesson to make a pastry dish.

Cornish Pasty	Ingredients	Equipment
Method:	150 g plain flour	Scales
1. Prepare – work area, equipment and self.	75 g hard margarine and lard mixed	Two medium size mixing bowls
2. Pre-heat oven 200C/gas 6.	Pinch of salt	Pastry brush
3. Sieve flour, salt in mixing bowl.	Approx 3 tbsp cold water to mix	Chopping board
4. Rub in fats until breadcrumb appearance. Make a well in middle	1 large potato – finely sliced or grated	Knife
5. Add cold water – approx. 3 tbsp - stir with knife first then lightly with fingers.	100g swede/ carrot – finely sliced or grated	Vegetable peeler
6. Draw mixture together to a soft dough on a lightly floured surface - knead until smooth.	125g beef – skirt or chuck steak, minced or finely chopped	Measuring jug
7. Wrap and leave in fridge to rest.	1 medium onion – finely chopped	Rolling pin
8. Cut meat into small cubes.	Seasoning	Flour dredger
9. Finely slice/ grate swede, carrot, onion and potato.	Beaten egg / milk for glazing	Fork
10. Place all in mixing bowl and season well.		Baking tray
11. Cut pastry in half, make into a ball. Roll each to 20cms diameter.		
12. Put equal amounts of filling in		

FOOD PREPARATION AND NUTRITION

Student Activity

Cornish Pasty	Ingredients	Equipment
<p>each. DO NOT OVER FILL.</p> <p>13 Brush edges of pastry with water.</p> <p>14 Fold pasty over mixture and seal together OR bring to the top and crimp.</p> <p>15 Glaze with egg and milk – make a 1cm slice in top.</p> <p>16 Bake in oven 200C/Gas 6.</p> <p>17 – If too brown reduce oven to 180C/Gas 4.</p> <p>18 Bake for 45 minutes approx.</p>		

Top tips

- Leave pastry to rest in fridge to enable better handling.
- Add all the water but may need a little more to get to a soft dough.
- Use knife to stir the water into flour first, finish using fingers lightly.
- Crimp edges of pastry evenly by squeezing and folding edges.
- Use pointed knife to make a cm hole in top for steam to escape.
- Can be served hot or cold.
- Serve with a salad or range of colourful vegetables to add colour, texture and provide a balanced meal.

