

Lesson plan: Nutrition-Protein

This lesson plan gives you delivery ideas for our GCSE Food preparation and nutrition (8585). The lesson is designed as a two hour session.

The lesson is designed to:

- enhance students' knowledge and understanding of what constitutes a healthy, balanced diet
- develop students' technical skills with a relevant practical activity
- provide opportunities for stretch and challenge activities to extend teaching and learning
- provide students with practice exam questions to test knowledge and understanding.

You can adapt the lesson plan to the needs of your school, college and students. Practical work can be done individually or as part of a group to reduce costs. For the activity involving preparation of a meal, you can choose to specify an individual recipe for a whole class or give students choices from a specified range of recipes.

Learning objectives

Lesson 1

This will teach students:

- to describe what proteins and amino acids are and explain the difference between HBV proteins and LBV proteins in the diet
- to explain the main functions of proteins in the body
- to identify a range of HBV and LBV proteins from different plant and animal sources, including protein alternatives and protein complementation
- to state the related DRV's for protein and explain the effects of a deficiency and excess of protein on the body
- to demonstrate the essential skills of preparing and cooking a fish pie which includes HBV and LBV sources of protein
- to explain the science behind making a fish pie

- to develop the following food preparation skills: S1, S2, S3, S4, S5, S6, S7 and S8
- to demonstrate and apply the principles of food safety and hygiene when cooking, whilst demonstrating a good working routine in the food room
- to test and evaluate the fish pie and produce a nutritional profile for the dish.

Prior knowledge needed

Students will build upon learning from the KS3 cooking and nutrition curriculum. They will further develop their knowledge and understanding of what constitutes a balanced diet and the function of the main nutrients in food. They should already have a good range of practical skills and have made a repertoire of predominantly savoury products which meet current guidelines for a healthy diet.

Lesson preparation

Resources and equipment

Set up the food room in advance with all resources and equipment necessary for both theory and practical activities:

- PowerPoint presentation
 - recipes and instructions to set up and clear away on an interactive whiteboard or at work stations, to encourage independent learning and group work
- ICT facilities for nutritional analysis of the product, if time permits
- the online stopwatch to manage timings and add pace to practical activities.

Activities

Support each lesson with a variety of teaching and learning activities, to include:

- starters, plenaries and opportunities to stretch and challenge
- activities and opportunities to encourage questioning for learning during demonstrations and practical activities
- practice exam questions to test knowledge and understanding.

Allow time for feedback to students on attainment, progress and reflection on next steps.

Activity plan

Double lesson 120 minutes

Starter activity

A01, A02, A03 - 15 minutes

An introduction to proteins. Inform students you will be giving them a demonstration followed by a practical activity for them to complete.

Registration, objectives, risk assessment and set up for practical work.

A01, A02, A03. 60 - 70 minutes

Show BNF video podcast 'Pointers on protein' followed by questioning for learning:

- What are the main ingredients in a fish pie?
- Why is fish pie such an excellent source of HBV protein?
- What HBV and LBV proteins found in fish pie?
- What other nutrients are present in fish pie?
- What are our DRV's for protein?
- Why do teenagers need more protein?
- What happens if we have too much or too little protein in our diet?

Teacher demonstration and student practical: Making a fish pie

Split the task into a series of 5 mini spot demonstrations to guide students through the main stages of making a fish pie.

1. Poach the fish in milk
2. Prepare potato topping
3. Prepare vegetables and boil eggs for sauce
4. Make a white sauce using roux or all-in-one method of sauce making
5. Assemble the fish pie and prepare for either safe storage or further cooking

Resources:

- Lesson PowerPoint
- Recipe for a fish pie
- [Food a fact of life - Pointers on protein](#)
- Instructions for setting up and clearing away

- All equipment necessary for demonstration

Main activity

A01, A02, A03 20 - 60 minutes

1. Prepare the fish by poaching in milk and seasoning carefully.
2. Prepare potato topping by peeling, boiling, draining, mashing, seasoning and flavouring the potato mash.
3. Prepare onions, other vegetables and boil eggs for sauce.
4. Make a white sauce using roux or all-in-one method of sauce making.
5. Assemble the fish pie by adding fish, boiled eggs, onions, peas and sweetcorn to the sauce and adding to an oven proof dish.
6. Layer creamy mash on top of the fish base and decorate the top with cheddar cheese.
7. Cook fish pie, if time, or prepare for safe storage or to reheat at home.
8. Wash up and clean workstation and equipment.

Skills and techniques used:

- general practical skills
- knife skills
- preparation of fish and vegetables
- use of the cooker
- use of a range of small equipment
- poach fish
- boil potatoes
- prepare, combine and layer ingredients in fish pie
- make sauce using starches

Questioning for learning

In small groups discuss and explain the scientific principles of sauce making and the cooking methods and techniques used in a fish pie

Resources

- Recipe cards and photographic PowerPoint of making a fish pie
- [Explore food, Food a fact of life website](#)

Celebration display

A04 - 10 minutes

- Celebration display and teacher or peer assessment of fish pies.
- Peer assessment of practical work to identify the strengths and one area for improvement in own work, and in that of a partner.
- Teacher feedback on attainment, self-reflection and individual targets set for next practical activity.

Further work and reading

Plenary

A02 - 15 minutes

To test and evaluate the fish pie and produce a nutritional profile for the dish using BNF nutritional analysis programme.

Questioning for learning

What protein alternatives could be used to replace the fish and make the fish pie suitable for different dietary needs?

Resources:

[Nutrients, Food a fact of life website](#)

Extension - stretch and challenge activity

- Use results from the nutritional analysis to explain how the fish pie meets a teenagers DRV's for protein.
- Lentil dahl and chapattis are a good example of protein complementation. What is meant by the term protein complementation? Plan five different light lunch dishes that show protein complementation and would appeal to teenagers.
- Find out how much protein there is per 100gms of: eggs, salmon, cheddar cheese, cottage cheese, minced beef, baked beans, rice and pasta.
- Which of the foods listed above contain the most protein per 100gms and which contain the least?

Homework

Work through the [Food a fact of life online revision tutorial on macronutrients](#)

Create a revision mind map using information from the GCSE textbook, which summarises the following information on protein.

- Definitions for proteins and amino acids and the differences between HBV proteins and LBV proteins in the diet.
- The main functions of proteins in the body.
- The main sources of HBV and LBV proteins giving examples from different plants and animals.
- Definition and examples of protein complementation.
- DRV's for protein and the effects of deficiencies and excesses of protein on the body.
- Alternative protein products and examples.