

Starter:

1. Explain why it is important to use a wide variety of ingredients when planning meals. [2 marks]
2. Give two ways in which a recipe may be adapted to make it healthier. [2 marks]
3. Explain why wholegrain cereals are better than refined cereals [1 mark]
4. Name three factors to consider about your target group when meal planning [3 marks]
5. Describe three different reasons your body needs energy [3 marks]

Revision- Energy Requirements and Nutritional Analysis

Learning Objectives:

Recall information about nutritional needs

Address any misconceptions

Apply knowledge to exam questions



How is it measured?

Kilocalories (kcal) this is how most food is measured

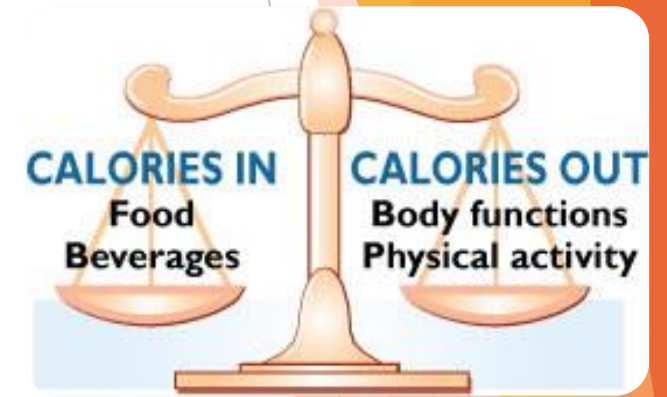
Or

kilojoules (kj) this is used in some countries instead of kilocalories (1 kcal = 4.2kj)

A kilocalorie is the amount of heat energy that is needed to raise the temperature of 1kg of pure water by 1°C

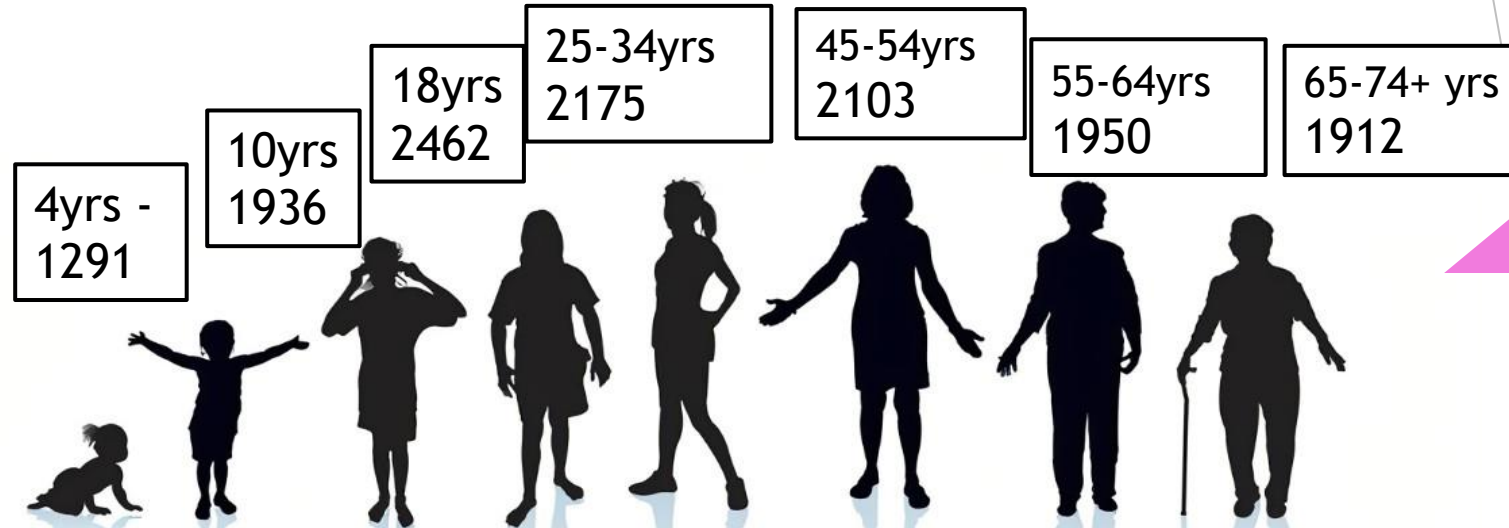
In depth look- Energy Needs

- ▶ Energy is measured in kilocalories (kcal) or kilojoules (kj- science)
- ▶ Definition: A kilocalorie is the amount of heat energy that is needed to raise the temperature of 1kg of pure water by 1°C.
- ▶ 1g of protein = 4.0 kcal
- ▶ 1g of carbohydrate = 3.75 (4) kcal
- ▶ 1g of fat = 9 kcal
- ▶ Energy dense foods are those which contain a high number of calories per gram (e.g. biscuits, chocolate etc)
- ▶ Low energy foods= food low in energy and high in water
- ▶ Depending on your genetic make up and time of life, your energy needs will change



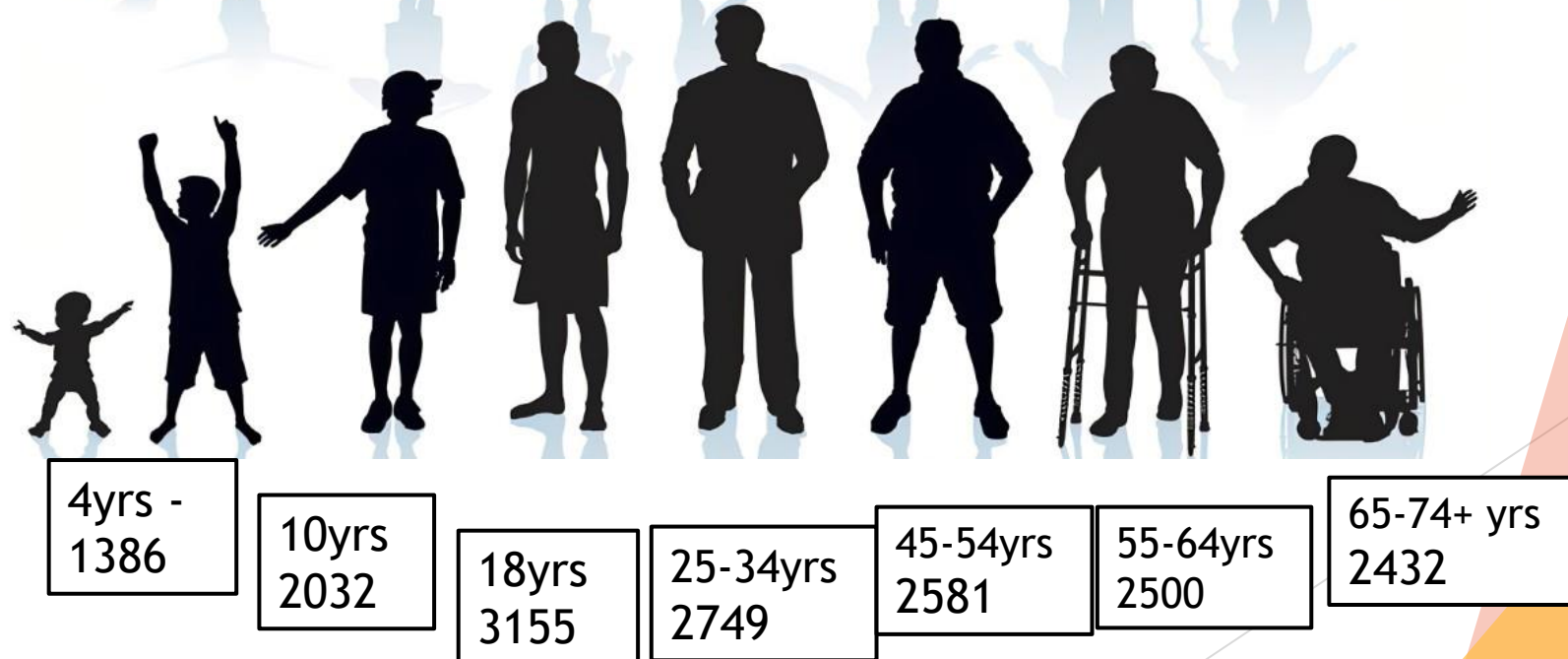
Kilocalorie requirements through the lifecycle

Female



Pregnancy and breast feeding increases needs

Male



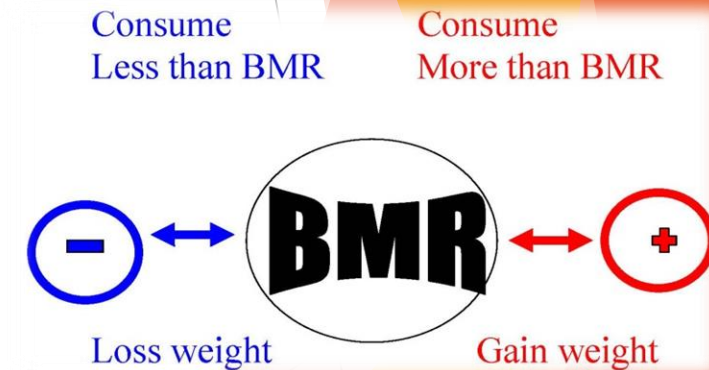
In depth look- BMR and PAL

- ▶ Definition= BMR- Basal Metabolic Rate is how many kilocalories you need to just stay alive for 24 hours
- ▶ Everyone has a different BMR- depends on various factors, to calculate, needs to be done in a lab, this is ONLY for complete rest
- ▶ Definition= PAL- Physical Activity Level is a measurement of how active you are.

$$\text{PAL} = \text{Total energy expenditure (over 24 hours)} / \text{BMR (over 24 hours)}$$

- ▶ Recommended energy sources from nutrients in the UK

- ▶ Protein= 15% of total food energy from proteins
- ▶ Fat= No more than 35% of total food energy from fats- No more than 11% from saturated fats
- ▶ Carbohydrates= 50% of total food energy from carbs- 45% from fibre rich starchy carbs- 5% from free sugars



In depth look- Nutritional Analysis

- ▶ Sometimes you will need to adapt a recipe to improve its nutritional values, and to meet the current healthy eating guidelines
 - ▶ Sweet recipes can be reduced in sugar by 20% without many people noticing
 - ▶ Fat can be swapped for unsaturated (butter for sunflower spread)
 - ▶ Salt can be removed/ reduced, replaced with other flavourings
 - ▶ Fibre can be increased by using wholegrain versions of foods
- ▶ Meals should follow government guidance (Eatwell Guide) along with BMR and PAL.
- ▶ How could you adapt a lasagne for a teenage girl who's into gymnastics?



Plenary- Exam question

Mo is an obese 40-year-old who works as a builder. For lunch yesterday, Mo had meatballs in tomato sauce with mashed potato (made with butter, milk and cheese), a bottle of cola, and a scone with clotted cream and jam.

Explain how the meal above reflects Mo's nutritional needs. [6 marks]

Mark Scheme

Levelled mark scheme:

0 marks	No answer given or answer incorrect.
1–2 marks	The answer shows some knowledge and understanding of the nutritional needs of adults and of nutrition in obesity. The answer points out one or two of the nutritional requirements, but no further explanation is given. The answer may lack structure and clarity, and the language used is generic and simplistic.
3–4 marks	The answer shows good knowledge and understanding of the nutritional needs of adults and of nutrition in obesity. The answer explains how the described meal reflects those needs, including reference to three or four points from the Indicative content. The answer is mainly clear and well-structured, attempting to use correct subject-specific vocabulary.
5–6 marks	The answer shows in-depth knowledge and thorough understanding of the nutritional needs of adults and of nutrition in obesity. The answer explains in detail how the described meal reflects those needs, including reference to at least five points from the Indicative content. The answer is clear and well-structured, using correct subject-specific vocabulary.

Indicative content:

- The calorific value of the meal is very high due to the ingredients used.
- The main sources of energy in the meal are mashed potato, cola, clotted cream and jam.
- The fat content of the meal is high and rather unsuitable for the individual given.
- The sources of fat include mashed potato (butter, cheese), scone (butter) and clotted cream.
- The protein content of the meal is adequate for the given individual.
- The sources of protein include mashed potato (cheese) and meatballs.
- The sugar content of the meal is very high and unsuitable for the given individual.
- The sources of sugar include cola (sweetened beverage), scone and jam.
- The fibre content of the meal is rather low, and, therefore, not suitable for the given individual.
- The sources of fibre include potato, tomato sauce, scone and jam.
- The content of complex carbohydrates is rather low, and, therefore, unsuitable for the given individual.
- The sources of complex carbohydrates include mashed potato, scone (from flour) and meatballs (from breadcrumbs).
- The current guidelines for a healthy diet in obesity suggest that the diet should be based on complex carbohydrates.
- The consumption of free sugars should be limited.
- The current guidelines for a healthy diet in obesity suggest that the diet should be rich in fresh fruit and vegetables.
- The meal described contains very few vegetables and fruits, and, therefore, does not reflect those requirements.
- The meal described is unsuitable as consuming it too often may lead to weight gain, rather than weight loss.
- It may also lead to a number of nutritional deficiencies, especially in minerals and vitamins, as the meal is not varied and contains very few vegetables and fruits.
- Accept other suitable answers.