

# Knowledge Organiser

## Food & Nutrition

### Topic: Dietary Needs

- Energy requirements
- Diet through the life stages
- Special Diets
- Lifestyle choices



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### Energy requirements

The government calculated estimates called EAR s (Estimated Average Requirements) for how much energy the average person needs on a daily basis. (amount of kcals or kilojoules per day)

**BMR** – minimum energy needed to function – the amount of energy used up just for breathing, heart beating etc. Factors: Age , Gender, Weight and height, Exercise

**PAL** – physical activity level. Measures how active you are More active = High PAL. Less active = Low PAL  
Gymnast – 2.0, office worker – 1.6

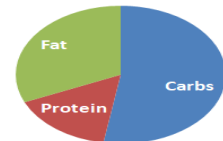
**Daily energy needs (kcals needed)** = BMR x PAL  
i.e. Someone with a BMR of 2000kcals and a PAL of 1.5  
2000 x 1.5 = 3000kcals per day

**Energy balance**- where the calories taken in from the diet are equal to the calories used by the body.

**BALANCE** - Energy in = energy out  
**WEIGHT GAIN** – Energy in > Energy out  
**WEIGHT LOSS** – Energy in < Energy out  
\*Energy in = calories taken in from the diet.  
\*Energy out = calories used by the body (BMR x PAL).

#### Energy from foods.

Aim to get energy from:  
Carbohydrates = 50% of daily energy (less than 5% from sugar)  
Protein – 15% of daily energy  
Fat – less than 35% of daily energy



#### Energy content of foods

Carbohydrates – 4 kcal/gram  
Protein – 4kcal/gram  
Fat – 9kcal/gram

#### Calculating the energy content of food:

i.e. A chicken sandwich containing:  
Bread (100g carb), Chicken (50g protein) & Butter (5g fat)  
Bread – 100g x 4kcal (=400kcal)  
Chicken – 25g x 4kcal (=100kcal)  
Butter – 5g x 9kcal (=45kcal)  
Total energy = 400 + 100 + 45 = 545kcal

**Fun fact!** Laughing for 15 mins a day burns 40 kcals!



#### Nutritional information for recipes or products

- can be found in 3 places
- 1. Reference tables online/in books, have to then calculate for the amount of ingredient.
- 2. Nutritional analysis software (I.e. Explore Food) calculates per weight entered.
- 3. On food labelling/packaging

### Special Diets

#### Lactose intolerant

Lactose – sugar in milk. Sufferers are intolerant to this. (causes adverse effects). Must substitute milk for alternatives (i.e. soya, almond) & dairy products



#### Coeliac

Gluten (in wheat, barley, rye) which produces bread, biscuit, cake, pasta, sauces. Substitute – coconut, rice, corn turn into flour. Check label



#### Nut allergy

Fatal reactions if nuts are eaten so must be careful. Adapt recipes i.e. for cake & biscuit. Labels MUST state if they contain nuts.



#### Diabetic

Glucose isn't used up by body for energy so it stays in the body. Regular meals, include carbohydrates, cut down the 3 S's



#### Allergens: 14 common allergens are:

1. Gluten  
*wheat, rye, oats*
2. Crustaceans:  
*prawns, crabs*
3. Eggs
4. Fish
5. Peanuts
6. Soybeans
7. Milk (lactose)
8. Mustard
9. Nuts;  
*almonds, hazelnuts, walnuts*
10. Celery
11. Sesame,
12. Sulphur dioxide  
*used as a preservative*
13. Lupin,  
*can be a flour*
14. Molluscs  
*(mussels, oysters, squid)*



### Diet through the life stages

**Babies** Up to 6 months – breast fed/formula. Contains all nutrients. At 6 months babies start to get weaned. (introduced to solid foods) pureed – must be soft as teeth are not formed. A combination of raw & cooked foods should gradually be increased (getting lumpier) to get the baby used to textures.



**Toddlers** - diet should be based on the Eat well guide. Children have small stomachs so should have small meals more frequently for energy. Dairy is important - calcium. They should be encouraged to try new food. They can be fussy so new food should be mixed with food they like, with choices offered.



**Children** - very active & growing, so have high energy needs. Need a balanced diet with fruit and vegetables, calcium & vitamin D to help absorb the calcium. Sugar should be avoided – sweets are common. Eating habits are learnt from parents so the whole family should eat healthily.



**Pregnancy** diets need to be adapted through pregnancy. Increase energy to 200kcal per day towards end of pregnancy for baby growth – no more to prevent weight gain. Folic acid (vitamin B9) prevents spina bifida in the baby.



**Teenagers** Teenagers usually eat too much sat. fat, salt & sugar, as well as being inactive due to TV, games etc. Growth spurts occur in early teen years -protein is required for muscles & calcium for skeleton (vitamin D will help absorb calcium). Teenage girls begin menstruation (blood loss) = loss of iron. This needs to be replaced in the diet (with vitamin C to help absorb it) Teenagers usually deal with stress for the first time with school & social media pressures) so this can lead to poor eating habits such as anorexia, or overeating which leads to obesity.



**Adults** – stopped growing so needs don't vary much. The Eatwell Guide should be followed. The metabolic rate of adults slows through age – muscle is lost & fat is gained – less energy is needed. Women continue to lose blood so iron is important.



**Elderly** – elderly are usually less active and so need less energy. They need to take care not to gain weight, cutting down on sat fat will reduce heart disease. Taste & smell change, which can affect enjoyment of eating/appetite. Important nutrients are calcium, vitamin D & vitamin B12: calcium (to reduce risk of brittle bones & osteoporosis) – vitamin D helps absorb calcium. B12 prevents memory loss (found in dairy, fish & beef. Some elderly do not get nutrients from a balanced diet & so need supplements. It is common that they have lost their teeth/have dental problems so sometimes meals need to be adapted so they are softer to eat & chew.) This can affect digestion of foods so fibre prevents digestive system becoming weak



### Key Words

**BMR (Basal Metabolic Rate)** - The amount of energy the body uses to stay alive each day (i.e. breathing)

**PAL –(Physical Activity Level)** - Amount of energy the body uses to fuel physical activity.

**EAR** - calculated estimates called EAR s(Estimated Average Requirements) for how much energy the average person needs on a daily basis. (amount of kcals or kilojoules per day)

**Energy balance** - where the calories taken in from the diet are equal to the calories used by the body. Energy in = energy out

**Supplements** - a product taken orally that contains an ingredient (such as vitamins, minerals) that are intended to supplement a diet and are not considered food.

**Coeliac** - medical condition in which the intestine reacts badly to a type of protein contained in gluten

**Diabetes** - a condition where blood glucose levels stay too high as insulin isn't produced by the body

**Lactose intolerant** - a common digestive problem where the body is unable to digest lactose, a type of sugar mainly found in milk and dairy product

**Vegetarian** - does not eat foods that consist of, or have been produced with the aid of products consisting of or created from, any part of the body of a living or dead animal.

**Vegan** – excludes all forms of exploitation of, and cruelty to, animals for food.

**Kosher** – suitable for a Jew. painless slaughtering with blood drained from the animal).

**Halal** – suitable for a Muslim. blessed during slaughtering)



### Lifestyle choices



**Vegetarian**- chooses not to eat any meat and sometimes products deriving from animals  
**Why?** Religious or personal reasons (i.e. ethical, environmental, cost or not enjoying the taste/texture)

**Pesco-vegetarian:** Eats fish, products derived from animals & dairy. NO meat

**Lacto-ovo-vegetarian:** Eats products derived from animals & dairy. NO meat or fish

**Lacto-vegetarian:** Eats dairy. NO meat, fish or products derived from animals .

**Vegan:** NO meat, fish, products derived from animals or dairy.

\*Product derived from animal – eggs

\*\*Dairy – milk, cheese, yogurt



### Religion

**Christianity** – no strict food laws. Good Friday & Fridays in Lent - no meat.

**Judaism** - KOSHER meat (painless slaughtering with blood drained from the animal).

Only 'split hoof' animals to be eaten (cows, goats, sheep). NO pork & fish without scales. NO meat with dairy (seen as mother & child)

**Islam/Muslim** - HALAL meat (blessed during slaughtering) NO pork & fish without scales. No alcohol. Ramadan = fast from sunset to sunrise.

**Hindu** – Most are vegetarian.

**Sikhism** – NO beef or alcohol. Most are vegetarian.

**Buddha** – Most are vegetarian as they are against killing.

**Rastafarian** - no pork. Most vegetarian.

#### At risk of lacking certain nutrients:

Protein – alternative proteins (mycoprotein, tofu, soya)

Iron – fortified cereal, green leafy veg, nuts

Vitamin B12 – from animals only so supplements

Omega 3 fatty acids –flaxseed, tofu & walnut

HBV protein – soya & quinoa or complementary proteins.

	Pork	Beef	Fish
Judaism	X	Kosher	X
Islam/Muslim	X	Halal	X
Sikhism		X	

### What might be asked in an exam?

**Grade 1-3** – identify changes in life stages and basic special diets

**Grade 4-6** – explain the changes needed to be made in diets and recipes due to dietary needs and choices.

**Grade 7+** - Calculate the nutritional needs and energy needs of a range of groups, including special diets, life stages and lifestyle choices. Calculate BMR, PAL and energy intake.

Exam preparation

**Useful sites.** Type these links into your browser or scan the QR codes:

Special diet GCSE Pod: [tinyurl.com/ydhkyrva](https://tinyurl.com/ydhkyrva)

Special diets Recipes: [tinyurl.com/y8hjvhrx](https://tinyurl.com/y8hjvhrx)

Lifestages info: [tinyurl.com/yaedup9z](https://tinyurl.com/yaedup9z)

