

Rewarding Learning

ADVANCED General Certificate of Education 2011

Health and Social Care

Assessment Unit A2 15

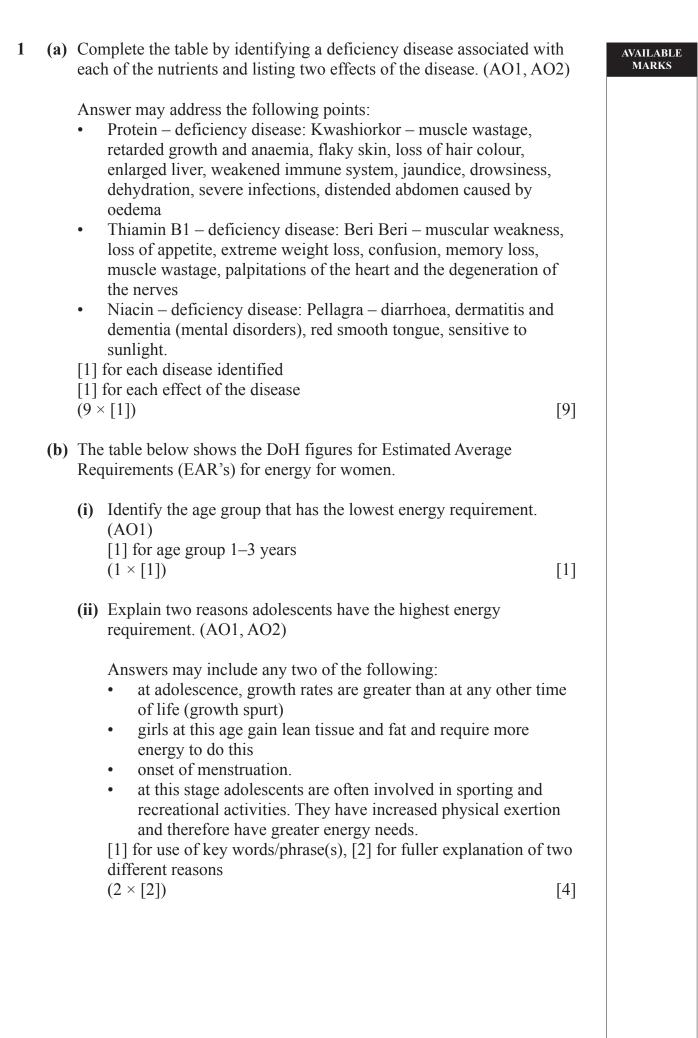
assessing

Unit 15: Human Nutrition and Dietetics

[A6H71]

WEDNESDAY 15 JUNE, AFTERNOON

MARK SCHEME



(iii) Discuss why the recommended energy intakes are higher for women during pregnancy. (AO1, AO2, AO3)

Answers may address some of the following:

- extra energy is required by the mother during periods of growth laying down extra body tissue particularly in the last three months
- extra energy is also needed during pregnancy for the growth of the baby which increases in the last three months

AVAILABLE MARKS

[3]

• more energy required for the preparation of body to produce breast milk.

[1] for use of key words/phrase(s), [2] for explanation, [3] for full discussion

 $(1 \times [3])$

(c) (i) Discuss the health risks associated with obesity. (AO1, AO2, AO3, AO4)

Health risks

Answers may address some of the following points:

- cardiovascular disease (coronary heart disease and stroke)
- hypertension
- risk of gallstones due to excessive cholesterol levels (this predisposes the development of gallstones)
- abnormality of blood clots
- increased risk of Type II diabetes and gout
- blood cholesterol hyperlipidaemia presence of raised or abnormal levels of lipids (fatty molecules)
- oestrogen dependent cancers (including breast, endometruim and prostate)
- increased risk of cancer: for women, ovary, cervical and breast cancer; for men, cancer of the prostate, colon and rectum
- infertility
- menstrual dysfunction which can cause fertility problems
- increased risk of complication during pregnancy
- increased risk of joint disorders such as arthritis, back pain
- oedema fluid retention can cause kidney problems in individuals
- poor wound healing
- chest infections due to decreased mobility
- increases risks associated with anaesthesia and surgery
- increased risk of depression
- respiratory problems

All other valid points will be given credit.

Level 1 ([1]–[3])

Overall impression: basic

- displays limited knowledge of the health risks associated with obesity
- there is little or no evidence of discussion
- quality of written communication basic. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([4]–[6])

Overall impression: adequate

- displays adequate knowledge of the health risks associated with obesity
- there is some evidence of a discussion
- quality of written communication is adequate. The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with clarity and coherence. There is some use of specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning evident.

Level 3 ([7]–[9])

Overall impression: competent

- displays very good to excellent knowledge of the health risks associated with obesity
- to be placed at the top of this mark band candidates must use subject specific terminology relating to nutrition
- quality of written communication is competent. The candidate successfully selects and uses an appropriate form and style of writing. Relevant material is organised with a high degree of clarity and coherence. There is widespread use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard to make meaning clear.

[0] is awarded for a response not worthy of credit

[9]

AVAILABLE MARKS

- (ii) Analyse the nutritional advice a GP might offer to help an obese patient to achieve a healthy diet. (AO1, AO2, AO3, AO4) Answers may address some of the following points:
 - ensure that energy intake does not exceed level of energy output, i.e. energy controlled diets
 - restricting proportion of dietary energy that is derived from fat (in particular saturated fat), added sugar and alcohol to reduce the energy density of the diet
 - increase starchy foods, e.g. potatoes, cereals, wholegrain these are high in NSP which increase the satiation value
 - increase intake of fruit and vegetables these are low in calorific value
 - use low fat alternatives, e.g. Quorn as a low fat high protein vegetarian option or spray oil when cooking
 - use cooking methods that reduce fat, e.g. grilling, steaming or poaching
 - replace fizzy drinks with water
 - reduce intake of alcochol
 - eat more high fibre foods, e.g. brown bread, brown rice these aid digestion
 - reduce intake of high sugar foods which provide empty calories, e.g. cakes and biscuits
 - eat breakfast/all main meals to prevent snacking
 - portion size

All other valid responses will be given credit.

Level 1 ([1]-[3])

Overall impression: basic

- displays limited knowledge of the nutritional advice a GP might offer
- there is little or no evidence of analysis
- quality of written communication basic. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([4]–[6])

Overall impression: adequate

- displays adequate knowledge of the nutritional advice a GP might offer
- there is adequate analysis
- quality of written communication is adequate. The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with clarity and coherence. There is some use of specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning evident.

Level 3 ([7]–[9]) AVAILABLE MARKS Overall impression: competent displays very good to excellent knowledge of the nutritional • advice a GP might offer there is competent analysis • quality of written communication is competent. The candidate • successfully selects and uses an appropriate form and style of writing. Relevant material is organised with a high degree of clarity and coherence. There is widespread use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard to make meaning clear. [0] is awarded for a response not worthy of credit [9] 35

2 (a) Discuss the role of each of the following nutrients in Joel's diet. (AO1, AO2, AO3)

Answers may address some of the following points: Carbohydrate

- source of energy predominately in the form of lactose which supplies 40% of the energy in an infants' diet. By six months an infant's birth weight is doubled and therefore needs energy for this growth
- provides galactose which is essential in the development of the brain and nervous system
- healthy digestive system/constipation

All other valid points will be given credit.

[1] for key phrase(s), [2] for explanation, [3] for fuller discussion [3]

Water

- prevents dehydration small body weight of the baby makes them susceptible to dehydration in hot weather and during illness
- helps to regulate body temperature
- assists in excreting waste from the body
- carries soluble nutrients
- lubricates joints

All other valid points will be given credit.

[1] for key phrase(s), [2] for explanation, [3] for fuller discussion [3]

(b) Discuss how Daniel's special dietary needs will influence planning meals for the family. (AO1, AO2, AO3)

Answers may include some of the following points:

- Philip will need to ensure that the meals he plans do not include milk or milky products as people with lactose intolerance cannot digest the milk sugar lactose
- cheese and yogurt can be eaten as the lactose has been changed to lactic acid
- substitutes can be used, e.g. lactolite this is cow's milk with the enzyme lactose removed
- check labels for lactose content
- Philip will need to buy fortified products.

[1] for use of key words/phrase(s), [2] for explanation, [3] for fuller discussion

 $(3 \times [1])$

[3]

AVAILABLE MARKS (c) Evaluate the possible effects of following a vegan diet on Sorcha's nutritional status. (AO1, AO2, AO3, AO4)

Answers may address some of the following points: Positive

- studies show that vegans as a group may have a lower risk of developing heart disease and some cancers. This is due to the lower intake of saturated fats and increased polyunsaturated fats
- energy requirements are easily met in vegan diets
- as vegans eat an increased amount of fibre which is bulky their diets are generally lower in fats
- increased fibre content lowers the rate of constipation and diverticular disease
- body mass index lower than matching omnivores
- reduced blood pressure
- lower risk of chronic diseases
- less prevalence of osteoporosis.

Negative

- problems of deficiency may arise when there is an over reliance on a limited number of plant-based foods, e.g. risk of anaemia due to non-haem iron and B12 intake.
- vegan diet may cause deficiencies with vitamin D and calcium which could affect bone development and failure to make peak bone mass
- deficiency of n-3 fatty acids due to the absence of fish in the diet
- vitamin A decreased intake leading to skin complaints and poor eyesight
- protein consumed will be generally of low biological value and therefore complementation will be required
- Niacin found in meat will be depleted. This is very important in adolescents for energy producing reactionary cells, e.g. healthy nervous system and skin
- vitamin D not naturally present

All other valid points will be given credit.

[0] is awarded for a response not worthy of credit

Level 1 ([1]–[3])

Overall impression: basic

- displays limited knowledge of a vegan diet and how it impacts upon the nutritional status of an individual
- candidates who focus on only positive or negative points remain in this band
- quality of written communication basic. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([4]–[6])

Overall impression: adequate

- displays adequate knowledge of a vegan diet and how it impacts upon the nutritional status of an individual
- to get into this mark band candidates should include both positive and negative points
- quality of written communication is good. The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with some clarity and coherence. There is some use of specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning evident.

Level 3 ([7]–[9])

Overall impression: competent

- displays a good knowledge of a vegan diet and how it impacts upon the nutritional status of an individual
- to get into this mark band candidates must discuss positive and negative points in some detail
- quality of written communication is competent. The candidate successfully selects and uses an appropriate form and style of writing. Relevant material is organised with a high degree of clarity and coherence. There is widespread use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard to make meaning clear.

Level 4 ([10]–[12])

Overall impression: excellent

- displays an excellent knowledge of a vegan diet and how it impacts upon the nutritional status of an individual
- to get into this mark band candidates must discuss positive and negative points competently
- quality of written communication is excellent. The candidate successfully selects and uses an appropriate form and style of writing. Relevant material is extremely well organised with a high degree of clarity and coherence. There is extensive use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of the highest standard and ensure that meaning is absolutely clear. [12]

(d) Discuss the effect diet may have on bone health. (AO1, AO2, AO3, AO4)

Answers may address some of the following points:

- a diet rich in calcium and phosphorous at an early age can help individuals achieve a high peak bone mass by the age of 20–25, calcium sources need to feature in all meals during the day for teenagers to ensure optimum bone health in later years. Sources of calcium – milk, cheese, yogurt, white bread, green leafy vegetables, nuts, seeds, dried fruit, oranges
- phosphorus in the diet is more effectively absorbed than calcium. Bone loss can occur if an individual's diet is not rich in phosphorus, i.e. cereals, milk, cheese, meat and bread
- calcium, phosphorus and magnesium all form inorganic crystals that are deposited between collagen fibres in the bones to harden the framework and give it strength
- vitamin D causes the synthesis of a calcium binding protein in the intestine that transports calcium to the bone. Sources in the diet include margarine, oily fish and liver
- zinc and vitamin K vitamin K activates a bone specific protein which is needed for the normal binding of calcium to the bone. Sources in the diet include milk, cheese, yogurt, whole grain cereals and meat
- vitamin C essential factor for the synthesis of collagen that forms part of the structural framework for bones
- protein is involved in collagen development. Collagen creates the bone tissue's soft

three-dimensional framework and gives it tensile strength

- vegetarian diets high in fluoride intakes have been linked to lower incidence of osteoporosis developing in later life
- once peak bone mass has been achieved the healthy dietary intake of the above nutrients are required to maintain optimum bone health
- high in sodium intake, alcohol in the diet can reduce bone accretion and is therefore detrimental to bone health
- phytates and NSP may hinder calcium absorption and promote increased urinary excretion through which calcium is lost

All other valid points will be given credit.

[0] is awarded for a response not worthy of credit

Level 1 ([1]-[3])

Overall impression: basic

- displays limited knowledge of the effects diet may have on an individual's bone health
- there is limited discussion
- quality of written communication basic. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([4]–[6])

Overall impression: adequate

- displays adequate knowledge of the effects diet may have on an individual's bone health
- there is adequate discussion
- quality of written communication is good. The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with some clarity and coherence. There is some use of specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning evident.

Level 3 ([7]-[9])

Overall impression: competent

- displays a good knowledge of the effects diet may have on an individual's bone health
- there is competent discussion
- quality of written communication is competent. The candidate successfully selects and uses an appropriate form and style of writing. Relevant material is organised with a high degree of clarity and coherence. There is widespread use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard to make meaning clear.

Level 4 ([10]–[12])

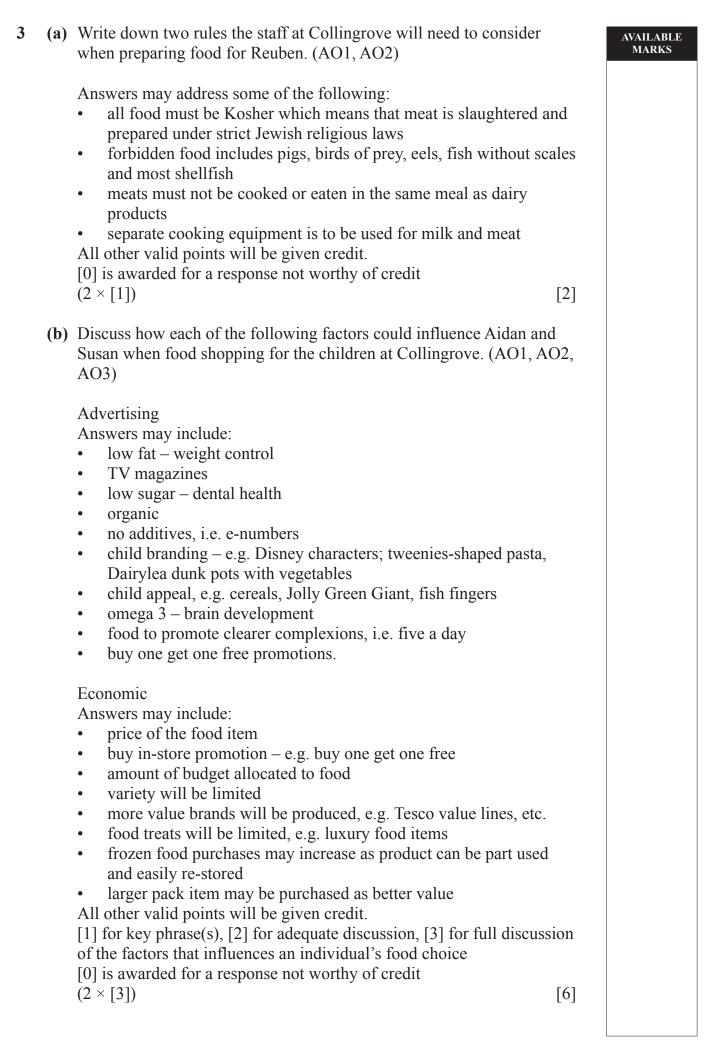
Overall impression: excellent

- displays an excellent knowledge of the effects diet may have on an individual's bone health
- there should be excellent discussion
- quality of written communication is excellent. The candidate successfully selects and uses an appropriate form and style of writing. Relevant material is extremely well organised with a high degree of clarity and coherence. There is extensive use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of the highest standard and ensure that meaning is absolutely clear. [12]

[12]

33

AVAILABLE MARKS



(c) Analyse the measures that should be taken to reduce the risk of food poisoning in a residential care setting. (AO1, AO2, AO3, AO4)

Answer may address some of the following points:

Personal hygiene of staff

- Hands washed frequently before handling food in the kitchen, between food handling operations to prevent cross contamination of bacteria from raw to cooked food, after using the toilet and before leaving washroom, after smoking, coughing, sneezing, after handling waste food or refuse.
- Coughing and sneezing may be responsible for the spread of bacteria on to food or working surfaces and should therefore be avoided whenever open food is handled, handkerchiefs or tissues should be used at all times, disposable paper tissues are preferable since they can discarded.
- Smoking this is against the law in food preparation areas as it involves contact between the hand and mouth and can be responsible for the spread of Staph aureus.
- Outdoor clothing should be placed in lockers as it can be a source of contamination, i.e. staphylococcus.
- Protective clothing should be worn at all times by food handlers. Should be clean and cover all parts of the body liable to contaminate food. Should be laundered regularly. Protective headwear to retain hair in place. Hair should not be touched or combed in the vicinity of food.
- Cuts, grazes, boils and sceptic spots these harbour dirt and bacteria and should be covered with clean waterproof dressing wherever food is handled. The dressings should be brightly coloured so that they will be readily seen if they fall off into food. Well-equipped first aid box containing these dressings should be kept on the premises.
- Nails long dirty nails harbour bacteria therefore nails should be kept short. Nail varnish should not be worn due to chippings falling off into food or bacteria living in the crevices it makes on nails.
- Jewellery other than wedding rings should not be worn due to harbouring bacteria.
- Health if suffering from diarrhoea, vomiting, septic cuts, boils or other skin infections, employer should be notified. Food handler must not touch food as he or she is a potential source of food poisoning organisms.

Kitchen

- The premises should facilitate cleaning, have designated areas for food preparation, e.g. "dirty" area for raw meat fish, etc. to be prepared. "Clean" area for preservation of cooked meats and desserts.
- Floors should be hardwearing with no splits that can harbour bacteria and be easily disinfected and cleaned.
- Walls should be glazed for easy cleaning and be in good repair.
- Lighting essential to facilitate thorough cleaning.
- Ventilation essential for controlling humidity and temperature which are risk factors involved in bacteria growth. Regular cleaning of ventilation systems important.
- Toilets and washing facilities should be kept clean and separate from the food areas, notices should be displayed in these areas promoting good hygiene. Hot water supply for washing hands and anti-bacterial soap should be provided on premises.
- Equipment and surfaces well cleaned and in good repair. Chopping boards coloured for specific use and in good repair. Separate machines for raw and cooked foods to prevent cross contamination. Cloths should be colour-coded also.
- Waste disposal food waste is ideal for growth of bacteria and unless it is stored correctly it will attract flies, rodents, etc. which will cause a risk of food poisoning. Must be separate from fresh food and removed from kitchen regularly.
- Pest control must be considered as these carry pathogens which can contaminate food and so spread disease.

Food handling

- High risk foods meat and poultry, eggs, milk and cream dishes, cooked rice, seafood, re-heated dishes. These foods are likely to cause food poisoning if not prepared or cooked properly.
- Preventing contamination, i.e. cross contamination. This can be avoided by not having any direct handling of food. Food handlers should wear disposable plastic gloves.

- Temperature control defrosting, cooking, chilling, reheating. It is essential to control the temperature of food during the preparation, processing, cooking and storage in order to prevent multiplication of food poisoning bacteria. Good temperature control is the single most important factor in the prevention of food poisoning. Food handlers must avoid keeping foods such as meat and poultry, egg and milk dishes, cream cakes and desserts in the danger zone 5–63°C for longer than necessary.
- Storage of food all foods should be stored in suitable containers and in clean conditions to prevent bacteria growing. Stock rotation is recommended. Refrigerator storage can be used for the shortterm. Since most pathogenic bacteria are unable to multiply at refrigerated temperatures of 1–4°C food storage in a fridge is relatively safe. Deep freeze cabinets should be maintained at –18°C. The freezing of food kills some bacteria but some spores can survive and hibernate therefore sensible defrosting has to be considered, i.e. once food is thawed is should be used right away and cooked at correct temperatures, e.g. over 70°C as most bacteria is killed at and above this temperature
- HACCP regulations storage conditions in delivery van should be considered

All other valid points will be given credit.

Level 1 ([1]–[4])

Overall impression: basic

- displays a limited knowledge of the role each of the measures that should be taken to reduce the risk of food posioning
- there is limited analysis
- quality of written communication is basic. The candidate makes only a limited attempt to select and use an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([5]–[8])

Overall impression: adequate

- displays an adequate knowledge of the measures that should be taken to reduce the risk of food posioning
- there is adequate analysis
- quality of written communication is adequate. The candidate makes a reasonable attempt to select and use an appropriate form and style of writing. Relevant material is organised with some clarity and coherence. There is some use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning evident.

Level 3 ([9]–[12])

Overall impression: competent

- displays a good knowledge of the measures that should be taken to reduce the risk of food posioning
- there is competent analysis
- quality of written work is competent. The candidate successfully selects and uses the most appropriate form and style of writing. Relevant material is organised with a high degree of clarity and coherence. There is widespread use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard and ensure that the meaning is clear.

Level 4 ([13]–[15])

Overall impression: excellent

- displays an excellent knowledge of the measures that should be taken to reduce the risk of food posioning
- there is in-depth competent analysis
- quality of written work is excellent. The candidate successfully selects and uses the most appropriate form and style of writing. Relevant material is extremely well organised with the highest degree of clarity and coherence. There is extensive and accurate use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard and ensure that meaning is absolutely clear.
- [0] is awarded for a response not worthy of credit
- (d) Analyse the dietary advice the health visitor may have given Nicola. (AO1, AO2, AO3, AO4)

Answers may address some of the following:

- encourage children to eat foods which are good sources of a wide range of nutrients, e.g. cheese, cereals, fruit, vegetables, eggs, milk, meat and bread
- try not to give too many snacks particularly sweets and crisps which fill children up but have low nutritional value
- chop food into small pieces and make it attractive and pleasing to the eye
- small children usually have small appetites so they may need to be given small portions of food at mealtimes with healthy snacks in between, e.g. cheese, fruit, etc.
- wide variety of foods enables young children to taste different foods and textures
- limit and reduce sugary foods to promote good oral health
- limit saturated fatty foods to reduce risk of childhood obesity
- try to encourage children to drink nutritious drinks such as milk or diluted, unsweetened fruit juices rather than sweetened fizzy drinks, i.e. cola, etc.
- fruit juices should be limited to mealtimes for oral health reasons
- ensure optimum source of dairy products, to provide intake of vitamin D which assists with calcium absorption

AVAILABLE MARKS

[15]

- AVAILABLE MARKS
- hard food, e.g. carrots, etc. promote healthy teeth and gums also help meet target of five to seven portions of fruit and vegetables daily. Ensure intake of vitamin C which assists with iron absorption
- aim to provide three meals with nutritious snacks between meals every day
- do not include too much fibre-rich food. A diet which is very high in fibre can be very filling and children would be unable to eat enough food to supply all the energy and nutrients they require for growth
- dietary goals should be considered for all the nutrients and also in line with DRV's
- include omega 3 rich foods for brain development
- consideration of all relevant nutrients.

Level 1 ([1]–[3])

Overall impression: basic

- displays a limited knowledge of the dietary advice the health visitor may have given Nicola
- there is limited analysis
- quality of written communication basic. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([4]–[6])

Overall impression: adequate

- displays an adequate knowledge of the dietary advice the health visitor may have given to Nicola
- there is adequate analysis
- quality of written communication is adequate. The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with clarity and coherence. There is some use of specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning evident.

Level 3 ([7]–[9])		ILABLE
Overall impression: competent	MA	ARKS
• displays a good knowledge of the dietary advice the health visitor		
may have given to Nicola		
• there is competent analysis		
• quality of written communication is competent. The candidate		
successfully selects and uses an appropriate form and style of		
writing. Relevant material is organised with a high degree of clarity	7	
and coherence. There is widespread use of appropriate specialist		
vocabulary. Presentation, spelling, punctuation and grammar are of		
a high standard to make meaning clear.		22
[0] is awarded for a response not worthy of credit [9]] .	32
Total	1 1	100