



2009 Health and Human Development GA 3: Examination

GENERAL COMMENTS

The majority of students answered all questions on the 2009 Health and Human Development examination. However, it was disappointing to see that some students did not attempt all questions, especially in areas such as Nutrition Australia, nutrition as a protective function, the social model of health, soft tissue development and sustainable primary health care. It is important that all areas of the study are covered in class.

Many students used a highlighter but failed to note the key words in the question that indicated what they were asked to answer. Many highlighted their answer. This makes it difficult for the assessors to read. All parts of the answer should be relevant.

Students should use the number of lines provided and the marks allocated for each question as a guide to the depth and length of response required. Students are expected to answer in the space provided on the examination paper; however, additional script books can be requested.

Students are advised to write their responses in pen rather than pencil, as responses written in pencil can be hard for assessors to read.

SPECIFIC INFORMATION

Note: Student responses reproduced herein have not been corrected for grammar, spelling or factual information.

For each question, an outline answer (or answers) is provided. In some cases the answer given is not the only answer that could have been awarded marks.

Question 1a.

Marks	0	1	2	Average
%	34	32	34	1

Disability Adjusted Life Years (DALY) are a combination of the years of life lost through premature death (YLL) and the years of life lost due to living with disability (YLD).

For students to be awarded two marks they needed to include both an understanding of YLD and YLL in their answer. If only the formula was given, $DALY = YLD + YLL$, then only one mark was awarded.

Question 1b.

Marks	0	1	Average
%	59	41	0.4

One of:

- injuries contribute to high direct and indirect costs in relation to health expenditure, the community and the individual
- prevention programs can decrease the impact of injuries on the health system and on individuals
- there is a high impact on the lives of those affected.

Question 1c.

Marks	0	1	2	Average
%	27	38	35	1.1

Intellectual development

- People in this age group's capacity for problem solving is not fully developed, therefore they may make inappropriate decisions when driving a car, for example, speeding, drink driving, driver error or when using substances such as drugs.
- Individuals in this age group often believe that they are invincible and that accidents will not happen to them, which increases the likelihood of risk-taking behaviour.
- There may be less knowledge of the effect that road conditions and other potential risks can have on personal safety.

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Social development

- Individuals may not have developed the social skills to enable them to resist when friends encourage them to take risks such as drinking alcohol and driving.

Emotional development

- Individuals may not have developed a positive self-concept or self-esteem; this may contribute to risk-taking behaviour in order to enhance their feelings of esteem.

No marks were given for naming the area of development but this had to be included in the answer for full marks. Students had to discuss injury or poisoning, but they did not have to include both.

The following are examples of high-scoring student responses.

Social Development: At this stage of their lifespan individuals are influenced strongly by peers. As they form relationships and discover the roles required to 'fit in' individuals, especially males, are likely to undertake risk taking behaviour to be socially accepted eg they may speed to impress their friends or be less cautious in hazardous environments.

Emotional development – Emotional development at this age group can be affected by a myriad of things but generally involves acceptance. The emotional need for acceptance can cause the high levels of injuries and poisonings as a lack of it can lead to self-inflicted injuries (resulting in suicide). Striving for acceptance also leads to a likelihood of being susceptible to peer pressure, which can lead to partaking in risk-taking behaviour (leading to death or injury) or to take drugs. A low self esteem could also lead to similar consequences, proving that emotional development can have an effect on the amount of deaths from injuries and poisoning.

Question 1d.

Marks	0	1	2	3	Average
%	16	32	34	18	1.6

The state government could introduce advertisements that point out the dangers of binge drinking. The advertisements would raise awareness of the risks associated with binge drinking, such as being involved in violent incidents that may lead to death or injury. If young adults take note of the graphic advertisements and change their behaviour, then deaths should be reduced.

Appropriate examples of strategies could have been those related to:

- seat belts
- alcohol or other drug misuse
- speeding
- P plate restrictions
- 0.00 laws
- drugs – zero tolerance
- work injuries – WorkSafe
- Arrive Alive.

Students needed to include three key points that were relevant to the age group and were feasible to implement. Students could have chosen a strategy that had already been implemented or developed a strategy of their own. This question was answered well.

The following is an example of an excellent student response.

The 'Fit To Drive' program is one that involves coming to schools and targeting year 11 students (15 – 17 year olds) about the importance of driving safely. car accidents are a large cause of injury for this age group and the strategy uses real people who have suffered injury due to dangerous driving to educate about the importance of driving safely to reduce road fatalities. The program also informs of the risks associated with drug and alcohol use for this age group and the strategy uses workshops and an actual car demonstration to attempt to reduce death and injury associated with this age group.

Question 2

Marks	0	1	2	3	4	Average
%	9	18	30	21	22	2.3



Students needed to use the issues listed in the question and justify the reasons why the government should develop a national men's health policy. Two marks were awarded for each reason. Possible examples included:

- life expectancy for men is less than for women. Men experience higher rates of mortality and morbidity than women because they often do not access health care services or have as much awareness of how to prevent a range of health problems
- men visit doctors less often than women do, resulting in men seeking medical assistance at later stages of illness. This can result in poorer health outcomes and more intensive and costly interventions
- increase awareness of the health resources available to encourage better use of them by men, because men tend not to be as concerned about their health as women
- women's health has been targeted by the federal government and this has resulted in better health outcomes for women. It is therefore also important to raise awareness of men's health issues
- men have higher rates of cardiovascular disease than women so it is important to raise men's awareness of the risk factors associated with cardiovascular disease, and to better engage men about their health (any example of appropriate diseases could be used).

This question was not answered well by many students. Many did not focus on the issues listed and did not draw from their knowledge of men's health to justify why the government should develop a national men's health policy.

The following is an example of a good response.

Men often have a poorer level of health than women as they avoid seeing the doctor or addressing early symptoms as they feel its unnecessary, not 'masculine'. As a result health problems increase in severity. By engaging men about their health they can learn to acknowledge the importance of seeing medical practitioners regularly.

Key issues for men regard preventable lifestyle diseases such as cardiovascular diseases, obesity, injury and some cancers. By raising awareness of the range of preventable measures that can be applied to reduce health problems, the health status of men can be improved. Men can avoid such illnesses if they are aware of their causes in the first place.

Question 3a.

Marks	0	1	Average
%	33	67	0.7

Life expectancy is the number of years an individual can be expected to live if current death rates continue.

Most students were able to answer this question correctly.

Question 3b.

Marks	0	1	2	3	4	Average
%	3	11	32	25	29	2.7

Possible reasons why life expectancy has increased since 1901 include:

- better public health: access to safe water and sanitation, less overcrowding decreases the prevalence of infectious illnesses so less people die at young ages
- increased living standards: people are more able to afford medical attention to identify early interventions and prevent death
- increased knowledge about nutrition and health: people are able to prevent the onset of many diseases and illnesses by eating the appropriate food
- advances in medical technology: x-rays, immunisation, access to early identification of or the ability to prevent infectious diseases that would have caused deaths before immunisations were developed, antibiotics prevent many people from dying at a young age.

Students were awarded up to two marks for each of the two reasons. Most students did well in answering this question.

Question 3c.

Marks	0	1	2	Average
%	61	30	9	0.5

Life expectancy at birth takes into account infant mortality and mortality rates for children under five years of age. Death rates for infants and those under five years of age are much higher than for any other age group. Individuals who reach their fifth birthday are more likely to reach adulthood. Therefore, individuals who have reached the age of 30 have passed through the dangerous under five years of age stage of the lifespan.

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To be awarded two marks students must have mentioned that the first year and/or five years of life have the highest mortality rates that affect life expectancy. Students were awarded one mark if they made reference to high mortality rates in the lifespan stages leading up to age 30. Students needed to mention both life expectancy at 30 and life expectancy at birth.

Question 4a.

Marks	0	1	2	3	4	Average
%	12	15	26	22	24	2.3

Biomedical approach to health care

- This approach focuses on disease and illness after it has occurred and relies on diagnosis, treatment and cure.
- This approach is a medical approach where ill health is seen as a malfunction of the body and the malfunctioning part needs to be isolated and repaired.
- This approach focuses on mastery over disease, therefore doctors and hospitals are seen as important for health and a 'quick fix' solution to any health issue.
- The demand is for skilled diagnosis and intervention with a reliance on technology and hospitals as the focus for health.

Preventative approach to health care

- This approach focuses on healthy people and aims to keep them healthy by promoting healthy behaviours rather than the treatment of ill health when it occurs. It recognises that many of the risk factors can be reduced by individual changing their behaviour.
- There are three different levels of prevention depending upon when they occur. The three levels are: primary, secondary and tertiary.

Question 4b.

Marks	0	1	2	Average
%	19	18	63	1.5

There are many examples that represent a biomedical approach to health that students could have listed, including:

- immunisation
- the use of x-rays for diagnosis and treatment
- antibiotics and other medications
- blood tests
- surgery
- transplants.

Some students were unable to select appropriate examples.

Question 4c.

Marks	0	1	2	Average
%	31	40	29	1

Examples of the preventative approach to health care could have included:

- lower health care costs as diseases are prevented
- not all diseases can be cured so it is beneficial to prevent them from occurring
- this approach takes a holistic view of health and considers the broader social and environmental factors that impact on health
- individuals have greater control over their own health.

The following is an example of a high-scoring student response.

1. It is much cheaper than the biomedical approach as it does not rely on machines and hospitals.
2. It reduces the strain on the health care system as it reduces the number of people who need surgery or hospitals.



Question 4d.

Marks	0	1	2	3	4	5	6	Average
%	52	6	10	9	11	7	6	1.7

The principles of the social model of health and examples of how they are reflected in health services include:

- addresses the social, environmental and economic determinants of health
- this is reflected in our national health insurance system, Medicare, which provides access to essential health care services to all Australians regardless of their social, environmental or economic situation
- involves inter-sectorial collaboration (lots of government departments, not just the health department)
- health promotion campaigns such as Arrive Alive are joint initiatives, involving the department of transport and the department of health and ageing
- aims to reduce social inequities
- there is a range of health care services targeted specifically to those groups who experience inequality in health outcomes. These include Aboriginal health care services, women's health centres, men's health clinics and adolescent health clinics
- empowers individuals and communities
- there are many health promotion campaigns such as Quit, SunSmart and Go For Your Life that are designed to educate and raise awareness of the risk factors associated with many diseases and illnesses. Education empowers individuals to take control over their health
- enables access to health care.

Health services could have included health care services and/or preventative programs such as Quit, Kids Go For Your Life, SunSmart, Go For Your Life, etc.

Students received one mark for the identification of the principle and one mark for its application. If students used the elements of the Ottawa Charter they were not awarded any marks. This question was answered poorly; this was disappointing considering that the social model of health is a dot point in the study design. Many students did not answer this question, indicating that this area may not have been covered in all schools.

The following are examples of good student responses.

Through Medicare, health services in Australia reduce inequalities relating to physical location, education levels, income and sex. Medicare is available to all Australian residents. no matter where in Australia, in theory, you are able to receive the same care and benefits that Medicare provides for.

Accessibility is one of the principles of the Social Model of health. Australian health services reflect this as there are many different and good quality health services available in cities and large rural towns that are well-funded and extensively equipped hospitals. Rural and remote areas have access to the Flying Doctor service.

Question 5a.

Marks	0	1	Average
%	11	89	0.9

Examples of the relationship that exists between socio-economic status and obesity include (one of):

- women in the lowest socio-economic group have a higher prevalence of obesity than women in the highest socio-economic group
- as socio-economic status increases, the prevalence of obesity decreases.

Question 5b.

Marks	0	1	2	3	4	Average
%	17	17	30	18	17	2

Factor – Knowledge and beliefs: Women in higher socio-economic groups are more likely to have higher levels of education and income and better quality housing than women in low socio-economic status groups. The women in higher socio-economic groups may have more knowledge about nutrition and foods to eat to maintain an appropriate weight. These women may also have a greater understanding of the importance of physical activity in maintaining a healthy body weight.

Factor – Environment: Women in higher socio-economic status groups may have access to foods that provide more nutrition and they may practise cooking healthy meals because they have appropriate facilities within their homes.



Women who are in the lowest socio-economic status group may not have access to shops that sell appropriate foods that are affordable. The facilities in their homes may not be conducive to cooking.

Factor – Lifestyle and Behaviour: Women from low socio-economic status groups are more likely to consume foods that are more energy dense than women from high socio-economic status. Women in high socio-economic status groups are also more likely to undertake regular physical activity that contributes to maintaining a healthy body weight.

Many students did not include the differences between women in the low and high socio-economic status groups and did not relate the answer to obesity and one of the factors listed. No marks were awarded for stating the factor.

The following are examples of suitable student responses.

People from lower socio-economic groups tend to have to work more for less income than higher status women. This means that there is less money to spend on food. Processed foods tend to be cheaper than fresh foods but may have more fat. This would increase the percentage of obese females in low socioeconomic groups as they cannot afford the healthier options.

People of low socioeconomic status are less likely to have the required knowledge on food intake and the risks of dietary imbalance and are therefore likely to choose poor lifestyle choices with little knowledge or awareness of preventable initiatives. Higher socioeconomic status women usually have higher levels of education and more knowledge about lifestyle choices.

Question 5c.

Marks	0	1	2	3	Average
%	41	30	20	10	1

Examples of appropriate answers could have included:

- fat is a concentrated source of energy and therefore it is important to consume foods that are low in fat. Sugar or simple carbohydrates also provide energy and should be eaten in small amounts. Fibre assists in creating a feeling of satiety, therefore reducing the amount of food eaten and reducing energy intake. Alcohol also provides energy and should be consumed in small amounts
- eating a variety of vegetables, and having a diet low in fat, including lean meat and reduced fat varieties of milk and milk products
- it is important to consume a balanced diet selected from a wide range of foods. This will help to ensure that a more nutrient-dense diet is consumed rather than an energy-dense diet. This will help to ensure a limited consumption of foods which are high in fat and sugar and low in fibre.

The focus of the question was on protective factors so students were not awarded any marks if the answer discussed risk factors.

The following is an example of a high-scoring student response.

A good diet of nutritious foods can protect against obesity. Choosing to drink water instead of options like soft drink decreases the intake of sugar to protect against obesity. Ensuring that you receive the main source of energy through a balanced diet protects against obesity because if too much protein and fats are eaten then they will be converted into fat deposits in the body and contribute to a higher weight.

Question 5d.

Marks	0	1	2	3	4	Average
%	21	20	24	20	15	1.9



	Direct consequence	Indirect consequence
Individual	<ul style="list-style-type: none"> increased risk of developing type 2 diabetes, cardiovascular disease and some cancers increased costs associated with accessing health services and the use of medications as a result of increased morbidity (specialists, doctors, etc.) 	<ul style="list-style-type: none"> loss of income due to the inability to work while attending health care may be unable to take part in many activities – can lead to social exclusion lack of self-esteem associated with being obese family members may need to take time off work to care for an obese person if they suffer from illness or disease
Community	<ul style="list-style-type: none"> increased health costs to treat illnesses associated with obesity focus on treating obesity-related illnesses at the expense of preventative health programs increased costs associated with the use of hospital services to treat obesity-related health problems 	<ul style="list-style-type: none"> loss of productivity through individuals taking time off work loss of revenue from taxes due to individuals being unable to work

Question 6

Marks	0	1	2	3	4	Average
%	43	21	21	5	9	1.2

Two of:

- Nutrition Australia developed the Healthy Living Pyramid. It is a simple conceptual model for people to use as a first step to adequate nutrition. It shows basic foods to help in individual food choices and is a model for qualitative, not quantitative, food choices. The Pyramid has three categories: eat most, moderate and in small amounts. It is based on proportions of foods rather than amounts or serving sizes. It groups together foods according to their energy content and according to the nutrients they provide
- Nutrition Australia provides a Workplace Health and Wellbeing Program. The aim of the program is to inspire healthy eating. The workplace program is designed to assist employees to reduce health risks such as high blood pressure and high cholesterol, and to assist in achieving a healthy weight and improvement of overall health through good nutrition and physical exercise. They provide workplace presentations, cooking demonstrations, health displays and a workplace canteen/café menu assessment.
- Nutrition Australia provides a healthy eating schools program which provides information and healthy eating programs for children, parents and teachers
- Nutrition Australia offers a nutrition in schools advisory service that provides information about healthy canteen policies and dietary advice to children, parents and teachers.
- Nutrition Australia conducts National Nutrition Week each year focusing on a particular theme around nutrition which promotes healthy eating such as increasing the intake of vegetables and fruits
- Nutrition Australia provides a comprehensive website that includes a wide range of information on healthy eating and examples of recipes to promote healthy eating.

Students had to provide specific examples of how Nutrition Australia promotes healthy eating rather than giving a general overview. Where students provided a general overview only, they could not be awarded more than one mark for the entire response. Students did not receive any marks for naming the example.

Too many students did not attempt this question. Again, this question related to a dot point in the study design, indicating that many students had not covered this area.

Question 7a.

Marks	0	1	2	Average
%	22	52	27	1.1

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Sasha and Emily follow similar growth patterns for weight; however, Emily begins at a higher weight than Sasha and this follows through in the differences in weight between the two girls. Both are following normal patterns of growth in weight but Emily's weight approximately follows the 97th percentile, compared with Sasha, whose weight follows the fifth percentile.

Students must have used the information in the percentile chart and must have included both Emily and Sasha in their response. Many students did not understand that both Emily and Sasha were within the normal range. Students did not receive marks for providing reasons for similarities or differences.

Question 7bi.

Marks	0	1	2	3	Average
%	36	32	20	12	1.1

Possible examples of inherited factors that could account for the differences in weight between Sasha and Emily include:

- at the moment of conception, an individual's characteristics are determined. Emily's parents may be of a larger size than Sasha's parents, therefore Emily may have inherited a genetic predisposition to a higher weight than Sasha
- metabolism: Emily may have inherited a lower metabolic rate than Sasha, which means that Emily's body would be using less energy throughout the day than Sasha
- body shape and size (body type): Sasha may have inherited a body shape that is taller and leaner than Sasha's. A taller and leaner body type uses more energy. If Emily has a more rounded body shape, she may find it more difficult to be involved in physical activity and this would reduce the amount of energy expended.

Students were awarded one mark for the correct identification of an inherited factor and two marks for the description of how the factor contributed to the differences in the weight of the two girls.

Question 7bii.

Marks	0	1	2	3	Average
%	24	36	26	14	1.3

Possible examples of environmental factors that could account for the differences in weight between Sasha and Emily include:

- family: Emily's family may provide her with foods that are energy dense rather than nutrient dense, which could contribute to her being heavier than Sasha. Sasha's family may encourage her to eat a more healthy, balanced diet and undertake regular physical activity by taking her to the park
- culture: Emily's culture may consider a heavier child to be a sign of good health, whereas Sasha's cultural background may see a small stature as being more beneficial to health
- socio-economic status: Emily may come from a family that has a low socio-economic status. They may have less money available to purchase nutrient-dense foods, have less understanding of the nutritional content of foods or the importance of consuming a balanced diet. Sasha's family may have a higher socio-economic status
- nutrition: Sasha may consume a diet that is lower in fat and sugar than Emily's. Fat and sugar contribute to energy intake and increases in body weight. Sasha may consume more fruits, vegetables and wholegrain breads and cereals which contain high levels of fibre and lower levels of kilojoules
- physical activity: Sasha may undertake more physical activity than Emily. This contributes to energy being expended and could result in her having a lower body weight than Emily, who may not undertake physical activity.

Students were awarded one mark for the correct identification of an environmental factor and the remaining two marks for the description of how the factor contributed to the differences in weight of the two girls.

Question 8a.

Marks	0	1	2	3	4	Average
%	5	10	24	31	30	2.7

Physical development

- A rapid period of growth particularly in the first year where birth weight triples, muscles increase in size and mass increases.
- Bones continue to lengthen, widen and ossify.

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- Primary teeth may cut through at six months of age.
- Directed and intentional movements replace the automatic reflexes present at birth.
- At birth, the head forms one quarter of the total body size making the infant 'top heavy'. Changes in body proportion reflect the cephalocaudal pattern of development.
- Rapid progress in motor skills following the cephalocaudal and proximodistal patterns. At one year old, an infant may stand and walk.

Social Development

- Family is the most significant influence on the infant, including siblings, parents and extended family. The family provides role models and helps the infant to learn culturally acceptable rules and behaviour related to food, dress, language and roles. This is achieved through observation, trial and error, rewards and punishment.
- Improved motor development skills may provide opportunities for infants to interact, play and communicate with others.
- Interaction with others at child care centres or playgroup provides opportunities for infants to learn about sharing, taking turns, rules and other aspects of behaviour.

Emotional Development

- Emotional attachment (strong emotional bond) is formed with the caregiver or parent and helps the infant feel secure, safe and loved, and to develop trust. This is important so the infant can learn to trust others in future relationships.
- Learn to experience a range of emotions such as anger, happiness, excitement and frustration, although the infant is often unable to manage these emotions.
- Opportunities for success and praise from significant others in their lives increases confidence and self-esteem.
- By 12 months of age an infant is sensitive to approval and disapproval.

Intellectual Development

- All senses work from birth and the infant is capable of learning and making sense of their world from what they see, feel, hear, taste and smell, which they use to explore their environment.
- Is rapid. Between seven and nine months of age infants may say their first words and by the end of infancy they can speak 50 or more words and understand many more.

Most students were able to answer this question well. Students needed to identify one characteristic for each type of development that can be predicted during infancy.

Question 8bi.

Marks	0	1	2	Average
%	15	37	48	1.3

Nutrients needed for soft tissue development include (two of):

- protein
- fat
- vitamin C
- folate
- water
- vitamin A.

Question 8bii.

Marks	0	1	2	3	4	Average
%	50	26	15	6	3	0.9

- Protein is made up of amino acids that form the structure of collagen – a simple compound that exists in connective tissue. It also binds together into bundles to give the muscles stiffness and strength.
- Vitamin C assists protein as it is critical for collagen production and connective tissue.
- Folate is required for cell division and necessary for protein synthesis and connective tissue.
- Water assists folate as it provides structural support for all cells.
- Fat is part of soft tissue production as it contributes to the forming of the cell membranes.
- Vitamin A works with fat in forming the cell membranes that are important for soft tissue development.

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This question was answered poorly. Too many students were not able to choose appropriate nutrients or show how they worked together, indicating a lack of understanding of soft tissue development.

Students must have used the two nutrients selected in Question 8bi. to describe the interrelationship that exists between them. Students were awarded one mark each for outlining the role of each of the nutrients selected and a further two marks for explaining how they work together to form soft tissue. Students who did not select the correct nutrients in Question 8bi. were not awarded marks for Question 8bi.

The following is an example of a student response.

Protein is needed for the growth, maintenance and repair of cells. It also helps to form collagen which is the basis of connective tissue. Vitamin C works in collaboration with protein to help form connective tissue as forming connective tissue is one of Vitamin C's main functions. The connective tissue that protein and Vitamin C work together to help form is soft tissue.

Question 8c.

Marks	0	1	2	3	4	Average
%	21	19	29	13	19	1.9

Possible answers included:

- if calcium intake is low during growth spurts, for example, in infants and young adults, then not enough calcium is laid down in the bones. As a person ages, calcium is lost from bones. If not enough calcium is secreted into bones then osteoporosis may result as people reach middle to old age. Osteoporosis is when bones become porous and brittle and are prone to breaking easily
- if a person has a poor nutritional diet in childhood and young adulthood, and is overweight/obese, then this can impact in later life if the individual continues to be overweight/obese. An outcome of being overweight/obesity can be cardiovascular disease related to a build up of cholesterol (from the saturated and trans fats eaten in foods) in the arteries, and high blood pressure
- obesity can be a risk factor for the development of type 2 diabetes, which is usually diagnosed after the age of 45. If the dietary guidelines are not followed at a young age, and a healthy weight is not maintained, then obesity may result. This can increase the risk of type 2 diabetes
- a low intake of fruit and vegetables may be a risk factor for some cancers later in life, for example, stomach, colon and oesophageal cancer. A healthy diet is a protective factor against developing these cancers at an older age
- poor nutrition early in life has been linked to an increased risk of developing diseases such as cardiovascular disease and type 2 diabetes later in life.

Students must have discussed two examples of how nutrition early in life could impact on adult health in order to receive two marks for each. Many students were unable to show sufficient nutrition knowledge to answer this question well.

Question 9a.

Marks	0	1	2	3	4	Average
%	34	31	21	10	4	1.2



Consequences for physical development	Consequences for intellectual development
<ul style="list-style-type: none"> Physical development is dependent on adequate supplies of required nutrients for soft and hard tissue growth, blood and energy. Episodes of diarrhoea can deplete the body's supply of nutrients and could lead to a stunting of growth. Water-borne diseases (for example, diarrhoea, infectious hepatitis, cholera) may cause illnesses which may impair bone, muscles and brain growth in the infant. Motor development (both fine and gross) may progress at a slower rate due to an interruption in the growth. There may be less opportunity to practise tasks and therefore strengthen muscles due to the infant/child being sick. Water-related diseases such as trachoma may lead to vision impairment. 	<ul style="list-style-type: none"> Water and sanitation-related sicknesses keep many children, particularly girls, out of school in developing countries, therefore their knowledge and skills are reduced. They are unable to be stimulated mentally and may not acquire the essential knowledge and skills required to maintain their health and get jobs in the future. Vision impairment may make learning more difficult, thus reducing the potential for knowledge and skill acquisition. Literacy, numeracy, problem-solving skills and other concepts may not be learnt due to absences from school. A sick child may not explore their environment. This will impact on their ability to develop knowledge and understanding of the world they live in. A sick child will be unable to play with other children. This will affect their ability to develop knowledge and problem-solving skills.

Many students were unable to answer this question adequately. To be awarded four marks, students had to outline two possible consequences of drinking contaminated water on both physical and intellectual development.

Question 9b.

Marks	0	1	2	Average
%	26	51	23	1

- Drinking contaminated water leads to diarrhoea, causing dehydration, which is a main cause of death in children. Death is more likely to occur in infants with a low birth weight.
- Repeated bouts of diarrhoea contribute to malnutrition. This increases the likelihood of contracting other communicable diseases, for example, measles. If the body of an infant is weakened after repeated bouts of diarrhoea they are more likely to die because their immune system is compromised. They are then more likely to contract other diseases, for example, respiratory diseases such as pneumonia.
- Drinking contaminated water leads to diarrhoea, causing dehydration, which is a main cause of death in children and is also associated with malnutrition.
- A sick child is likely to suffer from fatigue, a lack of energy and a low body weight.
- Children are likely to suffer from diseases such as anaemia due to the depletion of nutrients from the body.

To be awarded two marks, students were required to outline two possible consequences for physical health.

Question 10ai.

Marks	0	1	2	3	Average
%	28	25	25	21	1.4

Three of:

- involve people/community involvement/strengthen community action
- ensure that health care is accessible to those who need it the most
- focus on women
- focus on education/health education/develop personal skills
- create supportive environments/ensure environmental sustainability
- appropriate technology.

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Many students did not attempt this question, indicating that they had not studied this dot point in the study design. Students must have selected three key elements of sustainable primary health care to be awarded three marks. Components of a primary health care system are not examples of sustainable primary health care.

Question 10aii.

Marks	0	1	2	3	4	5	6	Average
%	45	16	16	10	8	3	2	1.4

Relevant strategies include:

- establishment of water tanks and run-off facilities
- sinking of wells
- development of reticulated water systems.
- building dams.
- tap stands.

The construction of a well would ensure a sustainable water supply: A non-government aid agency in combination with the local community could provide funds to construct a well. Members of the local community should be consulted to ensure the well is constructed in an area that will be accessible to the entire community. The local community would also need to be included in the construction of the well to ensure they develop the necessary skills to maintain and service the well.

The well needs to incorporate the use of simple technology to ensure it remains sustainable and doesn't break down: Women should be the major focus of the project as they are the ones that are responsible for collecting the water. The community needs to be educated about the importance of maintaining the well and consuming water that is safe and hygienic to drink. The community should be involved in the development of the education program to ensure it is culturally appropriate.

Students must have used the three elements they identified in Question 10ai. to describe a strategy appropriate to the development of a sustainable water supply. If students did not select appropriate elements of sustainable primary health care in 10ai., they were not awarded marks for 10aii. Students were awarded two marks for describing how each of the three elements could be used in the development of a strategy.

The following is an example of a high-scoring student response.

The strategy could involve a team of experts coming to communities in the developing country to create a sustainable water supply. To focus on women, the strategy could ask for women in the community to become involved in building the sustainable water supply. This links with education as it will teach the women how to set the water supply up and will also educate the community on teaching them that women can be employed and are capable workers. To further educate the community and also to work on making the program sustainable, the team could offer an information evening to teach all age groups on how to use, care for, maintain and possibly repair the water supply so that when the children become adults they can teach their own children. To further educate and make the program more sustainable, the team could provide information booklets about the water supply to inform and to be used as reference once the team is no longer there to assist.

Question 10b.

Marks	0	1	2	3	4	Average
%	14	27	33	14	12	1.8

Ways the Australian Government could contribute to the improvement of the water supply in a developing country include:

- through AusAID, the Australian Government's agency for distributing aid: money could be provided to help build local infrastructure like a reticulated water supply. This would occur in conjunction with the government of the developing country to ensure sustainability
- through non-government organisations like Oxfam or World Vision: money could be provided to help fund projects to build wells in local communities in developing countries.
- AusAID could provide funds to support the development of a project to sink wells in communities without access to safe water
- Australia could provide equipment that is needed to assist the government of a developed country to build large-scale water infrastructure programs
- funds could be provided to supply education programs to communities in developing countries around the importance of boiling water, and how to maintain wells to ensure the water supplies are not contaminated.

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Students needed to identify and explain two ways that Australia could contribute to improvement of the water supply in a developing country to be awarded four marks. Students had to refer to specific types of aid that could be provided or to the types of aid that AusAID provides. Sending bottled water to a developing country will not improve the water supply – it is only a means of emergency aid following disasters.

The following are examples of appropriate student responses.

AusAID could give money to large organisations such as WHO and Word Vision who have a global reach and can go into developing countries and help build wells or rain catchments. This is known as multilateral aid.

The Australian government could give money to AusAID who could send the money to a developing country via a non-government organisation or via the developing country's government (bilateral aid) which in turn could develop ways to improve the water supply eg wells, new pipes.