

Summer Task

Unit 14 – Learning Aim A

You MUST complete all tasks.

You will not get any lesson time to complete these tasks when you return in September.

P1 – Explain the **causes**, signs and symptoms of physiological disorders on service users

1) You need to choose **TWO** disorders from the following list, one from column A and one from column B

Column A	Column B
CHOOSE ONE OF THESE	CHOOSE ONE OF THESE
Asthma	Coronary Heart Disease
Diabetes	Sickle Cell Disease (anaemia)
Parkinson's Disease	Leukaemia
Alzheimer's	Breast Cancer
Rheumatoid arthritis	Skin Cancer

2) Briefly introduce the disorder (short paragraph):

- Define the disorder – how does it present itself in the body (what is it)?
- Which body system does the disorder effect? e.g. cancer, endocrine, circulatory etc.

USE THE INTERNET TO HELP YOU BUT YOU WILL NEED TO EXPAND ON ANY DEFINITIONS YOU FIND – DO NOT JUST USE WIKIPEDIA etc!

3) Research the **CAUSES** of each disease and produce a table with the main causes and reasons why – use the template table below.

e.g.

Physiological Disorder	Causes	Where did you find the information?
Asthma	Allergic reaction to “triggers” e.g. pollen or dust	https://www.nhs.uk/conditions/asthma/causes/
	Exercise – this can trigger asthma in some people. It is known as “exercise induced asthma”	http://www.webmd.com/asthma/guide/asthma-risk-factors#1
	Genetics – if your parents have Asthma you are more likely to inherit it.	https://www.asthma.org.uk/advice/understanding-asthma/causes/
	Being overweight – places extra strain and pressure on the cardiorespiratory system. Airways can be squashed.	https://www.mayoclinic.org/diseases-conditions/asthma/symptoms-causes/syc-20369653
	Premature birth – children born before 37 weeks are 46% more likely to develop asthma than those who weren't born prematurely. This is due to their lungs being immature or not fully developed.	http://www.webmd.com/asthma/news/20140128/premature-birth-linked-to-asthma-wheezing-in-childhood
	Mothers smoking whilst pregnant – the child is at an increased risk of developing asthma due to changes in DNA and weakening of the immune system. Or you are/have been around people who smoke a lot – particularly when a young child	http://www.telegraph.co.uk/news/health/news/8521183/Smoking-while-pregnant-triggers-asthma-through-DNA-changes.html
	Environmental factors – e.g. air pollution, smoking, mould.	http://www.webmd.com/asthma/guide/asthma-risk-factors#1
	You had a low birthweight	https://www.asthma.org.uk/advice/understanding-asthma/causes/
	You are exposed to certain substances at work – this is known as occupational asthma	https://www.asthma.org.uk/advice/understanding-asthma/causes/

4) Underneath the table – explain the causes with examples and diagrams/images.

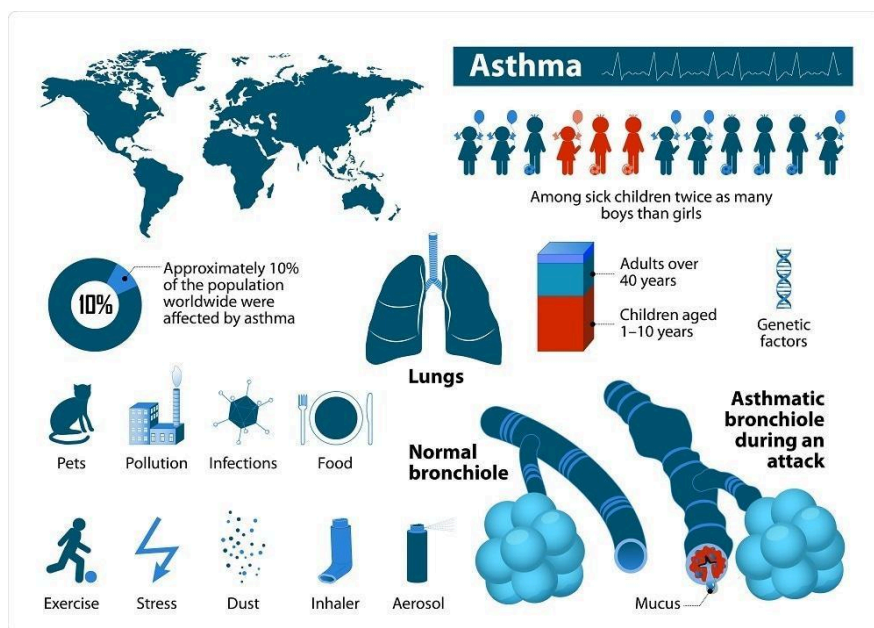
Explain how each disorder can be **caused** by the factors under the following 4 subheadings:

** EXPLAIN means to give reasons for your answer!!*

- Inherited traits
- Lifestyle choices
- Diet
- Environment

e.g.

Causes of Asthma Explained



As shown in the previous table, and the diagram on the left, there are many different potential causes and triggers for asthma. Some of the causes are inherited traits, some are lifestyle choices, some linked to diet (and becoming overweight), and some are due to environmental conditions. People may develop asthma due to one of these causes, or due to a number of the causes.

One of the identified causes of asthma is **genetics** which means that the condition can be hereditary and linked to **inherited traits**. If a one, or both parents, have asthma then there is an increased risk of the child developing the condition. This is because they will inherit their parent's genes and there have been some studies which suggest that it is the mother's genes which are most likely to influence the development of allergies and asthma in the child. A possible reason is that as the child develops in the womb it is exposed to the antibodies of the mother and this can influence the development of the child's immune system. This can continue after birth, when the child continues to be exposed to the mother's antibodies through breastmilk

(<http://www.independent.co.uk/news/uk/asthma-gene-only-active-if-inherited-from-mother-1540459.html>).

Another cause of asthma is premature birth... (you would go on to explain WHY it is a potential cause)

Some of the biggest causes of asthma are **environmental factors** such as pollution and occupational risks (working with chemicals etc.). Pollution has been linked with asthma because it can cause... (you would go on to EXPLAIN)

Diet and lifestyle are also potential causes of asthma because... (you would go on to EXPLAIN)

5) Explain the signs and symptoms of BOTH of your diseases.


- Explain the difference between 'signs' and 'symptoms' – use the textbook to help you
- Use images/diagrams to help explain the signs and symptoms
- Explain which signs/symptoms are the most severe/long lasting etc.

e.g.

Signs and symptoms of type 2 diabetes develop gradually and differ from symptoms of type 1 diabetes. Type 2 diabetes signs and symptoms usually develop over a period of months or years. One observable sign of type 2 diabetes is slow healing cuts and wounds. Wounds that take longer than a few weeks to heal may be infected and could be a sign of type 2 diabetes. High blood glucose level is another measurable sign of diabetes. This can affect the nerves and causes poor circulation meaning blood does not reach the affected part of the body which is needed for the wound to repair. Another sign of type 2 diabetes is unexplained weight loss. (P1 standard of writing) Insufficient insulin stops the body from getting glucose from the blood into the cells as energy therefore the body starts burning muscle for energy leading to weight loss. (M1 standard of writing) Significant or persistent weight loss is a big warning sign of the start of type 2 diabetes. Furthermore, a sign of type 2 diabetes is when a person's blood glucose levels rise and fall their metabolism is interrupted leading to nausea and vomiting. A normal blood glucose level is 4.7 to 6.3 when fasting and for people with diabetes 4-7 before meals and up to 8.5 after meals for people with type 2 diabetes. A sign of a high blood glucose means that the person does not have enough insulin to regulate their blood sugar and a sign of a low blood glucose level means the person has too much insulin in their body. The table below shows blood glucose levels and their ranges. (P1 standard of writing)

Blood Glucose Optimal Levels (8)

	Hypoglycemia			Excellent			Hyperglycemia			Diabetes		
HbA1C	0.04	0.05	0.06	0.07	0.08	0.09	.10	.11	.12	.13	.14	
Mean Blood mg/dL	50	80	115	150	180	215	250	280	315	350	380	
Glucose mmol/L	2.6	4.7	6.3	8.2	10.0	11.9	13.7	15.6	17.4	19.3	21.1	



One symptom of type 2 diabetes is polydipsia, an excessive thirst. Increased thirst in people with diabetes can be an indication of high blood glucose levels. Polydipsia is a reaction to fluid loss during exercise or eating salty foods. (P1) When glucose becomes hyper concentrated in your blood, the kidney is unable to pull out the glucose from the water and eventually is so high, water cannot be absorbed back into to bloodstream causing polydipsia. (M1) Another symptom of diabetes is fatigue. Fatigue in diabetics can be cause by high blood glucose levels because the body does not get the glucose from the blood to the cells to give the individual energy. (P1) Fatigue results from the imbalance between the blood glucose levels and the amount of insulin in the body. In addition, another symptom of type 2 diabetes is nausea. (M1) Low blood pressure along with hyperglycaemia and hypoglycaemia can produce feelings of nausea and sometimes dizziness. (P1) When your body is burning fat and produces ketones which can build up in the body and become life threatening but also causes nausea. The normal level of ketones is around 0.6 mmol/L anyone with a level above needs to get medical treatment. (M1)

6) Analyse the changes BOTH the disorders cause to body systems and functions, must include:

- How the disorder changes the function of the cells, tissues, organs or whole systems in the body
- The severity of the immediate physical health effects
- The severity of the long term physical health effects
- Are there any similarities in the changes caused by the 2 disorders?

**You must reference where this information has been taken from*

*** Ensure you use the key terms **body system** and **function***

**** This should be a detailed paragraph*

e.g.

Diabetes affects many of the body systems. One system affected by type 2 diabetes is the endocrine system in the body. The endocrine system features all the glands of the body including all the hormones produced by them. It is made up of the pituitary gland, hypothalamus, thyroid gland, parathyroid glands, adrenal glands, the pancreas, ovaries in women and the testicles in men. The hypothalamus is located in the brain and is the main gland which controls body temperature and metabolism. However, in someone with type 2 diabetes the endocrine system works differently compared to someone without the condition. When the endocrine gland produces too much or too little of the hormone an endocrine disease will occur such as diabetes. The pancreas then fails to act on the hormones which then causes type 2 diabetes as the body produces more insulin which causes the blood glucose levels to rise. (M1)

Diabetes also affects the circulatory system. The circulatory system delivers blood around the body including glucose in the blood. The circulatory system is essentially the body infrastructure, providing the route ways for the blood to transport oxygen, nutrients and hormones to and from the cells and organs. The hormone glucagon indicates the liver to release glucose into the blood and then the insulin instructs the cells to use the glucose from the blood. If blood glucose levels are too high for a long period of time they can start to damage blood vessels. Over time nerve cells become damaged causing numbness and loss of sensation decreasing circulation to the lower part of the body including feet and toes. (M1)

Diabetes affects the function of the body in many different ways. Diabetes causes diabetic neuropathy, or damage to the nerves. This can affect your perception of heat, cold, and pain. It can also make you more susceptible to injury. The chances that you won't notice these injuries and let them develop into serious infections or conditions increases, too. Diabetes can also lead to swollen, leaky blood vessels in the eye, called [diabetic retinopathy](#). This can damage your vision. It may even lead to blindness. Symptoms of eye trouble can be mild at first, so it's important to see your eye doctor regularly (9). (M1)

Immediate health effects of diabetes include hypoglycaemia, where blood glucose levels drop too low. This can cause symptoms of tiredness, weakness and confusion. Another immediate health effect is ketoacidosis. This occurs when the body spends a significant amount of time with too little insulin so cannot refuel the cells of the body. Without insulin the body will break down fat to release ketones into the blood that can be used for energy without the need for insulin to be present. However, if the level of ketones in the blood becomes too high, ketoacidosis is said to occur, and this condition can be very dangerous (10). The third immediate health effect of type 2 diabetes is Hyperosmolar Hyperglycaemic Nonketotic Syndrome which results from very high blood glucose levels. Having blood glucose levels above 33 mmol/l (600 mg/dl) for extended periods of time presents a risk of HHS occurring. Some serious complications of diabetes, such as Hyperosmolar Hyperglycaemic Nonketotic Syndrome (HHNS), usually manifest themselves amongst older people, who may be less aware of high blood glucose levels and how to treat

them. When HHNS affects a person with diabetes, blood sugar levels rise and the body passes excess sugar into the urine (11). (M1)

Long term health effects include an increased risk of heart disease or a stroke. If blood glucose levels are poorly controlled, it increases the risk of atherosclerosis where fatty substances clog up the blood vessels. High blood glucose levels also damage blood vessels in the nerves leading to neuropathy where someone experiences tingling or numbness in their fingers, toes and limbs. Another long term health effect of diabetes is diabetic retinopathy where the retina becomes damaged due to blood vessels becoming blocked, preventing light from passing through which can lead to problems with vision. Damage to the nerves of the foot can mean small nicks and cuts aren't noticed and this, in combination with poor circulation, can lead to a foot ulcer. About 1 in 10 people with diabetes get a foot ulcer, which can cause a serious infection and may lead to amputation (12). (M1)

As you can see the style of writing and the content that is needed at Level 3 is much more than what you have previously done.

You will need to make sure that you FULLY EXPLAIN within your work as this is the PASS level criteria. Do not copy and paste. You can use some of the work on this template to help you but you will need to reword it, reference it (show me where you can find the information on the internet etc) and put it into your own words.

To help you explain try to include pictures or diagrams and imagine you are telling a friend the information who knows nothing about the condition – you would need to be able to clearly explain to them what causes were for example and why they are thought to cause the conditions.