Gymea Technology High School
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Science

Year 8, Human Body

Research Task

Task Name: Research Task	**Unit: The Human Body**
Task Distributed: 10st March 2025	**Task Due: Monday 30rd March 2025 at 3:00pm**
Task Type: Research Assignment	**Syllabus Outcomes: LW4, 3VA, LW5, 8WS**
Task Weighting: 20% **(44 Marks)**	**Task number for Course: 1**

Task Description

A human's body is made up of various major systems and organs that all serve different functions in the body. Two major systems are the circulatory system and the respiratory system. The circulatory system consists of the heart and blood vessels, while the respiratory system consists of the lungs and air passages. These systems work hand in hand to provide the body with nutrients and oxygen as well as removing waste products such as carbon dioxide from the body.

In addition to this, these systems need to respond to different environmental factors e.g. Increased need for oxygen.

In this assessment, you will be asked to analyse data from Lee's fitness watch. In the second part of the research task, you will be asked to evaluate data

PART A – Research (Google Document)

Lee is a 16-year-old teenager who loves attending the local gym after school and on the weekends. They also work at the local Hungry Jacks on the days they do not attend the gym. Below is a table showing their heart and respiratory rate on one of the days of the week.

	Time rate was taken			
	8:00am	**4:00pm**	**9:00pm**	**Midnight**
Heart Rate (beats per minute)	64	120	96	64
Respiratory Rate (breaths per minute)	16	30	24	16

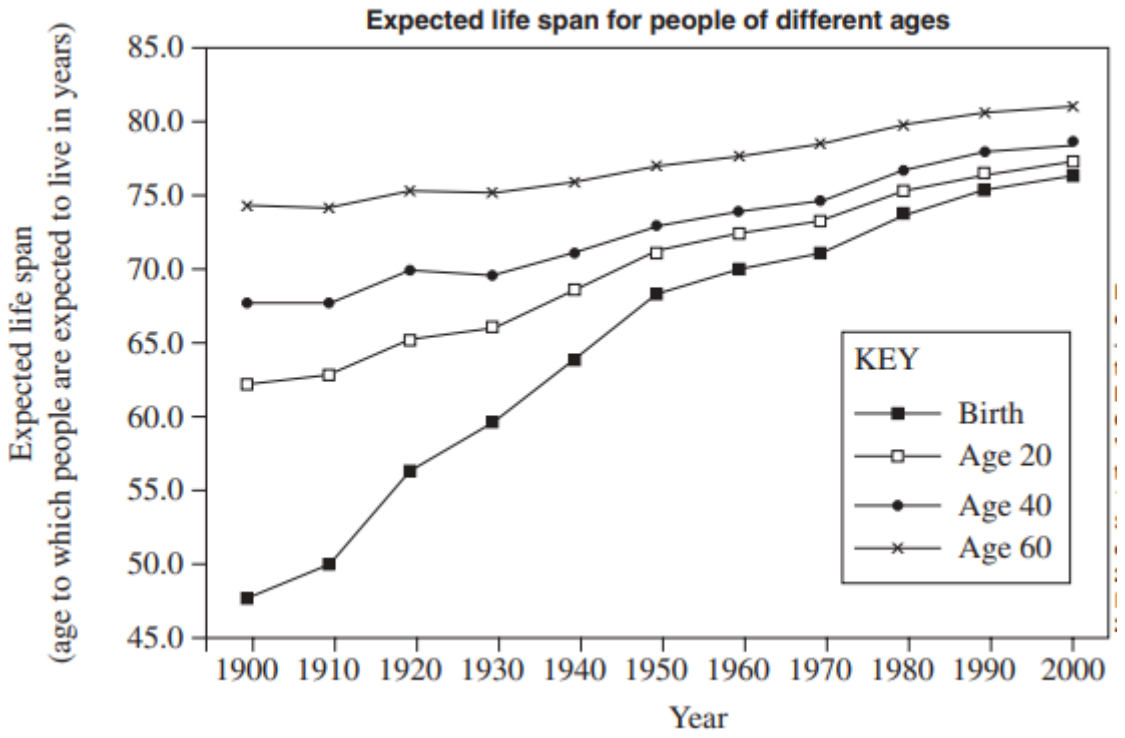
Using the data and information above, answer the following questions:

1. **Plot** the data from the table above on **ONE** graph. The data should be displayed as a **LINE GRAPH**. *You can use excel to plot the data or you may use graph paper.*

2. Research AND **explain** factors that affect respiratory rate AND heart rate in humans.
   Look at factors that increase and decrease both heart rate and respiratory rate.
3. Write an explanation for the changes in respiratory rate and heart rate of Lee across the day.
   You will need to justify your explanation with scientific evidence. Refer to the graph and include a description of what you think Lee was doing during the 4 different times of the day, based on your research about what can affect heart rate and respiratory rate.

PART B – Data Analysis

The graph shows the expected life span (the age to which people are expected to live in years) for people of different ages during the 20th century in one country.



There have been many biological developments that have contributed to our understanding of the identification, treatment and prevention of disease.

Evaluate the impact of these developments on the expected life span. In your answer, include reference to the **trends in the graph** above and your **knowledge of lifestyle changes as well as the identification, treatment and prevention of disease.**

Your answer should be at least **1 page in length** and will be marked using the literacy criteria and the marking scheme**.**

NESA Glossary of Key Words

Understand the verbs associated with the task. The verbs will provide an understanding of the detail needed to successfully answer the question.

- **Describe** Provide characteristics and features.
- **Explain** Relate cause and effect; make the relationships between things evident; provide why and/or how.
- **Discuss** Identify issues and provide points for and/or against
- **Justify** Support an argument or conclusion.
- **Assess** Make a judgement of value, quality, outcomes, results, or size.

Check the NESA Glossary of Key Words
https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/hsc-student-guide/glossary-keywords

Details of Submission

You must submit:

- A Google document with your responses. Teachers will track the changes you have made to the document and ensure the work submitted is all your own work.

- ***References*** **–** Use the link below for information on Harvard referencing.

https://www.citethisforme.com/harvard-referencing

You MUST upload a full copy of the assignment to the Year 8 Google classroom submission link by the due date.

Assessment Procedures

All students should be fully aware of the school assessment procedures.

Students should access the Assessment Guide for more information.

Feedback provided

- The task will be typically returned to students within two school weeks of the submission date/sitting.
- At this time feedback including information on how to improve will be delivered through mechanisms such as marking criteria, and/or written comments.

- Students can clarify or seek further feedback by arranging to meet with their teacher/assessment marker.

Self-Reflection Component

Students will be required to complete a self-reflection worksheet on Google Classroom at the time students receive their assessment mark and teacher feedback. Self-reflection is an important part of the learning process as it provides an opportunity to reflect on the strength of our performance, as well as areas that have been identified to strengthen in future tasks.

What Areas of Learning will this Assessment Task Report On?

How well students can:

- Communicate scientific findings and knowledge to an audience.
- Undertake secondary sources and/or first-hand investigations to collect valid and reliable data, individually and collaboratively.
- Gain knowledge and Understanding of the practice of science and how Science impacts on Society, Technology, and the Environment.

Marking Rubric (Literacy) - You will also be assessed on how well you write and phrase the information you collect. This will be marked according to the standard literacy rubric as provided below, and it is worth an additional 5 marks towards the overall task total.

GTHS Literacy Criteria

Literacy Outcomes	Elementary achievement You have:	Limited achievement You have:	Satisfactory achievement You have:	High achievement You have:	Outstanding achievement You have:
Vocabulary *Uses technical vocabulary to explain concepts and/or range of precise and appropriate words for effect*	Very limited response. Few content words used.	Only simple words are used.	Some precise and technical words are used.	Sustained use of precise and technical words.	Sustained, consistent and fluent use of precise and technical words.
	0	0.25	0.5	0.75	1
Punctuation *Use of correct and appropriate sentence and other punctuation for effect, and to aid in reading of the text*	No evidence of correct sentence punctuation.	Sentence punctuation is correctly used in at least one place - *one sentence is punctuated correctly.*	Some correct sentence level punctuation (at least 50%). May attempt other punctuation where it is required.	Mostly correct sentence level punctuation (80%) and at least two correct examples of other punctuation.	Writing contains accurate use of all applicable punctuation.
	0	0.25	0.5	0.75	1
Sentences & Cohesion *The intentional construction of a variety of sentences to match purpose and audience, and the control of multiple sentence threads across the whole text.*	No clear evidence of sentences: a list of words OR text fragments.	At least one sentence is used correctly. Some meaning can be construed from the text.	Some correct formation of sentences. Mainly uses simple and compound sentences but may attempt more complex structures.	Most sentences are correct. Range of sentence types and connectives are evident, but with varied effectiveness.	All sentences are correct, effective and controlled, and include a range of sentence types and connectives (complex sentences and other sophisticated structures)
	0	0.25	0.5	0.75	1
Paragraphs *Paragraphs are used to effectively structure information and partition events and ideas*	No correct use of paragraphing; may be a block of text or random breaks.	Ideas are separated; paragraphs may contain some unrelated ideas.	At least ONE paragraph is well structured and develops an idea	Writing is organised into paragraphs that assist the reader to digest chunks of the text but may not be linked or executed effectively.	All components of the paragraphs are evident, and paragraphing is consistent and well-developed across the whole text.
	0	0.25	0.5	0.75	1
Text Structure *Uses features of the appropriate text type*	No evidence of the structural features of the appropriate text type. *No attempt to write in the appropriate text type and/or response is off task.*	Minimal evidence of the structural features - *1 component evident* - of the appropriate text type.	Some evidence of the structural features - *2 components evident* - of the appropriate text type.	Substantial evidence of the structural features - *all components evident but there may be some lapses* - of the appropriate text type.	Coherent and controlled use of **all** the appropriate structural features of the text type.
	0	0.25	0.5	0.75	1
	Level of response is well below syllabus expectation	Level of response is below syllabus expectation	Level of response is equivalent to syllabus expectation	Level of response is above syllabus expectation	Level of response is well above syllabus expectation

Marking Criteria (Research and Presentation)

A marking criterion is attached detailing how marks will be allocated. To achieve top marks, please be sure to refer to the marking criteria prior to starting, during and again before submitting your assessment task.

Outcome	Indicator	Experiencing Difficulty	Developing	Competent	Outstanding	Mark
PART A RESEARCH (20 Marks)						
9WS ***Presenting information*** ***7WS*** ***Gather information from secondary sources***	Information displayed in graph	No graph or basic attempt	Attempt at graph but unclear or inaccurate data. Missing 3 or more details (title, units, key, labels, scale, correct plotting).	A suitable and accurate graph only missing 2 or less details (title, units, key, labels, scale, correct plotting).	A suitable and accurate graph, with all data and details displayed on one graph	
		0-1	**2-3**	**4-5**	**6**	
	Factors that affect respiratory rate	No evidence of research conducted	Described the researched material OR brief or simplistic research presented OR only included increase or decrease	Described 3 or less factors. The research material is presented with satisfactory depth (both increase AND decrease)	Explained the 3 or more factors. The research material is presented with satisfactory depth by showing scientific link between factor and effect (both increase AND decrease)	
		0	**1-2**	**3**	**4**	
	Factors that affect heart rate	No evidence of research conducted	Described the researched material OR brief or simplistic research presented OR only included increase or decrease	Described 3 or less factors. The research material is presented with satisfactory depth (both increase AND decrease)	Explained the 3 or more factors. The research material is presented with satisfactory depth by showing scientific link between factor and effect (both increase AND decrease)	
		0	**1-2**	**3**	**4**	
	Explanation of changes in respiratory rate and heart rate	No or limited explanation provided	Provides likely explanation for some/all 4 times of the day, but with no/limited reference to data and no supporting scientific evidence	Justifies the observation with for all 4 times of day with references to data but references to scientific evidence are weak.	Justifies the observation strongly for all 4 times of day, with reference to data and supported with scientific evidence	
		0-1	**2-3**	**4-5**	**6**	
						/20
PART B DATA ANALYSIS (17 Marks)						
LW4 ***Scientific knowledge***	Ability to interpret trends and relationships in given data	Basic or inaccurate description of data in the graph	Analyses the data in the graph to provide key trends and logical conclusions	Analyses the data in the graph to draw logical and well-supported conclusions about life-expectancy trends which is linked throughout evaluation		
		1	**2**	**3**		
	Understanding biological developments in disease					
	Lifestyle changes	Mentions lifestyle factors with minimal explanation.	Explains lifestyle factors with supporting evidence.	Thoroughly explains lifestyle factors supported with scientific evidence and links them		

SC4-8WS -PROBLEM SOLVING				logically to trends in the data.		
		1	**2**	**3**		
	Identification of disease	Makes a basic claim about the impact of disease identification	Explains identification advances with relevant examples and supporting evidence.	Provides a detailed explanation with examples supported by scientific evidence and clear reasoning linking developments to the data trends.		
		1	**2**	**3**		
	Treatment of disease	Makes a basic claim about the impact of treatment of disease	Explains treatment developments with relevant examples and supporting evidence.	Provides a detailed explanation with examples supported by scientific evidence and clear reasoning linking developments to the data trends.		
		1	**2**	**3**		
	Prevention of disease	Makes a basic claim about the impact of prevention of disease	Explains prevention strategies with relevant examples using supporting evidence.	Provides a detailed explanation with examples supported by scientific evidence and clear reasoning linking developments to the data trends.		
		1	**2**	**3**		
	Providing judgement/ conclusions based on data synthesis	No clear conclusion or judgement provided	Provides relevant conclusion related to the data	Provides a clear and convincing judgement about the impact of biological developments on life span based on evidence		
		0	**1**	**2**		
						/18
REFERENCING (2 Marks)						
3VA DEVELOPMENTS IN SCIENCE 9WS PRESENTING INFORMATION 7WS GATHER INFORMATION FROM SECONDARY SOURCES	References	No sources referenced.	Sources referenced incorrectly	Sources referenced correctly, per Harvard Referencing		
		0	**1**	**2**		
						/2
	Submission (Sets and works to timelines and goals)	Assignment was not handed in.	Assignment was not handed in on time.	Assignment was handed in on time.		
		Zero marks	**Less 10% each day up to 5 days**	**No marks deducted**		
			Literacy			/5
			Total Mark			/44