

<b>Task Name: Research Task</b>	<b>Unit: The Human Body</b>
<b>Task Distributed: 21<sup>st</sup> February 2025</b>	<b>Task Due: Thursday 3<sup>rd</sup> April 2025 at 3:00pm</b>
<b>Task Type: Research Assignment</b>	<b>Syllabus Outcomes: LW4, 3VA, 7WS, 9WS</b>
<b>Task Weighting: 20%</b>	<b>Task number for Course: 1</b>

### 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 in the removal of 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 choose ONE electronic or mechanical device that assists or replaces a damaged body part or organ in the respiratory and circulatory systems.

### 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
<b>Heart Rate (beats per minute)</b>	64	120	96	64
<b>Respiratory Rate (breaths per minute)</b>	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. You will need to 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 – Infographic/Pamphlet**

**Choose ONE electronic or mechanical device** from below that assists or replaces a damaged body part or organ from the respiratory and circulatory system. If you wish to choose one that is not on the list below you will need to seek your science teacher's approval.

- Nebuliser
- Artificial Heart Valve
- Pacemaker
- Stents
- Mechanical Ventilator
- CPAP Machines (continuous positive airway pressure)

Create an infographic about your chosen device.

For this device you **MUST** include the following information on your infographic:

- a) Name the device and the inventor (or team members) that developed it.
- b) State the date (or time period) of development
- c) Describe its role (basic description of what it does) and why it is needed.
- d) Name the body system or systems with which it is involved.
- e) Explain how it operates
- f) List the materials or substances used in its construction and justify why they were specifically chosen
- g) Discuss the limitations compared to the structure it replaces.
- h) Provide a labelled diagram or picture.

**Remember to use subheadings on your online Pamphlet/infographic**

### **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 the PART A research component AND
- A downloadable attachment of **either** an infographic **or** a pamphlet. Your infographic needs to be downloadable and easily accessible. Avoid 'sharing' links on your submission.
- **References** – A list of all sources of information used to complete the task. You should include *more than one* type of resource (ie. not just text websites!) and it should be referenced according to Harvard Referencing standards. 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.

The finished assignment should not exceed 5 pages excluding title page but may be successfully completed in fewer pages. Late submissions lose 10% per day.

### Assessment Procedures

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

Students should access their 2025 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:
<b>Vocabulary</b> <i>Uses technical vocabulary to explain concepts and/or range of precise and appropriate words for effect</i>	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
<b>Punctuation</b> <i>Use of correct and appropriate sentence and other punctuation for effect, and to aid in reading of the text</i>	No evidence of correct sentence punctuation.	Sentence punctuation is correctly used in at least one place - <i>one sentence is punctuated correctly.</i>	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
<b>Sentences &amp; Cohesion</b> <i>The intentional construction of a variety of sentences to match purpose and audience, and the control of multiple sentence threads across the whole text.</i>	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
<b>Paragraphs</b> <i>Paragraphs are used to effectively structure information and partition events and ideas</i>	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
<b>Text Structure</b> <i>Uses features of the appropriate text type</i>	No evidence of the structural features of the appropriate text type. <i>No attempt to write in the appropriate text type and/or response is off task.</i>	Minimal evidence of the structural features - <i>1 component evident</i> - of the appropriate text type.	Some evidence of the structural features - <i>2 components evident</i> - of the appropriate text type.	Substantial evidence of the structural features - <i>all components evident but there may be some lapses</i> - of the appropriate text type.	Coherent and controlled use of <b>all</b> 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
<b>PART A RESEARCH</b>						
<b>9WS PRESENTING INFORMATION</b>	Information displayed in graph	No graph	Inappropriate or unclear graph	A suitable graph with missing data points or labels	A suitable graph is included, with all data displayed on one graph	
		0	1	3	4	
<b>7WS GATHER INFORMATION FROM SECONDARY SOURCES</b>	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	Explained the research presented with satisfactory depth (both increase AND decrease)		
		0	2	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	Explained the research presented with satisfactory depth (both increase AND decrease)		
		0	2	4		
Explanation of changes in respiratory rate and heart rate	No or limited explanation provided	Provides explanation for the observations, but not supported with any evidence	Justifies the observation, but references to scientific evidence are weak.	Justifies the observation strongly, with reference to scientific evidence		
	0	1	3	4		
<b>PART B INFOGRAPHIC</b>						
<b>LW4 SCIENTIFIC KNOWLEDGE</b>	Inventor and Date	Not addressed	Name OR date only	Name AND date		
		0	1	2		
	Role of Device	Not addressed	Briefly describes the need of the device	Briefly describes the role and its need	Describes in detail the role and its need	
		0	1	2	3	
	Body System	System not identified or stated	Correctly named body system(s)			
		0	1			
Device Operation	Not addressed	States two aspects of how it operates	Describes two aspects of how it operates	Explains all aspects of how it operates in detail		
	0	2	4	6		
Diagram	Not included	Includes diagram	Includes diagram with labels			
	0	1	2			
<b>3VA DEVELOPMENTS IN SCIENCE</b>	Materials	Not addressed	One material	One material with explanation	Two materials =2 With explanations = 4	
		0	1	2	4	
	Limitations	Not addressed	States one limitation	Describes one limitation	Discusses two limitations	

						with descriptions	
		0	1	2			4
<b>REPORT</b>							
<b>9WS</b> <i>PRESENTING INFORMATION</i>	Presentation	Overall presentation poor standard	Presentation is of acceptable standard	Presentation is of high standard			
		1	2	3			
<b>7WS</b> <i>GATHER INFORMATION FROM SECONDARY SOURCES</i>	References	No sources referenced.	Sources referenced incorrectly	Sources referenced correctly, per Harvard Referencing			
		0	1	2			
<b>SUBMISSION</b>	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
						Research	/43
						<b>Total</b>	<b>/48</b>