ORANGE HIGH SCHOOL

ASSESSMENT TASK

Year 8 Science Semester 1, 2021

Assessment Task

The aim of this assessment is to plan and conduct a first-hand practical investigation on the effect of exercise on the body. You have to show the skills that you have learnt in class when conducting a practical investigation.

In class you would have gained some background knowledge of the body systems. You will create a proper scientific investigation to link a body system to exercise.

Your investigation should address the question: How does exercise affect heart rate?

Outcomes Assessed

- identifies questions and problems that can be tested or researched and makes predictions based on scientific knowledge SC4-4WS
- collaboratively and individually produces a plan to investigate questions and problems SC4-5WS
- processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions SC4-7WS
- presents science ideas, findings and information to a given audience using appropriate scientific language, text types and representations SC4-9WS

Use the following scaffold to guide you through the steps required to complete a proper scientific investigation.

Student Name: _____ **Teacher: _____**

Title: Write a title that tells the reader what you are doing

Abstract (Optional, you don't have to do this). (Extension activity for 5 extra marks): An abstract is a summary of the investigation that you have completed. This should be done after you have finished the investigation. It should tell the reader what your investigation is about.

Aim: What are you trying to achieve in this investigation? Try to include what you are going to change, and what you are going to measure.

To

Literature Review (Optional, you don't have to do this). (Extension activity for 5 extra marks):

Research 5 key points that relate to the investigation that you are doing. List the source of your information.

Extra Writing Space:

Hypothesis: Written as an IF …….. THEN statement. This is what the predicted outcome of the investigation is (what you think will happen).

If ……..(this variable is changed)

Then ……(this is what will be measured).

Variables that are controlled (kept the same – at least 3):

Independent variable (what is changed):

Dependent variable (what is measured):

Method: Write down the method (the steps) to complete investigation. In your method, remember to include:

- Steps
- Third person
- Past tense
- Independent, dependent and controlled variables
- How you measured the variables
- How many times you repeated the investigation

Method:

Results: Create a table and a graph to show your results in a visual format.

Table: Remember to include

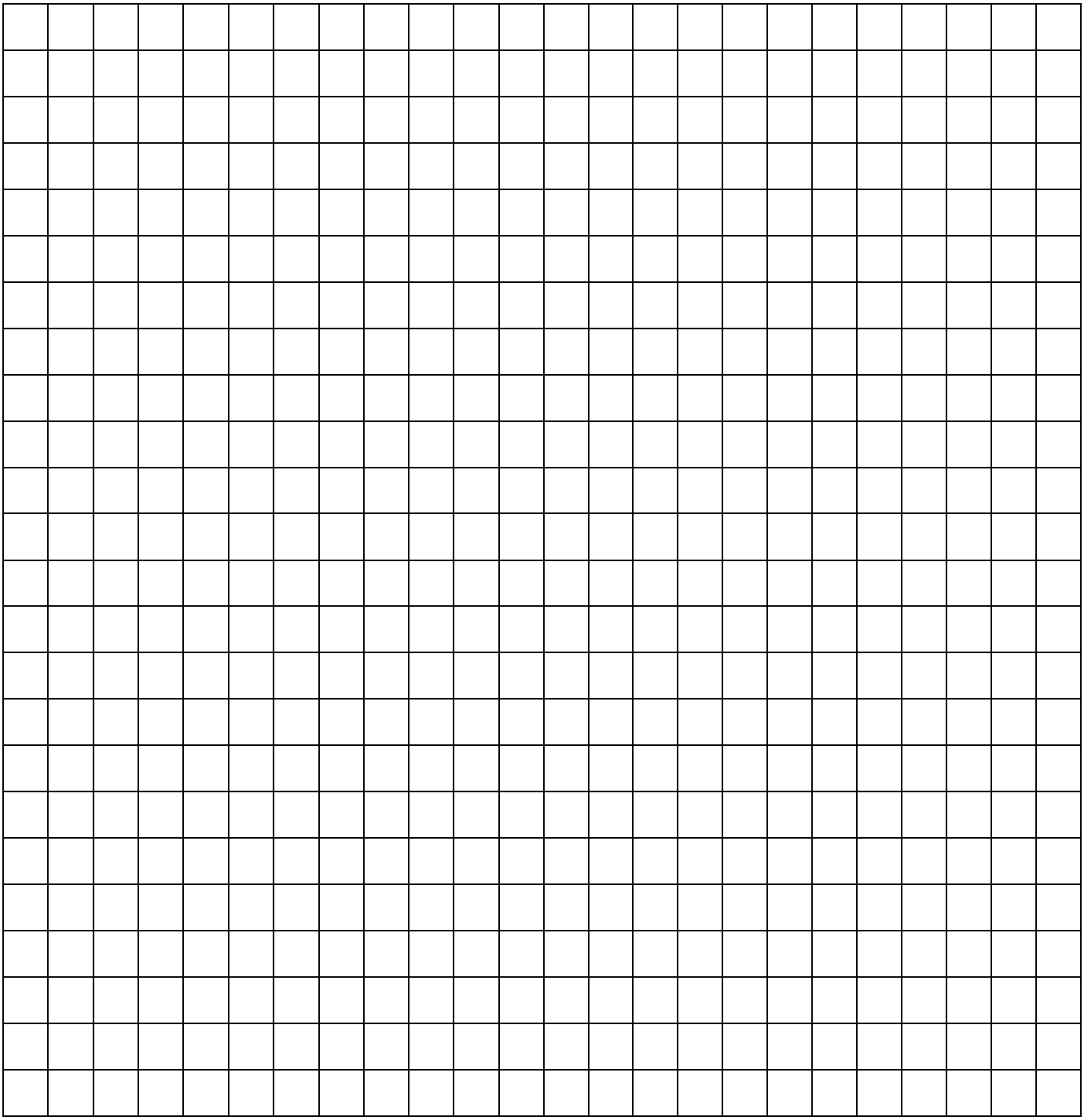
- Title
- Units (in headings only)
- Neat and enclosed
- Include averages

Graph: Use the graph paper provided by your teacher to complete your graph. Remember to include:

Line graph

- Title
- Axis headings and units
- Plot average data
- Crosses to plot dot points (for a line graph)
- Line of best fit (for a line graph)

Title:_____



Discussion:

Describe the trends in your graph. What was the shape of the line of best fit (if it was a line graph)?

How did your make sure that your measurements were accurate? Did you make a mistake or could you have done it better? Is there a device that could measure your heart rate? If so describe the device.

How did you ensure that your practical was reliable? Did you or someone else repeat the practical and get similar results. Describe the similarities in the results.

Did you make any errors in your measurement or calculations? What things could you have done to make the investigation better?

How could these results be useful to a real-life industry (e.g. Medical professionals, athletes, personal trainers)?

Conclusion: How did the results relate to your hypothesis? Did they support the prediction you made?

Extra Writing Space:

Year 8 Assessment Marking Rubric

	Extensive A	Thorough B	Sound C	Basic D	Elementary E	No attempt
Title			Indicates information about the investigation	Some relevance to the investigation	A title was attempted	WS4
			3	2	1	0
Aim			2 variables of the investigation included in scientific terms	2 variables included but in general terms	Have written an aim	
			3	2	1	0
Literature review (optional for bonus marks)	Literature review completed and extensively examine the investigation using 5 key pieces of information from different sources	Literature review has a thorough understanding of the investigation using 4 key pieces of information from different sources	Written in general terms and related to the topic using 3 key pieces of information from different sources	A brief description of something related to the topic from an outside source	An attempt at summarising the information is made	
	5	4	3	2	1	0
Abstract (optional for bonus marks)	Abstract uses the information gathered to make a summary of their investigation	Abstract has summarised some of the investigation	Restated what they found out	Attempts to write about their experiment	Write a simple statement about the investigation but not related to their results	
	5	4	3	2	1	0
Hypothesis		is an IF… then statement, links IV and DV using scientific language	links IV and DV using some scientific language	is an IF… then statement, links IV and DV using general terms	Some errors may be present, IV or DV is mentioned	
		4	3	2	1	0
Variables	Correct variable changed and correct variable measured At least 3 controlled variables are identified	Correct variable changed and correct variable measured At least 2 controlled variables are identified	At least one correct variable identified (changed or measured) At least 2 controlled variables are identified	At least one correct variable identified (changed or measured) AND at least one controlled variable identified OR At least two controlled variables are identified	Any one variable (changed, measured or controlled) is correctly identified	
	5	4	3	2	1	0

Method	Method that contains all the aspects below: Third person Past tense Includes repetition Logically sequenced steps IV included DV included Controlled variables Scientific language Detailed	Method that contains all the aspects below: Third person Past tense Includes repetition Logically sequenced steps IV included DV included Controlled variable(s)	Method that contains all the aspects below: Third person (we be one or two errors present) Past tense (may be one or two errors present) Includes repetition Steps (mostly logical) IV and/or DV Controlled variable(s)	Method that contains all the aspects below: Steps attempted IV or DV or a controlled variable mentioned	Method is attempted, many errors, at least one of the 9 aspects is present.	WS5
	10-9	8-7	6-5	4-3	2-1	0

Results - Table	Detailed and correct table. Includes the following: - Column headings - Column units - Units in headings only - Data correctly input - Experimental control row - Lines neat and straight - Averages included - Averages correct - IV and DV correctly recorded in table	Correct table. Includes the following: - Column headings - Column units - Units in headings only - Data correctly input - Experimental control row - Lines neat and straight - Averages included - Averages correct	Mostly correct table. Includes the following: - Column headings - Column units (may be present in table) - Experimental control row - Lines neat and straight - Data is included - Averages included (may not be correct)	Somewhat correct table. Includes the following: - Column headings and/or units - Lines neat and straight - Some data present	Table is attempted with at least 2 of the original aspects present.	WS6
	10 -9	8-7	6-5	4-3	2-1	0
Results - Graph	Detailed graph is included. It includes the following: - Title - Axis headings - Axis units - IV and DV on correct axis - Scales on both axis are correct - Graph type is appropriate Line graph:	Graph is included. It includes the following: - Title - Axis headings - Axis units - Scales on both axis are correct - Graph type is appropriate Line graph: - Points plotted with an 'x' - Average data is plotted	Graph is included. It includes the following: - Axis headings and/or units - Numbers are included on both axis' Line graph: - Points plotted - Average data is plotted (may be other data present)	Graph is included. It includes the following: - Axis headings and/or units Line graph: - Some data is plotted	Graph is attempted with at least 2 of the original aspects present.	

	- Points plotted with an 'x' - Average data is plotted - Line of best fit is included	- Line of best fit is attempted	- Line of best fit is attempted			
	10 -9	8-7	6-5	4-3	2-1	0
Discussion	Discussion is extensive and addresses these areas in detail using scientific knowledge: - Explains how heart rate and exercise are connected - Describes the trend of their graph - Describes the accuracy of the investigation - Provides an example of equipment that could improve accuracy - Explains why the investigation was or was not reliable - Describes any errors in data - Suggests two improvements to the investigation to improve data collection - Explains in detail how their results could benefit a named industry	Discussion is thorough and addresses the following areas with some detail mostly scientifically: - States that heart rate and exercise are connected - Describes the trend of their graph - Describes the accuracy of the investigation - Provides an example of equipment that could improve accuracy - Explains why the investigation was or was not reliable - Describes an error in the data - Suggests an improvement(s) to the investigation to improve data collection - Explains how their results could benefit a named industry	Discussion is sound and addresses the following areas with some scientific knowledge: - States that heart rate and exercise are connected - Describes the shape of their graph - Describes the accuracy of the investigation - States whether the investigation was or was not reliable - Identifies an error in the data - Suggests a way to improve the investigation in general (not specific to data collection) - Names an industry that could benefit from the results found in the investigation	Discussion is attempted and includes the following: - Describes any part of their graph - Says the investigation was/was not accurate and/or reliable with no included evidence - Suggests an improvements to the investigation	Basic discussion given, attempts to answer the questions.	WS7
	10 -9	8-7	6-5	4-3	2-1	0

Conclusion		Conclusion clearly shows whether or not the hypothesis was supported or disproved with evidence as to why they have made this judgement	Conclusion repeats the hypothesis of the experiment and/or attempts to provide supporting evidence	An attempt to summarise the investigation is made in general terms	Some attempt to make a conclusive statement	
		4	3	2	1	0
Report Presentation	The report is neatly presented An extensive use of scientific terminology No grammatical errors present Both a graph and table are included to show the data that has been collected	The report is neatly presented A detailed use of scientific terminology throughout Few grammatical errors present (5 or less) Both a graph and table are included to show the data that has been collected	The report is neatly presented Scientific terminology is attempted throughout Some grammatical errors present (5-15) Both a graph and table are included to show the data that has been collected	The report follows the scaffold A few scientific terms have been used Many grammatical errors present (15+) A graph and/or table are included to show the data that has been collected	The report is attempted A graph or a table is present	WS9
	5	4	3	2	1	0

Total mark /74

Feedback from teacher
