



Motto:  
"Not for self but for  
others"

**Aspley State High School  
Science Department**

**Subject: Physics  
Assessment Task 8  
Extended Response Task  
Context: Electronics**

**Important dates: Date given 10/ 10/ 2008  
Check Date 1: Kit purchased by 17/10/2008  
Check Date 2: Kit assembled by 24/10/2008  
Check Date 3: Draft report submitted by  
7/10/2008  
Final Report and Article 14/11/ 2008**

**Name:** \_\_\_\_\_

**Class:** \_\_\_\_\_ **Teacher:** \_\_\_\_\_

**THE TASK:**

The task you are being asked to complete is to purchase an electronics kit such as those supplied through Dick Smith Electronics; build the kit, test the kit, explain the kit functioning, and demonstrate the kit working to your teacher. Show a circuit diagram of the kit you intend to purchase to your teacher before purchasing to ensure an apt level of difficulty.

Although a wide range of kits are available, it is important to choose one with circuitry complicated enough for you to analyse and test. A guide would be to choose a kit with circuitry that contains at least four transistors used for amplification such as the Simple Amplifier as found in Dick Smith's Funway 2 series. Choosing a kit too complicated will not only increase the financial burden on you, it may well be beyond your ability to explain its functioning (especially when ICs which are more complex than those covered in senior physics are involved). Choosing a kit too simple will not allow you to demonstrate your level of skill and knowledge.

You will want to include the following for your final ERT product:

- Your completed working kit along with any kit instructions and commercial "how it works" information. (These will be returned to you before you leave year 12!)
- YOUR explanation of how the kit works (do not simply replicate the information supplied with the kit).
- An outline of all testing undertaken on your kit prior to, during, and post kit construction. You may wish to write a log of your experience here.
- Don't forget to respond according to the criteria sheet; for example, don't forget to evaluate your kit's design and function.

You may wish to include:

- Suggestions for how the kit could be improved, and
- Any characteristic curves you determined for your kit's output.

The essential element for success is to be aware that this is a largely independent task; while there will be some ideas or suggestions on how to approach the issue from your teacher or other collaborators, it is up to each student to plan his/her own approach to their task.

This is a major piece of assessment for our work this year – make sure you give enough quality evidence to achieve the rating you deserve.

A combination of independent study, research, experimentation and collaboration will be essential for success. You will need to start work in your own time immediately to ensure that you are able to build and test your kit.

Name: \_\_\_\_\_

**PHYSICS - TASK CRITERIA SHEET**  
**EXTENDED RESPONSE TASK**

A	B	C	D	E
<b>Your kit</b>				
Kit is at a suitable level of complexity, neatly completed and functioning as intended  Kit has been thoroughly tested. Characteristics and limitations have been reported	Kit is at a suitable level of complexity, mostly neat and functioning as intended  Kit has been well tested. An attempt has been made to report characteristics and limitations.	Kit is apt, complete and functioning.  Kit has been tested successfully	Kit is complete but not functioning  Kit testing has been attempted	Kit building has been attempted  No real evidence of kit testing
<b>Relationships in data and information &amp; Evaluation</b>				
Identifies relationships between trends, patterns, errors and anomalies in data (eg test results) and information  Generates critically evaluates and justifies feasible explanations. Reflects on the adequacy of the data (eg result of testing) collected and proposes refinement.	Identifies trends, patterns, errors and anomalies in data (eg test results) and information  Generates evaluates and justifies feasible explanations. Reflects on the adequacy of the data (eg results of testing) collected.	Identifies obvious patterns, errors and anomalies in data (eg test results) and information  Generates feasible explanations and discusses the investigation.	Identifies obvious patterns and errors in data (eg test results) and information  Generates explanations and discusses the investigation.	Describes data (eg test results) and information  Attempts explanations
<b>Knowledge and Understanding</b>				
Acquires and constructs knowledge and understanding and elucidates qualitative and quantitative physics concepts, ideas, theories and principles  Physics behind the kit is fully explained	Acquires and constructs knowledge and understanding and elucidates qualitative and quantitative physics concepts, ideas, theories and principles  Physics behind the kit is well explained	Acquires and constructs knowledge and understanding and elucidates qualitative and quantitative physics concepts, ideas, theories and principles  Physics behind the kit is pointed out	Acquires and constructs knowledge and understanding and elucidates qualitative and quantitative physics concepts, ideas, theories and principles  An attempt is made to reference the physics behind the kit	Acquires and constructs knowledge and understanding and elucidates qualitative and quantitative physics concepts, ideas, theories and principles  Little or no reference is made to the physics behind the kit.
<b>Breadth of Investigation</b>				
A wide range of information has been used. Secondary sources have been correctly acknowledged.	A range of information has been used. Generally, these secondary sources have been correctly acknowledged.	A number of information sources have been used. A reasonable attempt has been made to acknowledge secondary sources.	A limited range of information has been used. Secondary sources have not been used or correctly acknowledged.	There is no evidence of meaningful use of sources. There is no attempt at a bibliography or referencing.
<b>Explanation on Functioning and Improvement (beyond what is supplied with the kit)</b>				
A full and logical explanation is supplied. Logical suggestions for improvement are included	A logical explanation is supplied. Some suggestions for improving the kit are included	Explanations add little more than those supplied	Explanations have been attempted but are inconclusive	Some attempt has been made at explaining the kit functioning
<b>Communication</b>				
Communication is clear and concise. Grammar and spelling are free of error. Technical terms have been used appropriately.	Communication is clear. Grammar and spelling contain only minor errors. Technical terms have generally been used appropriately.	Communication is coherent though hampered by grammar and spelling errors. Technical terms have been used occasionally.	Communication is poor with significant grammar and spelling errors. Technical terms have not been used appropriately.	Communication is extremely poor with frequent, significant grammar/spelling errors. Technical terms have not been used.