An Enterprising Approach

Subject	Physics – Wick High School – S3
Lesson	Acceleration – Extended Investigation

Brief description
To explore the idea of acceleration through and Extended Investigation using practical model experiments.

"Enterprising" it!

1. How we made learning **relevant** by putting into a **real context**

A proper investigation similar in structure to University work/Advanced Higher. Pupils take forward a topic completing the research themselves and producing a finished presentation for the class. The relevance of such research for practical physics in the world of work is also highlighted.

2 How we encouraged pupils to take **responsibility**

An Extended Investigation would:

- encourage co-operative learning, transform the teacher into a facilitator
- allow tangential learning,
- derive in-depth learning from extending a traditional practical idea
- would be multi-factored eg many independent variables, holistic view
- consolidate existing techniques
- promote and require learning necessary for the Extended Investigation
- allow the possibility of new learning *for the teacher* as well as the child
- produce an artefact reflecting emergent knowledge
- encourage reflective and critical reasoning

This leads to the proposition that Extended Investigations are effective because they:

- *promote effective use of existing ideas, models and techniques*
- encourage the ability to generate new ideas, solutions and techniques

Pupils are given responsibility in taking forward the project both individually and in groups. Pupils complete plans for their project, set up and carry out practical experiments and write up their reports.

Pupils have to research information in the library and extract that information which is relevant to their project and discard information that is not relevant. Pupils also have to then implement their plan and deal with any problems which arise.

The pupils have ownership of the project – whatever they come with is theirs ……..

3 How we involved partners in learning – building **relationships**

External = Business / Community / Parents & Families
N/A

Internal = Other adults in school
Technician support
Other teachers

4 How we r**eflected** on its success **-** assessment
Presentation – yet to happen

5 **Review** - further ideas for development
Harlen is aware that much secondary school science practical work is confusing and is enjoyed not for the illumination cast on students' learning but rather the freedom to work in groups. She notes that much work is absorbed in the detail and complexity of procedure and the purpose of the practical is little grasped and so attention to significant events is lost.

6. **Links** with ACfE

Successful Learners Pupils are able to demonstrate actual achievement to their peers.
A statement made by one of my pupils who commented after an extended investigation, *"You're fly Sir. We've been doing work an' it disna feel like work, though".*
Effective Contributors In group work, they all take part.
Confident Individuals Pupils are given a lot of freedom to work through their ideas and are encouraged to think laterally and to find things I haven't thought of.
Responsible Citizens Pupils have to source equipment from other areas in the school and are allowed to negotiate with other teachers for stuff.

Wick High School
Physics Department
Peter Darmady
Peter.darmady@wick.highland.sch.uk