

## **Section 9**

### **Exemplification**

## Exemplification

This section provides extracts of evidence from four candidates: two who have satisfied the criteria for a Grade A and two who have met the Grade C criteria.

The extracts of evidence include the following:

- project proposal that meets the project requirements
- project plan with milestones
- progress log (informs interim report/presentation headings and final evaluation)
- interim review
- evaluation of the project
- self evaluation of generic and cognitive skills development
- assessment checklist.

# Project 1 – Example of Grade A

## Science: Interdisciplinary Project

### Proposal

|   |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Deborah Lindsay  |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>Project outline (what it is I want to do and how will I go about it)</b>   |  |  |  |  |  |  |  |  |  |
| <p>The aim of my project is to find out if there is a high sugar content in low fat food products which is contributing to obesity and type II diabetes. I propose to investigate whether there is a link between teenagers' eating habits, parental buying habits and their lifestyle and health. I propose to investigate low fat food products and compare their sugar and fat content with full fat food products on the basis of using the same brand and making a weight per weight comparison. I will present my findings during Health week and also offer my findings to the canteen manager, local supermarket and medical specialists.</p> <p>I intend to approach University X to carry out research into the mechanism of fat metabolism and how the body deals with different types of fat. I will also research practical methods that can be used to find out about saturation of fats and oils in food and carry this out on a sample of low fat and full fat food products. I also intend to research the effect of a high sugar diet on insulin production and uptake.</p> <p>I aim to complete this by the end of February.</p> |  |  |  |  |  |  |  |  |  |
| <b>Reasons for choosing this project (eg personal interest, future plans, links to other subjects I am studying/have studied)</b>   |  |  |  |  |  |  |  |  |  |
| <p>I feel this is an important topic to explore. I have noticed that there is an increased range of low fat food products available yet obesity and type II diabetes are still rising in the teenage population.</p> <p>I am personally interested in living a healthy lifestyle and encouraging my family to do so also. My intention is to apply to university to study dietetics and hope eventually to become a dietician. I am looking forward to improving my research and interpersonal skills as I feel these will be useful to me at university and in my future career.</p> <p>I want to build on the knowledge gained in Higher Human Biology and Higher Chemistry and deepen my understanding of what I am learning in my Advanced Highers.</p>   |  |  |  |  |  |  |  |  |  |

**The broad contexts this project will cover are:**

- Citizenship                       Employability                       Enterprise  
 Economic development                       Sustainable development

**Learning environments I will access are**

I propose to conduct an online survey on eating and lifestyle habits. I intend to visit my local supermarket to find out what low fat food products are available and if possible carry out a survey of people's perceptions and buying habits.

I intend to contact University X to find out if I can assist/observe in any lab work related to fat analysis.

I intend to contact the local hospital to find out if I can interview medical specialists to find out more about type II diabetes and the implications of obesity on health.

**The skills I will develop and/or improve in the course of this project are**

**Application of subject knowledge and understanding** – I want to build on the knowledge gained in Higher Human Biology and Higher Chemistry and deepen my understanding of what I am learning in my Advanced Highers.

**Research skills – analysis and evaluation** – I have never researched a project of this size and scale and would like to develop skills on information management.

**Interpersonal skills – negotiation and collaboration** – I am planning to meet with other students and medical specialists. Although I feel comfortable talking to other students, I am a bit anxious talking to other adults in a professional setting.

**Planning – time, resource and information management** – I am familiar with using spreadsheets for simple data entry but have not yet used them to analyse data.

**Independent learning – autonomy and challenge in own learning** – I am looking forward to working on my own and visiting the University.

**Problem solving – critical thinking: logical and creative approaches** – This is an area where I feel quite confident but hope to further develop these skills during the planning stage and during my practical experiments.

**Presentation skills** – Although I feel confident in presenting my findings and producing a report I feel less confident in delivering an oral presentation.

**Self evaluation – recognition of own skills development and future areas for development** – I plan to keep a diary of my project and the skills that I have used.

**Assessor comments**

Good title and aims meeting project requirements.

During discussion relevance, practicability and justification contained within the proposal were well explained.

You have developed a project proposal that clearly sits within the citizenship and employability context.

Discussion illustrated that there are significant opportunities for skills development – I would recommend that you carry out an initial self evaluation of skills to highlight areas that require further development.

Your proposal to work with the supermarket, University and medical specialists involves you working outwith the school environment. Ensure the correct procedures are followed.

There are already timetabled 'lab days' for S6 and access to library passes as discussed.

Your proposal is well thought out and links your subject knowledge to current and topical health issues. Good links across subject areas.

There is a wide variety of activities which have been clearly thought out and planned to fit in with a realistic timescale. It is sufficiently challenging for Advanced Higher level.

|                            |     |                              |             |
|----------------------------|-----|------------------------------|-------------|
| <b>Proposal approved</b>   | YES | <b>Further work required</b> |             |
| <b>Candidate signature</b> |     |                              | <b>Date</b> |
| <b>Assessor signature</b>  |     |                              | <b>Date</b> |

## Science: Interdisciplinary Project

### Plan

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Deborah Lindsay  |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Teacher/lecturer name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>Is this a group project?</b> yes <input type="checkbox"/> no <input checked="" type="checkbox"/><br><b>If a group project, what will your role or responsibilities be?</b>  |  |  |  |  |  |  |  |  |  |
| <b>Timescales (start, finish and milestones)</b><br><br>This is shown within my Gantt chart.   |  |  |  |  |  |  |  |  |  |
| <b>Planning – state how you are going to meet the agreed objectives of your project</b><br><br>I plan to carry out the project within 20 weeks. Initial self evaluation identified skills development needs. I plan to make contact with specialist teachers in other departments, University medical faculty and the supermarket to increase my confidence in dealing with others. I will also explain the survey to first year pupils and display my information at Health week improving my interpersonal skills. I will trial my surveys with my class mates and adults. I will practice my interview technique and questions with my next door neighbour (Dr Smith) and I will use the feedback gained to help develop my skills. |  |  |  |  |  |  |  |  |  |

| Week   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|
| <b>Background research</b>                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Find out what is available                           | ■ | ■ | ■ | ■ |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Check out government and NHS website                 | ■ | ■ | ■ | ■ |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Read, analyse and review literature                  | ■ | ■ | ■ | ■ | ■ | ■ |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Store relevant info for later use                    | ■ | ■ | ■ | ■ | ■ | ■ |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Write a review                                       |   |   |   |   | ■ | ■ | ■ |   |   |    |    |    |    |    |    |    |    |    |    |    |
| <b>Contact specialists</b>                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Prepare questions based on research                  |   |   |   |   |   |   | ■ |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Find out who to contact and how                      |   |   |   |   |   |   | ■ |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Arrange meetings                                     |   |   |   |   |   |   |   | ■ |   |    |    |    |    |    |    |    |    |    |    |    |
| Record information from specialist                   |   |   |   |   |   |   |   |   | ■ |    |    |    |    |    |    |    |    |    |    |    |
| <b>Surveys</b>                                       |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Find out about online surveys                        |   |   | ■ | ■ | ■ |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Think about target audience                          |   |   |   |   |   |   | ■ |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Devise questionnaire                                 |   |   |   |   |   |   | ■ | ■ |   |    |    |    |    |    |    |    |    |    |    |    |
| Check questions with tutor and trial                 |   |   |   |   |   |   | ■ | ■ |   |    |    |    |    |    |    |    |    |    |    |    |
| Trial questionnaire with class mates                 |   |   |   |   |   |   |   | ■ | ■ |    |    |    |    |    |    |    |    |    |    |    |
| Work out when survey should be available             |   |   |   |   |   |   |   |   | ■ | ■  |    |    |    |    |    |    |    |    |    |    |
| Administer questionnaire                             |   |   |   |   |   |   |   |   | ■ | ■  | ■  | ■  |    |    |    |    |    |    |    |    |
| Work out how to analyse findings                     |   |   |   |   |   |   |   |   | ■ | ■  | ■  | ■  |    |    |    |    |    |    |    |    |
| Analyse findings                                     |   |   |   |   |   |   |   |   |   |    |    | ■  | ■  | ■  | ■  |    |    |    |    |    |
| Contact supermarket                                  | ■ |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Plan supermarket questionnaire                       |   |   | ■ | ■ |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Meet manager and arrange date for survey             |   |   |   |   | ■ |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Check availability of info on customer buying habits |   |   |   |   | ■ |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Write questionnaire                                  |   |   |   |   |   | ■ | ■ |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Carry out survey                                     |   |   |   |   |   |   | ■ | ■ | ■ |    |    |    |    |    |    |    |    |    |    |    |
| Analyse results and draw conclusions                 |   |   |   |   |   |   |   |   | ■ | ■  | ■  |    |    |    |    |    |    |    |    |    |



**Research methods (contacting companies, surveys, focus groups, experimentation)**

This is shown within my Gantt chart.

**Presentation:**

- **Who do I think will benefit from listening / reading / looking at my presentation of my project findings/product?**  
All pupils, staff canteen manager, local supermarket and specialists.
- **What methods are appropriate to your audience (for example demonstration, presentation software, websites, oral, report, piece of theatre, dvd, wiki/blog or any combination).**
- Presentation using presentation software and will also incorporate taste testing with the audience during the presentation.
- Information leaflet and poster for Health week, supermarket, school catering manager.
- Blog on diabetes association website.
- Report containing all research methodologies and findings.

**Dependencies (what is required for your project to go ahead ie reliance on other people or resources, steps in plan that must be completed before starting the next step).**

The Gantt chart above has helped me work out the dependencies within my project. I can't arrange the interviews and plan the questionnaires until I have completed my research. The practical work that I carry out will be dependent upon the resources and time available in the lab.

**Contingencies**

**Any anticipated problems?**

Supermarket says no.

Can't get lab time/equipment not available.

**My plans for overcoming the anticipated problems.**

I will contact a supermarket as early as possible incase they say no. If they say no I will try another supermarket.

I will contact local FE college or other schools.

|  |  |
|--|--|
| Medical specialist from hospital unable to meet with me.<br><br>Health week does not go ahead. | I will contact GP, school nurse or community health department. I could possibly use e-mail to consult with specialist instead of meeting.<br><br>Present findings to my PSE class or at school assembly, or on YouTube. |
|--|--|

**Method for recording own skills development and future areas for improvement**  
I intend to use the progress log to keep an ongoing and regular record of activities completed, skills used and to record how my skills are developing as the project progresses.

**Assessor comments**

Clear project objectives following your proposal.  
Detailed plan pulling together all strands and you have clearly thought about the timing and order of various activities. You have considered potential problems and outlined contingencies.  
We discussed the timing of the practical work.  
Your gantt chart clearly identifies dependencies and milestones. These can be discussed at your interim review.  
We discussed the online surveys – consult with computing department as they have experience in this area.  
We discussed the practical methods needed to measure saturation of fats – this needs to be researched as a priority in order to determine access possible on 'lab day', availability of equipment or need to find suitable alternatives.

|                            |     |                              |  |
|----------------------------|-----|------------------------------|--|
| <b>Plan approved</b>       | Yes | <b>Further work required</b> |  |
| <b>Candidate signature</b> |     | <b>Date</b>                  |  |
| <b>Assessor signature</b>  |     | <b>Date</b>                  |  |

## Science: Interdisciplinary Project

### Progress log

|   |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Deborah Lindsay  |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | Are low fat food products fuelling obesity and diabetes?   |  |  |  |  |  |  |  |  |
| <p><i>Use this form to record progress with your project. Keeping an ongoing record will help prepare you for progress meetings with your teacher/lecturer, your presentation and final evaluation. Things you might want to record are:</i></p> <ul style="list-style-type: none"> <li><i>what you have done (eg from one week to the next)?</i></li> <li><i>what skills have you used and how you feel they have developed?</i></li> <li><i>if you are working in a group, what discussions you have had?</i></li> <li><i>any changes that you have (or will need) to make to your plans and reasons why</i></li> <li><i>what resources you have found/hope to find?</i></li> <li><i>any problems you are encountering and how you are resolving them</i></li> <li><i>what you are going to do next?</i></li> </ul> |  |  |  |  |  |  |  |  |  |
| <i>(This is an example of a page from Deborah's log)</i>  |  |  |  |  |  |  |  |  |  |
| <b>Date</b>   | <b>Comments</b>  |  |  |  |  |  |  |  |  |
| <b>Week 5</b>   | <p>Now that I have finished collecting my background information I have started to sift through it so that I can prepare my literature review. I have got a lot of information and am not quite sure about the best way to organise/review it. I am going ask Mr MacGregor for suggestions at my meeting next week. I have to think about the implications of delaying the writing of my literature review. I don't think that this will affect the development of the survey questions as I have gained a good understanding of the research material.</p> <p>I met with Miss Johnson to find out about Health week and explained what I would like to do. She was interested in my project and happy with my idea of creating a leaflet and a display board for the first year pupils. Health week is the week before my presentation.</p> |  |  |  |  |  |  |  |  |

On Wednesday I met the manager of the local supermarket and he has agreed to allow me to conduct my survey in two weeks time. He is letting me know which two afternoons would suit best. I felt pleased with how the meeting went. I think that I presented my case well and was happy with the way that I negotiated the time to conduct my survey.

The meeting with the supermarket manager was my first 'big' interview. It went really well and I am now feeling much more confident about meeting the medical specialists later.

Didn't realise quite how much organising this will take – will think about ways of planning to get more done in advance/sorting out information.

## Science: Interdisciplinary Project

### Record of Interim Review to be completed by candidate and assessor

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Deborah Lindsay  |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>Describe what you have done so far and how it meets your plan (changes, successes, difficulties encountered, how you resolved issues, targets met)</b>  |  |  |  |  |  |  |  |  |  |
| <p>I have carried out my background research and have now started to write my literature review. I delayed writing the literature review because I needed suggestions to help me find the best way to sort out the information that I had found out.</p> <p>Originally I had intended to carry out my experimental work during weeks 11 and 12. Unfortunately, due to unforeseen circumstances, the University were not able to accommodate this. I have arranged to carry out my experimental work in weeks 10 and 11 in school. In order to do this I need to borrow equipment from another school. The Technician has ordered the chemicals I need and is borrowing one piece of apparatus from another school.</p> <p>I have met the supermarket manager and have carried out my surveys in the supermarket. I have started to analyse the results but have still to complete this.</p> <p>I have contacted the medical specialist but was not able to meet with him as he was too busy. He agreed to email me when he returns from his golfing holiday next week. I have met the diabetic nurse at my doctor's surgery. She was really helpful and suggested another website which I have not had the chance to use yet. She gave me some leaflets and was able to answer all of my questions. She said that I could contact her again if I thought of any other questions. I got permission from the diabetic nurse to make an audio-recording of the interview for reference.</p> <p>I have written the online questionnaire on surveymonkey and trialled it with my class mates. I altered some questions following the feedback that they gave me. First year pupils completed the questionnaire during their computing lesson last week. I am still analysing the results.</p> |  |  |  |  |  |  |  |  |  |

I am pleased that online questionnaire produced results. I just need to make sense and draw conclusions from them.

I found out when Health Week is going to be and have arranged to have a display area.

### **What skills have you used and how far have they developed?**

I did an initial self evaluation of skills. I found this helpful in determining which ones I really needed to develop. I was nervous about meeting the supermarket manager but he was very nice. I was much more confident when dealing with the medical specialists and feel that I have developed my communication skills with adults. I had to deal with a setback and go to plan B for experiments which has helped me to further develop my problem solving and planning skills.

I found the information management part of the literature review difficult. Mr MacGregor talked me through some possible solutions and I now feel that I am more skilled in this area.

### **Next steps**

- Finish the analysis of both surveys.
- Prepare for carrying out the food tests week 10 and 11.
- Finish my literature review.
- Think about the structure of my presentation.

### **Assessor comments**

You have made a good start with this project as I have observed through your Log and our regular update meetings. You dealt well with the University – in approach and dealing with a rejection.

You had problems with organising the research but followed all advice given and are now more competent in this area.

You have clear ideas as to your next steps and are following your amended plan well. As discussed, there are no implications as a result of completing your literature review at a later date. You weighed up the pros and cons effectively and considered all options carefully.

**Candidate comments**

Although disappointed with the set back with the University, I thought I handled it well and was encouraged by their interest in the project. Their links to research areas was a bonus which I can follow up, time permitting.

I am finding this project really interesting and am enjoying getting out of school. I found talking to the parents in my supermarket survey challenging at first but they all showed a real interest in what I was doing. I feel that my communication skills with adults are improving all of the time.

**Candidate signature****Date****Assessor signature****Date**

## Science: Interdisciplinary Project

### Evaluation of project

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Deborah Lindsay  |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>How successful has my project been overall (planning, implementation, and findings/outcomes in terms of strengths, weaknesses and learning points)? Justify your response using supporting evidence.</b>  |  |  |  |  |  |  |  |  |  |
| <p>The aim of my project was to find out if there was a higher sugar content in low fat foods that were contributing to obesity and type II diabetes.</p> <p>The project was successful in that my research showed that low fat foods had a higher sugar content. From my research I also found out that there is a link between obesity and type II diabetes, from this I could infer that there is a link between consumption of high sugar foods and a tendency to type II diabetes.</p> <p>My surveys demonstrated a preference for full fat products in terms of taste but low fat products in terms of healthy thinking. Surveys indicated that people ate larger portion sizes of low fat food in the belief that they were healthier and were unaware of the high sugar content.</p> <p>The online survey indicated that teenagers prefer full fat food to low fat and that this, together with being inactive, would seem to be leading to an increase in obesity in this age group. The supermarket survey indicated that parents who purchase low fat foods were not always aware of the sugar content within them and the implications that this can have.</p> <p>The foods tested showed a higher level of trans fats than expected in the chosen low fat products possibly to improve taste. My research has shown that trans fats can contribute to obesity and type II diabetes.</p> <p>Selecting information that was relevant was hard due to depth of technical knowledge, relevant knowledge and time constraints. However, this was carried out successfully.</p> |  |  |  |  |  |  |  |  |  |

The log really helped me remember what I was doing, but it may have been better using an on-line calendar. I managed to keep to my milestones.

The whole project was a challenge; my previous learning had been far more directed – always given a task to complete and guidance on how to complete it. In the beginning I felt that I had been thrown in at the deep end, but my confidence quickly developed as I made decisions and lead the discussions with Mr MacGregor.

Every time I hit a problem I had sufficient ability to think of alternative options allowing me to re-direct my research.

I learnt there is a lot more to presentations than producing a power point. Talking clearly and engagingly, taking into consideration my target audience in terms of technical and non-technical vocabulary and taking questions from the audience. I have also developed my ability to present information graphically and to present an argument effectively in a limited time.

#### **How effective were my communication methods?**

The project plan worked well. I found it valuable to have spent considerable time at the outset developing a spreadsheet incorporating timings, resources and dependencies. Using my plan allowed me to reschedule activities when necessary and still keep within the timeframe.

I had difficulty in arranging access to university faculty for research but was able to put plan B into action and asked the school technician for help. I could not meet with the heart specialist but I overcame this by having an e-mail conversation. The diabetic nurse at my local surgery answered all my questions and provided information about type II diabetes.

A bonus was an opportunistic interview with a teenager with diabetes re diet. I was able to do this 'off the cuff' because I had already done lots of background reading.

I should have planned to carry out the food tests earlier as the first set of results were inconclusive and I had to repeat the experiment.

The information booklet was liked by students and praised by the community health workers who were taking part in our Health week, they have taken some for other events. The school nurse is going to keep copies for her health talk to first year students.

The presentation to the head teacher, tutor, canteen manager, diabetic nurse and local supermarket manager was very well received. The heart specialist was unable to attend my presentation but was pleased to receive a copy of the written report. The taste test confirmed to the audience that full fat options were tastier. The canteen manager has agreed to review menus. Unfortunately the supermarket manager was not interested in passing on my findings.

**Is there any aspect of my project that could be taken further? What might next steps be?**

The information leaflet produced could be distributed to all local schools as a first step to reduce obesity and its associated problems.  
I would like to investigate the composition of diet products and diabetic products.

|                            |             |  |
|----------------------------|-------------|--|
| <b>Candidate signature</b> | <b>Date</b> |  |
| <b>Assessor signature</b>  | <b>Date</b> |  |

## Science: Interdisciplinary Project

### Self evaluation of generic and cognitive skills development

|                       |  |  |  |  |  |  |  |  |  |
|-----------------------|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b> | Deborah Lindsay  |  |  |  |  |  |  |  |  |
| <b>SCN</b>            |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>    |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |

When evaluating your generic and cognitive skills use the information in the left hand column to help you consider your skills development.

| <b>Generic and Cognitive Skills</b>   | <b>Self evaluation</b>  |
|---|---|
| <p><b>Application of subject knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Candidates should think about practical uses for the science(s) they have learned.</li> <li>• Build these ideas into meaningful and realistic contexts, chosen from one or more of the Broad Contexts (citizenship, economic development, employability, enterprise and sustainable development).</li> <li>• Plan how they can use their knowledge of sciences effectively as part of a successful project.</li> <li>• Use their sciences to help them carry out various aspects of the project.</li> </ul> | <p><i>Note to assessors – candidates should link the bulleted points specifically to the project they have carried out.</i></p> |

| <b>Research skills – plan, research, analyse and evaluate</b>   |   |
|---|---|
| <p>Plan</p> <ul style="list-style-type: none"> <li>• Define your research subject by identifying its scope and key concepts.</li> <li>• Define your research process by identifying tasks and creating a schedule.</li> <li>• Show initiative in choosing methods of research eg contacting companies, surveys, focus groups, experimentation.</li> <li>• Identify and use relevant tools, resources and contacts for your research process.</li> </ul> | <p>I did background research prior to the proposal and produced a spider diagram which focused my thoughts.</p> <p>I produced a planning spreadsheet listing all of the subjects that I needed to look at and also used the spreadsheet to manage the information I had gathered. This is the first time I had collected information in this way and I found it easy to use and would consider using this system in the future.</p> <p>I wasn't sure of the best ways to gather information from external sources so I researched methods of constructing online questionnaires and feel that this helped me to create a good quality questionnaire; I contributed to and used the school's baccalaureate resource list and identified useful sources; I identified the appropriate medical specialists and university faculty and found out how to contact them.</p> |
| <p>Research</p> <ul style="list-style-type: none"> <li>• Carry out research from a variety of sources.</li> <li>• Keep records and notes on strategies, sources, tools and resources used.</li> <li>• Adopt a referencing methodology (where appropriate).</li> </ul>   | <p>I enjoyed accessing research sources that I hadn't used before, but would hope to use again in the future when I attend university.</p> <p>I was good at keeping a log of the information found, contacts I made and research I was using and referenced this where I used it in my project.</p>   |
| <p>Analyse</p> <ul style="list-style-type: none"> <li>• Analyse the usefulness and reliability of materials gathered and resources consulted.</li> <li>• Return to research stage as necessary.</li> </ul>  | <p>I required some help from the computing teacher to analyse the information from the online survey. I was able to use the skills gained here to analyse the results from the supermarket survey on my own. There was so much information that I found it challenging to sift through and choose the best.</p> <p>I managed to find enough information in my four weeks of research and did not have to go back to the research stage.</p>   |
| <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Evaluate the research process.</li> </ul>  | <p>Overall, I think that my research process was successful – I had difficulty finding computer time in school but was able to do a lot of research at home therefore I managed to keep my plan on schedule.</p>  |

|   |   |
|---|---|
| <b>Interpersonal skills – negotiate and collaborate</b>   |   |
| <ul style="list-style-type: none"> <li>• Consider other people's views/ feedback.</li> <li>• Discuss issues of concern, seeking resolution where needed.</li> <li>• Adjust your approach in response to a situation/ environment.</li> <li>• Have positive self belief.</li> <li>• Be confident enough to offer and ask for support.</li> </ul> | <p>I feel that my interpersonal skills have improved while I have been working on this project particularly in dealing with adults for example</p> <p>Negotiation in getting chemistry lab time. When my first experimental results were inconclusive I had to build in more lab time, this involved me carrying out this work during an in-service day. I was aware I needed to be sensitive when interviewing customers in the supermarket and took this into account and therefore was able to gather a lot of information.</p> <p>I was disappointed when I couldn't meet the heart specialist or access University lab and was happy when I negotiated an e-mail conversation and got links to very complex research papers.</p> <p>I now feel I have more of a positive, 'can do' attitude.</p> |
| <b>Planning – time, resource and information management</b>   |   |
| <ul style="list-style-type: none"> <li>• Estimate time needed and set milestones (targets).</li> <li>• Monitor/record progress using tools such as schedules, diaries, logs and calendars to help completion of activities.</li> <li>• Consider any probable barriers to achievement and take steps to minimise them.</li> </ul>                | <p>The time spent with the initial planning really helped me to meet milestones and monitor my progress.</p> <p>I updated my log, recording all relevant information, at appropriate times.</p> <p>I had considered contingency plans for the things that I thought could go wrong so I was able to deal with these issues as they happened. I dealt with other problems as they arose. Successfully dealing with these situations has demonstrated that I have improved my problem solving skills.</p> <p>There was so much information that I found it challenging to sift through and choose the best, however I believe that I was successful in doing so.</p>  |

|  |   |
|--|---|
| <b>Independent learning – autonomy and challenge in own learning</b>   |   |
| <ul style="list-style-type: none"> <li>• Use my skills responsibly to make things happen.</li> <li>• Take initiative to establish links with other learning environments/opportunities.</li> <li>• Look for challenges and don't necessarily take the easy option.</li> </ul>  | <p>Although it was sometimes challenging, I enjoyed taking responsibility for my own project and feel that I was able to carry out the work by myself, although I did have the confidence to ask for help when necessary.</p> <p>I was able to carry out parts of my project outwith the school by arranging meetings with medical specialists and with the supermarket manager.</p> <p>I took the initiative in making contact with the specialists needed to help me carry out my project both in and out of the school.</p> <p>I gave up a day's holiday to come and redo the experimental work and amended survey form feedback.</p>  |
| <b>Problem solving – critical thinking; creative and logical approaches</b>  |   |
| <ul style="list-style-type: none"> <li>• Generate and explore ideas to support my project.</li> <li>• Use creative approaches such as lateral thinking.</li> <li>• Use logical, step by step thinking approaches.</li> <li>• Consider how a situation may have arisen and possible contributory factors.</li> <li>• Think critically about possible actions/changes that would improve the situation.</li> <li>• Analyse points of view in source materials in order to support findings from my research eg flaws in the reasoning; relevance; reliability; supporting evidence; credibility of sources of evidence.</li> </ul> | <p>I used my initial thought shower to generate ideas for developing my project.</p> <p>I am pleased I chose to use a gantt chart to plan my project as this helped me to approach it in a logical way and to keep on schedule as I could alter timelines during the course of my project as circumstances changed.</p> <p>I believe I responded well when my experiments didn't work as I thought about the things that had gone wrong and took this into account when I re-did them. I was pleased when they worked out second time around.</p> <p>I confidently overcame the problem with the university when they were unable to accommodate my experimental work by borrowing the necessary equipment from another school.</p> <p>I found it very challenging to work through my literature review, but I took advice on organising my research and believe that the breadth of my literature review allowed me to find reliable evidence to support my findings. In future I would be better organised when looking at that amount of material.</p> |

|  |  |
|--|--|
| <b>Presentation skills</b>   |  |
| <ul style="list-style-type: none"> <li>• Choose appropriate formats and apply effectively eg written, oral, video, multimedia.</li> <li>• Consider my target audience, the layout, structure, degree of formality of my presentation.</li> <li>• Gather, select and include relevant information or ideas, emphasising the main points.</li> <li>• Present information/ideas/reflections with supporting detail in a logical order, reaching a reasoned conclusion.</li> </ul> | <p>I think that I was right to choose a different presentation format for adults and children as the feedback suggested that the information I gave them was appropriate to each group. Although I was initially anxious about giving my presentation I practiced my presentation which gave me the confidence to remember to include all of the key information and deliver my presentation well. The feedback I received allowed me to make changes to the individual slides to make them clearer and easy to understand. The reactions to the final presentation were very good with the canteen manager agreeing to review the school menus. I was really pleased that the leaflet that I produced was of high quality and will be used by the students and the school nurse. The first year pupils found the information leaflet interesting.</p> |
| <b>Self evaluation – recognition of own skills development and future areas for development</b>  |  |
| <ul style="list-style-type: none"> <li>• Ask for feedback and deal positively with praise, setbacks and criticism.</li> <li>• Reflect on my experiences and feedback from others to assess the development of my knowledge, skills and understanding.</li> <li>• Learn from my experiences and use to inform future progress.</li> </ul>   | <p>My assessor recommended that I carry out an initial self evaluation of skills that require further development. I found this quite difficult as I had not done anything like this before. However completing this process was useful as it allowed me to identify my strengths and weaknesses. During the project I was able to refer back to this to check my progress and monitor my development. I intend to carry out this process in future.</p>   |

*This section is not mandatory. It has been included to allow the candidate the opportunity to undertake an overall reflection of their project.*

**Reflection on my experiences throughout this project** (for example things I feel I have achieved, things I have done that I feel particularly proud of, anything I would do differently were I to do something similar in future).

I have learned that I can work independently to complete a given task. This will be very useful to me at University. I am proud of my leaflet and pleased that my project has produced useful information to improve the health of younger pupils. I would have liked more time and access to a research group to investigate further the composition of fats in my chosen foods. I enjoyed working with the medical specialists and this has confirmed my choice of future career.

**Are there any skills that you have used in this project that you would like to develop further?** (for example, using skills in even more challenging situations, more working on own, more team working).

I would like to develop all of my skills further and will get the opportunity to do this when I am studying dietetics.

## Science: Interdisciplinary Project

### Assessment checklist

Candidate name Deborah Lindsay

Candidate number \_\_\_\_\_

Centre \_\_\_\_\_

| <b>Project proposal</b>   | <b>Tick as appropriate</b> |
|---|----------------------------|
| <b>Grade C criteria</b>   |                            |
| Clear aims and reasoned arguments to support the relevance and practicability of the project.                                       | ✓                          |
| Identification of opportunities for:  | ✓                          |
| • own skills development  | ✓                          |
| • collaborative working   | ✓                          |
| • accessing less familiar learning environments   | ✓                          |
| • application of science subject knowledge in a broad context   | ✓                          |
| • use of knowledge and skills across different disciplines  | ✓                          |
| • making connections between subject knowledge and the wider world.   | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>   |                            |
| Well conceived proposal which sets creative and challenging goals which are at the same time realistic, achievable and practicable. | ✓                          |
| Robust and carefully argued justification of the proposal.  | ✓                          |
| Substantial links and understanding of possible connections across disciplines contributing to the project.                         | ✓                          |

| <b>Project plan</b>  | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| Development of clear project objectives in line with the project proposal.   | ✓                          |
| Relevant and detailed planning strands to enable the project to be implemented, monitored, presented and evaluated.                | ✓                          |
| Realistic timescales and achievable milestones for each stage of the project.  | ✓                          |
| Clear identification of resources needed, research methodologies to be used, opportunities for support and feedback.               | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Careful selection and effective use of research/investigation techniques.  | ✓                          |
| Anticipation of probable and possible factors which may impact on the project.   | ✓                          |
| Clear identification of dependencies or reliance on the success of other strands of work and of necessary adjustments to the plan. | ✓                          |
| Outline the process for achieving own identified development needs.  | ✓                          |

| <b>Presentation of project findings/product</b>   | <b>Tick as appropriate</b> |
|---|----------------------------|
| <b>Grade C criteria</b>   |                            |
| Evidence of effective and critical use of: resources, research methodologies, information and time management, prioritisation, problem solving approach to reach objectives, feedback, collaborative approaches, self monitoring. | ✓                          |
| Application of specialist and interdisciplinary subject knowledge to establish meaningful connections within the broad theme.   | ✓                          |
| Clear presentation of main findings/product.  | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>   |                            |
| Critical thinking, analysis and reflection used at key stages in the project to construct rigorous arguments, draw convincing, well supported conclusions, identify and resolve issues.   | ✓                          |
| Skilful and creative use of resources, including people, information and learning contexts to progress the project.   | ✓                          |
| Accurate and deepening of understanding through application of subject knowledge in the chosen context, with meaningful connections well established.   | ✓                          |

| <b>Evaluation of project</b>   | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| A critical and justified evaluation of all stages of the project process: planning, implementation and findings/product in terms of strengths, weaknesses and learning points. | ✓                          |
| Effective use of chosen communication method(s).   | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Incisive, well balanced evaluation of the project outcome against project aims, supported convincingly by well selected evidence.  | ✓                          |
| Careful choice and skilful use of communication and presentation methods(s).   | ✓                          |

| <b>Self evaluation of generic/cognitive skills development</b>   | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| A critical evaluation of own skills development against the list of specified generic/cognitive skills.  | ✓                          |
| A reasoned evaluation of own strengths and key goals for development in the specified list of generic/cognitive skills, which takes account of feedback sought and evidenced from others throughout the project. | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Insightful, balanced and well structured self evaluation of own development.   | ✓                          |
| Assertive and justified use of feedback from others in evaluation and identification of development areas.   | ✓                          |

The overall grade will be:

- A indicative of a highly competent performance which meets all the additional Grade A criteria and consistently demonstrated a high degree of autonomy, initiative and effective information management across the five pieces.
- B indicative of a competent Grade C performance across the five pieces, but with some aspects of work meeting the criteria for highly competent performance (as outlined by the Grade A criteria).
- C indicative of a competent performance across the five pieces, with all aspects of the work meeting the criteria identified for Grade C performance.

| Overall grade awarded   | A | B | C | Unsuccessful |
|---|---|---|---|--------------|
| <p><b>Assessor comments</b></p> <p>You demonstrated that you are very capable at working independently during all stages of this project. You managed all strands of the project effectively and coped well with the complex nature of the information that you dealt with.</p> <p>You managed your timing well and the planning stage of the project had clearly been very effective.</p> <p>You showed a mature approach throughout this project and your confidence and self-esteem have grown.</p> <p>You display attributes which will stand you in good stead in your chosen career.</p> <p>Your presentation was interesting and informative and was well received by the audience. You made a valuable contribution to Health Week.</p> <p>You have shown a high degree of autonomy throughout this project and have met all of the Grade A criteria effectively.</p> |   |   |   |              |

**Assessor signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**Internal verifier signature** \_\_\_\_\_

**Date** \_\_\_\_\_

# Project 1 – Example of Grade C

# Science: Interdisciplinary Project

## Proposal

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Emma Stewart   |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>Project outline (what it is I want to do and how will I go about it)</b><br>I want to find out if low fat food products are causing an increase in obesity and diabetes.<br>I propose to investigate the contents of low fat foods and compare them with other products. I will research the causes and effects of diabetes and will carry out a survey of eating habits of 1 <sup>st</sup> year pupils.<br>I will present my findings to my tutor and classmates.<br><br>I aim to finish my project by February. |  |  |  |  |  |  |  |  |  |
| <b>Reasons for choosing this project (eg personal interest, future plans, links to other subjects I am studying/have studied)</b><br>Obesity is very topical and many young people are always concerned about their weight.<br><br>I would like to go to University to study nutrition and would like to develop my technical and interpersonal skills to help me in the future.<br><br>I am studying Biology and Chemistry at Advanced Higher and want to take my studies further through my project.               |  |  |  |  |  |  |  |  |  |
| <b>The broad contexts this project will cover are:</b><br><br><input checked="" type="checkbox"/> Citizenship <input checked="" type="checkbox"/> Employability <input type="checkbox"/> Enterprise<br><input type="checkbox"/> Economic development <input type="checkbox"/> Sustainable development  |  |  |  |  |  |  |  |  |  |
| <b>Learning environments I will access are:</b><br><br>I propose to carry out a survey with all S1 pupils and do a survey of low fat products in the local supermarket.<br><br>I will do research on diabetes and obesity through online communities.  |  |  |  |  |  |  |  |  |  |

**The skills I will develop and/or improve in the course of this project are**

Application of subject knowledge and understanding.  
Research skills – analysis and evaluation.  
Interpersonal skills – negotiation and collaboration.  
Planning – time, resource and information management.  
Independent learning – autonomy and challenge in own learning.  
Problem solving – critical thinking: logical and creative approaches.  
Presentation skills.  
Self evaluation – recognition of own skills development and future areas for development.

**Assessor comments**

Good title and your justification is acceptable.  
As it stands your outline does not quite meet the project requirements.

- You need to think more about how you are going to access different learning environments.
- What skills are you going to develop/improve?
- How are you going to provide yourself with opportunities to develop these skills throughout your project?
- Your only activities are research and a survey. What other activities could you do perhaps using your science knowledge to help you answer the question in your title?

|                            |             |                              |     |
|----------------------------|-------------|------------------------------|-----|
| <b>Proposal approved</b>   | NO          | <b>Further work required</b> | YES |
| <b>Candidate signature</b> | <b>Date</b> |                              |     |
| <b>Assessor signature</b>  | <b>Date</b> |                              |     |

## Science: Interdisciplinary Project

### Proposal – resubmission

|   |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Emma Stewart   |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Teacher/lecturer name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>Project outline (what it is I want to do and how will I go about it)</b>   |  |  |  |  |  |  |  |  |  |
| <p>I want to find out if low fat food products are causing an increase in obesity and diabetes.</p> <p>I propose to investigate the contents of low fat foods and compare them with similar full fat food products.</p> <p>I will research the causes of different types of diabetes and how they affect the body using the internet. I propose to carry out a survey of eating habits of 1<sup>st</sup> year pupils and include a section for parents to complete on buying habits. I will also carry out a focus group as part of my survey. I will interview the canteen manager to find out how menus are planned and what thought is given to healthy eating. I will also carry out analysis of the carbohydrate content of a selection of popular low snack foods.</p> <p>I will present my findings to my tutor and classmates.</p> <p>I aim to finish my project by February.</p> |  |  |  |  |  |  |  |  |  |
| <b>Reasons for choosing this project (eg personal interest, future plans, links to other subjects I am studying/ have studied)</b>  |  |  |  |  |  |  |  |  |  |
| <p>Obesity is very topical and many young people are concerned about their weight. I myself, am particularly interested in nutrition, I wish to maintain a healthy lifestyle.</p> <p>I would like to go to University to study nutrition and would like to develop my technical and interpersonal skills to help me in the future.</p> <p>I am studying Biology and Chemistry at Advanced Higher and want to take my studies further through my project.</p>  |  |  |  |  |  |  |  |  |  |

**The broad contexts this project will cover are**

- Citizenship                       Employability                       Enterprise  
 Economic development                       Sustainable development

**Learning environments I will access are**

I propose to carry out a survey with all S1 pupils asking questions about their eating habits in terms of sugar intake. I will extend this survey to include a section for them to take home, asking parents about food buying habits. I will also survey/research the sugar content of popular low fat food products in the local supermarket. I will research how to carry out carbohydrate analysis.

I will do research online and in the local college library on obesity and types of diabetes and the effects these have on the human body.

**The skills I will develop and/or improve in the course of this project are**

**Application of subject knowledge and understanding** – I am studying Biology and Chemistry at Advanced Higher and want to take my studies further through my project.

**Research skills – analysis and evaluation** - I am looking forward to improving my research skills because I think it will be good for university.

**Interpersonal skills – negotiation and collaboration** – To complete the project I intend to speak to a variety of professional people and undertake surveys which I have not done before.

**Planning – time, resource and information management** – I think this is an area where I don't need much development.

**Independent learning – autonomy and challenge in own learning** – I haven't really worked by myself before and am looking forward to the challenge.

**Problem solving – critical thinking – logical and creative approaches** – This is an area where I feel quite confident but I am sure there is room for improvement.

**Presentation skills** – I did presentations in my higher courses last year and am looking forward to building on this.

**Self evaluation – recognition of own skills development and future areas for development** – I have highlighted some of the skills I want to develop above and plan to record them in my progress log.

**Assessor comments**

A good title and your justification is acceptable and your outline now meets the project requirements. Good plan to use the local college library.

You have set your project within citizenship and employability.

You have widened the opportunities for developing skills by working with other people and extending your intended survey.

You are aware what skills you can develop and where there are opportunities to do so.

I would recommend that you carry out an initial self evaluation of skills to highlight areas that need further development.

In our discussion you have highlighted some literature and online resources you are going to use in your research. The scale of your intended activities is very wide, though I still have some concerns about the range.

|                            |     |                              |             |
|----------------------------|-----|------------------------------|-------------|
| <b>Proposal approved</b>   | Yes | <b>Further work required</b> |             |
| <b>Candidate signature</b> |     |                              | <b>Date</b> |
| <b>Assessor signature</b>  |     |                              | <b>Date</b> |

## Science: Interdisciplinary Project

### Plan

|   |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Emma Stewart   |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Teacher/lecturer name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>Is this a group project?</b> yes <input type="checkbox"/> no <input checked="" type="checkbox"/><br><b>If a group project, what will your role or responsibilities be?</b>   |  |  |  |  |  |  |  |  |  |
| <b>Timescales (start, finish and milestones)</b><br>I am going to carry out the project within 20 weeks. I have broken the project down into stages and listed them below – including the important timings and milestones. My milestones are identified at the end of each section of the project.   |  |  |  |  |  |  |  |  |  |
| <b>Planning – state how you are going to meet the agreed objectives of your project</b><br>There are several important stages in my project.  |  |  |  |  |  |  |  |  |  |
| <b>Background research – (weeks 1-6)</b><br>Find out what information is available (week 1)<br>Collect, review, organise and store the information (week 2-4)<br>Write up my review (to be finished by the end of week 6)   |  |  |  |  |  |  |  |  |  |
| <b>Surveys (weeks 1-13)</b><br><b>S1 questionnaire (weeks 5-13)</b><br>Get permission to conduct surveys with S1 pupils and their parents (week 5)<br>Write questionnaire and get it checked (week 5-6)<br>Try out the questionnaire on friends and their parents (week 7)<br>Get the questionnaire completed (week 9-10)<br>Analyse results (week 10-13) |  |  |  |  |  |  |  |  |  |
| <b>Supermarket survey (weeks 1-10)</b><br>Contact supermarket and get agreement to do some research there (week 1)<br>Write questionnaire/survey sheet (week 5-6)<br>Carry out survey (weeks 7-8)<br>Analyse results (week 9)   |  |  |  |  |  |  |  |  |  |

**School canteen manager (weeks 4-6)**

Arrange meeting with her (week 4)  
Write questions (week 4)  
Interview her (week 5)  
Write up interview (week 6)

**Practical work (week 1-13)**

Organise time in lab (week 1)  
Find out about experiments (week 1-3)  
Buy the foods that I need (week 11)  
Do the practicals (weeks 11-12 – hopefully)  
Write up and analyse results (weeks 12-13)

**Presentation (weeks 14-19)**

Sort out a date for the presentation (week 14)  
Invite audience (week 14)  
Write presentation (week 18)  
Practice presentation (week 19)  
Give presentation (week 19)

**Report (weeks 14-18)**

Gather and analyse all of my findings (week 14-15)  
Write report (week 15-18)

**Review and Evaluation**

Conduct self-evaluation (week 1)  
Meetings with tutor (every other week)  
Interim review (week 10)  
Evaluation of project (week 20)

**Resources (people, materials, places)**

S1 pupils and their parents to complete survey  
Local supermarket to carry out research on low fat foods  
Chemistry lab to conduct food tests  
Foods for testing  
Equipment for testing – has the school got the stuff that I need?  
Canteen manager for interview  
University library  
Online libraries  
College library

**Research methods (contacting companies, surveys, focus groups, experimentation)**

Review of literature

Written questionnaire to be completed by pupils at school and parents at home

Survey of low fat foods in the supermarket – to be completed by me

Experiments on food tests in chemistry lab

**Presentation**

- **Who do I think will benefit from listening/reading/looking at my presentation of my project findings/product?**

Pupils and their parents. The school canteen manager.

- **What methods are appropriate to the audience (for example demonstration, presentation software, websites, oral, report, piece of theatre, dvd, wiki/blog or any combination)**

I am going to write a report on all of my research methodologies and findings and give an oral presentation. I am going to give my oral presentation to my classmates.

**Dependencies (what is required for your project to go ahead ie reliance on other people or resources, steps in plan that must be completed before starting the next step)**

I need to make sure that I have gathered background information before I write my questionnaires and plan my experimental investigations.

**Contingencies**

**Any anticipated problems?**

The supermarket won't let me do a survey.

My timings don't work.

**My plans for overcoming the anticipated problems**

I will see what I can find out on the internet about food.

I will have to keep a close eye on my plan to make sure that I finish in time.

**Method for recording own skills development and future areas for improvement**

I'm going to use the progress log to keep track of everything that I have done.

### Assessor comments

The plan details the activities that you plan to undertake in order to support your proposal.

You have outlined strands to the project and indicated your proposed timescales for the different activities. You seem to have spread the activities out throughout the time available but the way that you have written your plan makes it difficult to see where they may be bottlenecks which could have an impact on your plan. You were confident in discussing your plan but I am not sure that you have really thought through all of the possible dependencies within your plan. As we discussed, use of a Gantt chart, rather than a list of activities, may be helpful.

You have included time for evaluation and review.

You have given an indication of the resources that you will need and the methodologies that you plan to use in order to achieve your objectives.

Our discussion indicated that you have given some thought to the different research methodologies that you are planning to use.

You have thought a bit about achieving your skills development but I think that you would benefit from thinking in a little more detail about **how** you are going to do this. Let's keep an eye on this as you work through things.

|                            |     |                              |  |
|----------------------------|-----|------------------------------|--|
| <b>Plan approved</b>       | Yes | <b>Further work required</b> |  |
| <b>Candidate signature</b> |     | <b>Date</b>                  |  |
| <b>Assessor signature</b>  |     | <b>Date</b>                  |  |

## Science: Interdisciplinary Project

### Progress log

|   |   |  |  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Emma Stewart  |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  |   |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | Are low fat food products fuelling obesity and diabetes?  |  |  |  |  |  |  |  |  |
| <p><i>Use this form to record progress with your project. Keeping an ongoing record will help prepare you for progress meetings with your teacher/lecturer, your presentation and final evaluation. Things you might want to record are:</i></p> <ul style="list-style-type: none"> <li>• <i>what you have done (eg from one week to the next)?</i></li> <li>• <i>what skills have you used and how you feel they have developed?</i></li> <li>• <i>if you are working in a group, what discussions you have had?</i></li> <li>• <i>any changes that you have (or will need) to make to your plans and reasons why</i></li> <li>• <i>what resources you have found/hope to find?</i></li> <li>• <i>any problems you are encountering and how you are resolving them</i></li> <li>• <i>what you are going to do next?</i></li> </ul> |   |  |  |  |  |  |  |  |  |
| <b>Date</b>   | <p><i>(This is an example of a page from Emma's log)</i></p> <p><b>Comments</b></p> <p>Week 5</p> <p>I've collected all of my information for my literature review. I am going to ask for help so that I know how to write it all up – there is a lot of info. I have tried to see the school canteen manager but she has been busy whenever I have contacted her. I need to try and organise this soon. I have started to think about the questionnaires that I want to give the S1 pupils. I have got some ideas for questions that I want to ask but still need to find some more. I still have to find out if I can give the S1's the questionnaire – and also, how I am going to do it.</p> <p>Everything is starting to get busy now and I am feeling a bit lost. I need to ask for help to get me more organised. I should be doing lots of different things now and I am finding that I am stuck and not sure where to begin.</p> |  |  |  |  |  |  |  |  |

## Science: Interdisciplinary Project

### Record of Interim Review to be completed by candidate and assessor

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Emma Stewart   |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>   |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>Describe what you have done so far and how it meets your plan (changes, successes, difficulties encountered, how you resolved issues, targets met)</b>  |  |  |  |  |  |  |  |  |  |
| <p>I have finished and written my literature review. I needed quite a bit of help to organise the information and also to help me to understand some of the things that I found as technically it was highly complex.</p> <p>I finally spoke to the canteen manager and she gave me information about how they plan the menus. She said that she would like to hear about the results of my research when it is finished. It was difficult to get in touch with her to start with. I learnt that I need to organise meeting times with several options, well in advance. I have now done this with the manager of the supermarket rather than just turn up and expect her to be able to see me straight away.</p> <p>I was a bit late getting my questionnaires ready for the S1 pupils. I thought that it was going to be easy but found that it was difficult to get questions that would give me the information that I wanted. I should have got permission to hand out the questionnaires earlier. Luckily the teachers were able to help and I am starting to get replies.</p> <p>The supermarket manager has said that I can go this week instead of week 7-8. This is later than I had planned but I don't think that it will affect my project.</p> <p>I am still planning to do the experimental work in a couple of weeks. The Chemistry teacher has been really helpful and sorted out lots of stuff for me. I have ordered what I need through the technician, well in advance.</p> |  |  |  |  |  |  |  |  |  |

**What skills have you used and how far have they developed?**

I have done my initial self evaluation. I seemed to be good at most things but thinking about the first few weeks I think that I need to improve my communication skills and organisation skills more. I needed quite a bit of help with the literature review and put off contacting the canteen manager and supermarket because I was nervous. I have learnt that I need to get on and do things so I feel that my skills have developed. I am getting better at taking things on myself and not relying on teachers to organise things. This has involved thinking ahead about what needs to be done and arranging to do it eg ordering chemicals/apparatus for testing in time for it to be checked and get back when borrowed from another school .

**Next steps**

I have got to get the rest of the surveys back and analyse the results. I also have to go to the supermarket to do my research there and get myself ready for the practicals. I then have to think about my report and the presentation.

**Candidate comments**

I am enjoying this more than I thought that I would. I found it difficult to get started but now think that I have a good idea of what I am trying to do.

**Assessor comments**

You have made a good start and I think that you have been fair with your comments about your progress. I was pleased with the way that you responded to the advice/help that you were given and feel that your skills have developed quite a bit. It is important that you plan your next steps carefully. You have a lot left to do and will need to be well organised and structured in the way that you work.

Make sure that you keep your Progress Log up to date and include as much detail as you can about the planning that you are doing.

**Candidate signature****Date****Assessor signature****Date**

## Science: Interdisciplinary Project

### Evaluation of project

|   |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Emma Stewart   |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |
| <b>How successful has my project been overall (planning, implementation, and findings/outcomes in terms of strengths, weaknesses and learning points)? Justify your response using supporting evidence.</b>   |  |  |  |  |  |  |  |  |  |
| <p>The aim of my project was to establish a link between obesity and diabetes and low fat foods.</p> <p>From my research I found that there is a link between obesity and type II diabetes and it can therefore be concluded that there is a link between a high sugar diet and obesity and type II diabetes.</p> <p>Through my surveys I found out that First year pupils prefer not to eat low fat foods. Parents however are more likely to buy them as they think they are healthier. There is little reliable evidence of what constitutes 'low fat' which may complicate findings.</p> <p>I was disappointed with my experimental work as I could not find a test which was easy to carry out in school or in college. It was difficult to draw any conclusions from the results.</p> <p>In my interview with the canteen manager I found out that a lot of thought goes into the construction of menus and that they try to cater for a wide variety of tastes, including low fat options.</p> <p>I have learned a lot about what skills I have and how I can develop them and I know that this will be useful to me in the future.</p> <p>Selecting information that was relevant was hard due to depth of technical knowledge, relevant knowledge and time constraints. I required support from my teacher to do this.</p> |  |  |  |  |  |  |  |  |  |

The log really helped me remember what I was doing, may have been better using an on-line calendar.

The whole project was a challenge; my previous learning had been far more directed – always given a task to complete and guidance on how to complete it. In the beginning I felt that I had been thrown in at the deep end, but my confidence quickly developed as I made decisions and lead the discussions with my teacher.

I learnt there is a lot more to presentations than power point. Talking clearly and engagingly, taking into consideration my target audience in terms of technical and non-technical vocabulary and taking questions from the audience. This is an area of the project that I felt was carried out really well.

**How effective were my communication methods?**

My project plan was good, but I had difficulty sticking to my milestones. I carried out a lot of research online and collected a lot of information which I then had to sort through – this was time-consuming. I should have narrowed down my field by focusing on a few key words.

I put off contacting the supermarket manager till week 4 and this had a knock on effect to the rest of my research there. I should have contacted him in week 1, like I said I would. I enjoyed working with the First year pupils and carrying out the questionnaire. I did not realise the volume of information it would generate and should have left more time to deal with it all.

My presentation went very well, but I probably spent too long working on my slides.

I have good communication skills but I need to work on my confidence in dealing with adults I am not familiar with.

**Is there any aspect of your project that could be taken further? What might next steps be?**

If I had had more time, I would have liked to have interviewed some health professionals, especially to find out more about Type II diabetes and its affects on the human body.

I also would have liked to have produced an information booklet for First year pupils to inform them more about the dangers of a high sugar diet.

|                            |             |  |
|----------------------------|-------------|--|
| <b>Candidate signature</b> | <b>Date</b> |  |
| <b>Assessor signature</b>  | <b>Date</b> |  |

## Science: Interdisciplinary Project

### Self evaluation of generic and cognitive skills development

|                       |  |  |  |  |  |  |  |  |  |
|-----------------------|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b> | Emma Stewart   |  |  |  |  |  |  |  |  |
| <b>SCN</b>            |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>    |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | Are low fat food products fuelling obesity and diabetes? |  |  |  |  |  |  |  |  |

When evaluating your generic and cognitive skills use the information in the left hand column to help you consider your skills development.

| <b>Generic and Cognitive Skills</b>  | <b>Self evaluation</b>  |
|--|---|
| <b>Application of subject knowledge and understanding</b>  |   |
| <ul style="list-style-type: none"> <li>• Candidates should think about practical uses for the science(s) they have learned.</li> <li>• Build these ideas into meaningful and realistic contexts, chosen from one or more of the Broad Contexts (citizenship, economic development, employability, enterprise and sustainable development).</li> <li>• Plan how they can use their knowledge of sciences effectively as part of a successful project.</li> <li>• Use their sciences to help them carry out various aspects of the project.</li> </ul> | <p><i>Note to assessors – candidates should link the bulleted points specifically to the project they have carried out.</i></p> |

| <b>Research skills – plan, research, analyse and evaluate</b>   |   |
|---|---|
| <p>Plan</p> <ul style="list-style-type: none"> <li>• Define your research subject by identifying its scope and key concepts.</li> <li>• Define your research process by identifying tasks and creating a schedule.</li> <li>• Show initiative in choosing methods of research eg contacting companies, surveys, focus groups, experimentation.</li> <li>• Identify and use relevant tools, resources and contacts for your research process.</li> </ul> | <p>I initially struggled with this and needed help from my tutor to get me started when writing the plan of activities. I found it quite difficult to work out how to use the time that I had effectively. It was all done but rushed at times.</p>   |
| <p>Research</p> <ul style="list-style-type: none"> <li>• Carry out research from a variety of sources.</li> <li>• Keep records and notes on strategies, sources, tools and resources used.</li> <li>• Adopt a referencing methodology (where appropriate).</li> </ul>   | <p>I used the local main college library and online resources to capture a variety of information and am pleased I did this as it gave me access to a variety of different opinions.</p> <p>I needed help from my tutor to organise the information collected from my survey. Taking my tutors advice I used electronic folders to sort and store this information and found it very helpful.</p> |
| <p>Analyse</p> <ul style="list-style-type: none"> <li>• Analyse the usefulness and reliability of materials gathered and resources consulted.</li> <li>• Return to research stage as necessary.</li> </ul>  | <p>I found analysing the information difficult as some of it was gathered from medical journals, so although the information was reliable it was highly complex and there was so much of it. I spoke to my tutor to help me understand some of the information.</p>   |
| <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Evaluate the research process.</li> </ul>  | <p>The research process was time consuming – I should have searched by focusing on keywords.</p>  |

|   |  |
|---|--|
| <b>Interpersonal skills – negotiate and collaborate</b>   |  |
| <ul style="list-style-type: none"> <li>• Consider other peoples' views/feedback.</li> <li>• Discuss issues of concern, seeking resolution where needed.</li> <li>• Adjust your approach in response to a situation/environment.</li> <li>• Have positive self belief.</li> <li>• Be confident enough to offer and ask for support.</li> </ul> | <p>I think I was good at considering other peoples' views as I trialled my questionnaire with my classmates and parents and adjusted it after considering their feedback and discussing with my tutor whether it met my aims.</p> <p>I was pleased about overcoming my nerves and being able to negotiate a meeting with the canteen manager, however I realised that I should have approached the supermarket manager earlier to ask permission to take notes on contents of various products.</p> <p>I asked my tutor for help when I needed it.</p> |
| <b>Planning – time, resource and information management</b>   |  |
| <ul style="list-style-type: none"> <li>• Estimate time needed and set milestones (targets).</li> <li>• Monitor/record progress using tools such as schedules, diaries, logs and calendars to help completion of activities.</li> <li>• Consider any probable barriers to achievement and take steps to minimise them.</li> </ul>              | <p>I underestimated the time it would take to carry out the survey and collate the results but still managed to get this done.</p> <p>I was good at keeping a detailed log of all activities.</p> <p>I dealt with problems as they arose but should have foreseen some of them and thought of alternatives, I may have been able to do this if I had used a Gantt chart so would try this in future.</p>   |
| <b>Independent learning – autonomy and challenge in own learning</b>  |  |
| <ul style="list-style-type: none"> <li>• Use my skills responsibly to make things happen.</li> <li>• Take initiative to establish links with other learning environments/opportunities.</li> <li>• Look for challenges and don't necessarily take the easy option.</li> </ul>   | <p>The literature research part of the project went really well and I was pleased with how I worked on my own to gather the information.</p> <p>I enjoyed accessing the College library and the supermarket to get additional information and interviewed the school canteen manager.</p> <p>It would have been good if I had gone to the hospital/doctors to find things out but it wasn't in my original plan and I ran out of time to add anything extra in.</p>  |

|  |   |
|--|---|
| <b>Problem solving – critical thinking; creative and logical approaches</b>  |   |
| <ul style="list-style-type: none"> <li>• Generate and explore ideas to support my project.</li> <li>• Use creative approaches such as lateral thinking.</li> <li>• Use logical, step by step thinking approaches.</li> <li>• Consider how a situation may have arisen and possible contributory factors.</li> <li>• Think critically about possible actions/changes that would improve the situation.</li> <li>• Analyse points of view in source materials in order to support findings from my research eg flaws in the reasoning; relevance; reliability; supporting evidence; credibility of sources of evidence.</li> </ul> | <p>I was very pleased with the analysis that I did of all of my research findings. It helped me to give a really good presentation.</p> <p>I could have thought more creatively about how to get information about low fat foods and obesity. I stuck to my original plan but could have changed some more things along the way to improve the quality of my overall findings. I thought that my plan was logical and gave me the structure that I needed to make sure that I completed it on time.</p> |
| <b>Presentation skills</b>   |   |
| <ul style="list-style-type: none"> <li>• Choose appropriate formats and apply effectively eg written, oral, video, multimedia.</li> <li>• Consider my target audience, the layout, structure, degree of formality of my presentation.</li> <li>• Gather, select and include relevant information or ideas, emphasising the main points.</li> <li>• Present information/ideas/reflections with supporting detail in a logical order, reaching a reasoned conclusion.</li> </ul>   | <p>I feel my presentation skills are good and I produced a good report and slide presentation, though I could have invited the Canteen manager and some S1 pupils.</p>  |

|   |  |
|---|--|
| <b>Self evaluation – recognition of own skills development and future areas for development</b>   |  |
| <ul style="list-style-type: none"> <li>• Ask for feedback and deal positively with praise, setbacks and criticism.</li> <li>• Reflect on my experiences and feedback from others to assess the development of my knowledge, skills and understanding.</li> <li>• Learn from my experiences and use to inform future progress.</li> </ul>  | <p>I used feedback to redo my questionnaire, making it more focused.</p> <p>I respond positively to criticism, when I feel it is justified.</p> <p>I hope to use my experiences to help with my studies at university, especially in planning and organising projects, reading complex and conflicting arguments in documents.</p> |
| <p><i>This section is not mandatory. It has been included to allow the candidate the opportunity to undertake an overall reflection of their project.</i></p> <p><b>Reflection on my experiences throughout this project</b> (for example things I feel I have achieved, things I have done that I feel particularly proud of, anything I would do differently were I to do something similar in future).</p> <p>I have learned to work more independently and that it is important to remain focused on my objective. I now realise that there are many other aspects that I could have included in my project eg the impact of physical activity. I could also have thought about using the local doctors and nurses to get information about obesity and diabetes. They might have been able to give me some information that would have linked my project to the local community.</p> <p><b>Are there any skills that you have used in this project that you would like to develop further?</b> (for example, using skills in even more challenging situations, more working on own, more team working).</p> <p>I would like to further develop my planning skills, especially time management. I would also like to develop my interpersonal skills by working with other people more. I would also like to try to learn about coming up with creative ways of solving problems and getting a bit better at developing more novel ideas.</p> |  |

## Science: Interdisciplinary Project

### Assessment checklist

Candidate name Emma Stewart

Candidate number \_\_\_\_\_

Centre \_\_\_\_\_

| Project proposal  | Tick as appropriate |
|---|---------------------|
| <b>Grade C criteria</b>   |                     |
| Clear aims and reasoned arguments to support the relevance and practicability of the project.                                       | ✓                   |
| Identification of opportunities for:  | ✓                   |
| • own skills development  | ✓                   |
| • collaborative working   | ✓                   |
| • accessing less familiar learning environments   | ✓                   |
| • application of science subject knowledge in a broad context   | ✓                   |
| • use of knowledge and skills across different disciplines  | ✓                   |
| • making connections between subject knowledge and the wider world.   | ✓                   |
| <b>Grade A criteria, includes all of above plus</b>   |                     |
| Well conceived proposal which sets creative and challenging goals which are at the same time realistic, achievable and practicable. |                     |
| Robust and carefully argued justification of the proposal.  |                     |
| Substantial links and understanding of possible connections across disciplines contributing to the project.                         |                     |

| Project plan   | Tick as appropriate |
|--|---------------------|
| <b>Grade C criteria</b>  |                     |
| Development of clear project objectives in line with the project proposal.   | ✓                   |
| Relevant and detailed planning strands to enable the project to be implemented, monitored, presented and evaluated.                | ✓                   |
| Realistic timescales and achievable milestones for each stage of the project.  | ✓                   |
| Clear identification of resources needed, research methodologies to be used, opportunities for support and feedback.               | ✓                   |
| <b>Grade A criteria, includes all of above plus</b>  |                     |
| Careful selection and effective use of research/investigation techniques.  |                     |
| Anticipation of probable and possible factors which may impact on the project.   |                     |
| Clear identification of dependencies or reliance on the success of other strands of work and of necessary adjustments to the plan. |                     |
| Outline the process for achieving own identified development needs.  |                     |

| <b>Presentation of project findings/product</b>   | <b>Tick as appropriate</b> |
|---|----------------------------|
| <b>Grade C criteria</b>   |                            |
| Evidence of effective and critical use of: resources, research methodologies, information and time management, prioritisation, problem solving approach to reach objectives, feedback, collaborative approaches, self monitoring. | ✓                          |
| Application of specialist and interdisciplinary subject knowledge to establish meaningful connections within the broad theme.   | ✓                          |
| Clear presentation of main findings/product.  | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>   |                            |
| Critical thinking, analysis and reflection used at key stages in the project to construct rigorous arguments, draw convincing, well supported conclusions, identify and resolve issues.   |                            |
| Skilful and creative use of resources, including people, information and learning contexts to progress the project.   |                            |
| Accurate and deepening of understanding through application of subject knowledge in the chosen context, with meaningful connections well established.   |                            |

| <b>Evaluation of project</b>   | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| A critical and justified evaluation of all stages of the project process: planning, implementation and findings/product in terms of strengths, weaknesses and learning points. | ✓                          |
| Effective use of chosen communication method(s).   | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Incisive, well balanced evaluation of the project outcome against project aims, supported convincingly by well selected evidence.  |                            |
| Careful choice and skilful use of communication and presentation methods(s).   | ✓                          |

| <b>Self evaluation of generic/cognitive skills development</b>   | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| A critical evaluation of own skills development against the list of specified generic/cognitive skills.  | ✓                          |
| A reasoned evaluation of own strengths and key goals for development in the specified list of generic/cognitive skills, which takes account of feedback sought and evidenced from others throughout the project. | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Insightful, balanced and well structured self evaluation of own development.   |                            |
| Assertive and justified use of feedback from others in evaluation and identification of development areas.   |                            |

The overall grade will be:

- A indicative of a highly competent performance which meets all the additional Grade A criteria and consistently demonstrated a high degree of autonomy, initiative and effective information management across the five pieces.
- B indicative of a competent Grade C performance across the five pieces, but with some aspects of work meeting the criteria for highly competent performance (as outlined by the Grade A criteria).
- C indicative of a competent performance across the five pieces, with all aspects of the work meeting the criteria identified for Grade C performance.

| Overall grade awarded   | A      B <b>ⓐ</b> Unsuccessful |
|---|--------------------------------|
| <p><b>Assessor comments</b></p> <p>You worked well independently producing an informative and interesting presentation and giving a competent performance across all 5 criteria.</p> <p>You thought through the timescales but your time management could have been better. You could also have better anticipated some of the problems you met.</p> <p>You evaluated your initial skills well but overstated progression of these skills during the project.</p> <p>While you showed a mature attitude, you lacked confidence in dealing with the broader contexts of the project.</p> <p>Interdisciplinary connections as demonstrated in the presentation could have been stronger although you discussed possible ways to improve these, you did not take them forward.</p> <p>Overall a competent project, which met all the grade C criteria.</p> |                                |

**Assessor signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**Internal verifier signature** \_\_\_\_\_

**Date** \_\_\_\_\_

## Project 2 – Example of a Grade A

# Science: Interdisciplinary Project

## Proposal

|  |   |  |  |  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Adam Miller   |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>   | Mr Smith  |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |
| <b>Project outline (what it is I want to do and how will I go about it)</b>  |   |  |  |  |  |  |  |  |  |
| <p>This project will investigate the feasibility of using wind generators to provide energy needs for homes in the local area. Technologically the investigation would attempt to establish a link between the energy requirement and the scale of the turbine(s) necessary to meet the requirement. The following groups will be consulted: wind generator designers and manufacturers, community action groups, environmental groups, local builders and local authority planners.</p>   |   |  |  |  |  |  |  |  |  |
| <b>Reasons for choosing this project (eg personal interest, future plans, links to other subjects I am studying/ have studied)</b>   |   |  |  |  |  |  |  |  |  |
| <p>I have chosen this project because I am studying Advanced Higher Technological Studies and studied Geography and Biology last year. I am interested in the environment and renewable energies and hope to study Engineering at University next year. I want to improve my communication skills so that I will be confident when delivering my findings to an audience. I also need to develop my research skills because my previous courses did not involve much research or discussion with professionals outside education. This topic is important to everybody because we need to consider alternative energies as a means of reducing our dependency on fossil fuels. I also recognise a need to develop an understanding of the commercial and economic considerations which may act as constraints on engineering projects.</p> |   |  |  |  |  |  |  |  |  |
| <b>The broad contexts this project will cover are</b>  |   |  |  |  |  |  |  |  |  |
| <input type="checkbox"/> Citizenship <input type="checkbox"/> Employability <input type="checkbox"/> Enterprise  |   |  |  |  |  |  |  |  |  |
| <input checked="" type="checkbox"/> Economic development <input checked="" type="checkbox"/> Sustainable development   |   |  |  |  |  |  |  |  |  |

### **Learning environments I will access are**

University library  
Engineering department at university  
Wind turbine company  
On-Line Internet/Blogs/Web Conferencing/tutorials.

### **The skills I will develop and/or improve in the course of this project are**

**Application of subject knowledge and understanding** – I am going to apply knowledge of Geography and Biology and combine this with the knowledge that I will gain from my Advanced Higher Technological Studies.

**Research skills – analysis and evaluation** – I will develop my analytical and evaluative skills by selecting appropriate materials from the information that I gather and by drawing conclusions that will help me make progress in my project.

**Interpersonal skills – negotiation and collaboration** – I will develop my negotiation skills through discussion with a variety of people (this will include people within my own school and also people in external organisations) that I will need to interact with in order to carry out my project.

**Planning – time, resource and information management** – I will make use of a mind map and develop a gantt chart which will help me to develop my planning skills. I will make use of an e-portfolio in order to manage all my information.

**Independent learning – autonomy and challenge in own learning** – I am going to take charge of my own learning as far as possible. I am going to try not to rely on my teacher for guidance.

**Problem solving – critical thinking: logical and creative approaches** – I will develop my problem solving skills as I work through my project. I will need to have contingency plans in case my plans have to be changed.

**Presentation skills** – I will develop my presentation skills by contributing to blogs. I will also need good presentation skills when I discuss/negotiate with my teacher and those people I have to speak to outwith school. I have already attended a presentation skills course and I will make use of what I have learned.

**Self evaluation – recognition of own skills development and future areas for development** – As I go through my project I will continually reflect on all the above skills.

**Assessor comments**

Prepared documentation was brought to the meeting. This documentation was presented very clearly showing a high level of preparation.

- You demonstrated a clear understanding of all the project information provided during induction.
- You showed that the cognitive and generic skills essential to this unit have been considered and interpreted correctly, and used a power point presentation to list these and where each may be used during the course of your proposed project.
- You clearly demonstrated that there is scope in this topic to explore engineering principles at a depth comparable to AH level of study and beyond in Tech Studies, Mathematics, Physics.
- The goals presented are realistic and have the potential to provide challenge for you.

In discussion you were able to identify key issues that would arise in the planning stage.

This project proposal is realistic and achievable.

|                            |             |                              |    |
|----------------------------|-------------|------------------------------|----|
| <b>Proposal approved</b>   | YES         | <b>Further work required</b> | NO |
| <b>Candidate signature</b> | <b>Date</b> |                              |    |
| <b>Assessor signature</b>  | <b>Date</b> |                              |    |

## Science: Interdisciplinary Project

### Plan

|  |   |  |  |  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Adam Miller   |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |   |  |  |  |  |  |  |  |  |
| <b>Teacher/lecturer name</b>   | Mr Smith  |  |  |  |  |  |  |  |  |
| <b>Project title:</b>  | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |
| <p><b>Is this a group project?</b>    yes    <input type="checkbox"/>    no    <input checked="" type="checkbox"/></p> <p><b>If a group project, what will your role or responsibilities be?</b></p>   |   |  |  |  |  |  |  |  |  |
| <p><b>Timescales (start, finish and milestones)</b><br/>           Gantt Chart attached showing my timescales building in slippage/review time.<br/>           By the October holiday at the latest my project should be ready for Implementation.<br/>           By Christmas I should have enough knowledge to be able to discuss at a technical level how wind generators function to meet my project requirements.<br/>           Presentation in March.</p>   |   |  |  |  |  |  |  |  |  |
| <p><b>Planning – state how you are going to meet the agreed objectives of your project</b></p> <p>Following on from initial research and energy conference experience I will need to contact and arrange meetings with the following.</p> <ul style="list-style-type: none"> <li>• Engineering department following on from University open day – to discuss the best way to establish the link between energy requirement and turbine scale necessary to the requirement.</li> <li>• A National House Building company to arrange a visit or web conference – to gauge the interest that a national building company has in integrating power supply in planning for developments; do they see any financial benefit?</li> <li>• An energy company to arrange a visit to a wind farm – to establish the proportions of the market that large medium and small scale generators currently account for and see what the technology looks like!</li> <li>• An energy company overseas to arrange a Web Conference – as above but to compare different company views.</li> <li>• Primary school with wind generator – why did they do this, does it work?</li> <li>• Wind farm – to see if I can obtain information about how the energy generation profile varies over a year and how much noise there is when they are in operation.</li> </ul> |   |  |  |  |  |  |  |  |  |

- Environmental group interested in alternative energies – canvas their views on the use of wind generators, both small and large scale.
- Planning Offices – to find out if there are any planning restrictions on building generators near housing and any financial incentives offered to developers and/or individual house holders to use wind generators.

As I collect information following initial contact with the various organisations I will start to extract relevant information required in order to move the project on.

### **Resources (people, materials, places)**

Prior to starting the project I attended a presentation skills seminar. I need to find out whether Careers Scotland run any courses or whether there are any on-line tutorials that would help with the generic skills I need to develop to carry out this project.

Sign up for access to the local university library using a letter from the pupil support department.

Discuss with my tutor the paperwork that needs to be completed before visits to companies.

Find out if any school protocol exists for the organisation of contact with external agencies – letter head, email from school office or can I use my personal email account.

Software that might need to be accessed. Find out whether this can be installed on the school computer systems.

Website access – can websites be made available for research during the school day or do I need to access elsewhere.

Arrange meeting schedule with:

- Mr Smith my tutor to discuss progress
- outside organisations listed above.

## **Research methods (contacting companies, surveys, focus groups, experimentation)**

Web searches relating to the technical detail of Wind generators. Collate relevant information and disregard non-essential findings.

Contribute to blogs relating to the development of wind generators and their use in housing. Try to gain information from households on the economic effectiveness of their investment in individual turbines for houses.

Ask questions of experts and use their response to direct subsequent work on the research and analysis of the technological aspect of the project.

Visit the university library for further documented reports on wind generators.

Plan visits in December to companies and organisations identified above. Record interviews and subsequent transcription; create a bank of photographic evidence.

## **Presentation**

- **Who do I think will benefit from listening / reading / looking at my presentation of my project findings/product?**

My audience will be the Higher Technological Studies class, the head teacher and depute in charge of curriculum along with my tutor. I have been given 30 minutes to present my project including questions.

- **What methods are appropriate to the audience (for example demonstration, presentation software, websites, oral, report, piece of theatre, dvd, wiki/blog or any combination)**

The delivery of the presentation will be using a Power Point presentation.

This will include the project title, objectives, the main technological findings, how the project was planned, critical learning points, challenges, meetings with external bodies, problems and how they were over come.

Photographic display of various Wind generators examined.

A3 folder containing my spider diagrams (mind maps), Gantt chart showing my planning and organisation. Extract from contributions to the blog on Wind Turbines.

Display of the graphs and tabulated data indicating the relationship between the power output and identified design factors and environmental factors.

A4 folder containing evidence of the relevant factual data collated during the research phase or access to my e-portfolio.

**Dependencies (what is required for your project to go ahead ie reliance on other people or resources, steps in plan that must be completed before starting the next step)**

Need to complete research before visits.  
Need to make sure that visits can take place – do I have alternative companies.

**Contingencies**

|   |   |
|---|---|
| <p><b>Any anticipated problems?</b></p> <p>Web conferencing not available for overseas energy company.<br/>Builder unwilling to be engaged in this project.<br/>Visit to a wind farm to see wind generators in action not possible.</p> | <p><b>My plans for overcoming the anticipated problems</b></p> <p>E-mail – communication with the overseas energy company.<br/>Locate a different company<br/><br/>Carry out virtual research into wind generators.</p> |
|---|---|

**Method for recording own skills development and future areas for improvement**

I intend to use the progress log for keeping an on-going and regular record of activities completed, skills used and how my skills are developing as the project progresses.

**Assessor comments**

During our discussion, you clearly outlined a reasonable strategy to achieve the project objectives. Evidence of planning was shown through mind maps, Gantt charts and a list of visits that would need to be arranged to provide information for the project. The evidence you brought to the meeting and the discussion it generated showed that you had identified a good range of relevant research methods. You have thought about how you may present the project to your audience on completion of the project; you have also recognised that this element of the plan may alter in light of your findings. We discussed wider audience eg building company planning department and agreed this would be useful.

You have shown that you have identified a wide variety of areas/people to see. You gave clear justification for their selection in terms of the type of information that you would like to get from them to meet the project objectives.

You will review the number of contact visits that you undertake.

|                            |             |                              |    |
|----------------------------|-------------|------------------------------|----|
| <b>Plan approved</b>       | YES         | <b>Further work required</b> | NO |
| <b>Candidate signature</b> | <b>Date</b> |                              |    |
| <b>Assessor signature</b>  | <b>Date</b> |                              |    |

## Science: Interdisciplinary Project

### Progress log

|                              |   |  |  |  |  |  |  |  |  |
|------------------------------|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>        | Adam Miller   |  |  |  |  |  |  |  |  |
| <b>SCN</b>                   |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>           |   |  |  |  |  |  |  |  |  |
| <b>Teacher/lecturer name</b> | Mr Smith  |  |  |  |  |  |  |  |  |
| <b>Project title</b>         | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |

*Use this form to record progress with your project. Keeping an ongoing record will help prepare you for progress meetings with your teacher/lecturer, your presentation and final evaluation. Things you might want to record are:*

- *what you have done (eg from one week to the next)?*
- *what skills have you used and how you feel they have developed?*
- *if you are working in a group, what discussions you have had?*
- *any changes that you have (or will need) to make to your plans and reasons why*
- *what resources you have found/hope to find?*
- *any problems you are encountering and how you are resolving them*
- *what you are going to do next?*

| <b>Date</b> | <b>Comments</b>  |
|-------------|--|
|             | <i>(This is an example of a page from Adam's log)</i>  |
| <b>8/6</b>  | Enjoyed presentation skills seminar and have got more idea about what a presentation could involve.  |
| <b>15/6</b> | Meetings re planning skills was great and I feel that I can apply this in my other subjects as well.   |
| <b>22/6</b> | The talk on time management was confusing as I am not familiar with the software, I will now need to download the software and get familiar with it.<br>Meeting with tutor set me up for the summer so I can start to think about what I want to do in my project, will jot ideas down over the holiday. |

|             |  |
|-------------|--|
| <b>24/6</b> | Spent time chatting with friends and did some trawling over the Internet to see if information was actually available. Created first mind map. Arranged to meet my tutor for 15 mins to give myself some re-assurance that I had the right idea.   |
| <b>27/6</b> | Met up with friends and discussed ideas, created a firmer mind map starting to think I really want to examine wind generators in depth. Met with tutor for 20 mins. Arranged to attend conference on wind energy that happened to be going on at the local Conference Centre, they agreed to not charge me for my attendance. Collected some business cards. |

## Science: Interdisciplinary Project

### Record of Interim Review to be completed by candidate and assessor

|   |   |  |  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Adam Miller   |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  | Mr Smith  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |
| <p><b>Describe what you have done so far and how it meets your plan (changes, successes, difficulties encountered, how you resolved issues, targets met)</b></p> <p>Completed proposal and plan. Now in process of implementing the plan (my log supports this).</p> <p>Researching:</p> <ul style="list-style-type: none"> <li>• design factors affecting power output</li> <li>• environmental factors affecting power output</li> <li>• factors affecting generator and transmission efficiency</li> <li>• other design constraints.</li> </ul> <p>Enjoyed visit to the university – this was an eye opener to me. May have to go back.</p> <p>The conference was very busy; some of the areas covered had no direct link to my area of study but gave me background knowledge.</p> <p>Internet searches have been mixed – a lot of hits but trawling though the information has been hard – started printing a lot of hard copies but this was expensive. Moved to using e-portfolio to try and help sort this problem.</p> <p>Technical knowledge is starting to come together – Struggled to find information on how the design factors I have identified link quantitatively to power output from a wind generator. To overcome this problem, made contact again with the engineering department of the university – still waiting for results.</p> <p>Nervous about visiting the 'experts' in the companies.</p> <p>I still feel self evaluation is an area of weakness for me and may need some guidance in this area. My main concern is how to evaluate myself without being too negative or positive.</p> |   |  |  |  |  |  |  |  |  |

**What skills have you used and how far have they developed?**

Learning to talk to people formally to obtain information and increase my communication skills.

My IT skills have improved.

My planning skills have developed and I have met my milestones.

My independent learning has certainly taken off – I have been left to get on with it and have still made contact with Mr Smith when required.

**Next steps**

- Making sure visits are possible.
- Making the visits.
- Document findings.
- Need support from Mr Smith on confidence that I am progressing in the correct way.
- Develop presentation.

**Assessor comments**

An excellent response to feedback from initial meetings meaning that challenges with organising your research skills have been overcome.

E-portfolio requires to be better organised before the presentation.

You are developing a good understanding of the technical aspects of the project and are using correct technical vocabulary in discussions – now ready to make visits.

You have clear ideas as to where you are going next so following your plan well. I agree with your own assessment that you have been successful because you have kept on task and have redirected your research effectively when you have had problems.

**Candidate comments****Candidate signature****Date****Assessor signature****Date**

## Science: Interdisciplinary Project

### Evaluation of project

|  |   |  |  |  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Adam Miller   |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>   | Mr Smith  |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |
| <p><b>How successful has my project been overall (planning, implementation, and findings/outcomes in terms of strengths, weaknesses and learning points)? Justify your response using supporting evidence.</b></p> <p>In terms of finding information out about wind generators, I have been able to establish the relationship between rotor blade diameter, blade profile and blade angle to the wind direction and power output. I have also established the effect that increasing blade diameter has on the overall cost of a wind generator with a particular link between rotor diameter and the cost of the tower that is needed to support it.</p> <p>My project presentation also outlined the economic benefits, or otherwise, of using different sizes of generator to supply a local housing development. I have also gained knowledge of planning legislation as it applies to wind generators and have a much clearer impression of environmentalists' attitudes to the technology. This in large part meets the objectives identified at the beginning of the project.</p> <p>After several attempts I understood the organisation of e-portfolios. Selecting information that was relevant was hard due to depth of technical knowledge, relevant knowledge and time constraints. Log really helped me remember what I was doing, may have been better using an on-line calendar. I managed to keep to my milestones.</p> <p>The whole project was a challenge; my previous learning had been far more directed – always given a task to complete and guidance on how to complete it. In the beginning I felt that I had been thrown in at the deep end, but my confidence quickly developed as I made decisions and lead the discussions with Mr Smith.</p> <p>I had to create and refine mind maps in order to define the aims of my project. Every time I hit a problem I had sufficient ability to think of alternative options allowing me to re-direct my research.</p> |   |  |  |  |  |  |  |  |  |

I learnt there is a lot more to presentations than producing slides for a power point. Talking clearly and engagingly, taking into consideration my target audience in terms of technical and non-technical vocabulary and taking questions from the audience are also important. I have also developed my ability to present information graphically and to present an argument effectively in a limited time. This was particularly challenging when faced with reps from industry in the audience and needed to be tactful in recommendations.

### **How effective were my communication methods?**

The project has given me a picture of the link between renewable energies and the environments in which they can be used. The process I have gone through to analyse technical information where several competing factors influence the final outcome will be of benefit when studying engineering next year.

I feel that I now have a better ability to sift information critically, identifying unbiased, relevant and timely information. I also have improved my ability to hold discussions with a variety of different people with a range of perspectives and then to organise, analyse and summarise this information.

Speaking to the building company and council planning department certainly made me far more aware of the range of issues that can affect the design process as well as the purely technical aspects of a project.

I have improved my communication skills by putting forward a coherent argument in my presentation. The audience had the opportunity to see the complex documents that I had to read, understand and then edit and display in a clear concise format for others. I had to learn how to present myself in a variety of settings and had to learn how to use email appropriately in order to achieve results. I had to listen carefully to the builders, councillors and eco group that I interviewed. Recording these interviews definitely helped as some of the knowledge provided was very technical.

With my plan I would have liked to have used professional planning software. It would have been quicker to create and modify plans than the spreadsheet used.

If I was to start this project again I would plan to make initial contact with all the manufactures, builders and the council planners at an earlier stage probably straight after proposal approval from my tutor. I feel the initial contact to introduce myself would have allowed me to gain agreement in principle that people would help me after I had carried out some more research. This would have made me feel more secure in my project progress as I had key contacts. This would have given me more opportunity to re-direct my project if they had not been agreeable. I did this successfully with my last contact.

I would like to have gone back to the university to examine research that university students had already done into wind generators, but I did not know about this until I was near completion of my project, it may have been possible to meet them.

**Is there any aspect of my project that could be taken further? What might next steps be?**

I feel that I could now consider the following:

- do people wish to live in areas where it is windy enough to generate the power to run your house?
- does the erection of wind generators affect the wind patterns in a neighbourhood adversely?
- is there an alternative renewable energy source to wind power for housing?

**Candidate signature**

**Date**

**Assessor signature**

**Date**

## Science: Interdisciplinary Project

### Self evaluation of generic and cognitive skills development

|                       |   |  |  |  |  |  |  |  |  |
|-----------------------|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b> | Adam Miller   |  |  |  |  |  |  |  |  |
| <b>SCN</b>            |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>    |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  |   |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |

When evaluating your generic and cognitive skills use the information in the left hand column to help you consider your skills development.

| <b>Generic and Cognitive Skills</b>   | <b>Self evaluation</b>  |
|---|---|
| <p><b>Application of subject knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Candidates should think about practical uses for the science(s) they have learned.</li> <li>• Build these ideas into meaningful and realistic contexts, chosen from one or more of the Broad Contexts (citizenship, economic development, employability, enterprise and sustainable development).</li> <li>• Plan how they can use their knowledge of sciences effectively as part of a successful project.</li> <li>• Use their sciences to help them carry out various aspects of the project.</li> </ul> | <p><i>Note to assessors – candidates should link the bulleted points specifically to the project they have carried out.</i></p> |

| <b>Research skills – plan, research, analyse and evaluate</b>   |  |
|---|--|
| <p>Plan</p> <ul style="list-style-type: none"> <li>• Define your research subject by identifying its scope and key concepts.</li> <li>• Define your research process by identifying tasks and creating a schedule.</li> <li>• Show initiative in choosing methods of research eg contacting companies, surveys, focus groups, experimentation.</li> <li>• Identify and use relevant tools, resources and contacts for your research process.</li> </ul> | <p>Firstly I produced a mind map which helped to focus my ideas. This helped me to produce a Gantt chart which directed me to achieve my goals. I prioritised my activities and kept reviewing during my research.</p> <p>I used my research to plan where I was going to visit and who I was going talk to. My planning was effective because the people I spoke to and the organisations I visited were appropriate as I gained the information that I needed.</p> <p>I divided my tasks by being generous with time allocation and built in time for review – which I did not need to do, therefore the project was well planned.</p> |
| <p>Research</p> <ul style="list-style-type: none"> <li>• Carry out research from a variety of sources.</li> <li>• Keep records and notes on strategies, sources, tools and resources used.</li> <li>• Adopt a referencing methodology (where appropriate).</li> </ul>   | <p>I had a lot to learn about keeping records and notes in the form of an e-portfolio. By the end of the project I have a well constructed e-portfolio from which I found easy access to information.</p> <p>This will be a useful skill for projects I do in the future so I will keep working on this area.</p>  |
| <p>Analyse</p> <ul style="list-style-type: none"> <li>• Analyse the usefulness and reliability of materials gathered and resources consulted</li> <li>• Return to research stage as necessary</li> </ul>  | <p>Initially, I gathered a wide variety of information from lots of sources. I had to analyse each source as to its usefulness for my project. I learnt to compare the materials I collected against the criteria in the technical investigation that I listed in my Gantt chart and this helped me to select the information that was appropriate.</p> <p>As I progressed if I found out more information I went back to my evidence for that area to make sure I had concise findings.</p>   |

|  |  |
|--|--|
| <p>Evaluate</p> <ul style="list-style-type: none"> <li>Evaluate the research process.</li> </ul>   | <p>Overall, the research process was well carried out because I gathered all the information I needed, analysed and evaluated it and was able to draw valid conclusions from it. In addition, I maintained accurate records of all of this information and was able to make easy reference to it throughout the project.</p>   |
| <b>Interpersonal skills – negotiate and collaborate</b>  |  |
| <ul style="list-style-type: none"> <li>Consider other peoples' views/feedback.</li> <li>Discuss issues of concern, seeking resolution where needed.</li> <li>Adjust your approach in response to a situation/ environment.</li> <li>Have positive self belief.</li> <li>Be confident enough to offer and ask for support.</li> </ul> | <p>I felt I improved in my ability to convey my information concisely in discussion with Mr Smith and developed my ability to communicate with people from 'outside' organisations which I did not have any prior experience of.</p> <p>I felt that I was able to think of alternatives when original ideas for sources of information did not yield results eg could not make contact with an overseas energy company. Used local energy company as my main source of information.</p> <p>I do not like approaching strangers for information but recognise I need to be able to this. I felt that I was actually able to get a lot of information out of people. My skills improved over the course of the interviews as can be heard from the audio files. From these interviews I was then able to understand what the companies were doing in wind generation research and implementation I could then refer back to my research.</p> |
| <b>Planning – time, resource and information management</b>  |  |
| <ul style="list-style-type: none"> <li>Estimate time needed and set milestones (targets).</li> <li>Monitor/record progress using tools such as schedules, diaries, logs and calendars to help completion of activities.</li> <li>Consider any probable barriers to achievement and take steps to minimise them.</li> </ul>           | <p>Used my Gantt chart which helped me throughout.</p> <p>I had a detailed log which assisted my memory in remembering what I had done and when.</p> <p>I found that my initial guesstimates of time needed for key stages of the project were actually pretty accurate; I did not have to adjust my milestones significantly.</p> <p>My contingency plans were in place and were effective.</p>   |

|  |   |
|--|---|
| <b>Independent learning – autonomy and challenge in own learning</b>   |   |
| <ul style="list-style-type: none"> <li>• Use my skills responsibly to make things happen.</li> <li>• Take initiative to establish links with other learning environments/opportunities.</li> <li>• Look for challenges and don't necessarily take the easy option.</li> </ul>  | <p>It was rewarding to be able to follow a line of enquiry and be able to put together information from different sources and then make up my own mind on my findings representing different view points.</p> <p>I developed my knowledge of design factors of the wind generators and made use of the university library.</p> <p>I arranged my own access to resources at the university and all the interviews with professional bodies.</p>  |
| <b>Problem solving – critical thinking; creative and logical approaches</b>  |   |
| <ul style="list-style-type: none"> <li>• Generate and explore ideas to support my project.</li> <li>• Use creative approaches such as lateral thinking.</li> <li>• Use logical, step by step thinking approaches.</li> <li>• Consider how a situation may have arisen and possible contributory factors.</li> <li>• Think critically about possible actions/changes that would improve the situation.</li> <li>• Analyse points of view in source materials in order to support findings from my research eg flaws in the reasoning; relevance; reliability; supporting evidence; credibility of sources of evidence.</li> </ul> | <p>I used my mind map to generate ideas for developing my project.</p> <p>I am pleased I chose to use a gantt chart to plan my project as this helped me to approach it in a logical way and to keep on schedule.</p> <p>I confidently overcame the problem when I could not make contact with the overseas energy company, instead I used a local energy company. On reflection I realise that it may have been overly ambitious for me to have expected to visit the overseas energy company. It was also not necessary as I got the information that I needed from another source.</p> <p>As I worked through the project I realised that a leaflet outlining my findings would be a useful means of communication which people would find easy to access.</p> |

| <b>Presentation skills</b>   |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Choose appropriate formats and apply effectively eg written, oral, video, multimedia.</li> <li>• Consider my target audience, the layout, structure, degree of formality of my presentation.</li> <li>• Gather, select and include relevant information or ideas, emphasising the main points.</li> <li>• Present information/ideas/reflections with supporting detail in a logical order, reaching a reasoned conclusion.</li> </ul> | <p>I considered my target audience when choosing formats at the start in the plan, having done my research these did not change. I produced an information leaflet and distributed this to everyone that helped me with my project. I believe that this was one of the most effective ways of presenting my findings. This was backed up by using written, oral, presentation and electronic formats.</p> <p>I increased my IT Skills to enable me to do this.</p> <p>I became more confident in presenting information as I felt this was an area of weakness at the start of the project.</p>  |
| <b>Self evaluation – recognition of own skills development and future areas for development</b>  |  |
| <ul style="list-style-type: none"> <li>• Ask for feedback and deal positively with praise, setbacks and criticism.</li> <li>• Reflect on my experiences and feedback from others to assess the development of my knowledge, skills and understanding.</li> <li>• Learn from my experiences and use to inform future progress.</li> </ul>   | <p>Meetings with tutor helped with feedback and I asked at each meeting how I was doing and what I could improve on and I acted on this feedback. At first I found this uncomfortable but appreciated that it was an important part of my development.</p> <p>I learnt a lot from my initial visits to companies and these experiences were then taken forward to following interviews. My confidence in speaking to people who are older than myself has developed.</p> <p>I received 'informal' feedback from S5 following my presentation. They said that I spoke too quickly at the start of the presentation but I got better as it progressed. They said that I answered their questions in a clear and understandable way. I was really pleased that they were all really interested in my project. I will take this feedback on board for any future presentation.</p> |

*This section is not mandatory. It has been included to allow the candidate the opportunity to undertake an overall reflection of their project.*

**Reflection on my experiences throughout this project** (for example things I feel I have achieved, things I have done that I feel particularly proud of, anything I would do differently were I to do something similar in future).

I am proud that I completed this project in a challenging time scale and would like to see if anyone would take on my findings and have a wind generator.

**Are there any skills that you have used in this project that you would like to develop further?** (for example, using skills in even more challenging situations, more working on own, more team working).

I need to extend my knowledge of technical research journals.

More experience of presentations to an audience that is outwith my school environment.

I would like to consider extending this project to look at other power sources eg solar but I would like to learn about how to work in a group rather than on my own.

## Science: Interdisciplinary Project

### Assessment checklist

Candidate name Adam Miller

Candidate number \_\_\_\_\_

Centre \_\_\_\_\_

| <b>Project proposal</b>   | <b>Tick as appropriate</b> |
|---|----------------------------|
| <b>Grade C criteria</b>   |                            |
| Clear aims and reasoned arguments to support the relevance and practicability of the project.                                       | ✓                          |
| Identification of opportunities for:  | ✓                          |
| • own skills development  | ✓                          |
| • collaborative working   | ✓                          |
| • accessing less familiar learning environments   | ✓                          |
| • application of science subject knowledge in a broad context   | ✓                          |
| • use of knowledge and skills across different disciplines  | ✓                          |
| • making connections between subject knowledge and the wider world.   | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>   |                            |
| Well conceived proposal which sets creative and challenging goals which are at the same time realistic, achievable and practicable. | ✓                          |
| Robust and carefully argued justification of the proposal.  | ✓                          |
| Substantial links and understanding of possible connections across disciplines contributing to the project.                         | ✓                          |

| <b>Project plan</b>  | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| Development of clear project objectives in line with the project proposal.   | ✓                          |
| Relevant and detailed planning strands to enable the project to be implemented, monitored, presented and evaluated.                | ✓                          |
| Realistic timescales and achievable milestones for each stage of the project.  | ✓                          |
| Clear identification of resources needed, research methodologies to be used, opportunities for support and feedback.               | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Careful selection and effective use of research/investigation techniques.  | ✓                          |
| Anticipation of probable and possible factors which may impact on the project.   | ✓                          |
| Clear identification of dependencies or reliance on the success of other strands of work and of necessary adjustments to the plan. | ✓                          |
| Outline the process for achieving own identified development needs.  | ✓                          |

| <b>Presentation of project findings/product</b>   | <b>Tick as appropriate</b> |
|---|----------------------------|
| <b>Grade C criteria</b>   |                            |
| Evidence of effective and critical use of: resources, research methodologies, information and time management, prioritisation, problem solving approach to reach objectives, feedback, collaborative approaches, self monitoring. | ✓                          |
| Application of specialist and interdisciplinary subject knowledge to establish meaningful connections within the broad theme.   | ✓                          |
| Clear presentation of main findings/product.  | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>   |                            |
| Critical thinking, analysis and reflection used at key stages in the project to construct rigorous arguments, draw convincing, well supported conclusions, identify and resolve issues.   | ✓                          |
| Skilful and creative use of resources, including people, information and learning contexts to progress the project.   | ✓                          |
| Accurate and deepening of understanding through application of subject knowledge in the chosen context, with meaningful connections well established.   | ✓                          |

| <b>Evaluation of project</b>   | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| A critical and justified evaluation of all stages of the project process: planning, implementation and findings/product in terms of strengths, weaknesses and learning points. | ✓                          |
| Effective use of chosen communication method(s).   | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Incisive, well balanced evaluation of the project outcome against project aims, supported convincingly by well selected evidence.  | ✓                          |
| Careful choice and skilful use of communication and presentation methods(s).   | ✓                          |

| <b>Self evaluation of generic/cognitive skills development</b>   | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| A critical evaluation of own skills development against the list of specified generic/cognitive skills.  | ✓                          |
| A reasoned evaluation of own strengths and key goals for development in the specified list of generic/cognitive skills, which takes account of feedback sought and evidenced from others throughout the project. | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Insightful, balanced and well structured self evaluation of own development.   | ✓                          |
| Assertive and justified use of feedback from others in evaluation and identification of development areas.   | ✓                          |

The overall grade will be:

- A indicative of a highly competent performance which meets all the additional Grade A criteria and consistently demonstrated a high degree of autonomy, initiative and effective information management across the five pieces.
- B indicative of a competent Grade C performance across the five pieces, but with some aspects of work meeting the criteria for highly competent performance (as outlined by the Grade A criteria).
- C indicative of a competent performance across the five pieces, with all aspects of the work meeting the criteria identified for Grade C performance.

|  |  |
|--|--|
| <b>Overall grade awarded</b>   | <b>A</b> <b>B</b> <b>C</b> <b>Unsuccessful</b> |
| <b>Assessor comments</b><br><br>An independent worker who drove the project from the outset. Slightly hesitant with initial work on project proposal and planning, but the plan that was produced worked very well and milestones were met consistently. Monitoring of progress and creative/critical thinking as the project evolved were excellent. The information gathered through meetings with a range of experts, interested parties and from electronic sources was analysed and managed very effectively and was used concisely and relevantly to argue the main thesis put forward in the project. You had the confidence to make your own contacts and clearly prepared well prior to meetings; feedback from your contacts was positive. The presentation was confident, engaging and well-suited to the audience. You took a reflective approach to the project work throughout and made relatively mature use of the broad range of cognitive and generic skills necessary for the successful completion of the project. |  |

**Assessor signature** \_\_\_\_\_

**Date** \_\_\_\_\_

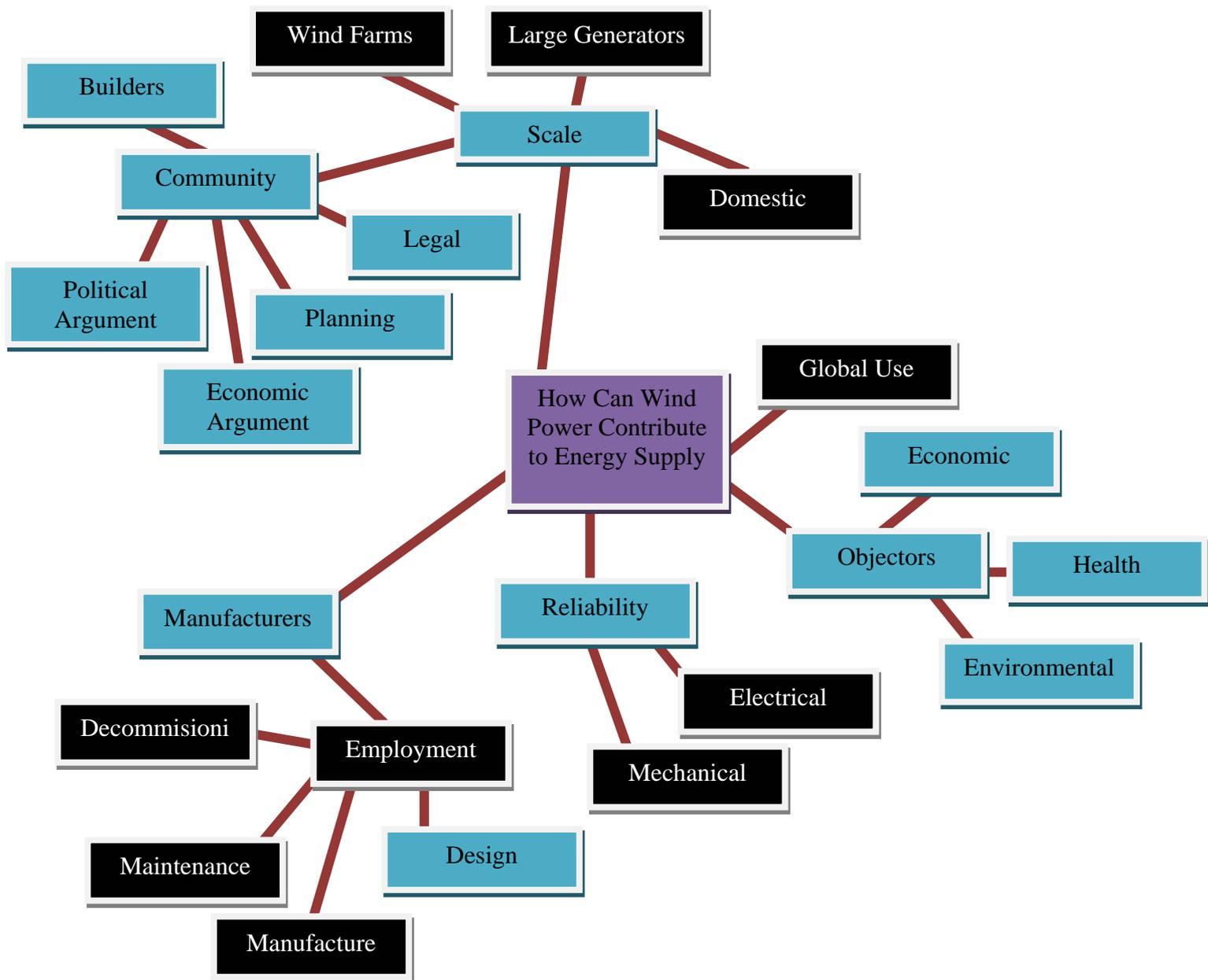
**Internal verifier signature** \_\_\_\_\_

**Date** \_\_\_\_\_

## Supporting evidence for candidate A

Candidate A produced the following documentation to assist with the planning of the project. None of the documentation is formally assessed but they are useful tools for planning.

### Mind map





## **Project 2 – Example of Grade C**

# Science: Interdisciplinary Project

## Proposal

|  |   |  |  |  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Paula Campbell  |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>   | Mrs Jones   |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |
| <b>Project outline (what it is I want to do and how will I go about it)</b>  |   |  |  |  |  |  |  |  |  |
| <p>This project will investigate the use of wind generators to generate electricity for homes locally.</p> <p>I would like to look at a range of wind generator sizes to find out whether one size is best suited to generate electricity for a housing estate. The following groups will be consulted: wind generator manufacturers, community groups, environmentalists, local builders and the local planning department.</p>   |   |  |  |  |  |  |  |  |  |
| <b>Reasons for choosing this project (eg personal interest, future plans, links to other subjects I am studying/ have studied)</b>   |   |  |  |  |  |  |  |  |  |
| <p>I have chosen this project because I am studying Advanced Higher Technological Studies, Maths and Physics. I am interested in the environment and renewable energies and hope to study Engineering at University next year. I want to improve my communication skills so that I can communicate more confidently.</p> <p>I also need to develop my research skills because my previous courses did not involve much research or discussion with subject specialists other than my teachers.</p> |   |  |  |  |  |  |  |  |  |
| <b>The broad contexts this project will cover are:</b>   |   |  |  |  |  |  |  |  |  |
| <input type="checkbox"/> Citizenship <input type="checkbox"/> Enterprise <input type="checkbox"/> Employability  |   |  |  |  |  |  |  |  |  |
| <input checked="" type="checkbox"/> Economic development <input checked="" type="checkbox"/> Sustainable development   |   |  |  |  |  |  |  |  |  |

### **Learning environments I will access are**

University library  
Wind turbine company  
On-Line tutorials  
Internet.

### **The skills I will develop and/or improve in the course of this project are**

**Application of subject knowledge and understanding** – I am going to apply knowledge of Maths, Physics and Technological Studies to this project.

**Research skills – analysis and evaluation** – I will develop my analytical and evaluative skills by selecting appropriate materials from the information that I gather and by drawing conclusions that will help me make progress in my project.

**Interpersonal skills – negotiation and collaboration** – I will develop my negotiation skills through discussion with a variety of people (this will include people within my own school and also people in external organisations) that I will need to interact with in order to carry out my project.

**Planning – time, resource and information management** – I will develop a gantt chart which will help me to develop my planning skills.

**Independent learning – autonomy and challenge in own learning** – I am going to take charge of my own learning as far as possible. I am going to try not to rely on my teacher for guidance.

**Problem solving – critical thinking – logical and creative approaches** – I will develop my problem solving skills as I work through my project. I will need to have contingency plans in case my plans have to be changed.

**Presentation skills** – I will need good presentation skills when I discuss/negotiate with my teacher and those people I have to speak to outwith school.

**Self evaluation – recognition of own skills development and future areas for development** – As I go through my project I will continually reflect on all the above skills.

**Assessor comments**

Positive start – chose your topic to match own interest although had very wide scope. We had to narrow this down.

You brought some notes to the proposal meeting but these were not particularly well organised and you required some prompting in order to convey the full outline of your proposal.

- You demonstrated a clear understanding of most of the project information provided during induction.
- You showed that you have considered the cognitive and generic skills essential to this Unit.
- You have demonstrated that there is scope in this topic to explore engineering principles at a depth comparable to AH level of study in Tech Studies, and Higher Mathematics.
- The goals presented are realistic and will provide challenge for you if you think creatively.

This project proposal is realistic and achievable, if you action comments made during this meeting.

|                            |     |                              |             |
|----------------------------|-----|------------------------------|-------------|
| <b>Proposal approved</b>   | YES | <b>Further work required</b> | NO          |
| <b>Candidate signature</b> |     |                              | <b>Date</b> |
| <b>Assessor signature</b>  |     |                              | <b>Date</b> |

## Science: Interdisciplinary Project

### Plan

|   |   |  |  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Paula Campbell  |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  | Mrs Jones   |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |
| <b>Is this a group project?</b> yes <input type="checkbox"/> no <input checked="" type="checkbox"/><br><b>If a group project, what will your role or responsibilities be?</b>   |   |  |  |  |  |  |  |  |  |
| <b>Timescales (start, finish and milestones)</b><br>My project should be ready for Implementation by October.<br>I should be able to discuss at a technical level how wind generators should function to meet my project requirements by Christmas.<br>I plan to do my presentation in March.   |   |  |  |  |  |  |  |  |  |
| <b>Planning – state how you are going to meet the agreed objectives of your project</b><br><br>Contact and arrange meetings with the following: <ul style="list-style-type: none"><li>• Building company to arrange a visit to find out if a building company can apply for any grants if they include green energy in planning submissions for new housing.</li><li>• Energy company to arrange a visit – to see what generators looks like!</li><li>• Primary school with wind generator – why did they do this, does it work?</li><li>• Wind farm – to see if I can find out how the energy generation profile varies and how noisy they are.</li><li>• Environmental group interested in alternative energies.</li><li>• Planning Offices – to find out if there are any planning restrictions on building generators near housing.</li></ul> |   |  |  |  |  |  |  |  |  |
| <b>Resources (people, materials, places)</b><br><br>Sign up for access to the local university library.<br><br>Find out what paperwork needs to be completed before visits to companies.  |   |  |  |  |  |  |  |  |  |

Find out if the school has any rules/procedures for contacting external agencies – letter head, email from school office or can I use my personal email account. Website access.

Arrange meetings with:

- my tutor to discuss progress
- external agencies listed above.

### **Research methods (contacting companies, surveys, focus groups, experimentation)**

Ask questions of experts to understand the technological aspect of the project.  
Web searches relating to the technical detail of wind generators.  
Visit the university library for reports on wind generators.  
Plan visits to companies and organisations identified above.

### **Presentation**

- **Who do I think will benefit from listening/reading/looking at my presentation of my project findings/product?**

My audience will be the Higher Technological Studies class, the head teacher and depute in charge of curriculum along with my tutor. I have been given 30 minutes to present my project including questions.

- **What methods are appropriate to the audience (for example demonstration, presentation software, websites, oral, report, piece of theatre, dvd, wiki/blog or any combination)**

Power Point presentation:

This will discuss my objectives, the findings, the planning, learning points, challenges, meetings with external agencies, problems and how they were overcome.

I will also have photos of various wind generators researched.

Folio of evidence of the relevant factual data collated during the research phase or access to my e-portfolio.

A summary of the evidence gathered during my research – handout.

**Dependencies (what is required for your project to go ahead ie reliance on other people or resources, steps in plan that must be completed before starting the next step)**

Need to complete my research before going on visits.  
I also need to make sure visits can take place and think about alternatives.

**Contingencies**

**Any anticipated problems?**

Building company doesn't want to be involved.  
Visit to a wind farm not possible.

**My plans for overcoming the anticipated problems.**

Find a different company.  
Research wind farms online.

**Method for recording own skills development and future areas for improvement**

I intend to keep a list of meetings on the electronic log sheet provided by my teacher from the SQA.

**Assessor comments**

Through discussion, you identified a number of the project objectives that linked your proposal. The evidence you brought to the meeting and the discussion it prompted showed that there is scope for a broader range of relevant research methods than you had considered. You had thought about how you may present your findings to the audience on completion of the project, assuming that the project runs to plan with no need for modification.

Although we have discussed your milestones and they seem realistic, I would recommend that you make a record of these for future reference.

There is definitely scope for you to develop the generic and cognitive skills required, but may work further to identify exactly how they will be developed through your project work, although you have knowledge of what each might entail.

You have shown that you have identified areas/people to see.  
At this stage, you have not identified any source of expertise that is likely to be able to support you in developing your understanding of technical issues much beyond curricular level, but recognise that you must do so.

|                            |             |                              |    |
|----------------------------|-------------|------------------------------|----|
| <b>Plan approved</b>       | YES         | <b>Further work required</b> | NO |
| <b>Candidate signature</b> | <b>Date</b> |                              |    |

|                           |  |             |
|---------------------------|--|-------------|
|                           |  |             |
| <b>Assessor signature</b> |  | <b>Date</b> |

## Science: Interdisciplinary Project

### Progress log

|   |   |  |  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Paula Campbell  |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  | Mrs Jones   |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | How can wind power contribute to power supply at local level?   |  |  |  |  |  |  |  |  |
| <p><i>Use this form to record progress with your project. Keeping an ongoing record will help prepare you for progress meetings with your teacher/lecturer, your presentation and final evaluation. Things you might want to record are:</i></p> <ul style="list-style-type: none"> <li><i>what you have done (eg from one week to the next)?</i></li> <li><i>what skills have you used and how you feel they have developed?</i></li> <li><i>if you are working in a group, what discussions you have had?</i></li> <li><i>any changes that you have (or will need) to make to your plans and reasons why</i></li> <li><i>what resources you have found/hope to find?</i></li> <li><i>any problems you are encountering and how you are resolving them</i></li> <li><i>what you are going to do next?</i></li> </ul> |   |  |  |  |  |  |  |  |  |
| <b>Date</b>   | <i>(This is an example from Paula's log)</i>  |  |  |  |  |  |  |  |  |
|   | <b>Comments</b>   |  |  |  |  |  |  |  |  |
| 31/8  | <p>Presented my proposal to my teacher, I felt it did not go too well because I was not properly prepared for this meeting. I have now to think about how I am going to plan my project before the next meetings. I am going to make sure I have several meetings with Mrs Jones to try and get myself organised.</p> <p>Spoke to Mrs Jones re my visits that I wanted to do.</p> <p>Did some Internet searches on generator companies in Scotland.</p> |  |  |  |  |  |  |  |  |
| 5/10  | <p>Presented my plan to Mrs Jones, we had a long discussion and she said I could go ahead.</p> <p>Still struggling to remember to fill in this log, but feel I am working well.</p>   |  |  |  |  |  |  |  |  |

|  |   |
|--|---|
|  | I am enjoying this project, I like being independent.   |
|  | Getting prepared for my next meeting with Mrs Jones. She is supporting me a lot in getting areas narrowed down.<br>Meeting Mrs Jones, we discussed my visits and my paper mountain of printouts from the Internet.<br>I have not had a reply to the letters I sent a week ago to arrange my visits.<br>I am going to email external agencies instead and try and make contact that way. |

## Science: Interdisciplinary Project

Record of Interim Review to be completed by candidate and assessor

|  |   |  |  |  |  |  |  |  |  |
|--|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>  | Paula Campbell  |  |  |  |  |  |  |  |  |
| <b>SCN</b>   |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>   |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>   | Mrs Jones   |  |  |  |  |  |  |  |  |
| <b>Project title</b>   | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |
| <p><b>Describe what you have done so far and how it meets your plan (changes, successes, difficulties encountered, how you resolved issues, targets met)</b><br/>           Completed proposal and plan. I am now part way through the of implementation of the plan.</p> <p>Researching:</p> <ul style="list-style-type: none"> <li>• design factors affecting generators</li> <li>• environmental factors affecting generators</li> <li>• factors affecting generator</li> <li>• other design constraints.</li> </ul> <p>Mixed results from internet searches – a lot of hits but sifting though the information has been difficult – have made lots of print outs.</p> <p>Technical knowledge – am I asking the correct questions?</p> <p>Looking forward to my visits as they should help to answer some of my questions.</p> <p>Arranged access to university library – how will that information fit with web results?</p> |   |  |  |  |  |  |  |  |  |
| <p><b>What skills have you used and how far have they developed?</b><br/>           I have been talking to a variety of different people and my communication skills have improved.<br/>           My planning skills are developing but need to fill in log more regularly.<br/>           My independent learning has still a way to go as I still need a fair amount of support.</p>  |   |  |  |  |  |  |  |  |  |

**Next steps**

- Making the visits.
- Document findings.
- Start to develop presentation.

**Assessor comments**

Your research skills could still be improved – perhaps you would prefer to use an e-portfolio.

More research is required on the technical issues from wind generators.

You have requested more regular meetings so that I can give you support if you need it.

**Candidate comments****Candidate signature****Date****Assessor signature****Date**

## Science: Interdisciplinary Project

### Evaluation of project

|   |   |  |  |  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|--|--|--|
| <b>Candidate name</b>   | Paula Campbell  |  |  |  |  |  |  |  |  |  |
| <b>SCN</b>  |   |  |  |  |  |  |  |  |  |  |
| <b>Centre name</b>  |   |  |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  | Mrs Jones   |  |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |  |
| <p><b>How successful has my project been overall (planning, implementation, and findings/outcomes in terms of strengths, weaknesses and learning points)? Justify your response using supporting evidence.</b></p> <p>In terms of finding information out about wind generators, I have been able to establish the relationship between rotor blade diameter, blade profile and blade angle to the wind direction and power output. I would have liked to have gone into more technical depth (as I had originally planned), however I spent too long considering the aesthetic aspects of a generator.</p> <p>My project presentation also outlined the different sizes of generator needed to supply a local housing development. I also presented information about environmentalist's objections to this type of energy. This in large part meets the objectives identified at the beginning of the project.</p> <p>I found planning the project quite difficult but did manage to identify milestones which I managed to meet successfully. Looking back, it would have been better to have a more detailed proposal from which to plan the work of the project.</p> <p>At the start I did not find this type of study easy and got better at finding things out for myself as the project developed. Mrs Jones made a lot of suggestions. I would feel more confident about the steps to take if working on a project like this again.</p> <p>Accessing university information was helpful. There is a very different feeling there – you are expected to know what you are looking for.</p> <p>Got 'stuck' once or twice when implementing my project and not being able to find a source for the information that I was looking for. Mrs Jones gave some helpful prompts towards sources.</p> |   |  |  |  |  |  |  |  |  |  |

**How effective were my communication methods?**

In hindsight I recognise that, at the planning stage, I should have thought about contingency planning because the council planning department did not have time to speak to me at any length. Therefore, I was unable to establish whether they had any policy regarding wind generation for housing estates.

I did not investigate sources that I might have used as alternatives for the three people that I contacted for information.

I think that I will need to prepare more effectively before attending meetings in order to get what I want and need from them.

On the plus side, my strategy for accessing different technical and ecological papers was very successful.

**Is there any aspect of my project that could be taken further? What might next steps be?**

I would like to take this further by examining whether small-scale vertical axis wind-generators act with greater success than horizontal axis generators to produce household electricity.

|                            |             |  |
|----------------------------|-------------|--|
| <b>Candidate signature</b> | <b>Date</b> |  |
| <b>Assessor signature</b>  | <b>Date</b> |  |

## Science: Interdisciplinary Project

### Self evaluation of generic and cognitive skills development

|                       |   |  |  |  |  |  |  |  |  |
|-----------------------|---|--|--|--|--|--|--|--|--|
| <b>Candidate name</b> | Paula Campbell  |  |  |  |  |  |  |  |  |
| <b>SCN</b>            |   |  |  |  |  |  |  |  |  |
| <b>Centre name</b>    |   |  |  |  |  |  |  |  |  |
| <b>Assessor name</b>  | Mrs Jones   |  |  |  |  |  |  |  |  |
| <b>Project title</b>  | How can wind power contribute to power supply at local level? |  |  |  |  |  |  |  |  |

When evaluating your generic and cognitive skills use the information in the left hand column to help you consider your skills development.

| <b>Generic and Cognitive Skills</b>   | <b>Self evaluation</b>  |
|---|---|
| <p><b>Application of subject knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Candidates should think about practical uses for the science(s) they have learned.</li> <li>• Build these ideas into meaningful and realistic contexts, chosen from one or more of the Broad Contexts (citizenship, economic development, employability, enterprise and sustainable development).</li> <li>• Plan how they can use their knowledge of sciences effectively as part of a successful project.</li> <li>• Use their sciences to help them carry out various aspects of the project.</li> </ul> | <p><i>Note to assessors – candidates should link the bulleted points specifically to the project they have carried out.</i></p> |

| <b>Research skills – plan, research, analyse and evaluate</b>   |   |
|---|---|
| <p>Plan</p> <ul style="list-style-type: none"> <li>• Define your research subject by identifying its scope and key concepts.</li> <li>• Define your research process by identifying tasks and creating a schedule.</li> <li>• Show initiative in choosing methods of research eg contacting companies, surveys, focus groups, experimentation.</li> <li>• Identify and use relevant tools, resources and contacts for your research process.</li> </ul> | <p>I could have had a clearer and more detailed plan. As a result of this I needed support from Mrs Jones in identifying tasks and milestones.</p> <p>I felt I was good at selecting the companies I wanted to visit.</p> <p>I planned to get information from the University library and this proved to be a good source.</p>  |
| <p>Research</p> <ul style="list-style-type: none"> <li>• Carry out research from a variety of sources.</li> <li>• Keep records and notes on strategies, sources, tools and resources used.</li> <li>• Adopt a referencing methodology (where appropriate).</li> </ul>   | <p>I tried to keep records but should have used the log sheet more rather than just at the milestone times.</p> <p>I researched using visits and the Internet and emailed a few people. University was excellent source – very complex papers to interpret and sort out.</p>  |
| <p>Analyse</p> <ul style="list-style-type: none"> <li>• Analyse the usefulness and reliability of materials gathered and resources consulted.</li> <li>• Return to research stage as necessary</li> </ul>   | <p>I found this area hard – what do I need and what do I not. Mrs Jones helped me with this at the start.</p> <p>I enjoyed reading about technical areas and considering how people might like to live with generators – working out which were most convincing arguments was interesting and worthwhile.</p> <p>Did not like to contact the companies again with my questions – I should have done as this would have enhanced my project.</p> |

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| <p>Evaluate</p> <ul style="list-style-type: none"> <li>Evaluate the research process.</li> </ul>   | <p>Overall, I gathered all the information I needed, analysed and evaluated it and was able to draw valid conclusions from it. In addition, I maintained accurate records of all of this information and was able to make easy reference to it throughout the project. I managed to do all of this but needed some help from Mrs Jones at the start of the project.</p>   |
| <p><b>Interpersonal skills – negotiate and collaborate</b></p>   |   |
| <ul style="list-style-type: none"> <li>Consider other peoples' views/feedback.</li> <li>Discuss issues of concern, seeking resolution where needed.</li> <li>Adjust your approach in response to a situation/ environment.</li> <li>Have positive self belief.</li> <li>Be confident enough to offer and ask for support.</li> </ul> | <p>I felt I improved in my ability to discuss information with Mrs Jones and took on board her advice and feedback. I developed my ability to communicate with people from external agencies which I did not have any prior experience of.</p> <p>I felt that I was able to think of alternatives when original ideas for sources of information did not yield results eg when I didn't get a written reply from the energy company I resorted to using e-mail. This worked to my advantage and I would use this method of communication in the future.</p> <p>I do not like approaching strangers for information but recognise I need to be able to do this. I felt that I was actually able to get a lot of information out of people. My skills improved over the course of the interviews as can be heard from the audio files. From these interviews I was then able to understand what the companies were doing in wind generation research and implementation I could then refer back to my research.</p> |
| <p><b>Planning – time, resource and information management</b></p>   |   |
| <ul style="list-style-type: none"> <li>Estimate time needed and set milestones (targets).</li> <li>Monitor/record progress using tools such as schedules, diaries, logs and calendars to help completion of activities.</li> </ul>   | <p>Need to get myself better organised. Was bad at filling in my log. I was always in a rush to meet my targets – everything being done at the last minute. Prefer doing things to planning them but realise they go together.</p>  |

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| <ul style="list-style-type: none"><li>• Consider any probable barriers to achievement and take steps to minimise them.</li></ul> |  |
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| <b>Independent learning – autonomy and challenge in own learning</b>   |  |
| <ul style="list-style-type: none"> <li>• Use my skills responsibly to make things happen.</li> <li>• Take initiative to establish links with other learning environments/opportunities.</li> <li>• Look for challenges and don't necessarily take the easy option.</li> </ul>  | <p>As I carried out this project I become much more of an independent learner, this will help me when I go to University.</p> <p>I took the 'easy' option sometimes as my planning was not as effective as it could have been and therefore I did not have as much time as I had anticipated.</p> <p>I needed to ask for support from Mrs Jones, although by the end of the project I was working on my own.</p>   |
| <b>Problem solving – critical thinking; creative and logical approaches</b>  |  |
| <ul style="list-style-type: none"> <li>• Generate and explore ideas to support my project.</li> <li>• Use creative approaches such as lateral thinking.</li> <li>• Use logical, step by step thinking approaches.</li> <li>• Consider how a situation may have arisen and possible contributory factors.</li> <li>• Think critically about possible actions/changes that would improve the situation.</li> <li>• Analyse points of view in source materials in order to support findings from my research eg flaws in the reasoning; relevance; reliability; supporting evidence; credibility of sources of evidence.</li> </ul> | <p>I think that my problem solving skills are better now than they were when I started this project. There were times when I had to solve a problem (mainly because I hadn't planned properly) – so I have developed troubleshooting skills.</p> <p>I found out that I was good at finding out information from a variety of sources (internet and library). I used information from technical and ecological journals as these are more credible sources than some of the articles I found on the internet.</p> |

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| <b>Presentation skills</b>   |   |
| <ul style="list-style-type: none"> <li>• Choose appropriate formats and apply effectively eg written, oral, video, multimedia.</li> <li>• Consider my target audience, the layout, structure, degree of formality of my presentation.</li> <li>• Gather, select and include relevant information or ideas, emphasising the main points.</li> <li>• Present information/ideas/reflections with supporting detail in a logical order, reaching a reasoned conclusion.</li> </ul> | <p>I decided to use a power point presentation because I am good at them and have my PCPassport certificate.<br/>My audience was the Higher class and several teachers.</p> <p>I made several slides and gave everyone a handout which I thought was very clear.</p> <p>I laid my slides out well and took questions from my audience.</p>  |
| <b>Self evaluation – recognition of own skills development and future areas for development</b>  |   |
| <ul style="list-style-type: none"> <li>• Ask for feedback and deal positively with praise, setbacks and criticism.</li> <li>• Reflect on my experiences and feedback from others to assess the development of my knowledge, skills and understanding.</li> <li>• Learn from my experiences and use to inform future progress.</li> </ul>   | <p>Feedback from the presentation was good.</p> <p>I have listened to the comments from the audience.<br/>I handed out evaluation sheets and will hand them in to Mrs Jones when I have my final meeting.</p> <p>I was really pleased to have very positive feedback from the person I spoke to at the energy company. I was more prepared for this meeting as I had learned from my earlier experiences that preparation is important.</p> |

*This section is not mandatory. It has been included to allow the candidate the opportunity to undertake an overall reflection of their project.*

**Reflection on my experiences throughout this project** (for example things I feel I have achieved, things I have done that I feel particularly proud of, anything I would do differently were I to do something similar in future).

I have loved doing this project and I hope to take the information I have gained when I go to study engineering.

**Are there any skills that you have used in this project that you would like to develop further?** (for example, using skills in even more challenging situations, more working on own, more team working).

I have learnt that I need to get a lot more organised and be a lot more self motivated to carry out my project and not rely on the teacher as much.

## Science: Interdisciplinary Project

### Assessment checklist

Candidate name Paula Campbell

Candidate number \_\_\_\_\_

Centre \_\_\_\_\_

| Project proposal  | Tick as appropriate |
|---|---------------------|
| <b>Grade C criteria</b>   |                     |
| Clear aims and reasoned arguments to support the relevance and practicability of the project.                                       | ✓                   |
| Identification of opportunities for:  | ✓                   |
| • own skills development  | ✓                   |
| • collaborative working   | ✓                   |
| • accessing less familiar learning environments   | ✓                   |
| • application of science subject knowledge in a broad context   | ✓                   |
| • use of knowledge and skills across different disciplines  | ✓                   |
| • making connections between subject knowledge and the wider world.   | ✓                   |
| <b>Grade A criteria, includes all of above plus</b>   |                     |
| Well conceived proposal which sets creative and challenging goals which are at the same time realistic, achievable and practicable. |                     |
| Robust and carefully argued justification of the proposal.  |                     |
| Substantial links and understanding of possible connections across disciplines contributing to the project.                         |                     |

| Project plan   | Tick as appropriate |
|--|---------------------|
| <b>Grade C criteria</b>  |                     |
| Development of clear project objectives in line with the project proposal.   | ✓                   |
| Relevant and detailed planning strands to enable the project to be implemented, monitored, presented and evaluated.                | ✓                   |
| Realistic timescales and achievable milestones for each stage of the project.  | ✓                   |
| Clear identification of resources needed, research methodologies to be used, opportunities for support and feedback.               | ✓                   |
| <b>Grade A criteria, includes all of above plus</b>  |                     |
| Careful selection and effective use of research/investigation techniques.  |                     |
| Anticipation of probable and possible factors which may impact on the project.   |                     |
| Clear identification of dependencies or reliance on the success of other strands of work and of necessary adjustments to the plan. |                     |
| Outline the process for achieving own identified development needs.  |                     |

| <b>Presentation of project findings/product</b>   | <b>Tick as appropriate</b> |
|---|----------------------------|
| <b>Grade C criteria</b>   |                            |
| Evidence of effective and critical use of: resources, research methodologies, information and time management, prioritisation, problem solving approach to reach objectives, feedback, collaborative approaches, self monitoring. | ✓                          |
| Application of specialist and interdisciplinary subject knowledge to establish meaningful connections within the broad theme.   | ✓                          |
| Clear presentation of main findings/product.  | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>   |                            |
| Critical thinking, analysis and reflection used at key stages in the project to construct rigorous arguments, draw convincing, well supported conclusions, identify and resolve issues.   |                            |
| Skilful and creative use of resources, including people, information and learning contexts to progress the project.   |                            |
| Accurate and deepening of understanding through application of subject knowledge in the chosen context, with meaningful connections well established.   |                            |

| <b>Evaluation of project</b>   | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| A critical and justified evaluation of all stages of the project process: planning, implementation and findings/product in terms of strengths, weaknesses and learning points. | ✓                          |
| Effective use of chosen communication method(s).   | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Incisive, well balanced evaluation of the project outcome against project aims, supported convincingly by well selected evidence.  |                            |
| Careful choice and skilful use of communication and presentation methods(s).   |                            |

| <b>Self evaluation of generic/cognitive skills development</b>   | <b>Tick as appropriate</b> |
|--|----------------------------|
| <b>Grade C criteria</b>  |                            |
| A critical evaluation of own skills development against the list of specified generic/cognitive skills.  | ✓                          |
| A reasoned evaluation of own strengths and key goals for development in the specified list of generic/cognitive skills, which takes account of feedback sought and evidenced from others throughout the project. | ✓                          |
| <b>Grade A criteria, includes all of above plus</b>  |                            |
| Insightful, balanced and well structured self evaluation of own development.   |                            |
| Assertive and justified use of feedback from others in evaluation and identification of development areas.   |                            |

The overall grade will be:

- A indicative of a highly competent performance which meets all the additional Grade A criteria and consistently demonstrated a high degree of autonomy, initiative and effective information management across the five pieces
- B indicative of a competent Grade C performance across the five pieces, but with some aspects of work meeting the criteria for highly competent performance (as outlined by the Grade A criteria)
- C indicative of a competent performance across the five pieces, with all aspects of the work meeting the criteria identified for Grade C performance.

|   |   |
|---|---|
| <b>Overall grade awarded</b>  | <b>A   B   <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">C</span>   Unsuccessful</b> |
| <b>Assessor comments</b><br><p>Your independence developed steadily, but you needed fairly regular reassurance that your strategy and progress were satisfactory throughout the duration of the project. Hesitant with initial work on the project proposal; probably a pity that you chose not to revisit the proposal as suggested again at the end of the first formal meeting. Planning, whilst sufficient to satisfy the unit requirements, lacked sufficient detail and consideration of contingencies to be likely to stand unaltered through the course of the project. Key milestones were identified after some prompting and these did work well to progress the project. Monitoring of progress and creative/critical thinking were occasionally evident, but did not generate much work that was out of the ordinary. Information was gathered through meetings with two experts, and an environmental group. The information furnished was all recorded, but not filtered effectively. Information was used fairly relevantly to argue the main thesis put forward in the project. You initially lacked the confidence to make your own contacts; this improved as you gained confidence in your own understanding of the subject of the project. The presentation went well. You were engaging, but the talk could have gone into a little more technical detail at a couple of key points. You took an increasingly reflective approach to the project work as it progressed and made reasonable use of the broad range of cognitive and generic skills necessary for the successful completion of the project.</p> |   |

**Assessor signature** \_\_\_\_\_ **Date** \_\_\_\_\_

**Internal verifier signature** \_\_\_\_\_ **Date** \_\_\_\_\_