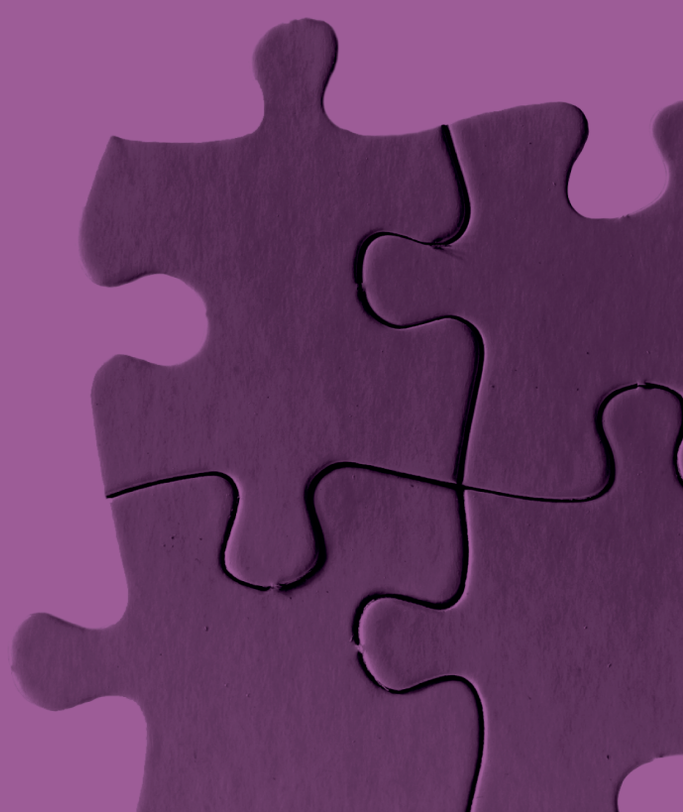
LEVEL 3

WJEC Level 3

EXTENDED PROJECT

GUIDANCE FOR TEACHING

Teaching from 2015
For award from 2016



1. Contents

2. Introduction

Welcome to your WJEC Guidance for Teaching, which has been designed to assist you in the delivery of the Level 3 Extended Project Qualification (EPQ).

It is the intention of this Guidance to be but one of several ways in which WJEC provides assistance to teachers delivering the specification, sitting alongside CPD and support from Regional Support Officers.

WJEC provides the following as part of its support for all specifications:

- A Principal Moderator's report on each assessment series
- An individual centre moderator's report
- Access to the specification and other key documents via the WJEC website
- Direct access to WJEC officers

Links to Contacts and Documentation

Location	**Content**
WJEC website http://www.wjec.co.uk/qualifications/extended-project/	• Extended Project Qualification Manager and Subject Support Officer contact details • Advanced Specification • Code of Practice • Administration Handbook • Principal Moderator's Report • Learner Guide • EPQ File Forms • and more….
https://www.wjecservices.co.uk – password available from centres' Exam Officers	• CPD materials • Exemplar materials

The Extended Project Qualification (EPQ) is a Level 3 qualification which involves a learner researching a topic of their choice. Many learners decide that their EP should be closely related to their chosen university course; however, this need not be the case. Similarly, although the majority of projects submitted tend to be in the traditional 5,000 word dissertation format, this is not exclusively so as diversity is a key element of the EPQ philosophy. As such, live performance, film, software creation, a design portfolio and other artefact based projects are all valid alternative outcomes.

The number of EPQ entries nationally has grown significantly since 2009 with nearly 35,000 submitted in the Summer 2016 season. The reasons for this growth are:

a) The EPQ helps learners develop a range of independent learning skills that are so important for success at university and in employment

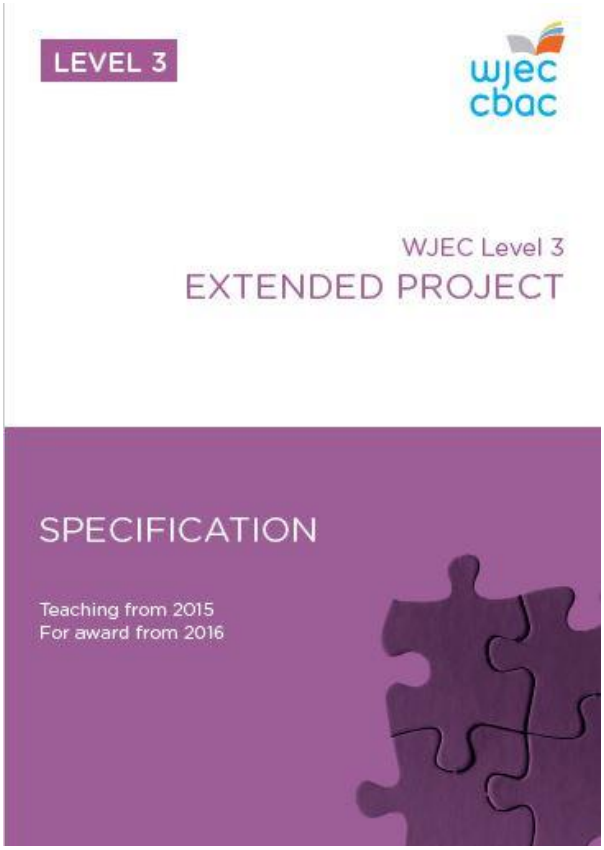
b) Increasingly, universities are including the EPQ in their UCAS offers. Very often an A/A* grade in the EPQ will lead to a lower A Level grade requirement

c) The educational climate has changed. Fewer learners are now pursuing a fourth A level as the focus is increasingly on quality rather than quantity of grades

d) The EPQ, as an A Level standard qualification, is now worth more than an AS i.e. an A* grade in the EPQ now carries 28 UCAS tariff points compared to a maximum of 20 for an AS grade 'A'

e) The EPQ allows the learner to pursue a research topic of their choice; a freedom which is seldom to be found in traditional A Level specifications

3. Introduction to the Specification



WJEC's Extended Project offers opportunities for learners to:

- develop **knowledge and understanding** of a specific topic through research
- develop as **critical, independent, self-evaluative learners** by improving and reviewing their own learning and performance
- develop their **communication and presentation skills**
- demonstrate initiative, creativity and flexibility in responding to challenges and in **applying new technologies**, where appropriate
- support their personal aspirations for **higher education and employment**

The new specification (for first teaching Sept 2016) reflects the experience gained in the teaching, assessment and awarding of the EPQ since its inception as a qualification in 2009. Some of the amendments made to the specification include:

- **authorisation of centres to directly approve project titles** via a project co-ordinator/supervisor (centres may still submit titles for feedback)

- **a more organised Project Outcome Notes for non-written project outcomes and creative pieces of work** which have been reduced to minimum 1,500 words

- **amendments to the Learning Outcomes, Assessment Criteria and Mark Band Descriptors** so that they demonstrate more clearly how marks have been awarded

- **streamlined revised file forms** to capture evidence of satisfying the assessment objectives

The process now involves learners and supervisors completing the EPQ File forms, as follows:

Part A - Learner Records

EPF1 - Proposal and Title
Choosing a project topic and writing a proposal outlining the aims and objectives of the project and a project plan of how the project outcome will be achieved.

EPF2 (A-E) - Extended Project Record
Recording progress demonstrating what was learned from the taught element, how research has been conducted, decisions made, problems solved and how the whole process was reviewed and evaluated including meetings with supervisors.

EPF3 - Extended Project Outcome
Producing a project outcome (for an intelligent non-specialist), providing evidence of the final piece of written work or product in an appropriate format.

EPF 4 - Extended Project Presentation
Making a presentation to a non-specialist audience explaining the project outcome including a review of their own performance and learning through a question and answer session.

Part B - Supervisor/Assessor Records

EPF 5 - Extended Project Presentation Witness Statement
This must be signed by the supervisor/assessor and include Q & A information.

EPF 6 - Extended Project Supervisor Final Assessment Mark Sheet & Centre Internal Standardisation Form
Marking against the separate strands of the Assessment Objective criteria, together with evidence of effective internal moderation.

At the time of submission, therefore, each candidate will submit the following evidence:

PROJECT FORMS – LEARNERS

- Project File front sheet
- Learner Declaration Form *(signed by both learner and supervisor)*
- Project Proposal and Title
- Project Plan
- Project Record and Meetings with Supervisors
- Project Outcome
- Project Presentation Evidence

PROJECT FORMS – SUPERVISORS

- Project File front sheet
- Learner Declaration Form *(signed by both learner and supervisor)*
- Project Presentation Witness Statement
- Supervisor Final Assessment Mark Sheet
- Centre Internal Standardisation Form

4. Making teaching applied and purposeful

As already stated, the EPQ is very much focused on independent learning, i.e. it is the learner's project; not the supervisor's. However, the ability to be an effective independent learner does not miraculously appear at the age of 16-17. For a learner to cope with the challenging demands of this Level 3 qualification, centres have to provide a taught course of a recommended 45 hours. Evidence shows that where the taught course is weak or less GLH assigned, supervisors are forced to step in at various stages of the project to directly help, or indeed lead, the learner. This is to be avoided as the learner will then find it difficult to achieve Band 3 marks, especially in AO1 and AO3.

In addition, it should be remembered that the EPQ also plays an important role in preparing learners for the world of work. In this sense, the knowledge, conceptual understanding and skills they develop are vocationally relevant and therefore need to be independently understood and applied. This can only be achieved when an effective taught course is in place and delivered in a coherent and meaningful way. In this context it is recommended as best practice that the qualification is timetabled and that structured course is delivered.

5. Maximising employer links

Certain projects, such as those of a business, economic or product design and manufacture nature, provide clear opportunities for learners to engage with the world of business. For example, during the research phase such learners could consider contacting companies, either with a few key questions or possibly with a view to interviewing a relevant employee.

The table below gives some examples of the benefits of working with employers for this qualification.

Benefits to the learner	**Benefits to the school/college**	**Benefits to the employer**
• Improved aspirations • Ability to apply skills, knowledge and understanding in future contexts and situations • Prepared for future research • Better prepared for the assessment • Develops employability skills such as presentation and effective communication	• More motivated learners • Improved attainment and achievement • Better links with employers • Community involvement	• Free research • Can improve the flow of young people into various sectors of the economy • Can lead to beneficial work experience placements • Brand awareness

6. Planning delivery of the EPQ

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The Role of the Centre Co-ordinator and Supervisor

The **Centre Co-ordinator** has the responsibility of leading and managing the delivery of the qualification in his/her centre. This is an important role as it involves:

- Planning and implementing the taught course element
- Guiding and supporting the supervisory team
- Approving each learner's proposed EP title
- Ensuring consistency of approach within the centre
- Taking responsibility for internal standardisation and moderation
- In collaboration with the centre's Exam Officer, completing all project administration and submission requirements

It is therefore recommended that the Centre Co-ordinator attends WJEC CPD events on a regular basis to ensure compliance.

The **Supervisor** is responsible for guiding a number of learners through the EP process. Although the number of learners supervised by each member of staff differs from centre to centre, typically a supervisor manages between five and ten learners. It is advisable that each leaner is allocated a number of one-to-one meetings with their EP Supervisor so that they can provide individual advice and guidance throughout the process. This will help to ensure that the learner remains focused and meets their deadlines.

Learners can approach their supervisor and other subject staff if they have specific queries. However, the supervisor and teaching staff must avoid taking over control of the project and over directing the learner. The roles of teacher and EP Supervisor are very different. The EP Supervisor needs to act as a critical friend throughout the process, i.e. posing questions to the learner, rather than simply providing the answers.

In this context it is, for example, within the regulations for a Supervisor to look at a learner's draft outcome prior to submission. The Supervisor may pose questions such as, 'do you think you have referenced all your sources accurately?' Similarly, the Supervisor may ask the learner whether they feel the conclusion is sufficiently developed. It is not in the spirit of the qualification for the Supervisor to 'correct' the draft in terms of SPaG, nor is the Supervisor to provide an initial mark for the learner to go away and improve upon. When in doubt, the Supervisor should always seek guidance from the Centre Co-ordinator, Head of Centre or WJEC.

Teaching and Learning Programme

A sufficient amount of time should be allocated to teaching and learning to enable the learners to develop the essential research skills to their full potential. It is expected that the teaching and learning programme should comprise approximately **45 guided learning hours** to cover the following content.

Content
AO1 Manage • Realising the identified project aims and objectives • Project planning and design – action planning, setting timescales, milestones and deadlines, identifying sub tasks and activities, setting targets, priorities and goals • Project management – check, measure, monitor and assess progress, adapt to change, manage risks, health and safety, use of project management software, e.g. Gantt and PERT charts, Critical Path Analysis, time management • Project accountability – establishing appropriate success criteria, methods to measure success
AO2 Use Resources • Source selection and application • Source evaluation, evaluating credibility, e.g. using BRAVENS analysis, evaluating source utility • Data analysis and validity • Source referencing and avoiding plagiarism • Synthesising complex information and data • Ethical considerations
AO3 Develop and Realise • Problem solving • Decision making • Use of language and argument • Use of new technologies
AO4 Review and Communicate • Presentation skills, e.g. structuring ideas effectively, ensuring audience engagement and avoiding ‘death-by-slide’, dealing with challenging questions • Evaluation and reflection

AO1 – Manage

Aims and Objectives

The primary focus of the Project should be expressed in terms of aims and objectives.

- Quite simply, aims are the strategy; objectives are the tactics
- Aims are general statements describing what the learner hopes to achieve. They should be written in broad terms of the knowledge and understanding that is needed in order to answer the research question or to full fill the research statement
- Objectives are specific statements that are about actions which explain the outcomes of the steps of how the learner is going to go about the project. They are practical, measurable and achievable tasks
- Objectives define the structure of the project

When articulating their aims and objectives, learners should use suitable action verbs and ensure that they are direct and concise. For example,

Skills

To assemble	To chart	To collect	To construct	To design
To devise	To establish	To generate	To illustrate	To locate
To maintain	To produce	To organise	To complete	To create

Knowledge

To analyse	To calculate	To classify	To compare	To contrast
To define	To describe	To differentiate	To discover	To explain
To explore	To identify	To interpret	To outline	To plan
To record	To review	To select	To solve	To evaluate

Attitudes

To assess	To develop	To evaluate	To formulate	To judge
To justify	To manage	To model	To recommend	To specify

Weak verbs such as *appreciate, consider, enquire, learn, be aware of* and *listen* must be avoided.

Close planning and monitoring of progress are important elements for AO1. However, the learner must ensure that they use the most appropriate tool for them. Many learners are led to believe that a Gantt chart is somehow an essential element of the Extended Project. It is not. Simply putting a chart in their Learner Record will not ensure a Band 3 mark. It is important that they explain their reasoning behind the construction of the chart, for example in terms of time scales. Moreover, they must refer to the chart throughout the process, i.e. providing clear evidence that it is being used and that it has/has not been effective. Indeed, there are other equally worthy planning tools such as Programme Evaluation Review Technique (PERT) charts. However, again remember that the success of a PERT or Gantt chart depends on how it is used. Just including such a chart does not necessarily add to a project or mark. It is a tool to help keep your project on track. For some learners they can be more of a hindrance than a help.

AO2 – Use Resources

For AO2 it is important that learners select sources that are appropriate for their Project topic (source utility) and critically evaluate them (source credibility). Here are some points to consider:

1. Wikipedia can be a useful starting point but, given anyone can make changes to Wikipedia articles, it certainly should **not** be a key source in their research.

2. An article written by a newspaper journalist or a blogger on the Internet will not have been subjected to the scrutiny involved in published academic research. If their project relies mostly upon 'light weight' sources AO2 marks will be lost.

3. Learners have to be very selective in their use of sources or they can waste a great deal of time and become overwhelmed by the material. If a source is not really focused on their area of research, they should discard it and explain why in their source table.

4. Record accurate details of the sites they search as this is important when it comes to their referencing of the material. They would also be well advised to save key sites in their 'favourites' in case they need to revisit them.

5. A Level textbooks can be a useful starting point for subject based EPs but the moderator will expect learners to go much further than this.

6. A TV documentary can be a valid source, providing useful information or even providing the inspiration for a particular EP.

7. There is no requirement that an Extended Project has to include primary data collection. Learners only need to do this if it is appropriate for their topic. The most important potential pitfall to avoid when carrying out primary data collection is not to draw flawed conclusions due to invalid results. Learners can waste a great deal of time for little gain with survey questionnaires. Think about the respondent profile; is it appropriate for the project being developed? For example, asking local sixth formers about dementia is unlikely to produce valid results unless the topic is investigating teenagers attitudes to the condition. Similarly, the learner needs to consider the sample size in terms of validity. Typically, the larger the sample size, the better.

   If they do think a survey questionnaire would be useful, there are a number of points the learner needs to be clear about. Clearly, they need to ask the right questions to get the most accurate results. The three key principles are clarity; avoiding bias and analysis. For example, the respondent must understand what is being asked so it's important to avoid jargon and double negatives. There must be no ambiguity. They should also avoid leading questions that push a respondent to answer in a certain way. Most respondents will want to be seen as giving the most politically correct or popular answer.

Obviously, the responses will need to be analysed so learners should think carefully how many closed questions (questions with a fixed set of answers that can be counted/measured) and open questions (respondent opinions that will vary considerably and therefore cannot be counted) are used.

Learners also need to think carefully about the design of their questionnaire to get the most accurate results. For example, in deciding the order of their questions it is best to start with factual closed questions that are easy to complete so that respondents are not put off. Variety of questions is also important to keep respondents engaged. Learners should also think carefully about whether they use a paper survey or an on-line site such as www.surveymonkey.com. There are advantages and disadvantages of both.

It is also advisable for learners to carry out a pilot study to check for ambiguities. By carrying out a trial run with five people they may spot a flaw with a particular question. Better they know about it early and re-word it than wait until they have a hundred completed and flawed questionnaires.

8. Consider using a source evaluation table and including it at the end of your final outcome. It could look something like this:

Source title/date of publication	Authorship	Source utility	Source credibility
Here give the full title of the source and include the publisher; place of publication and the date of publication. For internet sources you should provide the date you accessed the site.	Yes, give the author's name but can you do more? Have you researched them? Have they written ten other books on this topic? Are they a recognised national or international figure in this field?	Sum up here how the material is relevant, e.g. 'Provided useful data and case studies on……' Or, 'Provided me with a basic knowledge and understanding of the events in the period…….' Alternatively point out the weaknesses, e.g. 'As the book was written twenty years ago, much of the technology referred to is now out of date. As a result, I did not use the material.	Here you should draw on your Critical Thinking course, e.g. use BRAVEN to assess reliability (i.e. credibility) of the writer. You must make your assessment detailed and not just make throw away comments such as 'it is biased'. For example, a pressure group will have a clear **vested interest** to influence a public debate in its favour. However, it has to be careful. Inaccurate statements will lead to an erosion of public support and ultimately the discrediting of the organisation.

9. When a learner uses material gathered from a particular source they must reference it. If they do not, they can be accused of plagiarism, i.e. making out that someone else's work is their own. Guidance on referencing is available on a number of university websites; for example:

   http://www.bris.ac.uk/library/support/findinginfo/literature-references/

   http://www.southampton.ac.uk/learnwithustransition/academic-skills-guides/referencing-sources.page

10. Quotes can be good, i.e. they provide a theoretical underpinning of a learner's argument. However, they should be short and memorable and preferably written by someone with authority in the area of study. Certainly learners should avoid excessively long quotations, i.e. ten lines or more.

11. Remember that the material learners research eventually has to be synthesised, i.e. put together in an argument. A dissertation that simply goes through a series of writers in separate 'blocks' is weak. Rather they will need to show how certain writers support or corroborate each other and while others challenge and contradict. This is an important skill assessed under AO2.04.

AO3 – Develop and Realise

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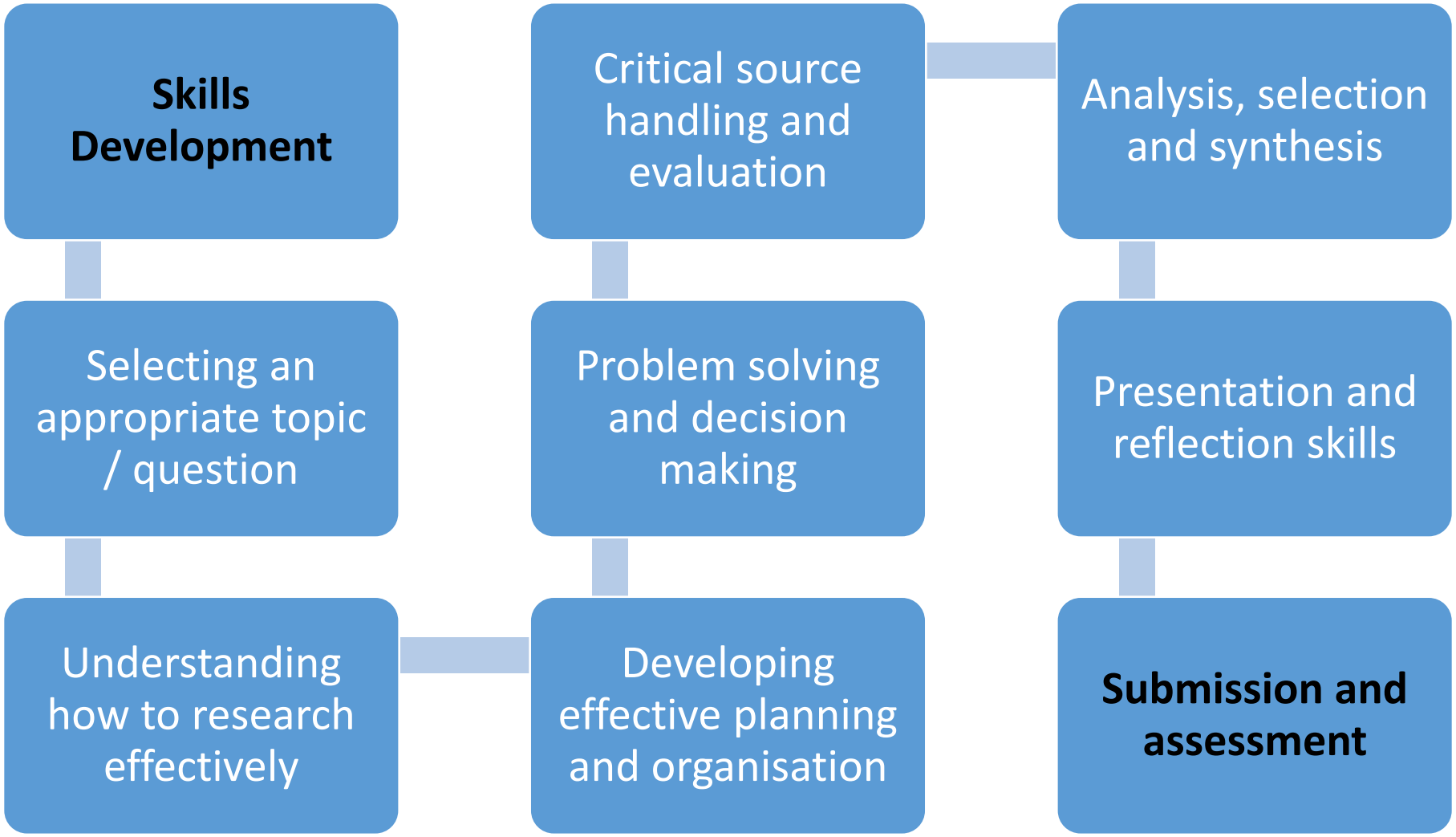
In terms of the mark scheme, this is the most significant Assessment Objective as it carries 40/100 marks. The two main points of focus here relate to skills development and the standard of the final outcome.

A key aspect of the EPQ is the development of skills and it is therefore important that the learners fully appreciate the range of possibilities here in terms of their planning. Very often learners offer only limited comment on the skills they hope to develop and apply in EPF1 Section 7 which is a pity. Again, this tends to highlight a failing of the centre's taught programme. Learners should be encouraged to think about the following possible areas. As always, there is no definitive model here as the skills selected will depend greatly upon the nature of the outcome envisaged.


Skills Development
Selecting an appropriate topic / question
Understanding how to research effectively
Developing effective planning and organisation
Problem solving and decision making
Critical source handling and evaluation
Analysis, selection and synthesis
Presentation and reflection skills
Submission and assessment

Nevertheless, the following should provide a guide for centre staff in planning their programme:

- **Research skills** including the use of advanced internet searches and Google Scholar – here the school or college librarian can contribute to the taught course.

- **Personal organisation skills –** learners need to think about how they will organise notes effectively; failure to do so will make the final write up or manufacture unnecessarily challenging.

- **Time management skills** – a popular area of difficulty that often appears in learners' final evaluations. Again, time management is a skill and the learner needs to explicitly consider how to plan for this. Many learners plump for a Gantt Chart without actually explaining why or making reference to it beyond EPF2a. Constant monitoring and evaluation of progress using EPF2d will help the learner here, rather than it merely being completed in retrospect as an after thought.

- **Analytical skills** – learners need to appreciate the difference between description and analysis and demonstrate their own thinking about the topic pursued. Similarly, when it comes to developing their conclusion, it is vital that all judgements are evidence based.

- **Synthesis skills** – for learners writing a first dissertation of 5,000+ words, it can be a real challenge to synthesise research coming from a wide range of sources. However, the art of synthesis will mark out a higher achieving learner from one who simply 'blocks' research from different writers in separate paragraphs.

- **Critical source evaluation skills** – a learner who does not study a subject such as English or History may identify this as a skill area for development. Assessing material in terms of utility and credibility needs to be developed to a high level and certainly beyond the superficial level of 'it's biased' to achieve Band 3 marks.

- **New technologies** – this skill area is specifically mentioned in AO3 LO5 but centres must not think that this means this particular skill rates more highly than other skill areas. Above all, centres should avoid encouraging learners to apply new technologies for the sake of it. As always, the best advice here is that the learner should apply technologies appropriately for their topic, i.e. they need to explain their decision making here. For example, if they intend to use social media as a marketing tool. Similarly, they need to think about how they organise and present information and numerical data. Learners, for example, that manipulate spreadsheets and databases appropriately can be credited here. As another example, some learners are now using App technologies creatively as part of their research. Similarly, film based

outcomes will involve the application of technical skills in compiling visual images and sound files.

- **Précis** – again, the art of concision can be a difficult skill to hone for a Year 12 learner. However, whilst the EPQ is more flexible than traditional A Level Coursework regarding the word count, the issue cannot be ignored. The 5,000 word guide for a dissertation based EP is a minimum and hence a project that runs to 6,000 or even 7,000 words will not be questioned. However, if the outcome is nearing double the length, marks will be lost for a lack of appropriate selection.

- **Numeracy** – skills of numeracy can be just as important as literacy, depending on the project. Hence a learner who is developing a business project may need to look carefully at this area; for example, cost analysis; calculating profit margins; household budgeting or analysing the impact of taxation rates or commercialisation.

- **Product design and manufacture** – this is of course a vast area with some learners learning and applying new skills in using specialist equipment such as 3D printers and laser cutters. However, traditional skills, for example, in the production of textile outcomes, are equally valid.

- **Problem solving and decision making skills** – projects are rarely straight forward and learners have to respond to a number of challenges along the way. Key decisions and the reasoning behind them should be clearly explained, for example, in EPF2b, EPF2d or the appropriate section of EPF2e, as applicable.

- **Leadership skills** – a possible option if the learner is looking to use others as part of the EP process. A community art project involving Year 7 learners or the performance of a new composition by a school orchestra would, for example, provide opportunities for the learner to demonstrate the development of leadership skills. If the teacher simply takes responsibility here an opportunity is lost.

In terms of the standard of the final outcome, there is much that each learner needs to consider. In the case of dissertation projects, for example:

- Structured and fluent writing with a clear line of argument
- A focus on critical analysis over description
- Strong supporting evidence, correctly referenced
- Evidence of the counter argument
- Well-structured and coherent paragraphs
- 5,000 word minimum length
- Evidence of drafting and proof reading
- An evidence based and developed conclusion that fully addresses the identified aims & objectives

- An academic bibliography
- Attention to SPaG issues, for example, accurate and mature use of vocabulary

It is certainly important that learners appreciate that, whilst the EPQ counts as half an A Level, it is of A Level standard. As such, learners should clearly pay attention to detail in how the outcome is presented. To help here, centre staff need to encourage learners to develop check lists of their own to aid drafting and proof reading. This is much better than generic tick lists provided by the centre as it allows the learner to again demonstrate independence and the extent to which they have taken full responsibility for their project.

AO4 – Review and Communicate

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For A04 LO7, all learners have to make a presentation. Many presentations take around 15 – 20 minutes plus time for questions but as always this will depend upon the learner and the topic. As a general guide, learners should be encouraged to consider both the research process and what they've learnt, e.g.

a) **The process**:

- Why this particular topic?
- What research did I conduct?
- Which sources turned out to be most/least useful and why?
- What key problems did I have to overcome?
- What were the most important decisions I made in shaping the project?
- What skills have I developed as a result of the project?
- What do I see as the main strengths of the project?
- Have I achieved the aims and objectives I originally identified at the start of the project?
- What would I change if I were to repeat the project?

b) **The outcome**:

- What have I learnt about the topic?
- What are the most significant factors/themes in answering this question?
- What are my key conclusions and how convincing is my evidence for making these judgements?

Many learners choose to deliver a traditional oral presentation supported by either a PowerPoint or a Prezi slide show. However, some choose a different approach such as an exhibition; both approaches are equally valid. As always, it is the learner, not the teacher, who decides upon the format, location and audience for the presentation. For example, a particularly nervous learner may want to simply present to his/her supervisor; others may want to present to the whole year group.

The only key requirements are that:

- the learner's supervisor has to be present as ultimately s/he has to assess the effectiveness of the presentation

- the learner has to answer a series of questions from the audience at the end of the presentation and these questions must not be previously shared with the learner, i.e. the learner has to demonstrate his/her knowledge and understanding of the topic

Suggested Learning Activities

The EPQ allows the Centre Co-ordinator to devise a wide range of learning activities from the more traditional teacher exposition and worksheet tasks to the use of specialised on-line resources. As with all effective course planning, it is wise to offer learners a varied diet and practical tasks and class discussions can often prove far more engaging than very wordy textbooks. The following scheme of work offers a few ideas as to how the taught programme could be delivered.

Sample Scheme of Work

Topic	Lesson Focus	Possible activities
1	• What is the EPQ and how can it help you? • How will you be supported throughout the process? Introduction to the nature of the qualification, timescale; mark boundaries from the previous year and breakdown of key stages of the EPQ	Group work: Learners discuss redacted projects from previous years. EP True/False quiz. Hand-out of key points, e.g. structure of the taught course and the role of the EP Supervisor.
2	• How is the EP assessed? • How is the EPQ different from traditional coursework? Analysing the mark scheme and appreciating the Level 3 standard	Peer marking and class discussion of redacted projects. EPQ Assessment True/False Quiz. Emphasis on the fact that it is about both the final outcome and the research process, i.e. it is not simply like a homework essay that can be written in a week or two at the end of the year.
3	• What form can the EP take? Learners consider the range of possibilities from dissertations to live performance and artefact projects and the possibilities for group projects. They consider the opportunities and challenges with each one.	Use of film clips and artefacts from previous years. Class discussion regarding the advantages/disadvantages of an EP that is HE related. Develop university links, e.g. visit from their outreach team/university learner ambassadors. Learners often enjoy talking to undergraduates who have been through the qualification and who can put the EPQ in the context of pre-university learning.

Topic	Lesson Focus	Possible activities
4	• What kind of question works best for the EP? • How are artefact project titles worded differently?	Class activity: learners critique a list of possible questions followed by a class plenary. Guidance here particularly important as flawed questions create long term problems for the learner.
5	• Completion of EPF1 Sections 1 and 2	IT facilities - learner one-to-one interviews.
6	• How do you research effectively? Identification of initial resources	Presentation by school librarian – highlighting the value, for example, of Google Scholar as a search engine and online magazine archive subscriptions. Paired task: Analysing strengths & weaknesses of different sources, e.g. blogs, academic journals and newspapers. Learners supported individually with topic research.
7	Completion of EPF1 Sections 3 and 4 • Why do you want to research this topic? • What are your aims and objectives? • How will you judge how successful you have been with the project?	IT facilities - learners complete their rationale for the project and outline specific success criteria. Emphasis on avoiding potential pitfalls, e.g. being over ambitious projects.
8	Completion of EPF1 Sections 5 and 6 • Should you complete an individual or group project? Which format should your EP take?	Learners produce a flip chart analysis of potential advantages & disadvantages, e.g. group projects provide greater opportunities for developing team working skills and interpersonal such as cooperation, compromise and negotiation.

Topic	Lesson Focus	Possible activities
9	Completion of EPF1 - Sections 7 to 10 • What skills do you intend to develop during the project? • Given your sixth form programme, which skills will be the most demanding for you to develop?	Class discussion - build up list of possible skills on board, e.g. literacy, numeracy, analysis, digital technologies, synthesis, time management, source evaluation and reflection. In particular, consider the organisation of research notes. Good organisation at this stage can save hours at the time of the final write up.
10	EPF1 Stage 2: Question/title submission and feedback	One-to-one interviews.
11	• Why is planning and time management vital for EP success? • How will you plan the EP? • What planning tools are available?	Use of worksheet or school intranet activity on planning tools such as PERT and Gantt charts. Group task: Time management exercise.
12	Learners complete EPF2a Extended Project Plan	IT facilities with one-to-one interviews.
13	In-depth research opportunity	Organise a learner trip to the local university library. A useful activity in terms of raising aspirations; HE information and providing guidance on the range of potential research sources available.

Topic	Lesson Focus	Possible activities
14	• What are primary sources? What are the pitfalls you need to avoid when using them? • What is the difference between quantitative and qualitative data? • What are the ethical issues that must be considered?	IT facilities: Learners produce a sample on-line questionnaire for a given topic and then analyse and compare their outcomes. Plenary discussion of issues such as sample size and respondent profiles in terms of ensuring valid conclusions. Group task: Consider a number of case studies and match them up with the relevant ethical considerations, e.g. informed consent.
15	• What are secondary sources and how can they be used most effectively? • What is peer review? • How can you avoid plagiarism?	Learner task: Provide a structured exercise in which the learners review a given article and discuss in a plenary. IT facilities: Direct learners to on-line guidance on plagiarism; for example: www.plagiarism.org www.ox.ac.uk/learners/academic/guidance
16	Critical source evaluation – BRAVEN analysis	Learner activity: Learners use BRAVEN analysis (Bias/Reputation/Ability to perceive/Vested interest/Expertise/Neutrality) to evaluate a number of given sources for credibility. A similar activity can be used to question utility.
17	Referencing	Learner task: Sampling of a range of academic books and articles – what do the learners notice? Internet research: University website guidance can again be useful here, e.g. Bristol University takes learners through the issues here and has a final revision quiz; for further information visit: http://www.bristol.ac.uk/arts/exercises/referencing/referencing%20skills/page_01.htm

Topic	Lesson Focus	Possible activities
18	Developing written argument – the language of reasoning	Following an explanation of the key elements such as reasons, intermediate conclusions, hypothetical reasoning, evidence and assumptions, learners break down a given article identifying the different elements and how they together form a strong or weak argument. Learner activity: Correcting SPaG mistakes in a given passage. A number of university websites now offer SPaG guidance.
19	Developing written argument – flaws in reasoning	Learner activity: Staged role play focusing on helping learners develop a knowledge and understanding of common flaws in reasoning such as Ad Hominem, Slippery slope and sweeping generalisation.
21	Ethical considerations guidance	Key terms exercise
22	Delivering an effective presentation	Use of YouTube clips and university websites highlighting good/worst practice. Life after Death by PowerPoint by Don McMillan is well worth a look on YouTube. Similarly: http://www.powerpointninja.com/ http://www.studyskills.soton.ac.uk

Delivery Plan

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Centres will plan the delivery of the qualification according to their own curriculum model but within the requirement of 120 study hours with 45 taught Guided Learning Hours (GLH) and 75 hours of independent work.

As a **one year course**, many centres allocate a period a week for delivery of the taught element together with supervisory meetings. Traditionally, many centres have chosen to start the course following the Year 12 AS exams with a view to submission in the summer of Year 13. However, with the advent of linear A Levels, many are now looking to complete the qualification in Year 12, for example, with the demise of AS Critical Thinking and General Studies, some centres have looked to use this time in Year 12 for the Extended Project.

There are a number of advantages to this approach; namely:

- It avoids the problem of EP completion running into Year 13 mock exam preparation and reduces the pressures in an autumn term which is often dominated by UCAS applications.

- It can help learners to test their Higher Education thinking; for example, a learner who has not previously studied a subject such as Law could pursue an EP in this area.

- It allows the learner to talk knowledgeably about a Higher Education related topic in their Personal Statement and possibly at interview.

- It avoids the EPQ spreading across two academic years and the inevitable changes in staff timetables.

Some, however, believe instead that with fewer learners now following a four A Level programme, learners can cope with the EPQ in Year 13. Some teachers feels that there is a maturity issue here and that learners in their final year of A Level study are better prepared for the demands of extended writing. Whichever model is selected, the importance of timetabled periods is paramount. Any centre that looks to learners and supervisors simply working in their own time is likely to experience a significant drop out rate as the submission date draws near.

Preparing learners for assessment

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Structuring the Project

A clear Project structure is essential as it ensures that there is evidence for all the required learning outcomes that contribute to the final assessment. A learner could, for example, structure their Written Project Outcome or Non-written Project Outcome (EPF3), as follows:

Suggested structure for Project Outcome (EPF3)

EPF 3	EXTENDED PROJECT WRITTEN PROJECT OUTCOME

This section should include:

- Written Project Outcome (Dissertation, Field Investigation, etc.)

Note: Additional pages should be inserted as required to accommodate the Written Project Outcome

Project Outcome Notes
(minimum of 5000 words)

Project Title

Abstract

Introduction and Rationale

Methodology

Literature Review

Main Findings

Conclusions and Recommendations

Bibliography

EPF 3	EXTENDED PROJECT NON-WRITTEN PROJECT OUTCOME

This section should include:

- Non-written Project Outcome (Artefact, Design, Performance, etc.) and supporting evidence (photos,video etc)

Note:
1. *Evidence of the final Project Outcome e.g. photos, videos etc. should be included separately*
2. *Additional pages should be inserted as required to accommodate the Non-written Project Outcome*

Project Outcome Notes
(minimum of 1,500 words)

Project Title

Rationale

Research

Methodology

Description & Evaluation of Project Outcome

List of Sources

Any Other Additional Information

It is not essential to include an abstract as part of the Extended Project but an introduction is required. The introduction should clearly identify the central question/topic; the key factors/areas and the central conclusions reached. It is also particularly important that learners provide both a list of references/foot notes and a separate bibliography. The former provides clear evidence of how the resources have been used whilst the latter indicates the wider research undertaken. The learner may also wish to include a source analysis table as an appendix.

Although a supervisor may look at a draft project outcome, their feedback should be limited to posing critical questions of the learner, e.g. Do you think you have referenced all of your sources consistently and accurately? Do you think that you have developed your conclusion fully? It is not in the spirit of the qualification for a teacher or tutor to provide detailed annotations of a draft outcome which specifically directs the learner to make specific changes. Moreover, it must be noted that an Extended Project must only be marked once, following final submission. Excessive supervisor interventions will make it difficult for the learner to achieve Mark Band 3 scores for AO1.LO2, AO2.LO4 and AO3.LO6.

Please note that in the case of large or 3D artefacts, the actual outcome must not be sent to the moderator. Instead, annotated high quality photographic/video evidence should be provided to ensure that the moderator can see the development of the artefact over time and the quality of the final outcome.

The concluding paragraph(s) represents one of the most important aspects of the final outcome. Weak, underdeveloped conclusions provide clear evidence that the project has not been fulfilled to a high standard. The conclusion must be based on the evidence used within the research. Learners should use a reflective approach showing how the stages are connected to give a convincing answer to the research question/statement investigated. Consider for example:

- What did the evidence show in relation to the aims?
- Were the aims met; did they go beyond them, or in fact fail to reach the aims?
- Was the research question/statement answered or completed?
- Was the artefact fit for purpose?

Learners may also decide to include an appendix of additional information. This could include:

- A clean copy of any questionnaire that has been used (**not** completed questionnaires)
- The transcript of any key interviews carried out
- A record sheet of any observations or calculations carried out.

Assessing the EPQ and internal standardisation

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All four assessment objectives are internally assessed and externally moderated. The purpose of assessment is to ensure that effective learning has taken place in order to give learners the opportunity to achieve the learning outcomes specified in the assessment grids.

It is obviously important for the integrity of the EPQ that a common assessment standard is applied within and between centres. It is therefore the responsibility of the Centre Co-ordinator to ensure that effective internal standardisation and moderation takes place and that the centre's supervisors are assessing all projects to the same standard. Further help is provided at WJEC CPD events; via the WJEC website and in centre moderation reports.

Internal standardisation

It is a requirement to appoint a Project Co-ordinator where two or more supervisors are assessing the Extended Projects or two or more cohorts take up the Extended Project.

The Project Co-ordinator will act as the Internal Moderator for the centre and will be responsible for:

- ensuring all supervisors/assessors are aware of the Extended Project criteria

- checking supervisors/assessors' judgements to ensure the criteria for Extended Project are correctly and consistently applied across the whole centre as required

- co-ordinate meetings with all supervisors/assessors, to standardise their judgements

A standardising meeting should be held prior to the final submission of samples of work for external modernisation.

The meetings should:

- collectively assess the Extended Projects, discussing any issues until agreement is reached on the relevant criteria

- consider whether learners have fully covered all the assessment criteria for the Extended Project as appropriate

- share examples of evidence and good practice

If centres encounter any difficulties in the process of internal standardisation, advice should be sought from WJEC.

Learning Outcomes, Assessment Criteria & Mark Bands

Supervisors will internally assess the Extended Project using the following assessment grid. The Assessment Objectives have been broken down into Learning Outcomes and Assessment Criteria to aid both learners and supervisors.

The Extended Project is marked holistically based on the four Assessment Objectives. The maximum mark is 100 and each assessment objective is allocated a percentage of the marks. There are three mark bands and learners are assessed using the descriptors for each mark band.

Assessment Objectives	**Weighting**	**Mark Available**
AO1 Manage	20%	20
AO2 Use resources	20%	20
AO3 Develop and realise	40%	40
AO4 Reviews and communicate	20%	20
Total	**100%**	**100**

All assessments are based on the principle of 'best-fit' judgements reflecting how the learner's work met the assessment criteria described in the mark bands.

Learning Outcomes The learner will	Assessment Criteria The learner can	Mark Band 1	Mark Band 2	Mark Band 3	Max. Marks
AO1 MANAGE					
LO1 Be able to identify a topic supported by a rationale and design a project.	**AC1.1** Identify a topic and its rationale. **AC1.2** Negotiate and design a project.	Identifies a topic based on **simple** rationale with **limited** aims and objectives. Negotiates and produces a **basic design** for a project.	Makes an **informed** decision in the selection of a topic based on **sound** rationale with **coherent** aims and objectives. Negotiates and produces a **coherent design** in a suitable format.	Explores various options and makes an **informed** decision in the selection of a topic based on **solid** rationale with focused and **realistic** aims and objectives. Negotiates and produces a **coherent and detailed design** in an appropriate format.	**10**
		1-3	**4-7**	**8-10**	
LO2 Be able to produce a plan and carry out a project using a range of strategies and methods to achieve objectives.	**AC2.1** Produce a project plan outlining how objectives will be achieved. **AC2.2** Carry out the project utilising the project plan.	Produces a **workable project plan**, setting **limited** targets and goals. Utilises project plan **adequately** with a limited range of strategies and methods. **Limited responsibility** in putting plan into action, requiring **some support**.	Produces a **detailed project plan**, setting **relevant** targets and goals, with **some details** of how the objectives will be met. Implements project plan using **some** organisational skills, setting **realistic** targets, meeting some deadlines. **Takes responsibility** in putting plan into action, managing the tasks.	Produces an **effectively designed and thorough project plan**, setting **realistic** targets, prioritising goals with **detailed actions** on how objectives will be achieved. Implements project plan using **sophisticated** organisational skills, setting **SMART** targets and milestones, meeting deadlines. **Takes full responsibility** and works **independently** in putting plan into action, **managing and prioritising** tasks and actions.	**10**
		1-3	**4-7**	**8-10**	
				Maximum marks	**20**

AO2 USE RESOURCES					
LO3 Be able to conduct research using a range of resources, select and apply information/data relevant to the planned outcome.	**AC3.1** Conduct research using a range of resources, select and apply information and data relevant to the planned outcome.	Conducts research using a **limited** range of resources, selects and applies **some** information/data relevant to the planned outcome. **Limited** use of referencing and **acknowledgement** of resources.	Conducts research using a **range of relevant resources**, selecting and applying information/data relevant to the planned outcome. Resources are **mostly acknowledged** and referenced to a reasonable standard of competency.	Conducts research selecting from **a wide range of relevant resources**, including **complex material** and consistently applying information/data to the planned outcome. **All resources are acknowledged** and referenced using a recognised form.	**10**
		1-3	**4-7**	**8-10**	
LO4 Be able to interpret and analyse information/data showing understanding of links and connections within the complexities of the outcome.	**AC4.1** Interpret and analyse selected information and data and apply to support the outcome. **AC4.2** Demonstrate understanding of links and connections within the complexities of the chosen outcome.	Interprets information/data with **minimal analysis to support** the outcome and conclusion. **Limited understanding** of links within the complexities of the topic, making **minimal** connections.	Interprets and **analyses the relevant information/ data to contribute** to the outcome and conclusion. **Recognises** and **records** the **validity** and bias of resources. **Clear understanding** of links and **clearly articulates** connections within the complexities of the chosen outcome.	Interprets and **analyses the relevant information/data to inform a cohesive** outcome and conclusion. **Explores** and **confirms** the **validity** and bias of resources. Demonstrates **ability to synthesise** complex information/data. **Comprehensive understanding** of links, fully explores and establishes **sophisticated connections** and **fully appreciates** within the complexities of the chosen outcome.	**10**
		1-3	**4-7**	**8-10**	
				Maximum marks	**20**

AO3 DEVELOP AND REALISE					
LO5 Be able to select and use a range of skills, including new technologies, where appropriate, to reach critical decisions.	**AC5.1** Select and use a range of skills, including new technologies, where appropriate, to reach critical decisions that contribute to the process and outcome.	Selects and uses a **limited range of skills** relevant to the specific project. **Limited** use of new technologies, where appropriate.	Selects and uses **a set of skills effectively** relevant to the specific project. **Adequate** use of new technologies, where appropriate.	Critically selects and **effectively** applies **a range of skills with precision** relevant to the specific project. **Embraces** new technologies, using them **creatively**, where appropriate.	**20**
		1-6	**7-15**	**16-20**	
LO6 Be able to produce a planned outcome and realise the project in its entirety.	**AC6.1** Produces a planned outcome and completes the project in its entirety.	Produces a project outcome that is **fit for purpose** demonstrating **limited** knowledge and understanding of the topic. Completes the entire project **adequately** including an outcome that is fit for purpose.	Produces a **coheren**t project outcome demonstrating **sound** knowledge and clear understanding of the topic. Completes the entire project **purposefully** including a project outcome that is coherent.	Produces a **cohesive** project completed to a **high standard**, demonstrating knowledge and understanding of the topic **authoritatively**. Completes the entire project to a **consistently high standard** including a cohesive project outcome.	**20**
		1-6	**7-15**	**16-20**	
				Maximum Marks	**40**

AO4 REVIEW AND COMMUNICATE					
LO7 Be able to make a presentation of its findings and conclusions by selecting and using a range of communication skills.	**AC7.1** Make a presentation of the findings and conclusions from the project outcome in an appropriate format.	Makes a presentation of the findings and conclusions using **basic** techniques of presentations, **limited** response to questions.	Makes a **confident** and **effective** presentation of the findings and conclusions, showing **sound** knowledge of project with **adequate** responses to questions.	Makes an **authoritative** presentation of the findings and conclusions, showing **extensive** knowledge of project with **detailed** responses to questions.	**10**
		1-3	**4-7**	**8-10**	
LO8 Be able to understand and apply the principles of evaluation and review in relation to the planned outcome and own learning and performance.	**AC8.1** Demonstrate understanding of the principles of evaluation using them to review outcome and own learning and performance.	Understands the **requirements** of evaluation by commenting on the strengths and weaknesses of their planned outcome. Reviews own work, **intermittently** during the project process. Responds **briefly** to questions about own learning.	Understands **principles** of evaluation by **effectively** evaluating the planned outcome. **Realistically** reviews own learning and performance, during the project process. Responds **purposefully** to questions about own learning.	Understands the **principles** of evaluation by **comprehensively** evaluating the planned outcome against objectives. **Effectively** reviews own learning and performance, **throughout** the project process. Responds **with maturity** in a dialogue during the question and answer session.	**10**
		1-3	**4-7**	**8-10**	
				Maximum Marks	**20**
TOTAL MAXIMUM MARKS (AO1/AO2/AO3/AO4)					**100**

The total aggregated marks from the four Assessment Objectives will be translated to grades at Awarding.

The following elements of best practice should be noted by the Centre Co-ordinator:

- It is important that the Centre Co-ordinator is given regular opportunities to meet with his/her supervisory team

- WJEC exemplar projects should be used each year prior to the assessment period

- In marking projects, supervisors should first identify the correct mark band for a particular Assessment Objective and then move up or down from a mid-mark, based upon whether this is a strong or weak example; for example, if for AO3 LO6, a supervisor decides that a candidate is Band 3, s/he should start by considering a mark of 18/20 and then move up or down depending on the nuanced qualities provided by the learner in terms of Band 3 evidence

- It is important that clear Assessment Objective related annotations are offered by supervisors to indicate why certain marks have been awarded

- The Internal Standardisation Form needs to provide evidence of rigorous internal moderation.

GUIDE TO ASSESSING AN EXTENDED PROJECT

Overview – an understanding of the whole project

- A project is marked finally out of 100. It is internally assessed and standardised, then externally moderated.
- It will be part of a rank order of projects assessed by a centre, probably reflecting a range of levels of achievement.
- The projects will be diverse, but they will all be marked to the same assessment objectives and assessment criteria.
- The mark out of 100 will be an aggregation of marks awarded for four assessment objectives.
- Each of the AOs has its own division of marks.

All assessments are based on the principle of 'best-fit' decisions based on three mark bands. Tutors should aim to become familiar with the mark band descriptors. For each assessment, the following process should apply:

- Choose the mark band that represents the 'best fit' for a particular learner/project.
- If this is a clear-cut, confidently made judgement, choose a mark that is secure in that band.
- If you are in equal consideration of the adjacent mark bands, choose a mark that best reflects the 'borderline' achievement.
- In the course of making several assessments on an individual project, use a 'trade-off' principle to ensure that you are not excessively severe or lenient when the aggregated total emerges.
- It is good practice to weigh up the total mark holistically as a last check of your judgement of a project.

AO1 Managing

20 marks are available for Managing, made up of two marks out of 10. These marks not only reflect the early part of the project process but also, critically, the way early promises are fulfilled. Managing the project continues throughout the project process from start to finish. It is unthinkable, for example, that a modest project outcome will be the result of excellent

management. The two assessments for AO1 Managing cover learning objectives 1 and 2.

LO1 Be able to identify a topic supported by a rationale and design a project.

LO2 Be able to produce a plan and carry out a project using a range of strategies and methods to achieve objectives.

KEY POINT: Remember that AO1 is an assessment of the managing of the whole project.

AO2 Use resources

20 marks are available for Using Resources, made up as two marks out of 10. At Extended Project level, resources selected should be substantial and developed in all projects. There is scope for innovation in terms of localised questionnaires and personal interviews, but the rigours of research required should not be underestimated. Bibliographies and Referencing are required for validation of the work, but they are not necessarily a marker for understanding. Proper understanding and assimilation of reading will be evident in the project outcome, hopefully in the fluency and cohesion of the expression.

LO3 Be able to conduct research using a range of resources, select and apply information/data relevant to the planned outcome.

LO4 Be able to interpret and analyse information/data showing understanding of links and connections within the complexities of the outcome.

KEY POINT: **Evidence of AO2 'qualities' will be found in the project outcome as well as in the project records.**

AO3 Develop and Realise

40 marks are available for assessment of AO3, which would appear to focus (though not wholly) on the project outcome. As elsewhere, the mark/band descriptors are the key. There are two marks to be awarded, out of 20 and 20 respectively. Each one has its own focus as the learning objectives indicate. Significantly, the mark for LO6 is awarded for the 'develop and realise' of the whole project, not just the outcome. In such a way, the awarding of the sequence of marks from AO1 to AO4 successive marks requires ongoing awareness of the correlations between aspects of the process and the project.

LO5 Be able to select and use a range of skills, including new technologies, where appropriate, to reach critical decisions.

LO6 Be able to produce a planned outcome and realise the project in its entirety.

KEY POINT: The quality and commitment to the project outcome and, where appropriate, the project outcome notes is very important for backing up managing and research.

AO4 Review and Communicate

20 marks are available for Review and Communicate, in two sub-categories of 10 marks each. As with AO1 Managing, there should be evidence of Review from the beginning to the end of the process. The presentation does, however, provide a strong focus for review at the end of the project process. The 'talk' itself is an opportunity for the learner to introduce freely the substantive topic of the project, to summarise and even develop the project outcome; the 'question and answer' offers opportunities for tutors to probe the project process. The two halves of the presentation are not formally separated, though, the dynamics of the occasion will understandably take over on occasions.

LO7 Be able to make a presentation of its findings and conclusions by selecting and using a range of communication skills.

LO8 Be able to understand and apply the principles of evaluation and review in relation to the planned outcome and own learning and performance.

KEY POINT: Qualities of 'review' may be present throughout the project process.

Provisional expectations:

Individual learners may have a target agreed based on GCSE results and university offers.

A centre will have some informal hopes of a range of results that reflects the strength of a cohort, reasonably projecting realistic results.

From the start of the 'course', project titles/questions will need to match the ambitions of the target grades.

Learners will need to be made aware of the assessment objectives and the mark band descriptors and what they might mean in practice.

The supervisor knows the learners better than anyone and will be looking at projects throughout the teaching and learning programme and the tutor meetings with the learners. Their first concern should be ensuring that the

learner is aware of time management, completion on time and achieving the individual objectives. This will give the tutor the confidence to fully complete the grounds for a higher band mark of AO1.

In order for the learner to move through the band descriptors the tutor must provide evidence to fully support the mark given to the external moderator. The use of key words from the new specification can fully assist the tutor in showing the moderator that the learner deserves the mark given at the centre. For example, if the tutor believes the project to be in Band 3, but uses the words such as solid and realistic, the moderator will be looking at Band 2. The tutor must give the learner the best possible advantage by using appropriate vocabulary. In the list below the key words that identify how the learner can move through the Mark bands have been highlighted in order to show the tutor and learner exactly what is needed.

The moderator will disregard the marks in the beginning of the process and view the Project as a whole before then going into finite detail to mark each AO. If the Project outcome looks short, the bibliography and vocabulary too much internet based and the project diary and management lacking information that is relevant to the title and/or question, then immediately the moderator is aware that the folder may not be high band 3! This is when the failback of the tutor comments can significantly improve the learners potential end mark and satisfy the moderator that the learner has fulfilled their potential.

It is vital that the Project title allows the learner significant scope and the potential to fully achieve their objectives and show their personal skills and interest.

When the moderator can see clear distinctions between top and bottom folders it shows range and scope from the centre. The moderator will go into folders and mark each AO according to the specification requirements. If a number of learners have chosen similar topics and/or questions, it is the key words that will show distinction through mark bands. AO4 is the most difficult for a moderator to mark as they have not been in attendance when the learner is speaking and answering questions, so the tutor comments have a key role in this area. It is not enough to simply say the learner was knowledgeable and answered questions, as after completing an Extended Project you would hope they have a clear knowledge of their chosen task. It is imperative that the tutor considers the purpose and audience, along with the content and writes full, clear descriptor to aid the moderator in assessing.

Learning Outcomes		Mark band 1	Mark band 2	Mark band 3	Maximum marks	Total marks
AO1 Manage	LO1	Simple, limited, basic	Informed, sound, coherent	Informed, solid, focused, realistic, coherent, detailed	10	20
	LO2	Workable, limited, adequate, limited responsibility with some support	Detailed, relevant, some detail, realistic, takes responsibility	Effectively designed, realistic, detailed actions, sophisticated, fully responsible, SMART, independent, managed and prioritised	10	
AO2 Use Resources	LO3	Limited range, some information/data, limited use of referencing and acknowledgement	Range of relevant resources, mostly acknowledged references. Reasonable competency	Wide range of resources, complex material, all resources acknowledged	10	20
	LO4	Minimal analysis, limited understanding, minimal connections	Analyses relevant information/data to contribute to outcome, recognises and records validity, clear understanding, clearly articulates	Analyses relevant data to inform a cohesive outcome, explores validity, ability to synthesise, comprehensive understanding, sophisticated connections	10	

Learning Outcomes		Mark band 1	Mark band 2	Mark band 3	Maximum marks	Total marks
A03 Develop and Realise	LO5	Limited range of skills, limited use of new technologies	Adequate use of new technologies, set of effective skills	Effective, applied a range of skills with precision, embraced new technologies creatively	20	40
	LO6	Fit for purpose, limited knowledge, adequate	Coherent, sound knowledge, purposeful	Cohesive, constantly high standard, authoritative	20	
AO4 Review and Communicate	LO7	Basic techniques, limited response to questions	Confident, effective, sound knowledge and adequate response to questions	Authoritative presentation, extensive knowledge, detailed response to questions	10	20
	LO8	Understands requirements of evaluation, reviewed work intermittently, responded briefly to questions	Effective understanding of evaluation, realistic review, purposeful response to questions	Comprehensive understanding of evaluation, effective review throughout, mature response to questions	10	

GUIDE TO ETHICAL CONSIDERATIONS

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Learners undertaking research should follow ethical guidelines at all times. For example, they must approach research in an objective way and ensure that their judgements are evidence based rather than merely subjective opinion. They should not present the work of others as their own but rather credit all sources openly and accurately. Learners must therefore be made aware of the issue of plagiarism and warned of the serious consequences for all examination candidates.

For learners researching certain topics such as medical or psychology based questions, particular care should be taken when surveying members of the public. Learners must ensure the confidentiality of personal information relating to all participants in any research and take note of all requirements outlined in the Data Protection Act (1998). Further guidance is available from a number of national bodies such as:

- The Wellcome Trust (www.wellcome.ac.uk)
- The British Psychological Society (www.bps.org.uk)
- The Social Research Association (www.the-sra.org.uk)

It is also worth remembering here the need for attention to safeguarding issues. For example, if any learner expressed an interest in a topic such as self harm, child abuse or drugs/alcohol abuse, the school's Designated Safeguarding Lead must be consulted. Moreover, as a general rule, it is best to steer clear of such topics.

Learners:

- should only undertake investigations **appropriate to their age and level of expertise** and that are appropriate for the school/college age group

- must be instructed not to divulge any information to other learners, **however,** information divulged to the learner by other learners during the research process is subject to Child Protection procedures and school/college CP* policy must be applied to them in the same way. Learners and supervisors **must** be aware of the legal requirement to report such disclosure to the school/college's nominated Child Protection Officer

- should avoid deceiving and embarrassing their participants. Participants **must be able to withdraw** at any point in the proceedings and they should be aware that they can do so

- should adhere to copyright laws

- **must not** put participants at risk, e.g. studying gang culture and knife crime in their neighbourhood

- should undertake Risk assessments, where appropriate

- should adhere to advice concerning the protection of minors:

    - do not use minors (under 16's) unless written parental content is given. Headteacher consent should also be sought in a school environment
    - confidentiality must be observed; preserve anonymity and avoid using full names
    - do not use photographs or film minors unless parental consent is given

*All colleges and schools must have Child Protection policies. All staff involved in the delivery of the EPQ should be aware of what the policy stipulates.

Example exercise - Ethical Considerations

Ethical Considerations

When you start your Project you may decide to look at a topic that needs **ethical consideration,** however, it could be argued anything involving people could include ethical considerations.

Some topics are sensitive and their investigation may upset people if not carried out correctly. This is why, as part of your planning process, ethical considerations must be taken.

Topics that may be due this attention include:

- **Diet and Food**
- **Age/Gender/Sexuality**
- **Relationships**
- **Attitudes**
- **Disability**
- **Health**
- **Emotions**
- **Drugs and Alcohol**
- **Violence and Crime**

Ethical Evidence

When you gather information (research, interview, give out questionnaires, etc.) you need to be aware of the effect of what you are doing on the people you are questioning, researching or experimenting on AND the effect it may have on you too.

A lot of this is common sense for many investigators. However you have to be fully aware of all of the possible problems before starting this part of your project.

TASK 1- Over the page is an introductory task to see how much you and your other learners already know on this topic.

When you have completed the task in your group discuss your findings with the rest of the class and the collect everyone's' answers on the board.

Task 1 - In a group of three or four discuss and then write under the headings how you might have to consider these points in your research (the first one is done for you...)

Personal Experience
e.g. you have to be careful researching a topic that has affected you in case it causes you upset or distress)

Appropriate for age of learner

No physical or emotional harm

Confidentiality

Allowed to leave/withdraw

Rules/Laws
i) Consent
ii) Copyright
iii) Risk Assessment

How did you do?

TASK 2 - Read the lists below and see if any of the points you came up with in the class and **add any new ones you also thought of.**

1) Appropriate for Age

- Legal ages must be considered when dealing with research about age dependent topics (smoking, alcohol, sexual behaviour, film and computer game certification, drug law, etc.). You should not interview anyone about any potential **illegal** behaviour (e.g. underage drinking or use of rated computer games).

2) No Physical or Emotional Harm

- What you discuss or research must not cause any physical harm (e.g. skate boarders cannot be asked to do dangerous stunts!)

- What you discuss or research must not cause any emotional stress or damage (e.g. victims of violent crime should not be asked to recall their attack)

3) Confidentiality

- Whatever you discover may need to remain confidential, i.e. you cannot show your findings to other learners. You should not promise to keep information secret, however, the person being investigated should be told that you will not show your findings to other learners/pupils but they should also be told that, if they tell you something that you need to report to a teacher or tutor, you will do just this.

4) Allowed to Withdraw/Leave

- The person you are investigating has the right to withdraw from your investigation at any point.

5) Rules (Consent, Copyright, Risk Assessment)

- You should get written consent from people you are investigating. Copyright rules apply to much of the information you might want to access and reproduce so you should be aware of them. When appropriate risk assessments for this part of your Extended Project should be carried out through discussion with your Supervisor.

Task 3 - Have a look at the following scenarios and tick where you think they would involve one of the five considerations we have mentioned.

Scenario for the Project	**Appropriate for age**	**No physical or emotional harm**	**Confidentiality**	**Allow to leave**	**Rules- consent, copyright, etc.**	**Would you recommend this for a Project?** **Explain why**
1) A Health and Social Care Project into the best way to help young people give up smoking . Are nicotine gum or patches best?						
2) A Sports Project devising a new training regime for body builders						
3) A Catering Project investigating the occurrence of eating disorders at your college						
4) A Performing Arts Project developing a sword fighting sequence for a film						

Scenario for the Project	Appropriate for age	No physical or emotional harm	Confidentiality	Allow to leave	Rules- consent, copyright, etc.	Would you recommend this for a Project? Explain why
5) A Music Technology Project creating a new pop song in the style of The Beatles						
6) Look at knife crime in the town where you live						
7) Creation of a simple video game for 15 year olds						
8) Producing a short film/story on teenage pregnancy for use in PSE classes						

Task 4 - Use the next two sheets with your Supervisor to ensure you are carrying out your Project while considering all the possible ethical pitfalls that might occur.

Date of meeting/discussion: ……. Learner name: ……

Title of project: ……

Ethical Consideration	**Taken into account? (tick)**	**Explain what you have done to consider this**
Appropriate for age (Will the age of the participant/s be considered? Are they appropriate?)		
No physical harm (Will the participants be safe from physical harm?) **No emotional harm** (Will the participants be safe from emotional harm?)		
Confidentiality (Who will you share the information you collect with? Is the participant/s aware of this?)		
Allowed to withdraw (Have the participants been told they can leave the Project at any time?)		

Ethical Consideration	Taken into account? (tick)	Explain what you have done to consider this
Rules/Laws **Consent** (Has consent been sought from the necessary people? e.g. headteachers, parents, etc.) **Copyright** (Will you need to use copyright material – music, images, books?) **Risk Assessment** (appropriate RAs must be conducted if needed)		
There are people, other than your Supervisor, who may help you with ensuring your Project is ethically sound. Do you need to call on their expertise? i) School Nurse ii) Tutor/teacher iii) Child Protection Officer for school/college iv) Parents v) Coach/youth worker vi) Other professionals (artists, musicians, doctors, etc.) vii) Peers of the participant/s		

Ethical Consideration	Taken into account? (tick)	Explain what you have done to consider this
Have you ensured that YOU are safe? You must discuss with your Supervisor before you start your Project to ensure…. i) you only come into contact with suitable adults ii) any required Risk Assessments have been carried out. This is particularly important with any workshop, engineering or construction project or one involving physical activity iii) you are aware that any concerning information or actions disclosed to you are appropriately dealt with		
Do you know what to do if someone tells you something that concerns you? If anyone reveals information to you that concerns you (to do with their health and well-being, i.e. abuse of drugs or alcohol, eating problems, mistreatment by others, etc.) you must tell an appropriate adult and tell the individual that you will do so. The adult will then need to deal with this information.		

GUIDE TO DEVELOPING PROJECT PROPOSALS AND TITLES (EPF1)

This guide is aimed at teachers, supervisors and project co-ordinators and can also be shared with learners studying for the Level 3 Extended Project.

Learners theoretically can choose any research topic for the EPQ; it is after all **their** project. However, supervisors would be well advised to stress the following points during the initial topic selection stage:

- Projects do not have to be linked to a learner's higher education ambitions. However, if they do, this can be a useful tool in helping them to write their UCAS Personal Statement. It may also help them to demonstrate real enthusiasm for their chosen degree subject if they are called for interview.

- If you are doing a 5,000 word dissertation, the title **has to be a question**. In other words titles such as 'Investigate the influences of Thomas Hardy's writing on 19th century English literature' are not appropriate.

- Artefact projects are **not** phrased as a question but rather the completion of a task with set criteria, e.g. 'To manufacture a small scale trebuchet for less than £50 that has the capacity to fire a tennis ball more than ten metres'.

- Projects must be both feasible and manageable in the timeframe available. Titles such as 'Write one hundred short stories' will likely lead to failure as they involve excessive time commitments. Similarly, a dissertation such as, 'Explain which revolution in history has been the most important' is far too broad to work effectively.

- A dissertation question must be analytical, not descriptive. In other words, questions that begin 'to what extent' or 'how valid is it to say that' tend to work well, e.g. 'To what extent has German unification been politically and economically successful?' or 'The artistic influence of Picasso's cubism was short lived.' How valid is this statement? These questions allow the learner to provide a balanced analytical argument and a final judgement based upon evidence. Avoid questions that start 'What are' and 'How has' as they can lead to you simply describing developments, e.g. 'How has the British aviation industry developed since 1950?' or 'What are the features of a democratic state?' As a Level 3 qualification it is not enough to simply 'tell the story' of a particular event or development. Rather the learner has to analyse the material to reach **their own** clear conclusions.

- Avoid dissertation titles that speculate about the future. How can you possibly reach evidence based conclusions if you are talking about future events? For example, the following questions would not be suitable for an EPQ:

a. 'By 2030 all cars will be driverless.' How valid is this statement?
b. 'Manned space missions to Pluto will be possible in the next twenty years.' How far do you agree with this statement?
c. 'The NHS as we know it will not exist in 2030.' How valid is this opinion?

- If you decide to complete a group project with someone else, your title must emphasise your individual responsibility for the joint outcome, e.g. two learners decide to put on a school play. One learner's EP title might be, 'To write a school play for Year 7 learners that focuses upon the theme of Shakespeare's life.' The second learner's title may then be, 'To produce the scenery and costumes for a new school play on Shakespeare's life set in 1960s Britain.'

- Remember that the EP is about research rather than creativity. This is especially important for those learners who are planning artefact or live performance outcomes, e.g. the learner might compose a fantastic symphony but s/he would not achieve a high grade unless they could demonstrate the research carried out and how this research had influenced the final outcome. Simply 'being inspired' is not enough.

- Avoid topics/questions that link too closely to one of the learner's A Level subjects. This is called 'dual accreditation' and is not allowed.

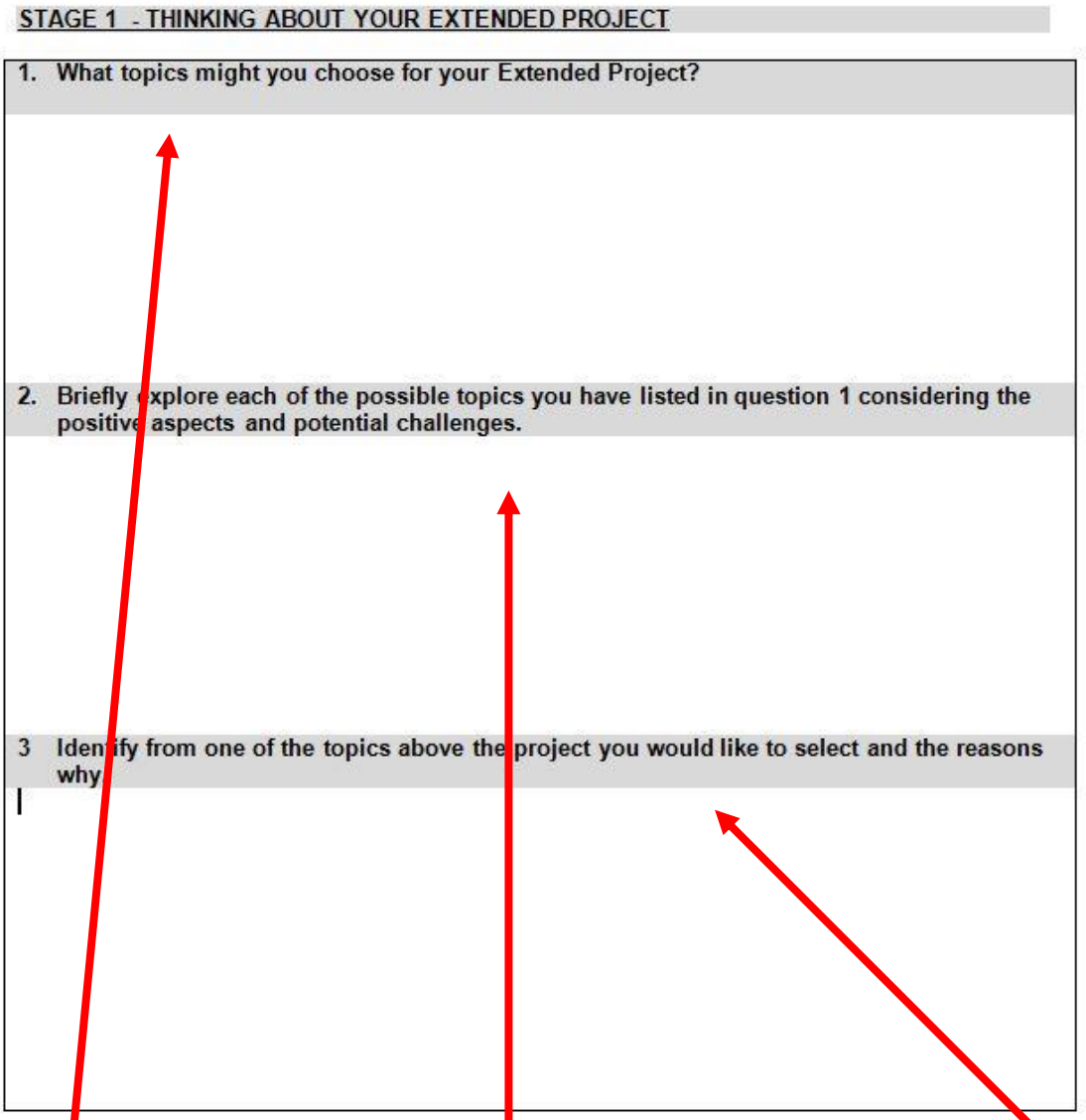
- The learner is allowed to amend questions in-light of his/her on-going research. This is because s/he might find very little material on the topic area initially selected but a great deal on a related topic.

- Avoid overly long and complicated questions. Keep it simple.

Once a learner thinks s/he has the right question, initially at least, they should complete the **Stage 2** section in the EP log and inform their supervisor. The Supervisor should then provide a feedback comment in the log. If s/he thinks the question/title is fine, the Centre Co-ordinator should then be informed as s/he needs to give final approval in the **Stage 3** comment box. If it looks fine s/he will give full approval. If it is suggested that some changes be made to the title, 'partial approval' may be given, subject to the changes being made. If there is a major problem with the title it should be rejected and the learner will have to resubmit.

Under no circumstances should the learner go ahead with a project until it has been approved. Remember too that if you later decide on a major change of direction, e.g. your original EP was focused on a geography dissertation topic but you later decide to focus instead upon ballet related live performance, you will need to resubmit the new title for approval.

In terms of guiding learners, care should be taken to emphasise the importance of EPF1. This part of the process should not be rushed as to embark upon a flawed topic and/or question will only lead to problems later on. The following may help to clarify the requirements further:



This is for the learner's initial 'blue sky thinking', i.e. they should think of as many possible topics as they can and identify them here. A bullet point list is fine. Be open minded about possible areas of research.

For each topic identified above, now think about the possible advantages and disadvantages of each one. Don't bullet point in this section but instead use continuous prose.

When you have carried some initial research into the stated possible topics, s/he should identify the chosen topic here and explain the reasons for the choice. The learner should not complete this box until they are sure.

4. What are the aims and objectives of your selected project? (maximum of 4 objectives)

5. Is this an individual project? Yes ☐ No ☐

For group projects, please state what your individual role is and the roles of the other members of the group.

My role is:

The other group members' roles are:

(a)

(b)

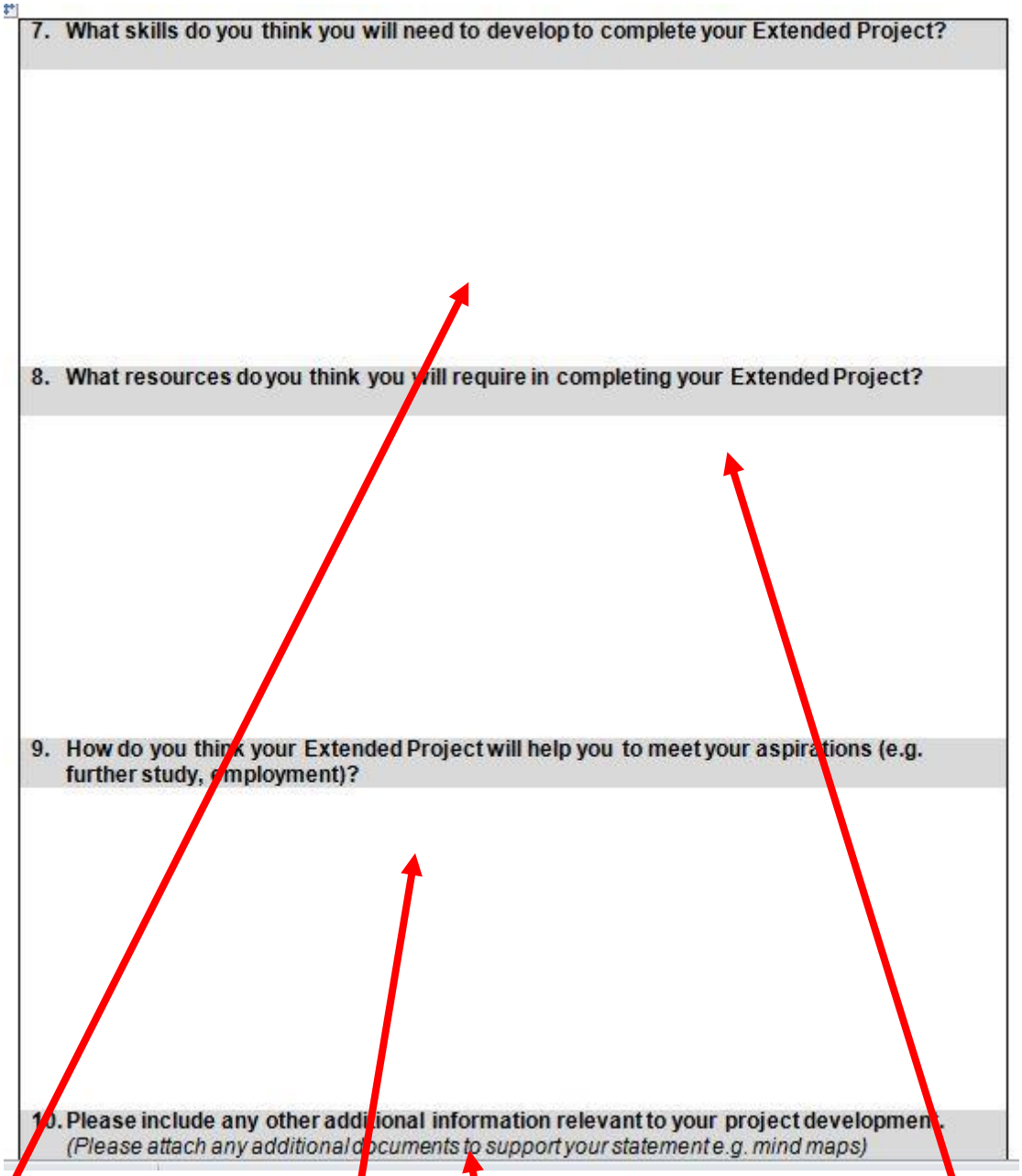
(c)

6. What type of project will this be: dissertation/field investigation, artefact, design or performance? Why is this type of project appropriate to your selected topic?

Here the learner should identify the aims & objectives for the project, i.e. what s/he is setting out to achieve. Are the objectives SMART (Specific, Measurable, Attainable, Relevant, Timely)?

Here identify the type of project and explain why the format is appropriate for the topic e.g. *'I am investigating the different causes behind the Russian Revolution. Therefore a 5,000 word report will allow me to explain and analyse how the different factors contributed to the event.'* Check that the learner is filling in the correct template for their chosen project; if not, s/he will have to copy and paste the work at a later date into the correct template.

If the learner is involved in a group project, s/he must tick 'YES' and explain CLEARLY the specific focus of each member of the group. Be aware that we DO NOT recommend group projects as ultimately a learner's project could be undermined by another who does not complete their work.



For example, think about ICT, research skills, project management skills, reflective learning skills, problem solving, extended writing, manufacturing, analysing primary data, academic referencing and use of recording equipment.

For example, for a 5,000 word report think about articles, books, websites, documentaries, interviews and survey questionnaires. For artefact based projects, think about specialised equipment, software packages and health & safety equipment. For all projects, time is also an important resource to explain in terms of your approach.

Explain how this project links to either his/her personal interests or university ambitions e.g. knowledge and/or skills development.

Section 10 – if the learner has any additional material s/he wishes to include in terms of initial planning, insert it here e.g. a hand drawn spider diagram of planning ideas.

Example exercise – Project Titles

For Teachers

The feedback and comments on the exercise on project titles are stated below. These explanations should assist project co-ordinators, teachers and supervisors when discussing project topics and deciding on what project titles are appropriate for their projects.

Title	Dissertation or Artefact?	Approved/ conditional/ not approved	Comments
To what extent is the justice system successful?	Dissertation	Conditional	Title too broad - suggest to consider including 'where', type of crime, justice system successful for what age group? Title to be further refined in-light of on-going research.
What are the ethical approaches towards abortion/euthanasia?	Dissertation	Conditional	A worryingly big subject to write 5000 words successfully - possible title 'How do the ethical approaches to abortion compare with the ethical approaches to euthanasia?'
How far are mental health issues, including self harm increasing for 17-18 year olds?	Dissertation	Not Approved	It is best to avoid such topics due to possible concerns regarding safeguarding.
How domestic violence within a household affects children and youths	Artefact	Conditional	Could you clarify what 'artefact' the pupil will make? Could be a safeguarding issue here to explore.
The Economics behind the 2008 UK Recession and how will the British Economy recover over the next decade.	Dissertation	Conditional	As a general rule it is best to avoid two part questions. A focus on the causes of the recession would be better than the second part which, by looking into the future, will prove difficult to arrive at evidence based conclusions.
'Outcast', An Oil Painting Inspired by Banksy and Japanese Manga	Artefact	Approved	This title clearly states what the project is about.

Title	Dissertation or Artefact?	Approved/ conditional/ not approved	Comments
How does speech problem arise in children and boys and girls develop speech differently?	Dissertation	Conditional	Need to re-word/split question, suggested title 'How does speech problems arise in children?' or 'Why do boys and girls develop speech differently?
What were the key events that lead to the result of WWII?	Dissertation	Conditional	Need to be re-worded - suggested title 'How did the allied powers change defeat into victory in WWII?' This should help the learner to be analytical rather than descriptive.
Coastal inspired fashion show	Artefact	Conditional	Could you clarify what 'artefact' the pupil will make? If it is to be a show, the learner will need to be realistic if the project is to remain manageable.
What has influenced literature of the 21st Century and how has it changed over time?	Dissertation	Conditional	Title too broad - it is very difficult to see what pupil's strength and interests are from this question - needs to be more specific.
Is the new legislation on 'bedroom tax' fair?	Dissertation	Approved	This title provides scope for investigating both sides of the debate and drawing conclusions.
How has nursing changed over time and what has influenced these changes?	Dissertation	Conditional	Title too broad and likely to produce a very descriptive outcome. A possible alternative would be, 'The most significant change in nursing since 1990 has been…(select a factor)…' How valid is this statement?
An investigation into "nightmares" and what causes them.	Dissertation	Not Approved	How is the learner going to try to prove what causes nightmares and how will they back this up with valid research? This title needs a re-think as it is too subjective.
Should the NHS fund teeth whitening for cosmetic purposes?	Dissertation	Conditional	Ethical and financial issues are open for research here but there is a danger that the learner may arrive at conclusions that are subjective rather than evidence based. Avoid small scale survey questionnaires that lack any kind of validity!

Title	Dissertation or Artefact?	Approved/ conditional/ not approved	Comments
What are the effects of ageing on a brain at different stages in a person's life	Dissertation	Not Approved	Age range needs to be more specific and specify what area of brain you are looking at, otherwise it is just too broad.
Do small terrier dogs interact more affectionately with adults or children?	Dissertation	Conditional	This will be interesting to find out, and maybe you also need to think about why? (e.g., adults tend to feed the pets, so could it be "cupboard love"?)
How does sleep deprivation affect the learning in children aged 8-10 years old?	Dissertation	Conditional	Learner must be certain that this is the right age group to focus on, as it may be easier to collate information of her own peer group.
How have space probes improved our knowledge of Jupiter's Galilean moon?	Dissertation	Conditional	Amend title with a defined time period.
To investigate and understand different learning styles by observing primary school pupils	Dissertation	Conditional	Needs to be phrased as a question and clearly ethical and moral guidelines need to be followed. Learner will need to apply an age range as primary school is 5-11 years and therefore too vague.
Research into awareness of ibuprofen affecting asthmatics as well as the lining of the stomach	Dissertation	Conditional	Again, this needs to be phrased as a question and the learner may need to concentrate on one, either asthma or stomach; otherwise s/he could get overwhelmed.
Are cancer treatments having an effect on life expectancy?	Dissertation	Not Approved	S/he needs to define which cancer will be investigated; at present this is too vague. Ethical/moral guidelines need to be followed.

For Learners

You are going to become a title approver for a day! Working with a partner or in a small group, you need to review each of the proposed titles in the table below and decide whether you would approve, conditionally approve or not approve them. But, you can't simply return the titles without feedback – you need to offer comments and include some possible amendments to the titles.

Title	**Dissertation or Artefact?**	**Approved / conditional / not approved**	**Comments**
To what extent is the justice system successful?	Dissertation		
What are the ethical approaches towards abortion/euthanasia?	Dissertation		
How far are mental health issues, including self harm increasing for 17-18 year olds?	Dissertation		
How domestic violence within a household affects children and youths	Artefact		
The Economics behind the 2008 UK Recession and how will the British Economy recover over the next decade.	Dissertation		
'Outcast', An Oil Painting Inspired by Banksy and Japanese Manga	Artefact		
How does speech problem arise in children and boys and girls develop speech differently?	Dissertation		

Title	Dissertation or Artefact?	Approved/ conditional/ not approved	Comments
What were the key events that lead to the result of WWII?	Dissertation		
Coastal inspired fashion show	Artefact		
What has influenced literature of the 21st Century and how has it changed over time?	Dissertation		
Is the new legislation on 'bedroom tax' fair?	Dissertation		
How has nursing changed over time and what has influenced these changes?	Dissertation		
An investigation into "nightmares" and what causes them.	Dissertation		
Should the NHS fund teeth whitening for cosmetic purposes?	Dissertation		
What are the effects of ageing on a brain at different stages in a person's life	Dissertation		
Do small terrier dogs interact more affectionately with adults or children?	Dissertation		

Title	Dissertation or Artefact?	Approved/ conditional/ not approved	Comments
How does sleep deprivation affect the learning in children aged 8-10 years old?	Dissertation		
How have space probes improved our knowledge of Jupiter's Galilean moon?	Dissertation		
To investigate and understand different learning styles by observing primary school pupils	Dissertation		
Research into awareness of ibuprofen affecting asthmatics as well as the lining of the stomach	Dissertation		
Are cancer treatments having an effect on life expectancy?	Dissertation		

GUIDE TO PLANNING

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Planning is a vital element of a successful project. Many learners, however, may be tempted to take planning for granted; for this reason, it is important to make them stop and think. Firstly, very few learners will have prepared an assignment within this kind of extended time period. Similarly few, if any, will have written a 5,000 word dissertation before. Equally important, however, is that Assessment Objective AO1 LO2 looks at the extent to which learners have an '*effectively designed and thorough project plan*' which also sets '*realistic targets*' and '*prioritised goals*'.

In their planning, learners can use a number of appropriate tools. Mind maps are a well known way of producing initial plans and a means of showing links and connections. These are valid elements for a learner to upload as part of their initial thinking. The next stage might be to consider how the learner can break down tasks over a given time period. A flow chart or timeline approach can work well here. Many learners opt for a Gantt or PERT Chart, produced on a computer. However, this again depends upon the type of project being undertaken. It should also be stressed to learners that examples of their thinking behind plans is useful i.e. here they can again demonstrate decision making and problem solving skills.

Above all, it is important that each element of the project is planned; for example, there would be little point in producing an initial research plan if there was later no evidence of a presentation plan and a final outcome completion plan. With each of these, moreover, changes to the project plan are not necessarily seen as a negative by the moderator. Indeed, in some cases, dealing with unforeseen events can demonstrate a learner's ability to be flexible and pragmatic.

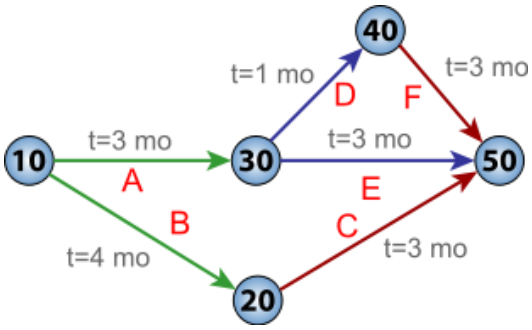
Example Time Management Handout

Some possible approaches to time management - theory, practice and application

jasastyle/Getty Images

This handout provides a brief overview of some common approaches to time management. Read each one and then make a note to help you recall any advantages/disadvantage you can think of for these approaches. You might also like to rank them in order of favorite to least favorite to help you think about which might best suit you.

1. **PERT chart** - PERT stands for Program, Evaluation and Review Technique. Originally the PERT chart was created to support military projects. In essence, PERT charts seek to create meaning between tasks which might otherwise appear disconnected. Tasks can be related to each other and the time taken to complete each task indicated on the chart.



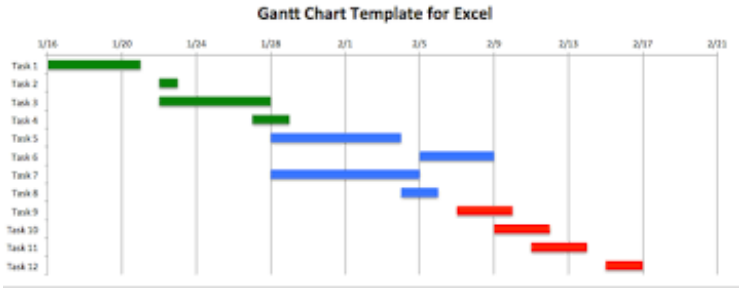
Your comments/reflections on PERT charts (could this approach work for you?)

……

……

……

2. **GANTT chart** – the Gantt chart is a graphical way of presenting project management. In many respects the chart is similar to a bar chart in which the vertical side lists the tasks to complete and the horizontal line indicates the time required to complete each job. Coloured blocks show the starting and finishing points for each task.



Your comments/reflections on GANTT charts (could this approach work for you?)

……

……

……

3. **Personal goal setting and goal setting theory -** this approach is one you may be familiar with already from your tutorials. Goal setting theory suggests there is a direct correlation between establishing goals and success. However, goals have to be very carefully considered and laid out for them to truly work. Goals have to be SMART - Specific, Measurable, Action-based, Realistic and Time-bound. You must write a challenging and convincing goal and there must be real clarity about the goal set. You also need a clear time frame and space in which to constantly reflect.

Your comments/reflections on goal setting (could this approach work for you?)

……

……

……

GUIDE TO RESEARCHING AND REFERENCING

In terms of organising their research, learners should be taught to organise their notes thematically rather than simply by source. Such an approach will certainly aid the synthesis of material at the final production or write up stage. Similarly, it is vital that the source of all material is carefully noted. For AO2 LO3 a learner will not be able to reach Band 3 unless s/he can demonstrate that '*All resources are acknowledged and referenced using a recognised form.'*

In this sense, referencing is important as it highlights exactly how the learner has applied his/her research. It also acknowledges that the material is not the learner's own theory or data and hence helps to avoid plagiarism. Thirdly, learners need to appreciate that footnotes can also be used to develop a point made in the dissertation, without interrupting the flow of the main argument.

Many university learners choose to use the Harvard method of referencing and many EPQ learners tend to follow suit. However, this decision will depend upon the nature of their project. Most British university websites have advice and guidance on referencing and avoiding plagiarism. Some useful sites include:

http://www.citethisforme.com/guides/harvard

http://www.bristol.ac.uk/arts/exercises/referencing

https://www.ox.ac.uk/learners/academic/guidance

In terms of further support, Centre Co-ordinators could look at the free eight week on-line EPQ support course provided by Future Learn in association with Southampton University. This can be found at:

https://www.futurelearn.com/courses/research-project

GUIDE TO PRESENTING EVIDENCE

Learners need to be encouraged from the very start of the project to think carefully about how they will present their project evidence at the time of final submission. The main evidence, whether the project is being e-submitted in terms of uploaded files, or as a traditional hard paper copy, must include the following evidence:

- Learner Declaration Form
- Learner Record
- Project Outcome
- Project Presentation evidence from the learner and the Supervisor's Presentation Witness Statement
- Final Assessment Mark Sheet
- Internal Moderation Form

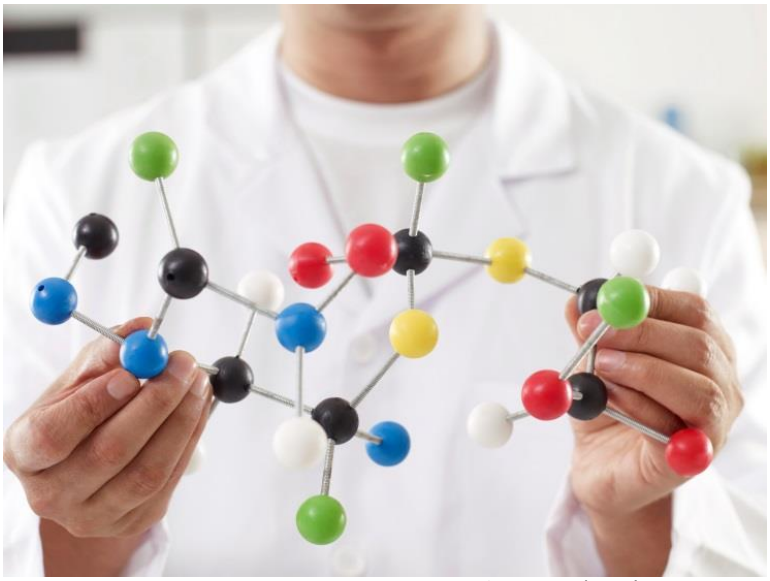
Learners may include additional evidence which they feel is appropriate in an appendix; for example, a clean copy of a survey questionnaire. However, they should avoid uploading or printing off the specific content of their research, for example, survey questionnaire returns. The analysis and interpretation of any such information and numerical data should fall in the main body of the project itself. In particular it should be noted that bulky, heavy, fragile and material of sentimental or intrinsic value **MUST NOT** be posted at the time of moderation.

All learners must also include a list of references/foot notes and a bibliography of all sources accessed during the research phase. Some learners can be confused here, thinking that a reference list constitutes a bibliography. Moreover, the dates websites were accessed should be included here, just as the particular edition of a book would be similarly identified.

Finally, in terms of the evidence submitted, learners should be encouraged to consider carefully their final conclusion. In particular, they should be aware that:

- all conclusions must be evidence based, not merely subjective opinions
- conclusions should relate directly to their approved question title
- conclusions should explicitly address the extent to which the identified aims and objectives of the project have been met
- conclusions should be developed and of some substance, e.g.. a three sentence conclusion to a 5,000 word dissertation would undoubtedly not hit the AO3 LO6 mark

GUIDE TO SCIENCE-BASED PROJECTS



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The majority of science related Extended Projects tend to be in a dissertation format with a key idea or hypothesis at the heart of the question. However, artefact projects with a scientific theme can again work well, for example, producing an exhibition on astro-physics aimed at KS3 pupils or writing a stage play centred on the theme of medical ethics. Some learners may also take the opportunity provided by the EPQ to link their interest in science with other curriculum areas such as computing or design & technology; for example, in recent years learners have produced a camera gimbal; programmed and manufactured a working quad copter and created a science related website.

Given the specialist nature of the topics, learners are likely to seek further guidance from either their science teachers or science department technicians, especially if the project involves carrying out experiments. It is normal practice for schools to have rigorous health and safety policies and hence a learner would automatically be expected to carry out a detailed risk assessment as part of his/her research. In addition, learners may be able to elicit support from university departments via email. Although many lecturers may not respond, evidence shows that some do, being ready to support A Level learners who are working in their area of specialism.

National organisations are also showing increasing interest in the Extended Project and therefore the following may be of interest to your learners:

Organisation	Website	Focus
The Ogden Trust	www.ogdentrust.com	Aims is to maximise the opportunities available to young people in all parts of the UK's educational system and is now focused on science, particularly physics. The Trust supports a range of initiatives, programmes and projects to promote the teaching and learning of physics
The Institute of Physics	www.iop.org	Provides case study examples and EPQ support materials
The National STEM Learning Network	www.stem.org.uk	Is dedicated to raising young people's engagement & achievement in STEM and increasing the numbers of young people progressing in STEM studies and related careers post-16
Royal Society of Chemistry	www.rsc.org	Provides a series of educational resources aimed at both teachers and learners
Wellcome Trust	www.welcome.ac.uk	Provides detailed ethical guidance for anyone pursuing a science related EP
Royal Society	www.royalsociety.org	To recognise, promote and support excellence in science and to encourage the development and use of science for the benefit of humanity

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Although the majority of learners follow the traditional dissertation route with their EP, a number prefer to produce an artefact instead. Artefacts come in many different forms but essentially involve the learner producing or manufacturing a physical outcome; for example a documentary film, a series of short stories or a camera gimbal. In other words, an artefact based project allows the learner allows the learner to be more creative and pursue an area of particular interest.

Dissertation or artefact?

Both dissertation (written) projects and artefact (non-written) projects can be equally valid and score well against the assessment criteria. Learners can incorrectly believe that an artefact based project, such as making a short film, writing a series of short stories or designing and manufacturing a bomber jacket is an easy option as it involves writing just 1500 words rather than 5,000. It is not; if anything artefact projects involve **more** work as the learner has to research both the **content and nature** of the artefact itself, e.g. if a learner decided s/he wanted to teach an introductory lesson on Shakespeare to a Year 7 class, s/he would not only have to research the literary content but also the topic of teaching and learning – lesson planning; literacy levels; assessment methods, etc. Similarly, a learner who is planning a documentary on genealogy would not only have to research their family tree but would also explicitly have to research the making of such documentaries and the associated technical issues such as sound engineering and editing software.

Finally, advise your learners against weak artefacts that are unlikely to meet the demands of a Level 3 qualification. For example, a learner who wants to create a football fan magazine may think s/he can simply print off some images from the internet and staple a booklet together. However, does the learner have the right to use the images selected? Has the magazine been

costed and a profit margin per copy identified? Has the 'magazine' been presented to a high standard?

The best artefacts have clear aims and objectives and are rooted explicitly in research. A common pitfall is that learners can focus more on the creativity and manufacture side and thereby neglect the essential research element. Instead, they must demonstrate how the research has influenced the design and manufacture of the outcome, which itself is of a high standard. Moreover, the learner's conclusion should include a detailed evaluation of the artefact and its fitness for purpose. To this end, learners should be encouraged to incorporate specific success criteria when submitting their title for approval. In this sense, an artefact proposal is different from a dissertation.

Examples of well framed artefact projects would include:

- To produce a scale model of a trebuchet for under £100 that is capable of throwing a tennis ball over ten metres.

- To manufacture a leather bomber jacket for under £100 using the school laser cutter.

- To write and produce a short film on the Syrian refugee crisis aimed at learners of sixth form age

It is also important to note that a learner who produces an artefact should keep a Development Record of how the artefact has been designed and produced. The analysis of data and information should be contained in the Development Record as it must inform the design of the artefact. A copy of the final design should be included with some explanation of why the design has been chosen (critical thinking and problem solving skills). The learner must capture how they have produced the artefact and include evidence of any practical skills they have developed in preparation for the production of the artefact. The Development Record can be presented in any visual form, for example a scrapbook, PowerPoint, Prezi, etc.

GUIDE TO PERFORMANCE-BASED PROJECTS

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Some learners, especially those specialising in theatre studies and music, are often keen to produce a performance related Extended Project. Such projects can work well, provided certain guidelines are followed.

- Centres must explicitly confirm when title approval is given that the performance work submitted for the EPQ does not overlap with A Level course content; for example, in the case of music, a composition submitted as part of an A Level Music course, cannot be submitted as an Extended Project. The key principle here is avoiding dual accreditation.

- Learners must remember that the EPQ is centred upon research, not creativity. Hence, if a learner wrote and acted out a short play, s/he would need to explicitly show how the research had shaped the outcome. This means that as part of the learner's work, we would expect to see evidence of research into the work of playwrights in addition to research into the content of the play itself. It is not enough to simply be 'inspired' to produce an outcome in a certain way. The development of the outcome needs to be fully documented and explained.

- Performance related EPs often appeal to pairs or groups of learners; for example, two learners may decide that they would like to put on a school musical. If this is the case, the learners must identify from the very start which aspects of the final outcome they are taking responsibility, for example. although a single outcome is produced, the work of each individual is assessed separately. Hence, in the case of a school musical, one learner may take responsibility for musical direction whilst another has responsibility for costumes and scenery.

- Learners must be encouraged to keep their projects manageable; in the case of performance related EPs this can be a challenge. Always encourage learners to think realistically, i.e. composing and performing two tracks, one in the style of Bob Dylan and the other in the style of Lilly Allen, would be preferable to a learner who proposes to produce a ten track album or a symphony. Although we should not diminish the aspirations of our learners, similarly we must not set them up to fail. Ultimately the decision is theirs but the advice we give must be clear.

- Thought must be given to the form in which the evidence is going to be submitted. Uploading the necessary sound files to the WJEC e-submission platform should be straightforward for centres but if hard copies are being sent, the formatting of the material needs to ensure that it is accessible to a moderator. With this in mind it would be helpful if CD/DVD submissions were compatible with Microsoft Windows. Similarly, all such material should have the following information clearly highlighted:

  a) Centre name and number

  b) Candidate name and number

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Some learners may want to include fieldwork as part of their EPQ research. This can be highly effective, provided the learner ensures that:

- The fieldwork is planned in detail
- The fieldwork is supported by other research
- A written methodology is included
- The fieldwork is carefully documented, for example, in terms of film, annotated photographs and/or field notes
- The analysis of the fieldwork is thorough, for example, in terms of written, data and graphical analysis
- The fieldwork in question is not being submitted for a second qualification and would thereby break the dual accreditation regulation

As with any practical research, fieldwork can pose logistical difficulties, for example, due to weather or transport issues which in turn can cause problems of time management. Again, the supervisor needs to encourage learners to be above all realistic in planning fieldwork and to, if appropriate, complete a risk assessment.

8. GLOSSARY OF KEY TERMS

KEY TERM	DEFINITION
Abstract	A short summary of the main points, usually located at the start of the dissertation or report.
Aims & objectives	What a learner seeks to achieve in completing his/her EPQ.
Argument	A developed case that includes different elements such as reasons, evidence, examples, hypothetical reasoning and a conclusion.
Analysis	To study and breakdown source material, thereby identifying key features, concepts and ideas.
Assertion	An unsupported claim or statement.
Bibliography	A list of all research materials used, usually listed by type i.e. articles, books, journals, websites etc.
Conclusion	The key point or theory that an argument seeks to persuade the reader to accept.
Counter argument	The other side of the debate, analysed to provide analytical balance.
EPF	A WJEC 'Extended Project Form' that is part of the Learner Record.
E-submission	A free on-line EPQ submission system provided by WJEC, please visit the EPQ page on the WJEC website for further information.
Ethical guidelines	Important rules that all researchers working in sensitive fields such as medicine and psychology must follow.
Footnotes	Often used to acknowledge the origin of a point made in the body of dissertation or to develop a point further, without disrupting the flow of the main report.
Gantt Chart	A planning tool that allows a researcher to plot tasks against a timescale.

Mind map	A linked diagram that allows a researcher to develop ideas and connections.
Peer review	The process of quality assurance often carried out in scientific research fields whereby acknowledged experts validate a study or article before publication.
PERT chart	Programme Evaluation and Review Technique to give it its full title. A planning tool that allows a researcher to break down an extended task by showing how different elements are linked together.
Plagiarism	Intellectual property theft, i.e. pretending that the work of someone else is yours.