

Webinar on Preparing for CBA1: Extended Experimental Investigation and the SLAR meeting

The following documents contain common questions posed by teachers about the Extended Experimental Investigation and the SLAR meeting and contributions they shared during the webinar.

Questions and Answers on the Extended Experimental Investigation

All references to “Assessment Guidelines” pertain to the “Junior Cycle Science Guidelines for the Classroom-Based Assessments and Assessment Task” (Second Edition: For use with CBA 1 April-May 2018), available at <https://www.curriculumonline.ie/Junior-cycle/Junior-Cycle-Subjects/Science>.

At what stages of the Extended Experimental Investigation can students work in groups and what is the recommended group size?

The Assessment Guidelines (pages 15-17) state that students may work individually or in groups for questioning, predicting, planning and conducting their investigations as well as while reflecting on their work. At the end of the planning session, students should work on their own to write their Investigation Plan, which should take no more than a single class period to complete. Appendix 1 of the Assessment Guidelines provides a template for this. Processing and analysing of data must be done individually and students must also work individually to compile their report.

The Assessment Guidelines do not dictate the size of the group in which a student may choose to work. In this case, normal classroom practice would prevail.

Can the CBA be carried out outside the four-week window if a teacher knows he/she will be out or if students will be missing for some classes?

The window for completion of the CBA is 3 weeks to be chosen in the 4-week time period from 20th April -18th May. As per the Assessment Guidelines (page 13), “The timing of the process may vary from school to school as the timeline ... offers a degree of flexibility for schools to schedule the CBA to a time within the specified time period”. So, if a teacher knows that they or some of their students will be out for some time during this window, then they can plan accordingly to carry out the EEI within 3 weeks of time that they will be available, but the CBA must be completed between 20th April-18th May.

The Guidelines also state that (page 17) “As a rule of thumb, it should be possible to complete the practical work and data collection in approximately half the time allocated for the EEI.” Teachers can make local decisions based on their circumstances, taking into account that the practical work and data collection should take approximately a week and a half during the 4-week window 20th April-18th May.

Can I get students to submit their plan maybe before the "three weeks" start? That way I can ensure I have all the required chemicals.

On page 15 of the Assessment Guidelines, it states that over the course of three weeks, students will engage in four activities in the Extended Experimental Investigation. One of these activities is 'Planning and Conducting', so this falls within the three-week window.

Can students be given the list of topics before the four-week window? Can they be thinking of ideas before the start date?

The topics for the EEI are areas that students may have experienced throughout 1st and 2nd year science class, and areas they might have personal interest in. As such, it is accepted and encouraged to give students the topics while developing them as investigators. At the end of each investigation that they would undertake, they could, for example, discuss and write down ways in which they could extend that investigation further. Page 13 of the Assessment Guidelines states that “students.....should be encouraged to identify scientific concepts, ideas and

applications that they want to know more about, or investigations encountered that they would like to extend by introducing some degree of complexity.” If the investigation involves one or more of the topics from the EEI, these ideas could be used during the Classroom-Based Assessment.

Can the whole class do the same topic?

You need to find the balance between guiding the class and giving student choice. The Assessment Guidelines (page 12) state clearly that under normal circumstances each group or student should complete a different investigation. But that doesn't mean the whole class can't do the same topic or topics - It could be a case that the whole class were involved in a lot of investigative work around the topic of water, for example, and this was an area they really flourished in, which piqued their curiosity, and they might have come forward with lots of investigation ideas in this area. In this case, student choice prevails. Also remember that there could be more than one topic within a topic. For example, your whole class could be interested in the theme of 'water', but they could be choosing different topics for investigation under that theme – for example, chemical reactions in water, plant growth/behaviour in water, forces in water, energy conversions in water, and so on, therefore incorporating so much scope for student choice.

What questions or hypotheses are suitable for the Extended Experimental Investigation?

Students could develop questions based on their natural curiosity, areas of interest, and possibly based on areas they might have come across in Science class. Pages 15 and 16 of the Assessment Guidelines state that “the question to be tested should meet the following criteria: It is driven by the scientific understandings of one or more of the topics, it is open-ended, it lends itself to a testable hypothesis.” The criteria stated for the hypothesis (page 16) are: “It defines and links the variables, it is testable, its testing is manageable.”

What is meant by reasonable support? Are we expected to correct drafts of the reports?

Pages 8 and 9 of the Assessment Guidelines give the following information about reasonable support. “Reasonable support may include: Clarifying the requirements of the task, using annotated examples of student work provided by NCCA to clarify the meaning and interpretation of the Features of Quality to students, providing instructions at strategic intervals to facilitate the timely completion of the investigation and report, providing supports for students with special educational needs (SEN) as outlined below.

It is not envisaged that this level of support requires teachers to edit draft reports, or to provide model text or answers to be used in the student's evidence of learning.”

How can we support students with special educational needs?

The Assessment Guidelines (page 9) state that “Special provisions may be put in place for a student with a specific physical or learning difficulty to remove as far as possible the impact of the disability on the student's performance in both Classroom-Based Assessments and the Assessment Task so that he or she can demonstrate his or her level of achievement. The accommodations – for example, the use of Irish Sign Language, support provided by a Special Needs Assistant, or the support of assistive technologies – should be in line with the arrangements the school has put in place to support the student's learning throughout the school year and are not designed to compensate for a possible lack of achievement arising from a disability.”

Do we give feedback on the Investigation Plan?

Page 16 of the Guidelines has the following information for teachers with respect to feedback on the Investigation Plan. “Where a teacher has to provide assistance in the design of the investigation – because, for example, the proposed method was dangerous, incomplete, or unworkable – this should be recorded by the teacher for

consideration when judging the level of achievement of the work. However, where a method is good, but unworkable or unmanageable for logistical reasons, the teacher may suggest changes and this should not affect the ultimate level of achievement awarded to the work.”

Can some of the work for the CBA be carried out at home or in the field? Can they write some of their report at home?

It is up to the teacher to decide if it would be appropriate for some aspects of the work for the CBA to be completed outside the classroom setting, e.g. in the case of ecological investigations, where students may sample/test in a habitat. The teacher must ensure that the work completed is the students' own work, and that students have had sufficient opportunity to provide evidence of achievement across all of the Features of Quality for the CBA. This is helped by teachers ensuring that students are "familiar with and understand the Features of Quality used to judge the quality of their investigation. This is best achieved when students use success criteria for ongoing assessments throughout first, second, and third year" (Assessment Guidelines, page 13). Teachers can check in regularly on students' progress through their ongoing research records, where they could, for example, document actions taken, data collected, interesting observations and next steps following CBA work in different settings.

Regardless of setting, it is important that teachers remind students of the importance of safe working in carrying out their investigations. So, if students are working in locations outside the classroom, consult your school and department policies concerning use of equipment outside of school grounds and supervision of students in these contexts.

What format should reports take and how long should they be?

Page 18 of the Assessment Guidelines states that “students will report their research and findings in a format of their choice. If a typed or hand-written report is the format of their choice, the total length of the report would typically be in the 400-600 words range (excluding tables, graphs, reference lists and research records), but this should not be regarded as a rigid requirement. EEs may be effectively presented in other formats but care must be taken that all the work can be judged on the final product alone. For example, a poster presentation may allow students to show that they can select and present highlights of their investigation, but it may be prudent to include a short, written report to communicate any work related to the investigation that is not presented on the poster. When planning the content of their report, students should be familiar with the Features of Quality used to judge the level of achievement which will be awarded to their work.”

How do we assess the work using the Features of Quality?

Page 7 of the Assessment Guidelines describes how to use the Features of Quality as follows: “When using the Features of Quality to assess the level of student achievement in a Classroom-Based Assessment, teachers use ‘on-balance’ judgement. The teacher should read the Features of Quality (starting with Yet to meet expectations) until they reach a descriptor that best describes the work being assessed. Where it is not clearly evident which descriptor should apply, teachers must come to a judgement based on the evidence from the student’s work to select the descriptor that best matches the student’s work overall. This ‘best fit’ approach allows teachers to select the descriptor that ‘on balance’ describes the work being assessed.”

Does the CBA count towards the SEC grade at the end of Third Year?

The SEC component includes student achievement in the assessment task and the final assessment towards the end of third year. CBAs do not form part of the SEC component. The Junior Cycle Profile of Achievement will document achievement in CBAs and for the SEC component separately.

Questions and Answers on the Subject Learning and Assessment Review meeting

All references to “Assessment Guidelines” pertain to the “Junior Cycle Science Guidelines for the Classroom-Based Assessments and Assessment Task” (Second Edition: For use with CBA 1 April-May 2018), available at <https://www.curriculumonline.ie/Junior-cycle/Junior-Cycle-Subjects/Science>.

Should every Science teacher in a subject department attend a SLAR meeting?

Section 2.12.3 of DES circular 0015/2017 states that (page 16) “When students have completed CBAs, the CBAs will be assessed by the students’ teachers, and the outcomes will be reported to the students and parents/guardians. To support teachers in assessing students’ Classroom-Based Assessments, teachers will engage in Subject Learning and Assessment Review meetings (SLARs).” If you, as a Science Department, feel there is merit in other teachers attending, then you have the freedom at a local level to decide if they do attend and the nature of their involvement at the SLAR meeting.

What if a teacher is absent on the planned date for the SLAR meeting?

The Assessment Guidelines (page 13) state that “It is important to set the times and dates for implementation as early as possible. The key date to establish at the outset is the timing of the Subject Learning and Assessment Review meeting for the EEI. In setting this date the school will be guided by its own local circumstances.” Ensuring that you have an agreed date at the outset for the SLAR meeting will help to ensure everybody is available to attend. If there is an unavoidable absence, local circumstances will dictate whether the meeting can be rescheduled or not.

Can a descriptor be appealed?

Queries in relation to the EEI, where they arise, will be dealt with by the school. (Assessment Guidelines page 22).

When does the SLAR meeting happen?

After the EEI has been completed, which is between Friday 20th April, 2018 to Friday May 18th, 2018. The latest date for the SLAR meeting is Monday May 28th, 2018 (Assessment Guidelines page 14). CBA and SLAR window dates are updated annually by the NCCA on www.ncca.ie.

What happens if consensus cannot be reached in a SLAR meeting?

In a SLAR meeting, teachers will “share and discuss samples of their assessments of students’ work and build a common understanding about the quality of students’ learning. This structured support for Classroom-Based Assessments (CBAs) will help to ensure consistency and fairness within and across schools in the appraisal of student learning.” (Framework for Junior Cycle, 2015, pages 8-9). It is through discussion that consensus about standards are reached. In the event that consensus cannot be reached, this should be noted in the facilitator’s report of the meeting.

Do you have to reassess all of the students’ work after the SLAR meeting?

“After the meeting, each individual teacher re-considers the judgement of their student’s work based on the outcomes of the meeting and where necessary makes the appropriate adjustments to the level of achievement awarded to the work.” (Assessment Guidelines page 21)

What if you do not have a sample from each descriptor?

You as a teacher, will nominate 4 samples of student work. One of the purposes of the SLAR meeting is to develop a shared understanding of standards and teachers should consider bringing samples to the meeting that they think would support discussion to develop this shared understanding. Having discussed with their departmental colleagues which samples they would like to share at the SLAR, the facilitator will generate a running order of samples of students' work to be considered at the SLAR meeting.

Are decisions shared with the Principal of the school?

The SLAR facilitator will complete a report based on the decisions and the outcomes of the SLAR meeting and this will be shared with the Principal of your school. You might like to keep a copy of the report for your department records and to inform future subject learning.

What do you do with the results, so that they can be put on the JCPA?

Further information in relation to reporting Classroom-Based Assessment descriptors for the JCPA is available from the DES at the following link <https://www.education.ie/en/Schools-Colleges/Services>Returns/Post-PrimaryOnline-Database-P-POD-Project/>

Does the SLAR facilitator get a time allowance?

Section 3.3 of Circular 0015/2017 states that (page 26) "An additional **two hours** will be allocated by school management to a teacher on a **rotational basis** for the **preparation and co-ordination** of each Subject Learning and Assessment Review meeting for an individual subject or short course, including providing confirmation to school management that the meeting has taken place and descriptors awarded and reported. This is **in addition to the 22 hours of professional time allocated** within the timetable for each full-time teacher from 2017/18 onwards."

Is the work returned to students or stored in the school?

Yes, the work is returned to the students once you, the teacher, have reconsidered the judgement of the student's work based on the outcomes of the SLAR meeting and the work has been awarded a final descriptor. The facilitator may also ask teachers, should they wish, to contribute some student work to a bank of examples:

- To support the induction of new teachers.
- To support further Subject Learning and Assessment Review Meetings.
- To use with students and parents in demonstrating the standard of work achieved.

How will the extent of teacher support given to students during the CBA be communicated during the SLAR meeting?

It is envisaged that teachers will guide and supervise throughout the process through 'reasonable support' (see pages 8 and 9 of the Assessment Guidelines). If a student requires more than what is deemed to be 'reasonable support', the teacher can make a note of the level of assistance provided.

Should the CBA replace summer tests?

Circular 0015/2017 section 2.12 states that (page 15) "There is a need to avoid 'over-assessment' and to minimise the cumulative burden on students and teachers of multiple assessments across the full range of subjects. In this context, the Classroom-Based Assessments will substitute other assessments currently undertaken in the school such as in-house examinations."

Examples of how you supported your students to develop their own investigation ideas

Below are contributions put forward by teachers during the webinar:

- We have done several investigations over the last few years so students have had practice with framing a hypothesis and finding an experimental method to solve it. We also do a lot of work on this in our science club.
- My students designed their own experiments to test the flow rates of different liquids and they surprised me with what they came up with!
- Emphasis on constructing hypothesis and verifying hypothesis. KWL charts, Post it wall, Questioning, Place mat
- I have given students opportunities to design their own investigation, bringing materials from home and even carrying out an investigation at home
- Given students equipment only and allowed them to design their experiment themselves using a brainstorm on a particular topic. Then let them try the experiment to see if it works, tailor it if needs be and try it again.
- Allowing students to choose areas of interest for investigation.
- Getting students to develop a list of any possible extensions of an investigation we have completed helps with generation of new ideas and research options.
- Posing real life questions - example why does your bike rust if you leave it outside?
- Brainstorming ideas, giving feedback and encouragement, listing the pros and cons of that idea, making out a hypothesis, is it testable and what method and equipment are needed.
- Introducing success criteria to students and allowing students to develop a method to test for specific item but allowing them to decide what materials and method may work to get the results they need/want. I have tried this with simpler experiments for photosynthesis and the results have been successful.
- Mystery Box containing certain materials that the students can design their own experiments from. We have tried one on rates of reactions and one on forces so far.
- Getting them to think about the science in their interests and hobbies, to see if they could carry out an investigation in this field.
- By asking open questions to allow students develop their own investigations.

What formats have your students been using to present the reports of their investigations?

Below are contributions put forward by teachers during the webinar:

- Posters, PowerPoints, Prezi, scrapbooks.
- Demonstrations.
- Traditional copy work, model making, oral presentation, posters, typed reports are methods of presentation used to date.
- Charts/posters, booklets, video/youtube, models.
- Students have used hand-written and occasionally typed up reports.
- Currently still using the traditional lab write up method. However after the recent cluster day - will be changing my approach with future investigations.
- Whiteboards, written reports, bubbles/mind maps, video/aural or oral presentations
- Some students using lap-copies. Others using video recordings of experiment and inputting into their lab copy using Aurasma app.
- Report writing via google classroom

What types of information do you think students might put into their research records?

Below are contributions put forward by teachers during the webinar:

- Should include background information, sources of information, any measurements taken.
- Results, lists of equipment, method, safety assessment, observations.
- Types of Info: method, diagram, results, mistakes they made.
- Their prior knowledge before completing the investigation, gaps in their knowledge and how their conclusions closed these initial gaps in knowledge.
- My students always include what they have learnt and improved on since their last investigation.
- Research = resources they have used, people they have spoken to etc. Revisiting this diary to make sure it keeps them on track within their own work.
- Background research, procedure, equipment, data recordings.
- Research records should include what they did, why they did it, data collected, whom they worked with, numeric or other observable data, whether hypotheses were supported or not. Post experiment reflection/evaluation/future development
- Research records: brainstorm ideas, list of materials needed, who brings in what, information from internet, diagram, prediction
- Research reports should include: references to resources and sources of information, any extra data recorded as part of the investigation that may not be in the final report, log of work covered etc
- Analysis of graphs

Examples of how your students reflect before, during and after they carry out an investigation

Common threads that came up in this area from lots of teachers during the webinar on 'Preparing for CBA1: Extended Experimental Investigation and the SLAR meeting' were:

- Asking questions
- Thinking before, during, after
- Going back to predictions, hypotheses, the way things were done, the way things turned out, where to next

Below are contributions put forward by teachers during the webinar:

- If the students have worked out their success criteria prior to their experiment they can then use these to reflect during and after completion of investigations.
- Prior to investigation: Why do you want to do the investigation? What do you think will happen? How will you do it?
During investigation: What did happen? What evidence do you have?
After the investigation: Why do you think that happened?
- I get my students to reflect on what they know firstly and what they want to know after the investigation (KWL). It gets them really thinking about how to approach the investigation.
- Students discuss in groups what they think will happen and whether their investigation is safe beforehand. During the investigation I would ask them what is happening and is it what they thought, and then afterwards

I would ask them again in their group to discuss their results and if they could do it again what would they do differently. Also, what do they think went wrong if things didn't go as expected?

- Getting students to explain their experiment to another student in the class. They will ask more questions and help students to reflect and hopefully progress.
- Before: Think Pair Share works well.
During: Pushing learning forward with Why/Why not/ What if questions as they work.
After: Did I answer the question? Did I get the result I expected? If not, did I carry out a fair test?
- Developing students using reflective worksheets with guiding questions which target students to look at a particular area with a fresh eye.
- I always get them to come back to their hypothesis. If they weren't correct, why not? What could they have done differently and what would they do the next time that is different? Have a reflection section at the end of every investigation they do so they get used to the process.
- Ask open questions - higher order, helping them to appreciate that the question may be more complex than they think.
- Before: predicting potential issues,
During: keeping good records of what has happened, from working with equipment to working with each other
After: getting them to write a reflection piece - guided fully to begin with, leaving it more open as they progress.
- Audio record in OneNote, group discussion and feedback to the class, reflective log in student journal.
- Ask inquiry questions that might lead students in a certain direction or trigger a different thought process. I give written feedback and ask students to pick out one point to consider for the next investigation.