



# A LEVEL BIOLOGY, CHEMISTRY & PHYSICS

## LEAD TEACHER GUIDE (2019)

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## INTRODUCTION

This short guide is designed to be of some assistance to Lead Teachers, to help you run effective practical work in your schools; but also to provide some guidance on the new system for assessing practical skills (CPAC), and in preparing for your monitoring visit.

Don't forget that a range of other resources also exist to help you with aspects of practical work and CPAC. These include:

- ❖ Practical Guides for you, and for your students
- ❖ FAQs on the new CPAC system for Practical Endorsement
- ❖ A tracking spreadsheet for you to record CPAC information for your students
- ❖ Access to training materials on the use of CPAC including a new podcast

You can find these resources on each of our A level subject pages. Simply click on the tab called “Course Materials” and then on the link for “Teaching and Learning Materials”. You should then be able to browse all the support materials. For CPAC support, please use the section headed ‘CPAC guidance and tracking’. Note that there are also worksheets for the Core Practicals on this page – but they are at the bottom so you need to scroll down a long way to find them! If you’d rather simply click a direct link to find all the resources, you’ll find all the links in the “[Useful links](#)” section at the back of this document.

# THE ROLE OF THE LEAD TEACHER

This may vary between centres, but the role of Lead Teacher is to be the intermediary between exam boards and the centre. In practice, this means the Lead Teacher will be the point of contact for a Monitoring Visit, after contact has been made with a centre through the Exams Officer.

Some centres have arranged to have a single Lead Teacher - perhaps the Head of Science - who takes responsibility for the role across the three sciences. This can be helpful if the centre follows all three science A levels with the same exam board, or if it is a small centre. More commonly, centres have a Lead Teacher for each science subjects. There are some advantages in this approach, particularly if your centre uses different exam boards for different subjects, but also because the Lead Teacher can also provide an internal Lead to his or her department.

The Lead Teacher is often the Head of Department for each science. This is a good idea, not just because the Head of Department is the most obvious contact, but also because they are best placed to cascade any information and training to the rest of the Department. The Head of Department is also in a good position to ensure that all members of the Department are using the CPAC statements and keeping appropriate records of practical skills. However, any teacher can perform the role of Lead Teacher.

If you have more than one teaching set in your centre, then the Lead Teacher should also take a leading role in ensuring a degree of common practice - or standardisation - within the teachers responsible for each subject (and, ideally, across all three science subjects). You'll find this helpful during the Monitoring Visit, as the Monitor will want to look at samples of student work across all the teaching groups in a centre. We would recommend that this happens through the development of common marking criteria – maybe using Pen Portraits – for each Core Practical. More information on Pen Portraits can be found later in this Guide.

Although the Lead Teacher is the point of contact for the Monitoring Visit, it is not automatically the case that the Monitor will attend a practical session with the Lead Teacher's class. The Visit can be arranged to correspond with a practical session involving any teacher in the subject being visited. However, the Monitor would expect to spend some time, during the Visit, talking to the Lead Teacher about the records being kept and other issues to do with the administration and assessment of CPAC within the centre.

# SELECTING PRACTICAL ACTIVITIES

In many cases, centres will follow the suggested practical activities laid down in the specification which they are following, as this represents the simplest way of ensuring that they meet the minimum requirements for qualifying for the Practical Endorsement. These minimum requirements are:

- ❖ At least 12 pieces of practical work over the two years of the A level course
- ❖ These practical activities must develop all the skills indicated in the specification (Appendix 5b) as necessary skills for direct assessment of practical skills in students
- ❖ The practical activities must also enable students to gain hands-on practical experience of the 12 techniques and apparatus (which form part of the subject criteria and can be found in Appendix 5c of the specification)
- ❖ Finally, over the course of these practical activities, students should develop and demonstrate competency in each of the areas described through the CPAC statements.

By far the most straightforward way of meeting these requirements is to undertake the Core Practicals suggested in the specification. Not only do these activities meet the requirements above, but they are also likely to form part of the assessment of practical skills on written examination papers at AS and at A level. Of course, using these activities as a foundation, you are free to supplement them with any others of your choosing; or to substitute individual practicals for others which develop the same skills and use the same techniques and apparatus. Many centres have adapted the Worksheets for the Core Practicals to suit their particular circumstances regarding equipment and class size. Note that over-use of highly structured worksheets makes it difficult to meet those CPAC statements which require independent working.

Of course, schools are at liberty to devise their own scheme of practical work to accompany the A level. This would need to meet the requirements outlined above: it would be the responsibility of the Lead Teacher for each subject to ensure that mapping documents existed to show that the chosen scheme of practical activities did this.

## ABSENCES

It is worth saying something here about student absences. Inevitably, some students will end up being absent on days when the class covers a core practical activity. Where possible, it would be good to allow these students to catch up the missed practical - maybe when the other students in the class take the next "non-core" activity. Students will find this useful, as Core Practicals are part of the specification content, and the experience of doing the practicals is certainly a help in the written examinations.

However, in some cases it may be unnecessary for the student to undertake a catch-up, because the practical that they have missed uses techniques and apparatus which the student has demonstrated elsewhere. Do bear in mind, however, the minimum requirement for the Practical Endorsement: a minimum of 12 practical activities, which must allow students to develop competency in all 12 of techniques and apparatus laid out in Appendix 5c for that subject, as well as allowing assessment of the CPAC statements. Therefore if the missed practical activity is the only one covering a particular technique or apparatus, a catch-up session would be needed.

# ASSESSING CPAC

It might be useful, to begin with, to remember what the Practical Endorsement is about.

One key aspect of the Endorsement is that students develop skills in using a specific collection of mandatory practical techniques and apparatus. For the most part, within the Edexcel specification, you don't need to worry about meeting this requirement. Our Core Practical activities were chosen specifically to make sure that they encompassed the necessary techniques and apparatus. There shouldn't be any need, therefore, to make copious records showing how students acquired particular skills on a practical e.g. filling a burette, using a pipette filler, reading a thermometer. There may be circumstances when you do decide to record coverage of individual techniques: one will be when student absence means that you have to work out if a student has covered all 12 techniques and apparatus; the other will be when it is clear that a student has not demonstrated ability in one of the techniques and you want to cover it again.

Otherwise, what you are assessing – and what the Endorsement is based on – is the CPAC statements. Although assessing these criteria is a little trickier than having a series of tick lists for the use of apparatus, the CPAC statements are reasonably easy to understand. **One key thing to remember is that the assessment of CPAC involves, for the most part, the assessment of what you see students DO in the laboratory.** Although supporting evidence for your assessment decisions may come from written notes that students have taken when undertaking the practical activities, CPAC is NOT designed to be an assessment of lab books or write-ups. Many centres do not expect full write-ups for all the Core Practicals – the CPAC criteria stress that practical work and its assessment should be ‘contemporaneous’.

There is a wide range of materials to support you in assessing CPAC and these are available in the “CPAC guidance and tracking” section of the “Teaching and Learning Materials” tab on each of our A level subject pages. The final document in this section contains a link to the pre-recorded CPAC training session. **This training is a requirement for teachers delivering A level specifications.**

## PEN PORTRAITS

One aspect of the CPAC training mentions “Pen Portraits”. The idea of a Pen Portrait is to give a written description of what you might see students doing in the laboratory – and how this corresponds to working below, at and above the level considered appropriate for a “pass” for that particular CPAC statement. Examples of these Pen Portraits were written by each exam board, to ensure that all four boards were interpreting the CPAC statements consistently. This means that four Pen Portraits were written and are available in the training materials. These portraits illustrate a range of practical activities across the three science subjects.

These original Pen Portraits tended to look at a whole CPAC area together, whereas we know that most teachers only assess a particular strand in a Core Practical e.g. CPAC 3a. We have, therefore, produced an example of a simplified Pen Portrait for a Core Practical for each specification. These consist of three ‘can do’ statements describing what the assessing teacher should expect to see when observing a competent student in the laboratory for each of the three CPAC areas assigned to that Core Practical in our tracking spreadsheet. There are also three statements describing a student who is ‘Working Towards’ competence.

Developing a series of these Pen Portraits for each Core Practical make it more likely that CPAC standards of competence will be the same across all the teachers who carry out CPAC assessment and in succeeding years. This will help to standardise your assessments. Monitors have been asked to check that schools are undertaking some form of internal moderation or standardisation, There are different ways of doing this, but the Pen Portraits seem to be simply and effective in this regard.

Note that there is not a series of Pen Portraits for every practical activity: exam boards wanted to provide a selection as support, but did not want them to replace the assessment of the CPAC statements themselves.

### **GROUPS AND PAIRS**

Before looking at the individual CPAC statements, it is worth considering the role of pair or group work. Inevitably, because of limitations on numbers of sets of apparatus, there will be some occasions on which students will need to work in pairs, or in small groups, when undertaking a particular practical activity.

However, it is important that each student within the pair or group is playing an active part in the experiment. There are different ways to arrange this – and some of these can also make assessing CPAC easier e.g. assigning roles to each member of the pair / group and assessing those students on the relevant CPAC statements for their roles. Of course, you could simply ensure that each step involves genuine collaboration (although this may be much more difficult for a group than for a pair). There is probably little point in “re-running” Core Practicals with the assigned roles for each group reversed – there should be sufficient opportunities across the Core Practicals to assess each member of the pair of each CPAC statement. Don’t forget that supplementary evidence can also come from non-core practical activities.

As a general rule, our Monitors have found that it is not really possible to assess students individually when there are three or more to a group. It might be that this is inevitable for some activities (e.g. the use of radioactive sources), but if shortage of equipment or lab space make this a permanent arrangement, then centres will need to think about special measures they can take to ensure that all students assessed are genuinely involved in hands-on practical work.

### **THE CPAC STATEMENTS**

The CPAC criteria cover different aspects of experimental and investigative practical work. This is easiest to see from the general headings of each group of CPAC statements:

- ❖ CPAC 1: Follows written procedures
- ❖ CPAC 2: Applies investigative approaches and methods when using instruments and equipment
- ❖ CPAC 3: Safely uses a range of practical equipment and materials
- ❖ CPAC 4: Makes and records observations
- ❖ CPAC 5: Researches, references and reports

With the exception of CPAC 1, the statements in each area are broken down into a number of component statements to make a total of eleven statements in all. Please ensure that you are using the final version of the CPAC statements: the easiest way to check is to look at the number of statements in CPAC 3: there should be two, 3a and 3b.

For each CPAC statement, let's look at the wording of the statement, and consider some questions which you can use to judge whether your students are working at the correct standard.

### **CPAC 1**

*1a: Correctly follows instructions to carry out the experimental techniques or procedures.*

- ❖ Can the student follow a worksheet, or method? The worksheets used by the students will probably need to be more prescriptive at the start of the course but should contain less information as the experience of the students increases and they start to work in a more investigative fashion. Note that a diagram can be part of the instructions.
- ❖ Is the student able to do so independently (either individually, or within a pair) **without** intervention from the teacher?
- ❖ Can the student carry out the steps in the right order?
- ❖ If the technique or apparatus is new to the student, does (s)he seek appropriate guidance?

As with all the CPAC statements, the emphasis is absolutely on the students carrying out the practical work themselves!

### **CPAC 2**

*2a: Correctly uses appropriate instrumentation, apparatus and materials (including ICT) to carry out investigative activities, experimental techniques and procedures with minimal assistance or prompting.*

- ❖ Can students use a range of apparatus / instruments (including some ICT, such as a datalogger, an app, or a computer)?
- ❖ Do students use apparatus / instruments with confidence and reasonable accuracy?

*2b: Carries out techniques or procedures methodically, in sequence and in combination, identifying practical issues and making adjustments when necessary.*

- ❖ Does the student carry out steps in a practical in the correct order?
- ❖ Is the student able to carry out steps together e.g. swirl a flask and operate a burette tap; write down a reading whilst still observing the apparatus?
- ❖ Can the student 'fine-tune' the apparatus / technique? This tweaking may need to be done in order to obtain a suitable range of readings or, indeed, to get readings at all! Note that this may not be assessable on all practicals.

*2c: Identifies and controls significant quantitative variables where applicable, and plans approaches to take account of variables that cannot readily be controlled.*

- ❖ If appropriate, does the student consider factors that may affect the experiment, so need to be controlled e.g. by using a water bath; or solutions of the same concentration?
- ❖ If not, does the student appreciate the importance of independent, dependent and control variables?
- ❖ Since it cannot be properly controlled a student might plan to measure a variable affecting the work, such as room temperature, before and after the readings are taken and note whether it has changed.

Evidence for CPAC 2c may come from written work, such as a planning exercise; or may be ascertained by asking students about control of variable during their practical lessons.

*2d: Selects appropriate equipment and measurement strategies in order to ensure suitably accurate results.*

- ❖ Can students choose appropriate apparatus? e.g. if the method requires a measuring cylinder to measure 10cm<sup>3</sup> of liquid, do they select one of an appropriate size?
- ❖ Can students determine a suitable range / number of results to collect?
- ❖ Are students able to use strategies such as repeating readings and identifying anomalies to improve data?
- ❖ Do students consider how to improve the quality of the data that they collect when they evaluate their results? (Students may, of course, make these adjustments as they undertake the work – in which case, this could also provide evidence for CPAC 2b).

Note that aspects of CPAC 2 imply students are undertaking practical work that is investigative, rather than following prescriptive steps (CPAC 1). If your worksheets are heavily scaffolded, you may wish to remove some of it, or better, supplement the practical with a planning activity before issuing worksheets.

### **CPAC 3**

*3a: Identifies hazards and assesses risks associated with these hazards, making safety adjustments as necessary, when carrying out experimental techniques and procedures in the lab or field.*

- ❖ Can students identify any risks or hazards associated with the practical activity? They are probably most easily assessed if they write a risk assessment as part of their planning.

*3b: Uses appropriate safety equipment and approaches to minimise risks with minimal prompting.*

- ❖ Do students work with appropriate care and attention for themselves, for others and for their equipment?
- ❖ Do they follow their own risk assessment?
- ❖ Do students use appropriate safety equipment when carrying out practical work?
- ❖ Do students deal with any accident in a calm and effective manner?

Again, you may see students adjust the procedure to make it safer for them e.g. moving a burette down from the lab bench before filling it. This may provide evidence for CPAC 2b.

### **CPAC 4**

*4a: Makes accurate observations relevant to the experimental or investigative procedure.*

- ❖ Do students take and record appropriate data / observations from the experimental set-up e.g. if investigating the effect of temperature on the rate of a reaction, the data recorded includes temperature and a dependent variable.
- ❖ Do students use all their apparatus properly and accurately in combination when taking readings across all the variables being measured?
- ❖ Can they use their observations to explain any uncertainties?
- ❖ Can they use their readings to estimate an uncertainty in their result?

Note that the best way of determining whether students' use of instruments is accurate is to look at the results collected.

*4b: Obtains accurate, precise and sufficient data for experimental and investigative procedures and records this methodically using appropriate units and conventions.*

- ❖ Do students draw up an appropriate table for the data to be collected before they start the practical work?
- ❖ Can students record the data methodically in these tables, with headings and units?
- ❖ Do students collect sufficient data, over a suitable range, and with repeats if necessary?
- ❖ Is data collected to a suitable number of significant figures? (Note that there is no hard and fast rule here – and a range of sig figs may be appropriate for the technique or apparatus).
- ❖ Where appropriate, is the data collected sufficient in number and accuracy to be able to identify patterns or trends in the data? (We wouldn't expect students to get the Data Book value, of course!)
- ❖ For data that is to be plotted on a graph, a good rule of thumb is that students should collect at least 6 pieces of data.

It might be worth noting that, when assessing CPAC 4a or 4b, the student's readings must be accurate.

### **CPAC 5**

*5a: Uses appropriate software and/or tools to process data, carry out research and report findings.*

- ❖ Can students process data e.g. by use of a calculator, data logger or apps?
- ❖ Can students use word processing to produce a write-up, or a plan?
- ❖ Can students use software to produce a suitable graph for data analysis, for a practical activity?

*5b: Sources of information are cited demonstrating that research has taken place, supporting planning and conclusions.*

- ❖ Do students use a range of resources, including both print and digital?
- ❖ Do students include some evaluation of data to support conclusions in any write-up of practical activity?
- ❖ Can students use an appropriate format for referencing any research undertaken?
- ❖ Are you able to use the students' referencing system to find the same information?

Note that CPAC 5 can be met by research activity, as well as by conclusions based on their data. You may, therefore, include some research activities alongside practical activities. This could even be in the style of a Visit – Issue Report, which some of you will have experience of from the previous Biology and Physics specifications.

It is also worth noting that we wouldn't expect every practical activity to have a formal write-up: for example, if the practical work only leads to simple observations.



# KEEPING RECORDS

As part of the system for using CPAC to assess the Practical Endorsement within A level sciences, centres are expected to keep records of the practical activities undertaken and the assessment of these activities. It is the responsibility of the Lead Teacher to make sure that these records are being kept in a subject, so that they are available to be checked as part of the Monitoring Visit. Records are also important as they will form the basis of your final assessment of each student for the award of the Practical Endorsement.

The regulations laid down across exam boards indicate the following expectations for centres in terms of record keeping:

***(a) documented plans to carry out sufficient practical activities which meet the requirements of the CPAC***

Effectively, this is a scheme of work which shows that you're doing the Core Practicals. Although you can have a separate "practical scheme of work", most Departments will fulfil this requirement by indicating, in their main schemes of work, where the Core Practicals are to be delivered.

If your centre is devising its own series of practicals to meet the requirements of the techniques and apparatus and CPAC, then you should also be prepared to show your Monitor how your scheme of work meets these requirements. Of course, if you're following the suggested Core Practicals, this mapping is already provided in Appendix 5 of the Pearson Edexcel specifications.

***(b) record of each practical activity, with student attendance and the date it was completed***

***(c) record of the criteria being assessed in that activity***

***(d) record of which student met the criteria and which did not***

Although this sounds like a great deal of work, it's really a simple attendance list for practical sessions, coupled with information on which practical was used to assess which CPAC statements. This information is simple to collate: just use our CPAC tracking spreadsheet! You can find this in the "CPAC guidance and tracking" section of the "Teaching and Learning materials" tab of the website. Instructions on how to find this can be found in the last paragraph of the [Introduction](#).

***(e) any associated materials provided for the practical activity e.g. written instructions (including diagrams) given***

***(f) student work showing evidence required for the particular task with date***

You may wonder why one of the requirements is to collect instructions for the practical activities. To some extent, it provides evidence of meeting CPAC 1 and 2d - but it's also useful for your Monitor to see if your students are developing a degree of independence in their practical work.

Otherwise, the requirements here will often go together: your students can keep any worksheets or prompt sheets used for practical work alongside their notes, collected and processed data, and any other aspects of their write-ups. In some ways, therefore, these requirements are the easiest: the students will generate and collect this themselves! However, we know that many centres are unsure of the format that is required. The simple answer is that there is no set format - we want you to keep your students' work in the way which is best for you – and for them. Having talked to a number of schools, two formats for collecting student work seem to be the most popular:

- ❖ on-going lab books or practical folders, which may be based on a pre-printed lab book
- ❖ a separate practical work section within students' folders for the subject.

## WHERE TO KEEP THE RECORDS

In some centres, to prevent students losing this record of practical work, the Lead Teacher has decided that lab books should remain in school. This does have some advantages - although you should remember that students are likely to need some time out of lessons to finish data processing or other aspects of the practical activity; and would certainly want their practical folders to revise for their AS or A level exams.

By the time your students come to the end of their A level course, you'll already have had your Monitoring Visit, so students can take away their files for revision. We wouldn't expect there to be any need to get practical files back from students after the A level exams; although students who take AS exams then go on to A level would need to retain their Core Practical notes from the AS section of the course.

Unlike coursework moderation, where the decisions of a centre could be changed during the marking period, the decision made to enter a student as Pass or Not Classified for the Endorsement is only made by centres who have passed the Monitoring Visit. Unless, therefore, there are suspicions of any malpractice, then the grade entered by the centre will be the student's final grade. For this reason, it is unnecessary for centres to make and retain copies of student practical folders.

It's also worth noting that the Endorsement is transferable. So, if you have a student who wishes to re-sit, this student does not have to go through the CPAC process again (assuming that a Pass was gained first time around!).

Although it is a nuisance if a student loses a file, our Monitors do know that this sort of thing happens from time-to-time, so it shouldn't be an issue that interferes with your Monitoring Visit (unless whole classes of files get lost!). Remember the student's record is principally to help you form your holistic decision about their competence at the end of the course, as well as forming a valuable revision resource for the student at exam time. Questions on practical work form at least 15% of the marks across examination papers.

# MARKING AND ANNOTATING STUDENT WORK

Within the new system for CPAC, don't forget the most important thing: why you're undertaking the practical work. It's all about ensuring that students have a broad range of practical experiences and that, if they go on to study science after leaving school, they have the necessary skills in undertaking and reporting practical work. With that in mind, some marking of practical work is to be expected – not so much from a CPAC point of view, but in terms of assessment for learning, or simply meeting most schools' marking and reporting policies.

As has been mentioned before, the written work produced by students is mostly acting as evidence, for CPAC purposes, that the necessary practical activities have been carried out. But, assessing CPAC is not really about marking write-ups, it's about assessing what you see students do in the laboratory. As such, there's no strict requirement, within the CPAC system, for marking student work. Having said that, written feedback on student practical work will undoubtedly improve practical skills, which is the main aim!

Having said that, some annotation\* of student lab books or practical work would be useful in the following situations:

- ❖ to allow internal standardisation of CPAC in centres where more than one teacher delivers the A level specification in a subject
- ❖ to provide an easy reference if the Monitor asks to see evidence to support the development of a particular skill, technique or CPAC statement
- ❖ to enable students to track their own progress by recording it on a copy of the CPAC mapping document or similar
- ❖ to remind yourself of any visual observations, during that practical, which supported the award of a particular CPAC skill.

The last of these scenarios may be especially useful if you make observations which relate to a CPAC skill which you were not planning to assess on that practical. For example, on a practical where you weren't intending to assess CPAC 3, but where the student provides a risk assessment, or provides evidence of altering a procedure because of a safety issue, then you might wish to note this on their work. That way, if you're looking for further evidence for a particular CPAC skill towards the end of the course, you can more easily find the evidence you need to support it.

\*this does not need to be more onerous than having a marginal note that says “✓ CPAC 3b seen” or “✓ CPAC 4a WT”.

# THE MONITORING VISIT

It may help to start off by defining the purpose of the Monitoring Visit.

Of course, there is inevitably a degree of nervousness about the idea of an exam board representative coming in to look at what you're doing, but we'd like you to consider the Visit as being just as much about support, as it is about Monitoring. Secondly, and very importantly, the purpose of the Monitoring Visit isn't to decide on whether your students have "passed" the Endorsement: your Monitor will only see a snapshot, so it wouldn't be appropriate to base the whole Endorsement on that.

So what is the Monitoring visit about? We think it has four functions:

- ❖ to check that you're delivering all the practical work necessary to develop competency in the techniques and apparatus in Appendix 5c, which will allow your students to qualify for the Endorsement
- ❖ to see how you're assessing your students on CPAC in a practical activity
- ❖ to check that you're keeping appropriate records of your students' progress through the CPAC statements
- ❖ to share best practice and offer advice on the use of practical activities

As the Monitoring Visit is one of the areas of the Endorsement where teachers have the most questions, it may be easier to consider this section in terms of FAQs.

## ***(a) Who will my Monitor be?***

Each exam board has recruited their own teams of Monitors. The Pearson Edexcel team of Monitors, which has been working together since the new specifications started in 2015, are all subject specialists – so if your Physics department is having a visit, we'll send a physicist. Our Monitors are also experienced teachers and (frequently) examiners, so they are well placed to advise about practical work and respond to your enquiries about the subject in general.

## ***(b) How is the visit arranged?***

The monitoring cycle runs for two years, during which time every centre in the country is visited once by one exam board. The dates for the running of these cycles are:

- ❖ first cycle from January 2016 to May 2017;
- ❖ second cycle from September 2017 to May 2019
- ❖ third cycle from September 2019 to May 2021

So, during the second cycle (2017-9), your centre should have a Monitor assigned to visit a different subject to the first cycle. The visit for each subject will be from the exam board to whom you make your examination entries in that subject, even if this is a different board from the first cycle.

Exam boards allocate Monitor Visits based on historic entries data, so if you change examination boards, it is a good idea to get in touch with your new board, even if you haven't made your exam entries. Assuming that your change of examination boards starts with Yr 12, you may find that your old exam board still Visits to see Yr 13; but it is possible that your new exam board may wish to schedule a Visit instead. If you change mid-course, so that all entries will now be with your new board, then the new board will certainly want to come and make your Visit.

Pearson Edexcel send out an email to all the centres to be visited by them: this is sent out in September of the first year of the cycle i.e. September 2015, September 2017 & September 2019 and is usually addressed to Examination Officers or their nominated delegate.

In this way centres to be visited by us should know right at the start of each cycle. A Pearson Edexcel monitor will get in touch with your centre with at least two weeks' notice of their visit but, since they wish to see some CPAC assessment during their Visit, it is usually longer than this to allow for timetable variations. Although it is ideal for the Monitor to see a Core Practical during the practical lesson, it doesn't have to be. Any practical lesson where core CPAC skills can be addressed is a suitable practical. Remember that the Monitor can visit a practical lesson delivered by any member of the department being visited – it doesn't have to be the Lead Teacher's lesson. If your Monitor has a preference for seeing a Yr 12 or a Yr 13 lesson, this will also be discussed.

When finalizing the Visit, please check that the Monitor has the correct address for your centre - especially if you have a split-site arrangement. Equally, please tell the Monitor in advance if you operate a consortium arrangement. It is also a good idea to exchange name and contact details with the Monitor, in case of a problem on the day.

If your centre requires visitors to bring any form of identification in order to register at Reception, please let your Monitor know.

### ***(c) What will the Monitor want to see?***

There's no fixed timetable for the Monitor to follow – so this can be adapted to fit the pattern of your working day. However, your Monitor will want to:

- ❖ sit in on a practical lesson in the department, to see the way in which you are assessing CPAC with your students.
- ❖ talk to the Lead Teacher about how practical activities are being organised to meet the requirements for the Endorsement. This will include looking at schemes of work to see that practical activities are being timetabled; and may also cover, in larger departments, how consistency of application of CPAC is being managed in the department through internal moderation or standardisation. Obviously, it's useful to have schemes of work and your departmental handbook ready for this meeting.
- ❖ review samples of student work. The Monitor will want to see a minimum of 10 student lab books / practical folders (or equivalent) for the group of students in the practical lesson which was observed. (If this group contains fewer than 10 students, then the Monitor will simply look at the total number for the group). If there are other teaching groups in the same year groups then the Monitor will also want to see 2 student lab books / practical folders (or equivalent) from each teaching set. Note that it is easier for the Monitor to assess standards if these folders include a high achieving student and a student at the other end of the ability range. So, in a school with 4 teaching sets of 12 students, the Monitor would see 10 portfolios of student work from Set 1 (the Set that was observed), and 2 portfolios from each of Sets 2, 3 and 4.
- ❖ Remember the Monitor wishes to see the standards you are applying when assessing the CPAC competence of your students, so the portfolios you select will ideally have a lot of assessed work in them. Also, a spread in competence is most helpful in reaching a fair conclusion. The Monitor is not there to assess your students.

The Monitor might also wish to talk to some students about practical work. Typically, this would be done informally, alongside the teacher, in the practical lesson observed. In line with schools' Safeguarding policies, any interactions with students should take place in the presence of a member of staff at the school and, like any other visitor, the Monitor should not be left unsupervised with students. Of course, this should also apply to the practical lesson itself.

***(d) How long will the Monitor be in school?***

This will depend a little on the number of students that you have, and the length of your practical lesson. However, we'd suggest that you leave about an hour for discussion between the Monitor and the Lead Teacher, and up to 2 hours for the Monitor to review student work and other records. When you add in the practical lesson, this would give a total of around 4 hours.

***(e) What happens at the end of the visit?***

Monitors have been instructed not to provide immediate verbal feedback at the end of the visit, either to the Lead Teacher or to senior managers at the school. Shortly after the visit - within 2 weeks in most cases - you will receive feedback on the visit. This feedback will be provided to the Lead Teacher and the Head Teacher.

The feedback will fit into one of two categories:

1. **PASS:** the Monitor is confident that you are undertaking the required practicals, keeping appropriate records and are assessing CPAC at the correct level. Feedback may still be given on improvements that can be made to improve practical work and assessment.
2. **NOT PASSED:** the Monitor has some concerns that one or more aspects of the Practical Endorsement is not being met. Feedback would be provided outlining the areas of concern and a follow-up Monitoring Visit would be arranged. This will be scheduled at a time that gives the centre a reasonable period to meet the feedback and make necessary changes.

Note that, in some cases, the Monitor may have a minor concern e.g. practical activities are not listed on the scheme of work. In these cases, the Monitor may ask for additional information to be emailed shortly after the Visit before reaching a decision.

If a school is having issues implementing practical activities and CPAC in the subject visited, it is quite possible that the other two science subjects have similar issues. Therefore, information about centres that have not met the Pass standard may be shared with the Awarding Bodies responsible for the other two sciences. This may lead to Visits being set up in those subjects too.

***(f) Will I get a visit every year?***

Each centre is visited once in each two-year cycle. This can mean that Visits fall in consecutive years (e.g. Year 2 of Cycle 1 and Year 1 of Cycle 2) or at different time intervals. Remember that the Visit in each new cycle will be to a different science subject (unless you only offer one science subject).

If your centre is classified as "large" i.e. 140 or more candidates in any of the three science subjects, then you will have a Visit to each science subject in each cycle.

if we have serious concerns about the standard of CPAC assessment in a centre e.g. from a previous Visit or because of information sent from another Awarding Body, we reserve the right to schedule additional visits to a centre, especially if there is a suspicion of malpractice.

***(g) Can one of our departments share a visit report with another?***

Yes, by all means. When a subject has had a Visit the response is usually a positive one and sharing best practice within a centre is the best way to prepare for your next visit, even if it is from a different Awarding Body. Your Visit report will highlight what was good about your assessment for the Practical Endorsement and conversations with the Monitor will probably also be useful. All this can usefully be passed on.

## STUDENTS WITH SPECIAL REQUIREMENTS

As for all examinations, arrangements are made for candidates who have special requirements. Guidelines in this area, across all exam boards, are set out by JCQ.

In many cases, reasonable adjustments may be made for practical activities, as they are for other aspects of the examination procedures. Having said that, some adjustments are not possible - such as having a practical assistant to help with the manipulation of equipment.

Schools are advised to check with JCQ for advice and guidance in this area. Students who have barriers in accessing practical activities should still be encouraged to take part, as best as they can; but they would usually be registered as "exempt" for the Practical Endorsement if they cannot undertake all the techniques and apparatus listed in Appendix 5c.

# USEFUL LINKS

## Training

A pre-recorded training podcast is available – see the links for each subject below (although the training is the same for each subject).

The training is mandatory for the Lead Teacher, but we would recommend that every teacher involved in assessing CPAC accesses and watches the training.

## Biology A (Salters Nuffield)

- ❖ [Biology A homepage](#)
- ❖ [Teaching and Learning Materials](#) where you can find all our support, including Core Practical worksheets, mapping documents, Teacher and Student Guides to Investigative Skills and other resources – as well as CPAC support
- ❖ The [CPAC Guidance and Tracking section](#) of the Teaching and Learning Materials tab contains the CPAC tracking spreadsheet, Lead Monitor’s report, a new training podcast, FAQs and other training resources, including support for Pen Portraits

## Biology B

- ❖ [Biology B homepage](#)
- ❖ [Teaching and Learning Materials](#) where you can find all our support, including Core Practical worksheets, mapping documents, Teacher and Student Guides to Investigative Skills and other resources – as well as CPAC support
- ❖ The [CPAC Guidance and Tracking section](#) of the Teaching and Learning Materials tab contains the CPAC tracking spreadsheet, Lead Monitor’s report, a new training podcast, FAQs and other training resources, including support for Pen Portraits

## Chemistry

- ❖ [Chemistry homepage](#)
- ❖ [Teaching and Learning Materials](#) where you can find all our support, including Core Practical worksheets, mapping documents, Teacher and Student Guides to Investigative Skills and other resources – as well as CPAC support
- ❖ The [CPAC Guidance and Tracking section](#) of the Teaching and Learning Materials tab contains the CPAC tracking spreadsheet, Lead Monitor’s report, a new training podcast, FAQs and other training resources, including support for Pen Portraits

## Physics

- ❖ [Physics homepage](#)
- ❖ [Teaching and Learning Materials](#) where you can find all our support, including Core Practical worksheets, mapping documents, Teacher and Student Guides to Investigative Skills and other resources – as well as CPAC support
- ❖ The [CPAC Guidance and Tracking section](#) of the Teaching and Learning Materials tab contains the CPAC tracking spreadsheet, Lead Monitor’s report, a new training podcast, FAQs and other training resources, including support for Pen Portraits