

Written Assignments

The written assignment is an essential feature in the assessment of trainees and makes an important contribution to the development of the Standards and a reflective attitude to teaching.

These 4 assignments are very practical in nature and we hope that the work you put into them will be reflected in better classroom practice. **Please remember that this is a postgraduate course and as such we do expect your work to be supported by reference to published texts and of course all assignments must have a Bibliography.**

The criteria for grading written assignments applies across the whole PGCE secondary programme and is to be found in the Handbook. In addition we will give you **a set of descriptors for what we regard as very good and very weak pieces of work for each** of the science specific assignments. We will also discuss the assignments in tutorials some time before the handing in date.

In view of the pressures on you as the amount of school-based work increases we advise you to make a start on the assignments **as soon as possible** - the first 3 or 4 weeks of the course may seem very comfortable but the pressure builds very quickly.

Extensions

These are only granted in exceptional circumstances - meeting deadlines under pressure is a demand you must be able to cope with in teaching. You must seek permission from the course leader if it is just a few days that you require - for anything longer than this you must go through the programme director.

Assessment Item 1

Aim

This assignment is designed to make you more familiar with the science National Curriculum and in particular the KS2 and 3 (and 4) continuum. The levels at which at topic is covered and the possible misconceptions that children have about a variety of concepts in science.

(Covers Standards A(i),(ii) (vi)(x) ;B (e) (k(vii)) Circular 4/98)

We would like you to track a particular idea/concept through the National Curriculum from Key Stage 2 to 3 and to 4 (and at KS1 if appropriate). Highlight the subject knowledge base requires at each stage/level and discuss how the progression in understanding is achieved.

Within your answer you should pinpoint at least one popular misconception that pupils may have and try to suggest a strategy which might help to overcome this misconception

This is a relatively long assignment (**3000 words + Appendices**) and it is a **difficult one**. It requires a lot of thinking on your part and a good deal of reading (we will suggest some for you) and some forward planning. It would be very useful to have examples of children's work on your chosen concept at different levels and you could possibly tie this in with your primary school visit (if it comes early enough in the term). In many ways you could answer this assignment better later in the course; however, its main aim is to get you to think about the KS2/3 continuum and to become aware that children come to your lesson with some pre-conceived ideas - many of which may be wrong. The early part of the course is also the best time for you to use the library and you have more time available for reading and thinking and so the assignment remains as the first one.

Paul Burrill will do an introductory session on concept development and misconceptions early in October, he will give you a reading list and we will follow up the work on misconceptions in tutorials. We also have Dennis Howlett doing a session on KS2 science early in the term - you will find this very useful in the context of this assignment.

A descriptor of a very good and a weak assignment is given on the following page and examples of outstanding work from previous students is available for you to look at if you find this assignment a struggle.

Deadline

Assessment Item 1

The following notes are offered as guidance in answering Assessment Item 1. It may be helpful to structure your assignment as follows

(a) Introduction (200 words)

The assignment has two chief themes: progression and misconception. You could begin by explaining what you understand by these terms, and why they are important. You could then outline the topic you wish to track through the National Curriculum Key Stages 2, 3 and 4. (It would help to quote the relevant sections from the NC document.) You could then give a brief explanation of why this particular topic was chosen

(b) Progression as exemplified by key texts (1200 words)

Chose three textbooks, one aimed at Key Stage 1, another at Key Stage 2 and one at Key Stage 3 that cover your chosen topic. Briefly compare and contrast the style and layout etc of the three texts. Perform a reading age assessment on each text to provide evidence of variation in complexity of language between them. For your chosen topic analyse the knowledge, understanding and process skills that are presented at each Key Stage. (This could be done in the form of a table.) Comment on your analysis.

(c) Progression achieved through classroom methodology (1600 words)

In this section you need to demonstrate your awareness and understanding of some of the teaching and learning techniques used at each of the Key Stages to facilitate children's progression within your chosen topic.

You could begin by outlining the conceptual difficulties that occur at each stage. Then choose a typical example from each Key Stage suggest appropriate methodology, and explain briefly how its use can help children reach the desired objectives.

Describe in detail at least one popular misconception that children have in your chosen topic. Suggest a strategy that might help them to overcome this misconception.

A good assignment will have an analytical approach and show evidence of background reading.

Arguments will be supported by quotations from and references to relevant educational literature. In places examples will be drawn from the candidate's own classroom observations. Examples of children's work might be included in an Appendix. These examples will be used to illustrate the text and demonstrate the candidate's ability to link classroom experiences to educational theory. Key terms will be defined and their educational significance explained. Where possible data will be presented in a tabulated format.

Although the assignment will have a narrow focus topic (e.g. "DC electric circuits" rather than "electricity") it will allow the candidate to fulfill all aspects of the assignment brief. The texts must be ones that are currently in use in school and preferably ones that have been recently published. They will be chosen to give a contrast, and the candidate will show a critical awareness in the comparison of style and presentation, and in the analysis of the way that the chosen topic is treated.

In the final section of the assignment the candidate will show a clear understanding of progression in conceptual difficulty as the topic is tracked through the National Curriculum. The candidate will describe how conceptual models are modified as children's understanding develops. Typical examples of challenges to the pupil will be supported by recommendations on suitable teaching strategies (physical and abstract models, diagrams, analogies, demonstrations, class experiments etc.) A good candidate will be able to assess critically the suggested strategies. A good candidate will briefly explain in general how children arrive at and hold onto their misconceptions, and why it is important for the teacher to be aware of children's misconceptions when planning lessons. There will be a full discussion of at least one popular misunderstanding within the chosen topic area.

A poor assignment will be descriptive and anecdotal and show little evidence of background reading. Work will be inadequately supported by reference to academic texts. Where an attempt has been made to include the candidate's own classroom observations and experiences these will not be linked clearly to the underlying educational theory. The chosen topic will be too broad to allow detailed analysis, or too narrow to allow full coverage of the assignment brief.

A poor candidate will choose texts that are out of date or do not give a full coverage of the chosen topic. There will be a failure to produce a detailed quantitative comparison of the three texts.

Discussion will be superficial with little insight shown and little reference to theory.

In the final section a poor assignment will fail to list and discuss in detail the hierarchy of cognitive difficulty in the way the topic is presented in the National Curriculum. Suggested teaching and learning techniques may be inappropriate, or their usefulness in helping children reach the learning objectives not fully explained. A poor candidate will fail to research about misconceptions and have a limited idea of how to help children challenge and reconstruct their understanding of science.

Assessment Item 2

3000 words (+ appendices)

The focus of this assignment is on lesson planning, differentiation and assessment and addresses Standards A(ii)(xi)(xii), B(a) (i-v), B(c), (e) (f) (k) (n) C (a) (b) (c) (e) (Circular 4/98)

We would like you to produce **brief outlines of 2 consecutive lessons** at KS3 that you will be teaching before Christmas. You must show clearly your desired learning outcomes (including knowledge and skills) for each lesson and how they are linked to National Curriculum requirements.

One of the two lessons **must contain a class practical** and we want you to flesh out **the detail of this lesson** including a breakdown of timings, key questions, organisation of practical and homework. For this same lesson we would like you to show how you would **differentiate** the work for more able and less able pupils (including different DLO's) **either** working within a mixed ability group (**difficult at this stage**) **OR** how the lesson could be adapted for 2 classes of very different ability (**you must do 2 distinct lesson plans here, different homeworks and so on**).

We also want you to discuss your **assessment** of the success of the lessons, in particular **how your assessment of the first lesson influenced your planning of the second lesson**.

You must produce your homework for one of the lessons with mark scheme and justification and comment upon the balance between factual recall and understanding.

You should produce at least 4 examples of pupil's work which you have marked (from different ability pupils) with marks, comments and targets

Deadline: - It is tempting to leave this assignment until the last minute BUT remember you will be very busy in your 5 week block in school - I would urge you to complete most of this task over the Christmas break.

Assessment Item 2 Descriptor

Do check the standards that this assignment addresses - I have highlighted these on the previous page.

A **very good assignment** will display most of the following characteristics:

The two lesson plans will be placed in the context of a scheme of work showing at least what went before and what comes immediately afterwards. There will be clear links between the two lessons and the second one will show some consideration of the assessment / evaluation of the first lesson — especially the considering the homework produced. The overview of the two lessons will be brief but thorough and progression within the lesson and between the lessons will be clear. The DLO's for each lesson will be broken down into knowledge and skills (and possibly behaviour if that is appropriate) and what you expect all children to achieve, most children to achieve and so on. N.C references or GCSE syllabus references will be given.

One of the two lessons will be given in detail with classroom management strategies, key questions and management of class practical work highlighted. Realistic timings will be shown and the lesson will contain a variety of activities. The number and abilities of the pupils will be given and either a complete second lesson plan of the same lesson but for a less able group will be produced (you may not have taught this but you need to show how you would adapt your original lesson plan for pupils of a different ability) OR you will show how you coped with a mixed ability group and how you differentiated your lesson and learning outcomes. You will have considered the use of ICT in this lesson and explained why it was/was not used. You will have produced your own worksheet for homework and/or practical work and you will provide examples of pupils marked work (appendix) together with a mark scheme (comment upon the balance between understanding and factual recall) and targets you have set the pupils for the future. You must have a clear focus on assessment — of the pupils' work and its influence on your future lessons.

A **weak assignment** will display many of the following characteristics:

The lesson objectives will be vague and pitched at an inappropriate level. The lessons will lack variety. The detailed plan would be difficult for another science teacher to follow. The student is not able to recognise possible areas of difficulty or key points within the lesson assessment / evaluation of the lesson lacks insight and the second lesson is not influenced by the first. The lessons seem isolated and are not related to what has gone before or what is to come in the future.

Worksheets are badly designed, homework is poor with little indication of what the student is trying to achieve. Little effort is made to adapt the lesson for a group of different ability.

Assessment Item 3

3000 words (+ Appendices)

The key purposes of this assignment are:

- *That you demonstrate the ability to plan clear structures for lessons and sequences of lessons in the short and medium term.*
- *That you understand the nature and purpose of assessment*
- *That you can make use of ICT to enhance your lessons*

This assignment addresses standards A (iii) (vi) (vii) (xii) (xiii) B (a)(b)(c)(d)(f)(l - ix, xi,) C (a) (b) (ciii) (e) (g) (l) (Circular 4/98)

We would like you to produce a **scheme of work** (covering at least 6 lessons) for the teaching of a major topic in your **main subject specialism at KS4***. Produce an outline or the scheme together with a justification for producing it the way you have. Your discussion should include consideration of the following factors:

1. Indicate the amount of time you feel this topic requires, together with a plan which includes details of the number of lessons which would need to be devoted to the scheme of work, the length of particular lessons and a clear statement of the aims and objectives of each. The number of lessons will obviously relate to the knowledge content included within the topic. Bearing this in mind you should include details of the sequence in which you would cover such knowledge content with the pupils.
2. Include a **detailed outline of one lesson** within the overall scheme illustrating how you would make use of **ICT** within the lesson (data capture, experiment simulation, CD ROM **etc.**) . *Justify your use of ICT and state how you would assess the success of the lesson. in this section you should air some of the views about the use of ICT in science lessons the arguments for (and against), the benefits which may ensue and some of the problems you may encounter.*
- 3. Discuss how you would assess the success of this lesson in particular and the whole scheme in general - you must identify several means of assessment and discuss the role of them within your scheme.**

NB.

We are very aware that some schools have far better ICT facilities than others and that you may not be in a position to use a class set of ICT material. You can substitute for demonstration and / or explain what you would do if you were in a school with the necessary hardware.

*It may be possible to negotiate a KS3 scheme with your tutor (but only under exceptional circumstances)

Assessment Item 3

Descriptor

A **very good assignment** will display most of the following characteristics:

The outline scheme will be produced in a similar manner to the one provided on the Nervous system) please see the science notice board or me if you do not have a copy). It will contain a minimum of 6 lessons and show clear progression from one lesson to the next. The scheme must be linked to the National curriculum or better still, if it is KS4, to the relevant GCSE syllabus.

You will choose one lesson in which you can use ICT - you will justify the use of ICT within the lesson explaining what you hope to achieve and what might help or hinder these achievements. We would expect to see examples of work from this part of the lesson (good and not so good). I would expect this part of the assignment to be prefaced by a discussion on the pros and cons of using ICT in the classroom (The ASE guide to Secondary Science Education, p.192 - 199 is a good starting point here) and also some reference to the ICT National curriculum.

The success of the lesson and the scheme of work will have been assessed by a variety of techniques and you will provide some evidence of this in your appendices — a very good assignment will discuss the role of these assessments and how they influenced teaching.

The key purposes of the assignment are the three highlighted in the assignment booklet and a good assignment will cover all three areas. This is one of the few occasions we measure your ability to plan in the medium term - so often this is done for you in school but you must demonstrate an ability to perform this key skill for yourself.

A poor assignment

Will produce a scheme of work that is too brief, is difficult to follow a logical sequence of events and which contains little reference to NC or GCSE syllabus or the scheme will merely be a copy of a scheme provided by the school.

The learning outcomes will be inappropriate and ignore differentiation and the differences between skills, knowledge and understanding.

The use of ICT will be poorly thought through and the organisation and expected learning outcome will poorly explained.

Assessment will be limited and not used to influence teaching and provide very little information other than putting pupils in a rank order. Homework is ill thought out and pitched at the wrong level. The whole assignment shows little thought and little evidence that the student has put much care or effort into the teaching.

Assessment Item 4

The main aim of this assignment is to make you think about novel ways of presenting one of the more difficult ideas/concepts that you have to teach. We hope that this will re you aware of the value of visual aids in your teaching and the need to be imaginative in the way you present things to your pupils.

This assignment addresses standards—A (i) (ii) ,B (a) (i -ii), (f)(k (i -i v) (ix and xiv), (n) C(a),D(c) (Circular 4/98)

You required to produce curriculum support material/s which would aid your presentation of a topic in school — for example you might produce a video, computer programme, set of slides, large visual aid for demonstration purposes, a piece of apparatus, a game etc.

NB *This item is the equivalent of a 2000 word essay - we expect the same amount of time to be spent on it - a 15 minute power point presentation is not sufficient (I would expect a minimum of 10-12 hours of work)*

We expect this material to be produced to a high quality — it will be displayed for your fellow students and the external examiners and you will be required to give a 10 minute presentation of its use to two tutors.

We do not expect much written work with this at all but we do need approx. 500 words explaining how it works, what the benefits of it are, the age range and ability which it is intended, and the National Curriculum links.

Credit will be given to those students who have tried their material in school and made some evaluation of its success.

The presentations of these items will be **Monday 1st July**

(The item does not have to be handed in before the presentation)

There are of course no possible extensions for this item.

The items will all be displayed and you will all be given an opportunity to view the items on Tuesday 2nd July.

Photographs of previous work done by trainees are available.