BTEC Level 3 Nationals in Applied Science: Unit 5

Your free sample of the student book: preparation for assessment

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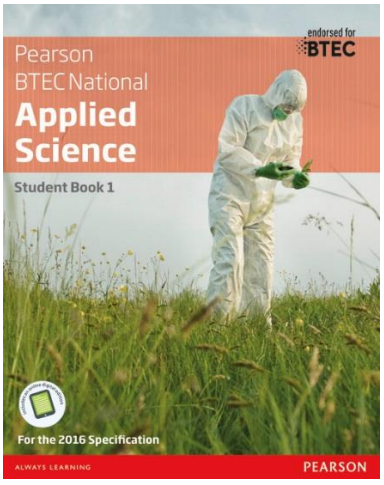

Getting ready for assessment

This section has been written to help you to do your best when you take the assessment. Read through it carefully and ask your tutor if there is anything you are still not sure about.

About the test

The test is in three sections (Biology, Chemistry and Physics).

Remember that all the questions are compulsory and you should attempt to answer each one. Consider the question fully and remember to use the key words to describe, explain and analyse. For longer questions, you will need to include a number of explanations in your response; plan your answer and write in detail.

Preparing for the test

To improve your chances on the test, you will need to make sure you have revised all the key assessment outcomes that are likely to appear. The assessment outcomes were introduced to you at the start of this unit.

To help plan your revision, it is very useful to know what type of learner you are. Which of the following sounds like it would be most helpful to you?

Type of learner	Visual	Auditory	Kinaesthetic
What it means	Need to see something or picture it, to learn it	Need to hear something to learn it	Learn better when physical activity is involved – learn by doing
How it can help prepare for the test	• Colour code information on your notes • Make short flash cards (so you can picture the notes) • Use diagrams, mind-maps and flowcharts • Use post-it notes to leave visible reminders for yourself	• Read information aloud, then repeat it in your own words • Use word games or mnemonics to help • Use different ways of saying things – different stresses or voices for different things • Record short revision notes to listen to on your phone or computer	• Revise your notes while walking – use different locations for different subjects • Try and connect actions with particular parts of a sequence you need to learn • Record your notes and listen to them while doing chores, exercising, etc. and associate the tasks with the learning

Remember!

Do not start revision too late! Cramming information is very stressful and does not work.

Useful tips

- **Plan a revision timetable** – schedule each topic you need to revise and try and spend a small time more often on each of them. Coming back to each topic several times will help you to reinforce the key facts in your memory.
- **Take regular breaks** – short bursts of 30–40 minutes revision are more effective than long hours. Remember that most people's concentration lapses after an hour and they need a break.
- **Allow yourself rest** – do not fill all your time with revision. You could schedule one evening off a week, or book in a 'revision holiday' of a few days.
- **Take care of yourself** – stay healthy, rested and eating properly. This will help you to perform at your best. The less stressed you are, the easier you will find it to learn.

Sitting the test

Listen to, and read carefully, any instructions you are given. Lots of marks are often lost because people do not read questions properly and then do not complete their answers correctly.

Most questions contain command words. Understanding what these words mean will help you understand what the question is asking you to do. These were also introduced at the start of this unit.

Remember the number of marks can relate to the number of answers you may be expected to give. If a question asks for two examples, do not only give one! Similarly, do not offer more information than the question needs: if there are two marks for two examples, do not give four examples.

Planning your time is an important part of succeeding on a test. Work out what you need to answer and then organise your time. You should spend more time on longer questions. Set yourself a timetable for working through the test and then stick to it. Do not spend ages on a short 1 or 2 mark question and then find you only have a few minutes for a longer 4 or 6 mark questions. It is useful when reading through a question to write down notes on a blank page. This way you can write down all the key words and information required and use these to structure an answer.

If you are writing an answer to a longer question, try and plan your answers before you start writing. Have a clear idea of the point your answer is making, and then make sure this point comes across in everything you write, so that it is all focused on answering the question you have been set.

If you finish early, use the time to re-read your answers and make any corrections. This could really help make your answers even better and could make a big difference in your final mark.

Hints and tips for tests

- Revise all the key areas likely to be covered. Draw up a checklist to make sure you do not forget anything!
- Know the time of the test and arrive early and prepared.
- Ensure that you have eaten before the test and that you feel relaxed and fresh.
- Read each question carefully before you answer it to make sure you understand what you have to do.

- Make notes as you read through the question and use these to structure your answer.
- Try answering all the simpler questions first then come back to the harder questions. This should give you more time for the harder questions.
- Remember you cannot lose marks for a wrong answer, but you cannot gain any marks for a blank space!

Q. Describe how transition metals are able to form ions with different oxidation numbers. (3)

Transition metals can lose two electrons from the 4s-orbital giving the +2 oxidation state. The 4s electrons are in the highest energy level and so are lost first. The 3d and 4s energy levels have similar energies so 3d electrons can also be lost.

This is a 3-mark describe question. The examiner is looking for 3 points. This answer has given 4 points, all of which are correct and so gains the marks. The examiner will not negatively mark the question but if you write more information that is incorrect and disagrees with what you have written you may lose a mark. For example, if this learner had gone on to write that 4s energy levels had much higher energy than 3d energy levels, this would be wrong and would negate the last mark given.

Q. Ethane contains a single C—C bond. Ethene contains a C═C double bond. Compare the bonds between the carbons in ethane and ethene. (6)

This is a 6-mark levelled question. It is worth 2 pass marks, 2 merit marks and 2 distinction marks. You gain marks for showing understanding rather than there being one mark per point. The more detailed and in-depth your discussion, the more likely you are to gain 6 marks. You would be expected to use all your knowledge of single and double bonds. You should discuss the electrons and orbitals, as well as strength, length and reactivity.

Question number	Answer	Mark
	Indicative content Similarities ▶ Both covalent bonds ▶ Electrons in the bonds overlap ▶ Both contain σ-bonds ▶ Hybrid sp^3 orbitals (ethane has sp^2) Differences ▶ Double bond contains π-bond ▶ *p*-orbitals overlap above and below the carbon atoms ▶ Movement restricted around double bond ▶ Region around double bond is flat ▶ Double bond more reactive than single bond/single bond more stable than double bond ▶ Single bond stronger than double ▶ Double bond shorter than single	(6)
0	No rewardable content.	0
Pass level	Some simple statements that are not linked.	1–2
Merit level	Some similarities and differences.	3–4
Distinction level	Detailed similarities and difference.	5–6

Ans 1. Double bonds are strong and very reactive. They make ethene a flat shape.

This would be a pass-level answer. The candidate has given some differences in a simple way. He has not compared double bonds to single bonds. This is worth 2 marks.

Ans 2. Both single and double bonds are covalent. The single bond is formed by a hybridised sp3 bond. In ethene there is also a pi bond. Both bonds contain a sigma bond and then in the double bond the p orbitals overlap. This forms a stronger bond but a shorter one. There are more electrons in a double bond so it is more reactive.

This would be a distinction-level answer. The learner has given similarities and differences. The ideas are mostly quite detailed and are linked. The learner does not have to give all indicative content to gain 6 marks.