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Biology

How to get an A1 in leaving cert Biology



by Eimear D.

Eimear D. got an A1 in last year's higher Biology paper and is now doing Applied Languages at University of Limerick. Here she shares what she learned.

People tend to think Biology is the easiest science subject, perhaps because it seemed easiest for the Junior Cert or because it should all be ‘common sense’. This is not the case. Biology is hard work. There are many terms, equations, cycles, etc. to learn along with actually understanding many aspects of the living world. However, this does not mean it isn’t doable. With a bit off effort and determination, you can do really well in Biology and reap the rewards when you get high marks in your Leaving Cert exam!

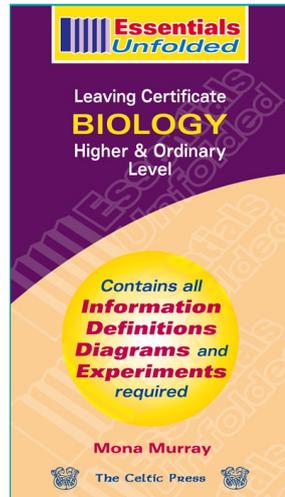
Here are some answers to questions you may have about the exam, the course and studying:

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How do I study Biology?

- ▶ For me, my study methods for Biology were **marking schemes and Studyclix**. Biology exam papers can be very repetitive, so I found that **looking over past questions and papers over and over again** and finding out the answers to all of them really helped prepare me for what would come up in my exam.
- ▶ Biology study takes time and **I really don't recommend cramming this one**, even if it works for you in other exams, there's just too much information to learn for that.
- ▶ Try to do it one section at a time. For example, try to tackle plants first; photosynthesis, transport in plants, plant reproduction. Really try to understand the information you're taking in. You can remember the information better if you have a good grasp on the topic.
- ▶ Test yourself regularly. For example, when you're finished studying one topic, Studyclix has the option to make out an exam in that topic, so try that! Alternatively, you could go into that topic on Studyclix, look at the exam paper questions, try to answer them first and then check the marking scheme to see if you're right.
- ▶ I wouldn't recommend doing all your study from your biology textbook. I didn't open my textbook for all of 6th year because my teacher just gave us the condensed and essential parts of the course. The textbook has copious amounts of extra, unnecessary information that isn't required on the syllabus. This could fill spaces in your brain that could be used more efficiently on remembering other vital pieces of information.
- ▶ *But how do you know* which parts of the textbook are needed or not? There are a couple of ways of knowing. For one, the past exam papers say a lot. Usually, they go as far back as about 10 years ago, and as I've said, the same stuff comes up the whole time. So if you study everything that you see in questions in the exam papers, you should be fairly safe. Another way is looking at the Biology syllabus here . This will show you all you need to know.

▶ This little book published by Celtic Press is also very helpful for knowing what to study, as it has about 95% of the course covered in about 30 pages. It was my Biology bible during 5th and 6th year and it's extremely handy for revision the night before an exam. If you can find it, I would recommend getting it.



▶ Another method of studying is **watching YouTube videos**. There are several YouTube channels about biology which help make it easier to understand. I found Hank Green's Biology videos quite helpful as he makes it seem fun, simple and interesting. Also check out the Studyclix

blog where they've added a youtube Playlist of most of the 22 mandatory experiments being done. It definitely helps to see them being done.

▶ Biology is the study of life, so you should be able to **apply your studies in your everyday life**. Keep thinking in Biology the whole time, for example, if you see a plant, try to determine if it's dicot or monocot and then recite the properties of whichever one it is, or, if you're exercising, concentrate on your breathing and go through the process of inhalation/exhalation and respiration in your head!

▶ **Write it out**. Writing and drawing information out on a sheet always helps for every subject, I think. I found it especially helped for Biology with things such as the Nitrogen/Carbon Cycle, food webs, experiment diagrams, etc.

What should I know?

- ▶ Like I've said, look through the syllabus and past papers to see what's necessary for you to know.
- ▶ It's also essential that you know all the definitions for different topics, e.g. define genetic engineering, define photosynthesis, etc. If you're finding this hard, perhaps you could write each definition out on a flash card and stick it up in your place of study. That way, you'll have to look at it every day and it will become ingrained in your mind. I did this for several subjects and it really helped.
- ▶ Questions on the practical experiments come up every year so you need to know all of them. Again, the same type of questions regarding each experiment come up each year. So look at the exam papers to see what you must know about each experiment. Usually you must know 3-4 steps of the experiments, a safety precaution, an aseptic technique, the equipment needed, the 'ingredients' needed, what they do and you must also be able to draw a diagram of the experiment also.

What should my timing be like?

- ▶ Personally, I think the timing for this exam is way off. You get **3 hours in total**, which, in my opinion, is far too long, especially when you consider that you get almost the same amount of time in English to write about 7 extra pages.
- ▶ Anyway, my point is that you have loads of time so don't freak out. You have buckets of time to calm and collect yourself and get your head in the zone.
- ▶ I would recommend spending about **30 minutes on the short questions** (Section A), about **20/25 minutes on Section B** and the **rest of your time on Section C** and looking over your work.
- ▶ Don't leave the exam early unless you are extremely confident that you have done everything you can. Take advantage of the time given to you.



How do I best do the Short Questions (Section A)?

- ▶ There are 6 short questions to choose from and your best 5 are marked, each out of 20. You should definitely attempt all of them to increase your chances of high marks.
- ▶ The idea behind these questions is to see if you know the basics of biology, so generally, the questions are basic, short and on the small parts of the biology course like food biology and the kingdoms, for example.
- ▶ As always, look over past exam papers. I can't stress that enough for biology. They are your best friend when it comes to studying for this subject. Using Studyclix will save you a lot of time in that you can find all the questions on the topic you are studying.
- ▶ Pretty much all I can say is try to make sure you know the general things asked for in this section. For example, make sure you know the 6 macronutrients and their properties, make sure you know the 5 kingdoms and their properties, make sure you know your ecology definitions, etc.
- ▶ Most of them are one word or one-lined answers so nothing is too difficult. Just apply your knowledge and show the examiner that you put in the work and that you know your stuff!

How do I best do the Experiment Questions (Section B)?

- ▶ You're only asked to do 2 out of 3 but again, **I would do them all**. Each is marked out of 30.
- ▶ Like I've said, you should really know all the experiments. However, you can try to predict what will come up for your exam by looking at past papers as they generally don't repeat them 2 years in a row. There is an element of risk with this of course, but if you want to cut down on study you could try that. Check out the chart below that shows what experiments were asked in the last couple of years.
- ▶ Personally, I would make sure I know them all, better safe than sorry! Some experiments are more popular than others too, and the SEC brings them up more often.

LC Biology Experiments

Exam Question	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	FREQ.
Investigate the growth of leaf yeast using agar plates	Q8 (b)			Q8 (b)		Q9 (b) (iv)			Q8 (a) & (b)		Q9 (a) & (b)	4.2
Investigate the effect of IAA growth regulator on plant tissue	Q8 (c)			Q7 (b) (vii)		Q9 (a) & (b)		Q8 (a) & (b)		Q7 (b)		4.2
Isolate DNA from a plant tissue	Q7 (a) & (b)				Q9 (a) & (b)	Q9 (b) (iii)					Q8 (a) & (b)	3.2
Ecology Experiments (combined)			Q7 (b)					Q7 (b)		Q9 (a) & (b)		3
Investigate the effect of heat denaturation on the rate of catalase activity			Q8 (b)					Q9 (a) & (b)	Q7 (a) & (b)			3
The Scientific Method	Q9 (a) & (b)	Q9 (a)	Q9 (a)	Q7 (a)	Q7 (a) & (b)	Q8 (a)						2.8
Prepare and examine animal & plant cell using the light microscope		Q8 (b)	Q9 (b) (iii)			Q9 (b) (i)				Q8 (b)		2.4
Investigate the effect water, oxygen and temperature on germination		Q7 (a) & (b)	Q9 (b) (iv)	Q7 (b) (v)			Q8 (a) & (b)					2.4
Dissect, display and identify an ox's or sheep's heart		Q9 (b)		Q7 (b) (i)		Q7 (a) & (b)						2.2
Investigate the effect of pH & temperature on the rate of enzyme activity	Q7 (c)			Q9 (b)								2
Prepare an enzyme immobilisation and examine its application							Q9 (a) & (b)				Q7 (a) & (b)	2
Investigate the influence of light intensity or carbon dioxide on the rate of photosynthesis			Q9 (b) (i)			Q9 (b) (ii)			Q9 (a) & (b)			1.4
Be familiar with and use the light microscope		Q8 (a)		Q7 (b) (viii)								1.2
Prepare and examine microscopically the transverse section of a dicotyledonous stem (X100, X400)					Q8 (b) (iv)		Q7 (a) & (b)					1.2
Conduct any activity to demonstrate osmosis			Q9 (b) (ii)	Q7 (b) (vi)								0.4
To test for starch, fat, reducing sugars, and protein						Q9 (b) (v)						0.2
Investigate the effect of exercise on the breathing rate or pulse rate of a human					Q8 (b) (iii)							0.2
Use starch agar or skimmed milk plates to show digestive activity during germination				Q7 (b) (iii)								0.2
Prepare and show the production of alcohol from yeast												0

An experiment has never been asked two years in a row as a full question Except for once when heat denaturation in enzymes was asked in 2007 and again in 2008

Our predictions:

- Scientific Method as a part of a question
- One question will revert to a mixed question this year
- Ecology is likely to come up.
- Photosynthesis may come up
- They asked one enzyme experiment last year. This year if they ask one it is likely to be - Prepare an enzyme immobilisation and examine its application
- A lot of the experiments with the lower scores (that have come up rarely) are easy ordinary level experiments
- Osmosis experiment has never been asked

Key: Whole Question Part Question

Experiment Question Predictions

How do I best do the Long Questions (Section C)?

- ▶ There are **6 questions for you to choose 4 from**. Each is worth 60 marks.
- ▶ It's always a good idea to **do an extra question** if you have the time in this section; it increases your chances of getting higher marks.
- ▶ A question on genetics is guaranteed every year, so, if you're confident with this topic, I'd make sure I know all of it and do that one in the exam for definite.
- ▶ More often than not, a long question comes up on either Respiration, Photosynthesis, or both, so if I were you, I'd make sure I knew these topics like the back of my hand.
- ▶ Your answers needn't be too long. The marking schemes are usually quite short actually, even for the long questions. None of my answers in my answer book for this exam were more than a page long, unless I had to draw a diagram, so don't obsess over not having enough written.
- ▶ The above point being said, make sure you're going into enough detail so that you're answering the question asked. You don't want to fall short on marks because you left out information that you knew in the first place! Write in all you know on the subject, you won't lose marks for extra information (unless they only ask for one answer and you give 2)!
- ▶ There's no harm to write your answers in bullet point form. Sometimes it's easier to do it this way than getting in a muddle trying to phrase the way you want to say something.
- ▶ Even if you're not asked for a diagram, it sometimes helps if you draw one out anyway. It shows you know what you're doing and it could help you visualise what you're trying to say too.
- ▶ Also, where possible you should try and give an example. This can be really worthwhile in a question like "What is meant by Genetic Engineering?". If your answer is a little bit off but you have included a good relevant example then the examiner will often give you the benefit of the doubt.

In the exam:

- ▶ **Don't cross out answers.** All your work will be corrected, so even if you think it's wrong, you might get marks for it.
- ▶ **Don't freak out** if you can't answer a question. Take a deep breath and tell yourself that you know the answer, you put in the work and you can do it! If you start to get worked up in the exam, then you could ruin your mindset for other questions, so really don't let one question throw you.
- ▶ Always fill in everything. You never know when you could be right, even if you think your answer is ridiculous, it could get you marks.
- ▶ **Read the question carefully.** There are very similar looking yet different meaning words in Biology, so you don't want to mix them up. Also know what the question is looking for, do you need to merely list information, or do you need to describe it in detail?



Good luck, you'll be great!