

ORGANIC COMPOUNDS

CHEMISTRY

LEVEL 3

Strategy Guide

This is a pretty 'middle of the road' standard! There is a bit of content to learn - but in terms memorisation, you're pretty safe! Focus on understanding the concepts in depth, and you'll be away in no time!

OVERVIEW OF THE STANDARD/STRUCTURE OF THE EXAM

This standard is broken in to a few key parts

1. Naming + isomers
2. Solubility, melting points and boiling points
3. Reactions
4. Esters
5. Distillation vs reflux
6. Polymers

There will be questions on each of these areas, with naming being prevalent all throughout the paper.

CONCEPTS AND SKILLS TO FOCUS ON

Although every aspect of the exam is equally important, here are some key concepts to focus your study on:

Naming:

Naming is hands down the most important concept in this standard. If you can name organic molecules when you are given a structure, and draw a structure when you are given a name - then you are already well on your way to doing well in this standard. Naming and drawing is important all throughout the paper. In fact, whenever you see a name, it is a really good habit to draw the molecule - just so you can get a picture of what the molecule may be able to do. For example, in questions where you are asked to draw isomers and you are unsure whether you have drawn the same structure twice, a good strategy is to have a go at naming them to see if they are really different. You can even draw your own molecules and try and name them for practice, if you run out of examples in your text book!

Reflux and distillation:

Questions about reflux and distillation almost always come up - and they are always very similar. It is a good idea to be able to draw a picture to help with your explanations.



Reactions:

The bane of every chem student! It always seems like there are far too many to learn! The important thing here is to get a process going to look for patterns. Instead of trying to memorise 50 different statements like "Haloalkane + aqueous KOH goes to alcohol" try thinking about it in terms of what happens in the reaction and what the molecule can do. For example addition reactions happen to alkenes, the double bond breaks and one group is added to each carbon, looking at a reagent like HCl, we can probably guess that H will go on one carbon and Cl will go on the other. There are still a few odd ones, like the fact that we need alcoholic KOH to eliminate haloalkanes that do kind of need to be memorised, but do a lot of practice and you will get there eventually!

Ester hydrolysis:

This question is super common and the answer is almost always the same. The thing to remember about esters is, the only thing you can do is make them and break them apart. It is also important to remember that you can break them in either acidic or basic conditions. If you can recognise this question when it comes up, it's a free M/E mark!

COMMON MISTAKES:

From the NCEA gods themselves:

NaBH₄

NaBH₄ is a pretty odd reagent that is used to reduce ketones and aldehydes back to their alcohols. This reagent doesn't come up that much, but it is definitely good to keep in the back of your mind as it trips a lot of students up when it does!

Distillation and Reflux:

Often student learn that distillation is to make aldehydes and reflux is to make carboxylic acids. While this is true, this is not all that they can be used for. Distillation can also be used to purify compounds or separate two compounds based on them having different boiling points. Reflux can also be used to speed up the rate of any reaction.

OVERALL STUDY AND EXAM STRATEGY:

Organic chemistry is a standard that lots of students drop because it seems so intimidating. **DON'T DO THIS!** If you take the time to learn each concept independently, and understand what is going on behind the scenes, you'll begin to notice patterns that can carry you right through the standard. Start doing practice exams as soon as possible, so you can get your head into understanding the types of things that commonly come up in NCEA.

