

EXAMINER TIPS for IGCSE Biology 0610

How to use these tips

These tips are based on some common mistakes made by students. They are collected under various subheadings to help you when you prepare for your examinations.

- Make sure you read all the general tips. These can be important in any of the papers you do.
- Make sure you know which examination papers you are taking before you look at the tips for the different papers
- All of you will take paper 1, which is all multiple choice questions.
- You may be taking paper 2, which is Foundation OR you may be taking paper 3, which is Extended.
- You may be taking paper 5, which is a practical examination in a laboratory OR you may be taking paper 6 which is a written paper about practical work.

General Advice

- **Answering questions.** The questions are meant to let you show the biology you know. There are no trick questions. When you are writing your answers remember that another person has to be able to read it.
 - Do not waste time by writing out the question before you start to answer.
 - Keep your handwriting clear and legible.
 - Keep your answer in the lines on the question paper. If you write in the margin, at the bottom of a page, or on blank pages, part of your answer might be missed.
 - If you have to cross out something, put a line through, but do not scribble all over it.
 - If you have to use a different space to write another answer to one you have crossed out, then put a note to say where it is, e.g. answer on page 5
 - Written papers are now marked on computer screen so your written paper will be scanned. If you write on the margin the scanner may not be able to copy this.
 - Try to be precise, in other word be accurate in what you say. Using biological terms correctly can help.
 - Do not use word like "it", "they", "effect", "affect" without any more explanation. A sentence like "It has an effect on the body" or "They affect the process" does not say anything.
 - If you use the word "it" or "they" – think WHAT?
 - If you use the word "affect" or "effect" - think HOW?
 - e.g. State why magnesium ions are important for healthy plant development. [1]
 - "it are needed by the plant" is true but too vague.
 - "They are needed by the leaves" is still too vague
 - Ask yourself: What is it or they? What is the "need"?
 - "Magnesium is needed to make chlorophyll" is a better answer
 - "Magnesium is part of a chlorophyll molecule." Good answer!

- **Terms.** These are the names used in biology. These will be used in questions. You will get more marks if you can use them correctly in your examination. Ask your teacher if you are unsure of the different meanings between biological terms.
 - Try to use the correct spelling. The person marking your answer will try to recognise what word you mean, but if the spelling is too wrong, then they cannot allow you a mark.
 - Some biological terms have very similar spelling. One example is "ureter", "urethra" and "uterus". If your mis-spelling is "uretus", it could be "ureters" or "uterus". Other common examples are ovum, ova, ovary and ovule, testes and testis; sucrose and sucrase.
 - Do not try to mix the spellings of two words when you are not sure which of them is the correct answer, e.g. meiosis, when you are not sure whether the answer is mitosis or meiosis, or urether, when you are not sure if the answer is ureter or urethra.
 - You need to check carefully that you have used the right word when similar terms are used in the same topic, e.g. urea and urine, ureter and urethra., semen and sperm

- **Writing in your own words.** You sometimes have to write two or more sentences to answer a question.
 - Use short sentences. If you write long sentences you can get mixed up. It is hard to find correct statements in a muddled answer.
 - You are often asked to write down something you have learned. Make sure you have learnt the meanings of the common terms used in biology, e.g. photosynthesis, osmosis, fermentation.
 - In the revision checklist there is a list of the terms which you should be able to "define". You also need to be able to write down the meaning of more complicated ideas, e.g. level of organisation, natural selection, global warming, eutrophication.

What you should look for in a question

1) The number of marks.

- In multiple choice questions there is only one mark for a correct answer.
- Other sorts of question show how many marks at the end of each part like this [2]. The number of marks helps you decide how much to write.
- The number of marks is a guide to how long to spend on each question or parts of a question. If you allow about 1 minute per mark then you should finish in time to check your answers.
- Do not waste time and write long answer for a question which has [1]. You will only get one mark even if the rest of the answer has correct statements.
- If there are two or more marks do not write the same thing in two different ways, e.g. The leaf is very large. The leaf has a large surface area.

2) The instructions. These are called command words and tell you what to do.

- If a question says "Show your working" when you have to do a calculation, then write down the stages of your calculation to show how you got your answer. Even if you get the final answer wrong, you may be given a mark for knowing what to do.
- If a question asks you to "Name" or "State" **two** things only the first two will be marked. Use the numbered lines for your answers if they are on the question paper. If you write more than two and the first is correct but the second one is wrong, you will only get the mark for the first one. Even if the third answer is correct, it will not be marked.
- Some questions have two commands in the question, for example "Predict" AND "Explain"" This means you have to say what you think will happen AND then say why you think it will happen.
- The Revision Checklist has a list of terms used in biology papers to tell you what to do in an answer (section 4.3 Command words and phrases). Make sure you know what these terms mean.
- e.g. "Name the process by which green plants make sugars", all you need to write for your answer is "Photosynthesis". A question which asks you to "Define photosynthesis", would expect you to write one sentence such as "The process by which green plants use light energy to make sugars".

3) What the question is about. Make sure you know which part of your biology is being tested

- Read the whole of a question carefully before you begin to answer it. Some of the parts have similar answers so you need to work out the difference between them. If you write exactly the same thing in different parts of the same question, then only one of them might be a correct answer.
- It helps to highlight the main features of a question.
- e.g. "Name the tissue that transports the sugars made by photosynthesis to other parts of the plant".
- This tells you that you want a one word answer, about plant transport of sugars.
- Do not be put off the question is about something you have not studied. There will be enough information in the question for you to work out an answer.

- Look carefully at any diagrams, graphs or tables and make sure you understand what they are about. You may have to use information from them to answer the questions.
- Answer each question as far as you can. Do not spend a long time staring at a question
- If you have forgotten something, go on to the next question or part of a question. Come back to the ones you found difficult when you have finished all of the paper.
- Try not to leave blanks. When you come back to a question you often remember an answer you left out.
- Do not waste time by writing about things unrelated to the question.

Paper 1 Tips

- Each question tests just one thing. You have about 1 minute to read and answer each question.
 - Some questions test what you know and understand. For example “What part of the eye detects light?”
 - Some questions test if you can use what you have learned to understand new data. These questions will often have a diagram, graph or table to use.
- Try to decide what the question is testing as you are reading it.
 - To answer a question that asks "What is a characteristic feature of all living things?"
 - You need to know the characteristic features of living things. If you know a quick way of remembering all seven then you can jot it down on the question paper. e.g. MRS GREN for Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion and Nutrition, or the first letters of Real Elephants Grow Massive Red Feet Slowly,
 - To answer a question that has a diagram of the circulatory system and asks "In which vessel will absorbed alcohol first be found?". You need to think about what the question is asking you.
 - Is it about digestion?
 - Is it about excretion (of alcohol)?
 - Is it about the circulation?

The question is asking about something absorbed from the gut to be transported, so it is about circulation.

- Which vessel carries substances absorbed by the gut?
- Answer "The Hepatic Portal Vein".

So you have to choose the letter which labels the hepatic portal vein.

- Do not try to find a pattern in the letter order of correct answers.
 - The same letter could be the correct for several answers in a row.
 - Letter A might be the correct answers for more questions than are B, C or D. Or there could be fewer correct answers shown by letter D than any of the others.
 - Do not let what you have chosen for the previous questions influence what letter you choose.

Written Paper Tips

- You should read all of a question before you begin to answer it. Different questions will ask you to do different tasks to test how well you know and understand biology.
 - The topic is usually the same for all different parts of the question. Remember that underlining important words will help you to be clear about what you are being asked to do.
 - Look for clues in the words of the question. If you see “mammal” you know that the animals are warm blooded and have biological systems like ours.
 - If you are only given a Latin name or a name you do not recognise, e.g. "dik-dik", look to see if you are told anything about it. If you are told it is a herbivore, then you know it eats plants.

The main sort of tasks you might be asked to do are:

- **Identify features of cells, tissues organs.**

For example, “label on Fig.5.1 using labelling lines, a petal, a sepal and a stamen. To answer this question

 - You have to know the structure of a flower.
 - You also have to be able to find the structures on a diagram of a flower you may never have studied.
 - You then have to draw a label line to the structure and write the name next to the labelling line. If you do not draw a label line, or use an arrow, you may not get any marks even if you have found the correct structures.
- **Use information given in the question.**

For example if a question asks you to “Use examples from” or “Use only this information” or “With reference to Fig. 6.2” . . . STOP and THINK! Find out what you are expected to use as examples or get information from. You will not get any marks if you use examples from somewhere else. The information can be given to you in different ways:

 - Diagram like a food web, a set of apparatus or biological structure.
 - A graph, which could be a line graph, a bar chart or a histogram. Check the headings and units carefully
 - A table. Check the headings and units carefully
 - You may have to give examples to show that you understand an idea in Biology.
 - After a diagram of a food web you might be asked to “Name an organism from this food web that is a primary consumer, a tertiary consumers and a producer”.
 - To answer this question you have to know definitions of producers, primary consumers, tertiary consumers. Then you have to show that you understand how these terms apply to the food web shown in the diagram. If you put examples from other food webs you have learned, you will not get any marks.
 - After a diagram of leaf structure you may be asked to “Describe and explain the advantage of the distribution of chloroplasts shown in Fig.8.1”
 - To answer this question you have to observe the diagram and describe which cells have the most chloroplasts. Then you have to work out why this arrangement might help photosynthesis. If you write answer about what chloroplasts do you will not get any marks.
- **Draw or interpret graphs.**

If you are asked to draw a graph:

- Choose a scale which uses most of the grid.
- Choose a simple scale, e.g. one small square is equal to 1 or 2 or 10 units in the data. Do not give make it hard for by having to multiply each item in the data by 2/3!
- Write the name of the axes and their units, e.g. rate of water loss/ g per h , temperature/ °C, time/ s
- Plot the points exactly using a sharp pencil. Draw the points lightly so that you can rub them out if you need to. Make them more definite when you are sure they are right.
- Use a cross (x) or a dot in a circle (⊙) for your plot points.
- Join the points with a "line of best fit or a zig -zag line.
- Remember that all curves do not have to pass through the point where the two axes meet.
- Do not extend you graph beyond the plotted points.

If you are asked to read figures from a graph:

- Make sure you work out the scale.
- Make sure you read from the correct axis and put in the units.
- If you are asked for a trend or pattern, describe the overall change, e.g. the line increases and then levels. off. Do not describe each point of the graph.

- **Draw or interpret tables**

If you are asked to draw a table

- Use a ruler and a pencil to draw the table.
- Write headings for each column or row of the table.
- Write in units if they are needed, e.g. volume of water/cm³, mass of seed/g.
- Do not put units in the table spaces where you write numbers.

- **Do calculations.**

If you are asked to do a calculation:

- You may have to find the figures from a table or graph.
- Make sure that you show the units in the calculation.
- Show you working.
- If you use a calculator, round up the figures to the same as in the question – do not copy all the figures after the decimal point, e.g. If the question figures are 5.6, 4.6, then your answer should only have one number after the decimal point.

- **Show or complete equations.** You do not have to know chemical symbols for equations of the processes in biology. But it will help you to understand them if you do.

- If you are asked to give either a word or a symbol equation, do not combine symbols and words in the same answer

- If you have to give the word equation for anaerobic respiration by yeast, write:

Glucose → carbon dioxide + ethanol + energy

- If you have to give the chemical equation for anaerobic respiration by yeast, write

$C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2 + \text{energy}$

- Do not write something like

glucose → CO₂ + ethanol and energy

- **Make comparisons.** If you are asked to compare two things make sure you make it clear which you are talking about.
 - A question may give to table of data and then ask you about it. Make sure you only use information from the table. e.g. in a table of the composition of normal breast milk and colostrum, you can see which milk contains more fat, protein and sugar. Your answers should start with “colostrum has more than breast milk” or “breast milk has more than colostrum”. Do not put “it has more protein.” The person marking cannot guess which you thought had more protein.
 - The question may ask you to make a comparison about biology you have learned. e.g. the differences between arteries and veins. The clearest way of answering is to make your own table. Make sure the headings are clear. Keep the comparisons of the same feature together.

Artery	vein
has thick wall	has thin wall
thick muscle layer	very thin muscle

A table like the one below will not get any marks as there are no comparisons of the same features.

Artery	veins
thick wall	elastic layer
no valves	small amount of muscle

- **Extended writing.** This means writing several sentences together.
 - e.g. Suggest what happens if excess nitrogen fertiliser is washed into a stream or pond [4]
 - The mark scheme used for a question like this will have a list of points that the person marking your answer will use.
 - There will be more points than there are marks, so you do not need to put them all in your answer. The points for this question could be:
 - Algae and aquatic plants grow faster using the fertiliser.
 - Algae cover the water surface.
 - Light cannot pass to aquatic plants lower down.
 - These plants die.
 - Bacteria of decay feed on the dead plants.
 - Bacteria increase in numbers.
 - These bacteria are aerobic.
 - They use up more oxygen.
 - There is not enough oxygen for other organisms which live in the water.
 - These organisms die.
 - The process is called eutrophication.

If your answer is something like "The fertiliser causes low oxygen and it affects animals in the water." you will not get any marks. The answer is much too vague, in other words it is not precise. If your answer is something like "The animals do not have enough oxygen for their respiration and they die." you will get some marks.

Paper 2 tips

- Most of the questions are short answers. This means that you writing mainly one word or one sentence answers worth one mark. [1].
- Longer answers will need two or three sentences. Check the number of marks.
- Check the number of command words, do you have to do one or two things.
- Use the lines given. Do not write too much.
- Check if you are asked for an actual number of answers. Only give that number. Use the numbered lines and give one answer per number.
- There will be a few parts of questions that need extended writing. These will have four [4] or [5] marks. The question will often be related to some information you are given. You will need to write four or five sentences in an order that makes sense. You can think of it like “telling a story”. Remember to refer to any information you are given.

Paper 3 tips

- There is more to read in this paper.
- Many questions will be one, two or three sentence answers. Check the number of marks.
- Check the number of command word – do you have to do one or two things
- Check if you are asked for an actual number of answers. Only give that number. Use the numbered lines and give one answer per number.
- There are questions that may start in one part of the syllabus and link to another, e.g. the information could be about the animals in a particular habitat and what they eat. The first parts of the question might be about the food chains or food webs which include these animals. Another part of the question could be about the structure of one of the animals or about factors in its environment.
- You are likely to have questions about events and situations that are new to you. Do not be put off. The question will tell you all you need to know. What you need to do, is show that you can connect the biology you have learned with the new facts. e.g. you may not have learned anything about how cats inherit the length of their fur.
 - The question tells you that the alleles for fur length are co-dominant.
 - The question tells you the fur length of pure bred parents are long and short.
 - You know that the offspring of cross breeding are heterozygous for fur length.
 - You know from your genetics lessons that for features controlled by co-dominant alleles, both alleles are expressed in the offspring.
 - You know enough to work out that the fur length of the offspring will be medium length.
- You are likely to be asked to interpret unfamiliar data, e.g. result from an experiment you may not have carried out or could not be carried out in a school. Do not be put off. Follow the same rules as before. There will always be enough information in the question for you to answer it.

General Tips for Practical Papers

- Look to see how many marks are given for each question.
- Divide the time of your examination in proportion to the marks given.
- Whichever paper you do the same rules for recording observations.
- Use the same rules as in the tips for written papers for tables, graphs, calculations and comparisons.

Recording your observations

- You can record as:
 - statements in writing
 - as tables
 - drawings
- Neat work helps to keep you calm and feeling in control.
- Use all the space available on the paper for your observations.
- Do not write an explanation until the question asks for one.
- Use a sharp HB or B pencil. It can be rubbed out easily if you need to correct a mistake.
- Don't forget headings for the columns and the rows or tables or graph axes. Don't forget the units!
- Make drawings as big as the space allows.
- Use a ruler for labelling lines.
- Label in pencil.

Planning investigations

Some times you are asked to suggest a way of carrying out an investigation or to improve the method that is in the question paper.

- When you read through an investigation try to work out three main things:
 1. What is being changed – this is called the independent variable, e.g. light
 2. What is being measured – this is called the dependent variable, e.g. oxygen given off by plant
 3. What is being kept the same – these are called the standard or control variables, e.g. type of plant, number of leaves on the plant, environment of plant, the apparatus used, time for collecting oxygen.
- Some investigation needs to have two parts:
 - the experimental- which is the apparatus used to measure the process being studied and contains the living organism being tested.
 - The control. –which will be exactly the same as the experiment except the living organism will be missing or replaced by something non-living. e.g. there would be no plant in one set of apparatus.
- The control shows that the results are due to the activity of the living organism and is not due to the apparatus or an environmental factor.

Tips for paper 5

In paper 5 you are following instructions, using laboratory equipment, making observations, recording results and drawing conclusions.

- Start by reading the entire first question.
- Think about the apparatus needed for each step and imagine using it in your mind.
- Check the time to be allowed and imagine following the instructions.
- Do the same when you are ready to begin the next question.

Following the instructions

- Follow the instructions for practical methods exactly. If you make a change in the method you can alter the results.
- Do not take short cuts.
- Always label test tubes and other containers to help you remember which is which.
- If you are told to "Wash the apparatus thoroughly after each use" make sure you do. If there is anything left in the apparatus the next stage may not work.
- If you have to measure a specimen make sure you draw a line on your drawing to show where you made our measurement.
- You will get marks for following instructions accurately.

Recording your observations

- Do not forget that observations can be seen, heard, felt and smelled.
- e.g. colour, fizzing, warming, smell of a flower, texture (feel) of a fruit.
- You can always something to observe, so make sure you record something for each observation.
- Write down **exactly** what you observe.
- e.g. if you add a drop of iodine to a drop of starch solution on a white tile, the colour changes.
 - You should write "the colour changed from yellow to black."
 - If you write "it turned black" you have not given all the information.
 - If you add iodine to a drop of water on a white tile.
 - You should write down 'the colour stayed yellow.'
 - If you write 'the colour stayed the same', or 'no change', you have left information out.

Conclusions

- Use your own results for your conclusions.
- Do not write the conclusion you have learned from a class experiment or from theory. E.g. in an investigation you test drops of a mixture of sodium chloride, amylase and starch solution with iodine once a minute for eight minutes. Then you repeat this with a mixture of water, amylase and starch solutions.
 - The blue/black colour might disappear sooner in one test tube than the other.
 - Even if you know that sodium chloride usually makes amylase work faster, you must write down the results from YOUR investigation.
 - You must draw conclusions from YOUR results.
 - If the colour in both tubes changes at the same time, the conclusion has to be that the sodium chloride made no difference. That is the correct conclusion drawn from your observations.

Tips for paper 6

In this paper you are making observations from information given in the paper, recording results and drawing conclusions. Try to imagine doing the practical which has produced the results in the questions.

Recording observations

- All of your observations are either measurements that you make or diagrams on the paper.
- Write down exactly what you see.

Making measurements

- Make your measurements as accurate as you can. Measure to the nearest unit e.g. mm. Do not try and "guess" 0.5mm.
- Make sure you put units!
- If you have to make calculations use the blank pages within the paper. Do not write in the margin.
- Write neatly and show your working. The person marking your paper might be able to give you marks for knowing what to do if you make a mistake or do not finish the calculation.

Conclusions

- Use your measurements or observations or on the results given in the question for your conclusions.
- Do not rely on something you have learned as "the right answer".