

# **B B C BITESIZE**

Hello. I'm Dr Alex Lathbridge and this is Bitesize Biology.

This series is all about exam techniques. Tips, tricks and advice for passing your tests.

Now, today we're going to be chatting about writing brilliant answers for those six-mark questions.

Six-mark questions can seem a bit scary, they're worth a lot of marks, six in fact.

Six-mark questions are just multiple one-, two- and three-mark questions smushed together. So, the first step to writing a brilliant answer for them is to break them down and work out the questions inside the six-mark question.

We'll be going through an example of a six-mark answer later on in the podcast.

And we'll also be hearing from students who've recently done their biology exams, who have advice on how they tackled them.

In case you've forgotten, let me remind you of the format. I've got some examples of six-mark questions:

It could be something like: Describe how non-specific human defence systems stop you from falling ill or describe the processes in the water cycle.

In your exam, the first thing you need to do is stay calm and read the question slowly.

The question will tell you what kind of answer it wants.

These questions are going to include command words, things like explain, suggest, describe, or evaluate.

Remember, we looked at command Words in our previous episode, make sure you've listened to that episode because it'll give you a lot of help for answering six-mark questions.

And once you've read the question slowly. I want you to read it again. And then read it again.

Read the question through at least twice to make sure you fully understand what they're asking.

It is very important that you think about your answer and not just rush into it.

You could write something amazing, and then the exam could end, and you realise you've not answered the question that they've actually asked. So don't waste all that effort, put in the key

words at the beginning.

Once you've read the question, I want you to circle the key words in the question, and then annotate them each of them with little notes, some definitions and facts you can remember.

Don't spend too long making a plan for how to answer, actually answer the question, this is where notes come in.

Top tip: As you write out your points in your answer, you can cross out each note, so you know you've covered everything.

It is essential that you give as many different points in your answer as possible, ideally six points, six marks. Try to write in full sentences and link these points together coherently.

Use specialist scientific vocabulary wherever you can, so in your answer you want to say things like protein synthesis, rather than making proteins.

Examiners are looking to see what key terms you've learned and can remember.

It sounds obvious, but if you only write one sentence with two points in it, don't be surprised that you don't get six marks.

It's not just me saying it. Here are some tips from some real students about how they approached the six-mark questions:

**Student:** Six markers are a lot easier than you think. It's a lot of marks but if you hit the right points then you can achieve all the marks. Maybe using past paper questions and noticing what gets you the marks and what doesn't, and also making sure you use all the key words.

**Student:** I always did six markers, the first question did, so I could do it in a formulaic structure and try to get the most marks I can, because I'd use my actual content as a foundation and then I'd link them together, and then add explanation on top of that.

**Student:** I think you should always try and add at least something in there, even if it might get you no marks, at least having something in a six marks might give you one or two, which can push you into the next grade, which is better than just leaving it blank.

**Student:** For six markers, I would make notes around the edges and highlight words and write what I plan to do. Sometimes in bullet points so I know I'm hitting six marking points, looking at key words that the teacher has told you to highlight and learn, and trying to get six good, clear separate points.

**Student:** I always try to read the question two or three times and underline words. Being dyslexic as well, I know I mix up words like meiosis and mitosis, so underline them, writing a definition, then I'd go back to check through my paper.

**Student:** I always first understand the concept of the question and then write everything I know linking it back to the biology knowledge I have before, and then linking it back to the question. After that, normally to help with time management, I'd complete the rest of the paper. I would go back at

the end, and just write as much as I could, just filling up the pages, so I could be sure I got those six marks.

Let's have a go at a six-mark question.

I'm going to find an example question, It might be a good idea to grab a pen, write this down and have a go yourself at answering it.

A six-mark question might be something like:

Explain how temperature affects how enzymes work.

So, this might sound scary, it's ok. You're going to stay calm and then you're going to read the question again, just to be completely sure that you know what they're asking.

Explain how temperature affects how enzymes work.

So, let's highlight the command word in the sentence, in this case it's "explain."

Explain questions are looking for how or why something happens.

And the key words there are: temperature and enzymes.

Remember when I said that six-mark questions are just a few one-, two- and three-mark questions all smushed together?

So, let's break this down into two or three simple, sub-questions:

Explain how temperature affects how enzymes work. So that would be:

What is an enzyme?

Why is the shape of an enzyme important?

And what happens to an enzymes as temperatures change?

This is where our notes on enzymes come in handy, just regurgitate all of them on the sides of the paper. Just on the side.

So what do we know?

Enzymes are proteins, they catalyse reactions. So, the term rate of reaction will be important.

They bind to molecules known as substrates, an active site, the active site is complementary in shape to the substrate.

That's what makes them unique, and it's the Lock and Key Mechanism.

And when it's really cold, the rate of reaction is slow, because there aren't a lot of molecular collisions.

But as the temperature increases, the rate of reaction increases, because there's more collisions.

But, if the temperature gets too high, the shape of the enzyme breaks down, the active site changes, so that means the substrate and the enzyme can't bind, so that means that the rate of the reaction halts.

I have given you loads of notes there. You wouldn't write all of this down when you're planning, because you'd run out of time.

Just make a few notes to jog your memory, and you'll get your answer.

With all those notes, and an idea of what the question is asking, let's answer the question.

So for a six-mark question, you're just going to answer those sub-questions:

What is an enzyme?

Why is the shape of an enzyme important?

How do enzymes respond to changes in temperatures?

Answer those questions, but throw some linked, full sentences in there, including words like because, therefore and due to.

Enzymes are proteins that catalyse reactions (so that's a mark.)

They bind to specific molecules known as substrates, which are complementary in shape to their active site. This is known as the lock and key mechanism (that's a mark.)

As the temperature decreases, so does the rate of reaction, because there aren't as many molecular collisions between the substrate and the enzyme's active site (that's one mark).

As it increases in temperature, the rate of reaction increases, because there are more collisions (yep, another mark).

But, above a certain temperature, the active site changes shape, because the protein denatures (that's another mark).

And that means that its ability to bind to the substrate decreases, this decreases and eventually halts the rate of reaction.

And look now you've got six marks.

So, there's an example of how to easily tackle a six-mark answer from your notes.

I know six-mark questions can seem like a lot. Remember, you won't get a mark for a blank sheet of paper, so if you're struggling, try to write down some biological facts that you can remember.

Things that you can think of that relate to the question, you might get a mark there.

Most importantly, just practice them, that'll make you feel a lot less scared. There are loads more examples on the Bitesize website so make sure you check that out.

I'm Dr Alex Lathbridge and this is Bitesize Biology. Subscribe now on BBC Sounds.