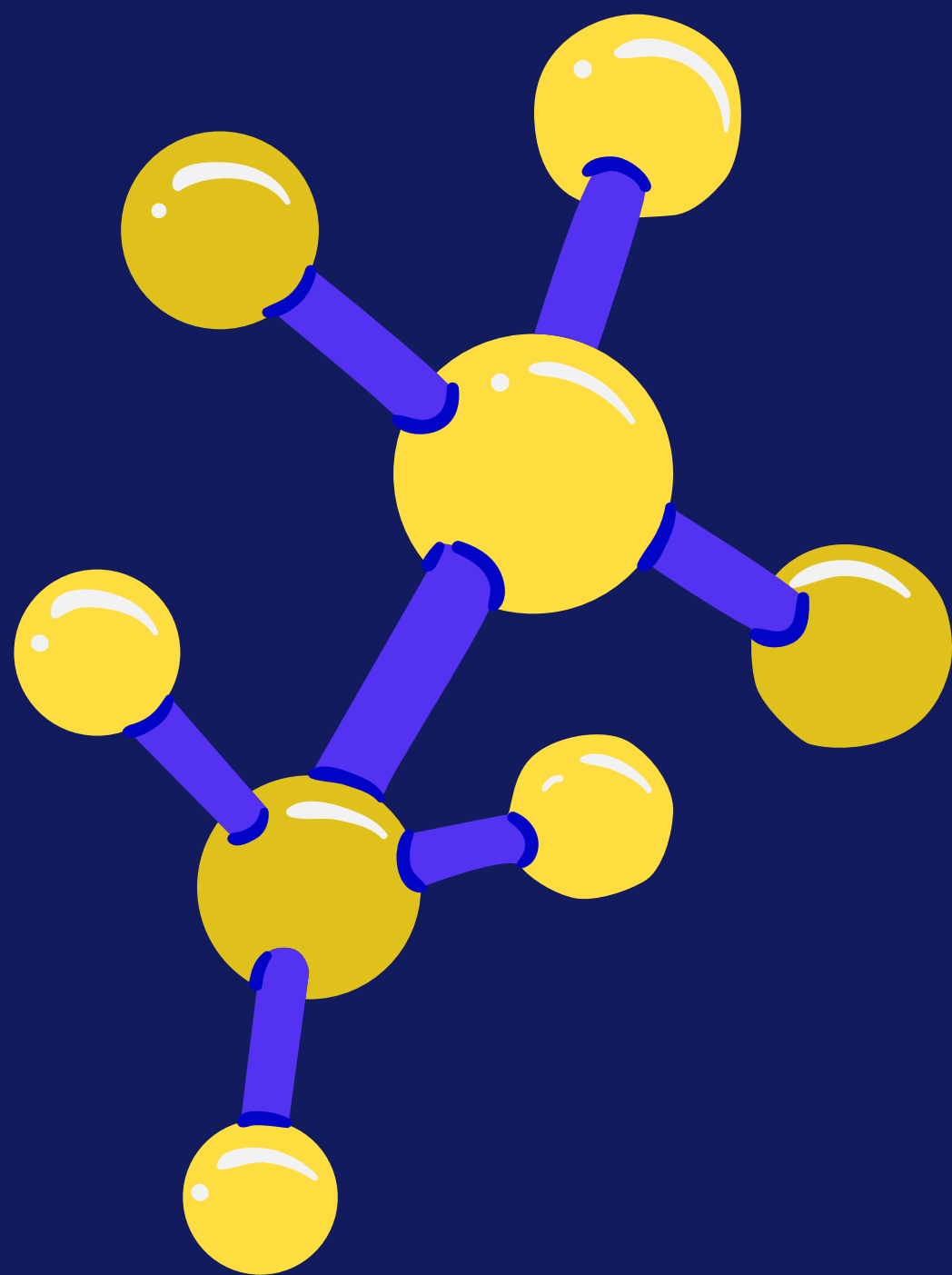




IB CHEMISTRY

The Ultimate Study Guide

Updated for the 2025 Syllabus



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ABOUT THIS GUIDE

This guide was created with one purpose: to give you the ultimate resource for mastering your IB subject. It's built on the invaluable advice of our fantastic Lanterna tutors—the very best in the field.

These tutors not only achieved top grades in the IB themselves but also have years of experience helping students like you succeed. Their insights, strategies, and tips are pure gold—insider knowledge you won't find anywhere else online.

Whether you're a current student or trying to decide if this subject is right for you, this guide has everything you need to thrive.

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WHY SHOULD YOU TRUST US?

The tutors whose information we compiled to create this guide have not only conquered the IB but they are experts in simplifying the learning journey for you. The most common score for our IB tutors is the full 45 points. More specifically, they have received a 7 in this particular subject.

42.3

Average IB score of
our tutors

150K+

Hours tutored



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OVERVIEW: CHEMISTRY

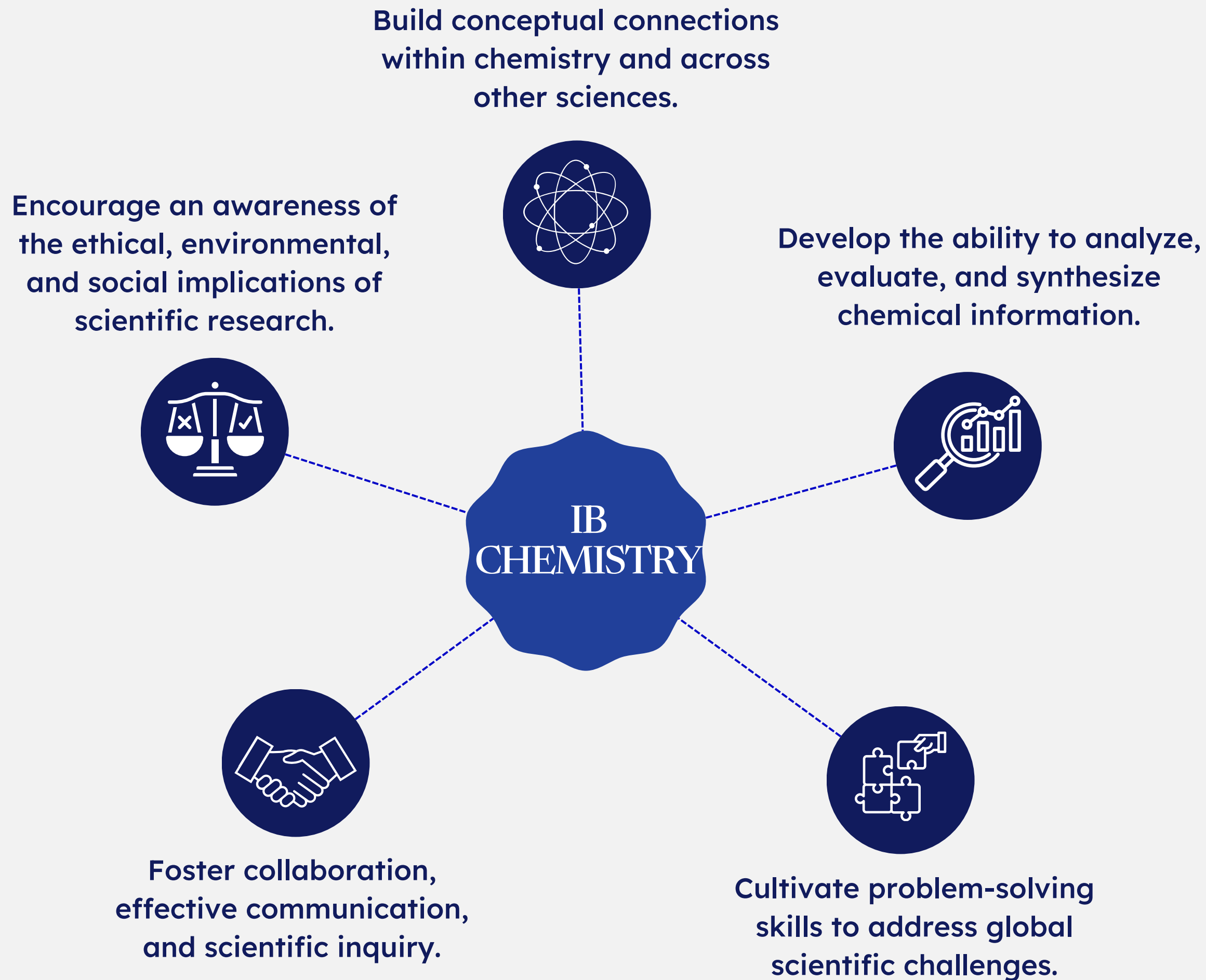
IB Chemistry explores the principles governing the composition, structure, and properties of matter, with a strong focus on developing scientific models and theories to explain real-world phenomena.

The course emphasizes the importance of experimental investigation, challenging students to analyze data, identify patterns, and apply creative problem-solving to scientific issues. Through practical work and scientific inquiry, students gain valuable skills in designing experiments, processing data, and evaluating evidence.

With its focus on conceptual understanding and inquiry-based learning, IB Chemistry equips students with the tools to tackle both local and global challenges—ranging from environmental sustainability to advances in technology—while fostering critical thinking and collaboration across scientific disciplines.

COURSE AIMS

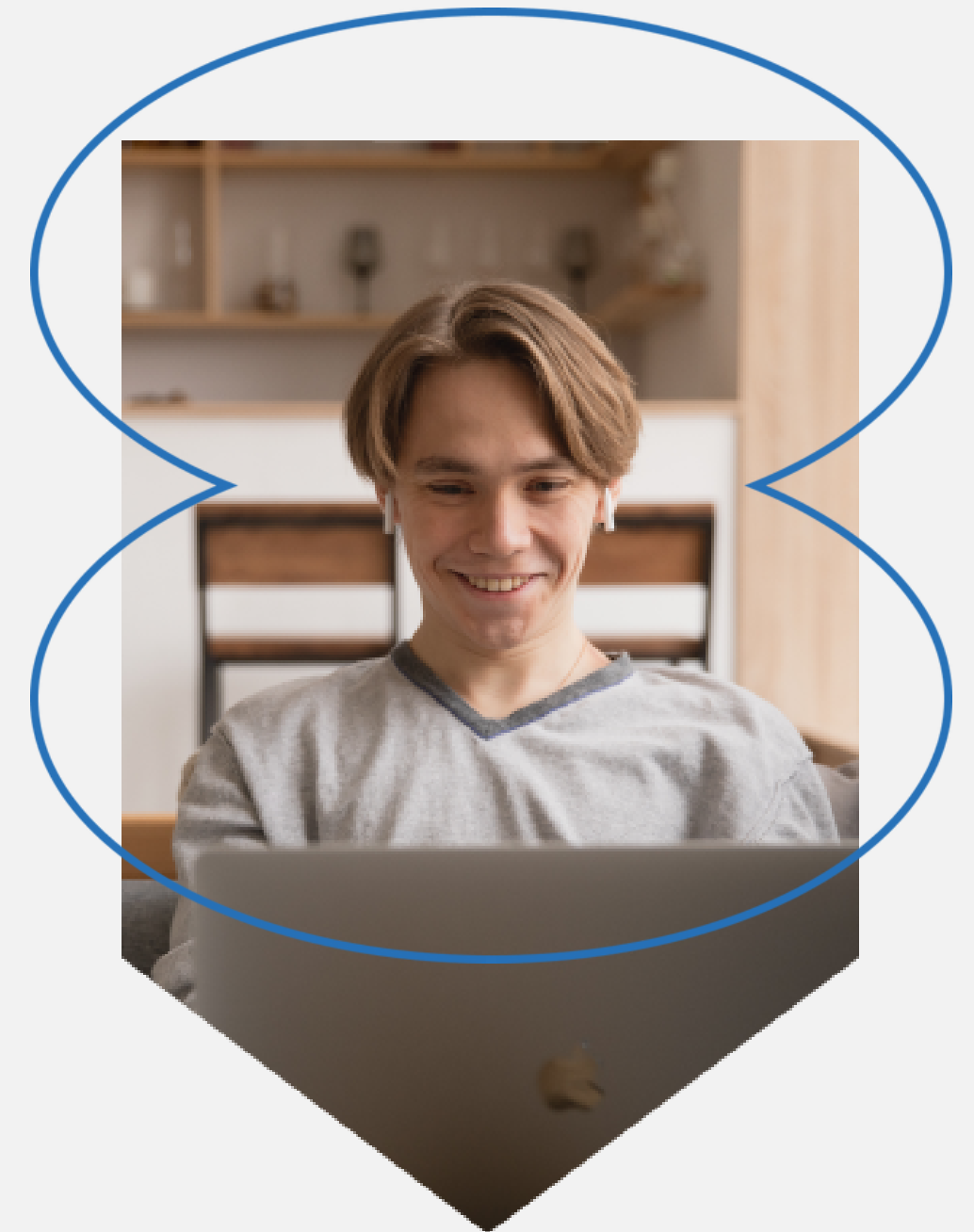
IB Chemistry aims to develop students' understanding of chemical principles while promoting essential scientific and analytical skills.



WHO SHOULD CHOOSE IT?

IB Chemistry is ideal for students who are curious about how matter interacts at both microscopic and macroscopic levels, and who enjoy engaging with scientific inquiry in real-world contexts. This course is perfect for you if:

- You love solving problems and understanding the patterns in the natural world.
- You are considering careers in medicine, chemical engineering, environmental science, or research.
- You enjoy conducting experiments, analyzing data, and applying technology to explore scientific concepts.



SL

Teaching Hours **150**

Exams **3 hours**

focuses on foundational concepts.

HL

Teaching Hours **240**

Exams **4.5 hours**

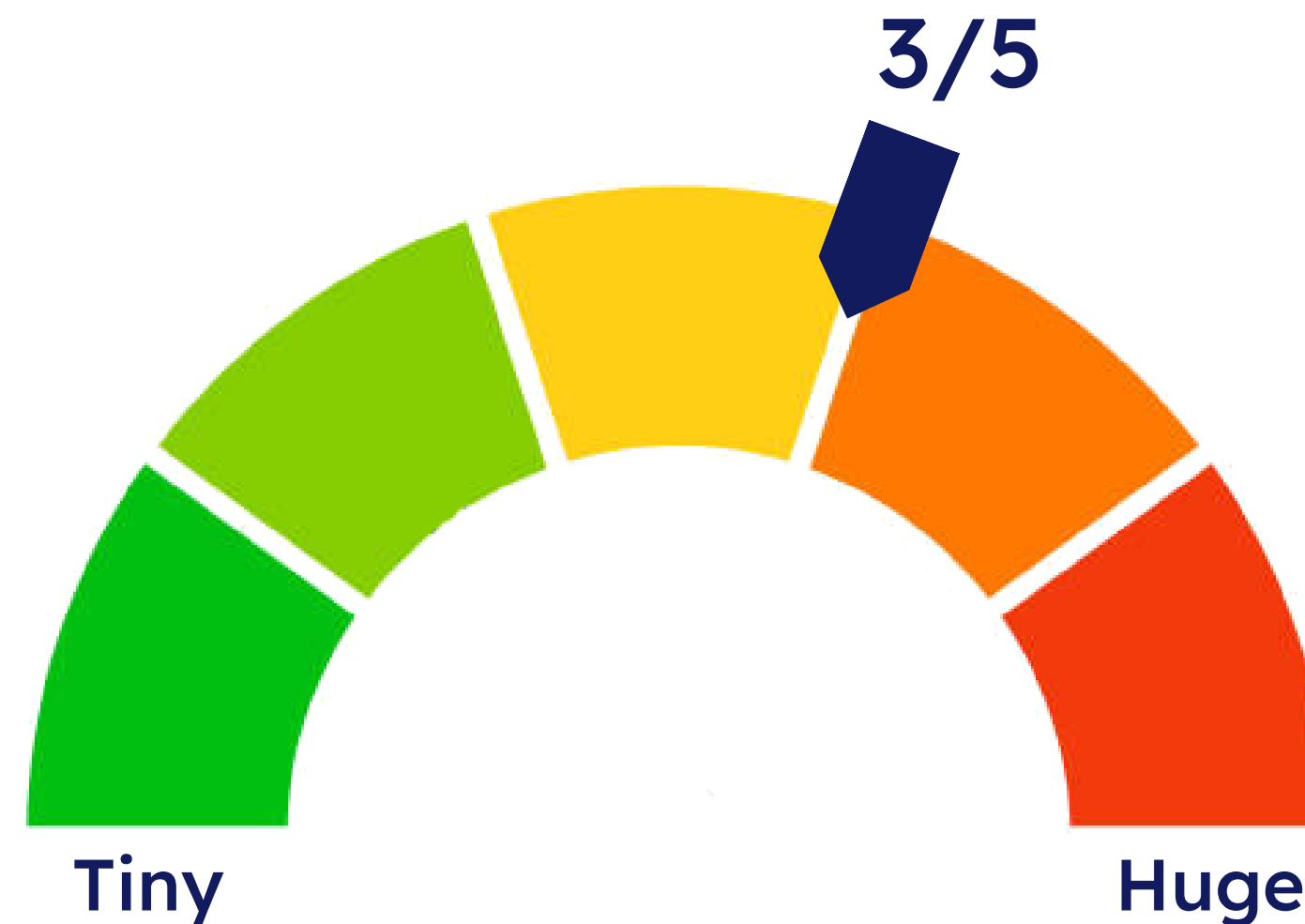
expands on SL and introduces additional content with a deeper level of understanding. Including:

- electron configurations
- nuclear atom
- Models of Bonding & Structure
- Extended metallic bonding and structure
- More organic chemistry and classification of organic compounds
- Entropy & spontaneity

HOW BIG IS THE JUMP FROM SL → HL

The jump from SL to HL Chemistry is moderate, with tutors rating it 3 out of 5.

HL students cover more in-depth content, especially in organic chemistry and quantitative analysis, which require consistent practice and solid problem-solving skills.



Compiled from our best IB Chemistry tutors

WHO SHOULD PICK HL?

Strong in Mathematics and Problem-Solving

HL chemistry involves higher-level calculations, including entropy, spontaneity, and reaction kinetics.

Interested in a Science-Related Career

HL chemistry is strongly recommended for students considering medicine, engineering, biochemistry, or research-based fields.

Enjoys Practical and Experimental Work

HL chemistry requires more lab work, and students must be comfortable with conducting and analyzing experiments.

Able to Handle a Heavy Workload

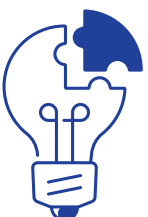
HL chemistry has a significantly larger syllabus and longer, more complex exams. Students should be willing to commit more time to studying.



CORE SKILLS FOR SUCCESS

Master Theoretical Concepts and Numerical Applications

Build a deep understanding of core principles like atomic structure, bonding, and thermodynamics. Apply this knowledge to solve complex numerical equations.



Develop Strong Problem- Solving and Analytical Skills

Critical thinking and step-by-step reasoning are essential for tackling calculation-heavy topics like stoichiometry and chemical reactions. Break down problems and identify key concepts.

Consistent Practice with IB- Style Questions

Regularly solving past papers and topical questions strengthens your ability to approach unfamiliar problems with confidence.



Maintain Regular Study and Revision

Consistent reading, revisiting challenging concepts, and topical revision ensure a solid grasp of content across the syllabus.



Build Research Skills and Data Analysis Abilities

Be ready to interpret data, analyze experimental results, and apply your skills to real-world problems in labs and investigations.



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03

“WHAT IS THE MOST IMPORTANT SKILL FOR A STUDENT TO DEVELOP?”

“



“Master theoretical concepts—understanding how principles like bonding, thermodynamics, and kinetics work will make applying them to real-world problems easier.”

“Practice IB-style questions regularly. Familiarize yourself with mark schemes to develop structured answers that score well.”

“Build strong analytical skills. Focus on breaking down problems, identifying key concepts, and applying the right strategies step by step.”

MEMORIZATION



6 OUT OF 10

The average rating our tutors gave for the importance of **strong memorization** for IB Chemistry

ASSESSMENT STRUCTURE

PAPER 1

External — 36% final grade

Two sections – Part A features multiple-choice questions, while Part B includes data-based questions covering all themes in the syllabus.

This paper tests recall, data analysis, and interpretation skills.

PAPER 2

External — 44% final grade

A combination of data-based and short-answer questions, followed by extended-response questions.

This paper requires deeper understanding and critical analysis of core syllabus content.

INTERNAL ASSESSMENT (IA)

Internal — 20% final grade

An open-ended scientific investigation where students design and conduct an experiment to answer a research question.

The final output is a detailed written report (up to 3,000 words) that analyzes and evaluates the findings.

TRICKS FOR YOUR PAPER 1

Do's

- READ THE QUESTION CAREFULLY, especially when words like “not” or “except” are used.
- USE THE PERIODIC TABLE AND DATA BOOKLET—many answers can be found using these resources.
- ELIMINATE OBVIOUSLY INCORRECT ANSWERS to improve your chances if unsure.
- PAY ATTENTION TO UNITS AND SIGNIFICANT FIGURES—many wrong answers are designed to trick those who ignore them.

Don'ts

- DON'T WASTE TOO MUCH TIME on a single question—move on and come back later.
- DON'T SKIP ANY QUESTION—there's no penalty for wrong answers, so always make an educated guess.
- DON'T RUSH THROUGH WITHOUT CHECKING ANSWERS—silly mistakes can cost easy marks.
- DON'T IGNORE GRAPHS AND TABLES—they often contain key information.



TRICKS FOR YOUR PAPER 2

Do's

- LOOK AT THE MARK ALLOCATION—longer answers are required for higher-mark questions.
- USE CLEAR, STRUCTURED ANSWERS—bullet points can help for short-answer questions.
- SHOW YOUR WORKING FOR CALCULATIONS—even if your final answer is wrong, you can still earn method marks.
- LABEL DIAGRAMS CLEARLY and ensure they're neat if required in explanations.

Don'ts

- DON'T WRITE MORE THAN NECESSARY—keep explanations precise and relevant.
- DON'T LEAVE QUESTIONS BLANK—attempt every question; even partial marks can make a difference.
- DON'T USE INFORMAL OR AMBIGUOUS LANGUAGE—keep terminology scientifically accurate.
- DON'T IGNORE IB COMMAND TERMS (e.g., explain, describe, compare)—your answer should match what the examiner expects.



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HOW TO ACE YOUR IA

PERSONAL ENGAGEMENT

Relate your research to personal or local experiences, and choose a unique research question that reflects your genuine interest.

Avoid generic topics—make it personal and creative to stand out.

CRAFT A STRONG RESEARCH QUESTION

Research common IA topics for inspiration, then adapt one to match your personal interests. A focused question with clear, measurable variables will make your investigation unique and engaging.

COLLECT 1ST HAND (QUALITY) DATA

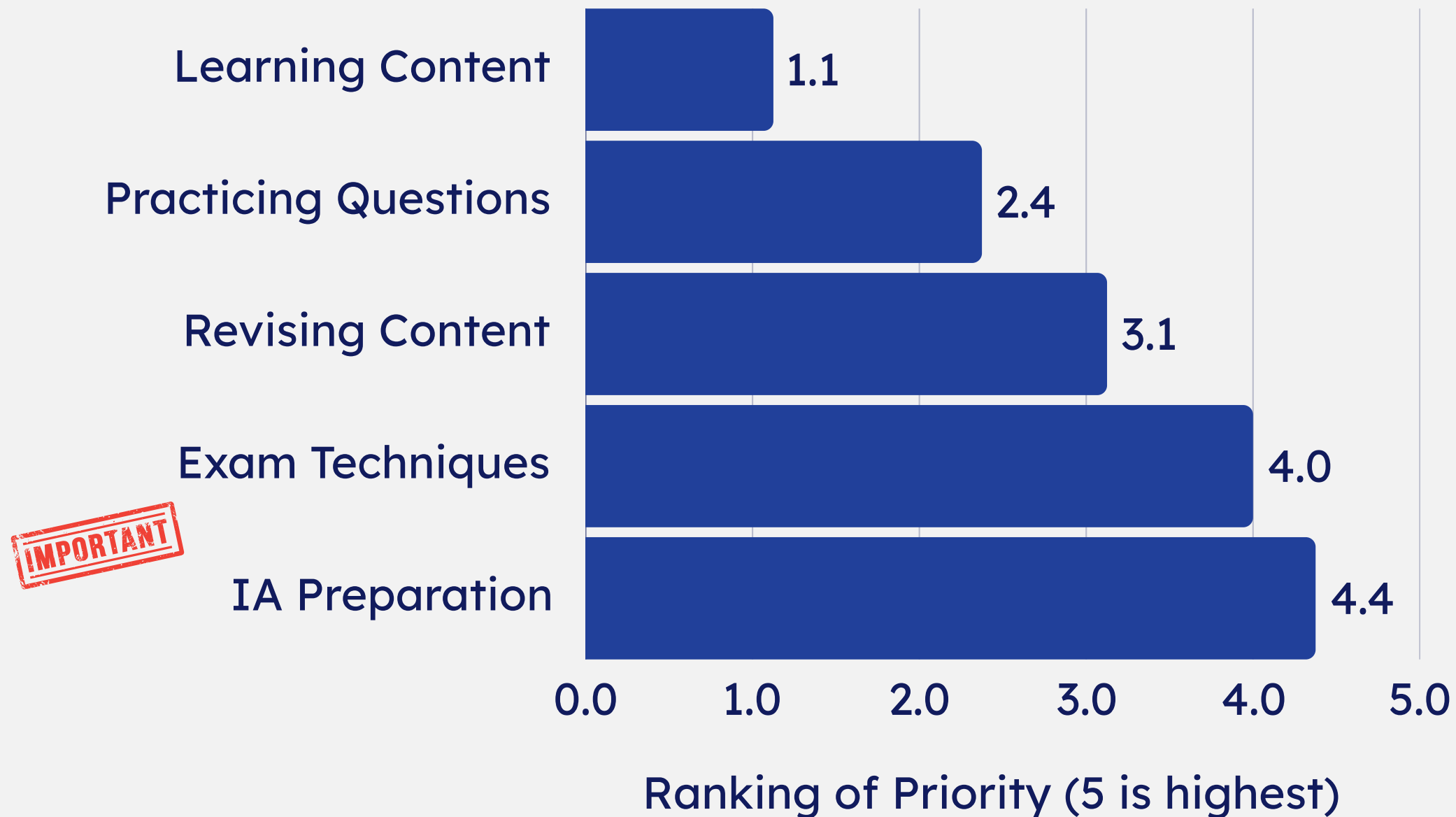
Aim for at least 25 data points by conducting five trials for five different values of your independent variable. Accurate, repeatable data is key to producing reliable and high-scoring results.

HAVE A DELIVERABLE CONCLUSION

Your conclusion should answer your research question and address your hypothesis. Clearly state whether your hypothesis was supported, explain your findings, and suggest improvements for accuracy and reliability in future experiments.



EFFECTIVE STUDY STRATEGIES



WHAT SHOULD YOU PRIORITIZE IN YOUR STUDY TIME?

Based on tutor insights, IA preparation and improving exam techniques are the top priorities for success in IB Chemistry. Focus on refining your understanding of experimental design, data analysis, and error evaluation for the IA. For exam success, prioritize mastering past papers and improving your response structure for extended questions. Conceptual understanding is essential, but consistent practice with problem-solving will help reinforce key topics and boost your confidence.

UNDERSTAND
THE CONTENT

1

MEMORIZE
SMARTLY

2

PRACTICE,
PRACTICE,
PRACTICE!

3

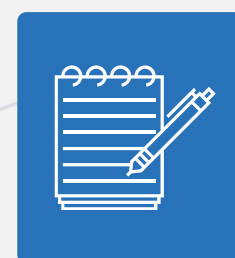
THE 3-STEP REVISION STRATEGY



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1. UNDERSTAND THE CONTENT

Mastering the fundamentals is crucial in Chemistry, as concepts build on each other. Focus on understanding principles rather than just memorizing facts to help you apply your knowledge across different types of questions.



Create Detailed Notes

Summarize key topics like reaction mechanisms, thermodynamics, and organic chemistry. Include important definitions, formulas, and reaction pathways.



Condense and Summarize

Turn your detailed notes into concise summary sheets focusing on high-yield topics and common exam questions for quick revision.



Use Visual Resources

Visualize abstract concepts like molecular bonding, reaction mechanisms, and chemical equilibria through diagrams, simulations, or interactive tools.



Active Recall and Spaced Repetition

Test yourself regularly with flashcards for key terms and formulas. Use spaced repetition to review material at increasing intervals and retain concepts long-term.



Practice Exam-Style Questions

Focus on IB-style questions to get familiar with the format. Analyze past papers, prioritize high-weight topics, and practice timed conditions to refine your exam strategy.

STRUGGLING WITH CONTENT?

WE CAN HELP

Using a tutor is a great way to understand complex content and prepare effectively.

Lanterna Tutors have received a 7 in the subject they are teaching and are able to break-down complex tasks so that they become more understandable and relatable.

They also know exactly what the IB requires and can guide you on what's most important for exams.



2. MEMORIZE SMARTLY



Active Recall

The most effective way to memorize. Test yourself regularly on key concepts without looking at your notes.

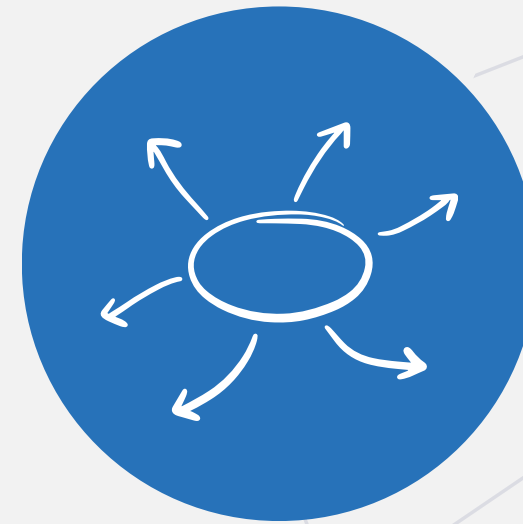
Use apps like Anki or Quizlet to quiz yourself on processes and definitions



Spaced Repetition

Spread your review sessions over increasing intervals to transfer information into long-term memory.

Example: Study a topic today, review it after 3 days, then after a week, and so on.



Mind-Maps

Organize and link key concepts visually to see the "big picture" and how topics connect.

Example: Build a mind map for photosynthesis, linking processes, enzymes, and reactants in a clear flow.



Teach Someone Else

Teaching forces you to explain concepts clearly and identify areas where you lack understanding.

Pro Tip: Even talking out loud to yourself works!



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3. PRACTICE, PRACTICE, PRACTICE!



The most important part of your revision is practice. 80% of your entire grade comes down to just a few hours of exams, so mastering how to answer questions is key. Think of exams like video game levels—repeat them enough, and they’ll become second nature. The more past papers you practice, the more confident and efficient you’ll be.

LEARN IB’S “CRYPTIC” LANGUAGE

This is where the markscheme is your best friend. It shows you exactly what the examiners expect in each answer. If you train yourself to write responses based on the markscheme, you’ll know precisely how to get full marks every time. Our tutors fast-track students to master this skill, teaching them how to break down questions, understand command terms like describe, explain, and evaluate, and write answers that hit full marks every time.

TIMING MATTERS TOO

Simulate real exam conditions by practicing under timed settings, focusing on data-based questions and longer responses. Review your mistakes, check how your answers compare to the markscheme, and adjust your strategy. With enough practice, exams will no longer feel like a challenge—they’ll feel like second nature.

BEST RESOURCES: WEBSITES



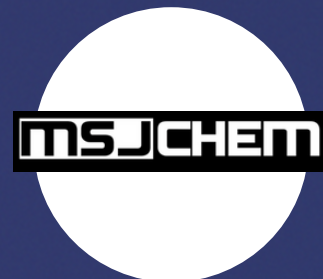
Save My Exams (savemyexams.com)

Offers concise summaries, topic-specific past paper questions, and flashcards—ideal for practicing exam techniques.



Kognity

Provides easy-to-digest explanations, summaries, and practice questions for every IB Chemistry topic. Useful for planning your study schedule.



MSJ Chemistry (msjchem.com)

Features video explanations and practice resources for all syllabus topics, particularly useful for tricky concepts.



InThinking Chemistry

Comprehensive study material and tailored practice questions, great for deepening understanding.



Cohesive Chemistry

Excellent resource for lesson preparation and practice questions, including slides and study guides.



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07

BEST RESOURCES: YOUTUBE



CrashCourse Chemistry

High-quality, engaging videos covering fundamental concepts like atomic theory, bonding, and stoichiometry.



Khan Academy

Not IB-specific but offers detailed explanations for a wide range of chemistry topics aligned with the syllabus.



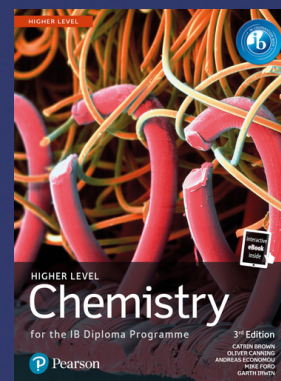
MSJ Chemistry

Provides clear and concise videos on all IB Chemistry topics, with a focus on problem-solving and key concepts.



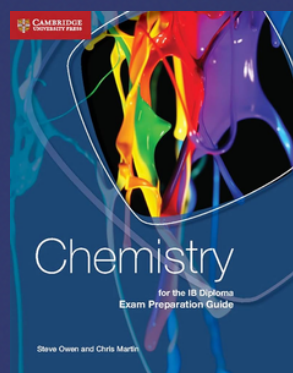
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BEST RESOURCES: BOOKS



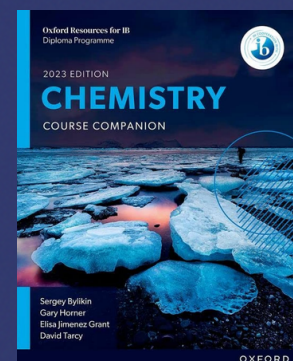
Chemistry for the IB Diploma by Pearson

Highly recommended for well-written explanations and extensive practice exercises.



Cambridge Chemistry Study Guide

Offers a summative overview of all the material, perfect for quick revision.



Oxford IB Chemistry Course Companion

Comprehensive coverage of both SL and HL, with practice problems and detailed explanations.



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BEST APPS & TOOLS

MASTER ACTIVE RECALL

Use these flashcard apps to memorize effectively. Spaced repetition ensures key concepts stick in your long-term memory. Perfect for mastering definitions and tricky processes.



Quizlet



Anki

PRACTICE MAKES PERFECT

Familiarize yourself with IB-style questions and learn how mark schemes are structured. Regular practice will help you refine your answers and boost confidence for exam day.



IB Questionbank & Past Papers



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ADVICE FROM EXPERT TUTORS

“

"Chemistry is all about practice—focus on solving as many exercises and past paper questions as possible. Mastering calculations and concepts through repetition is the key to success."

PRACTICE MAKES PERFECT



ADVICE FROM EXPERT TUTORS



“

“Don’t underestimate your IA—it’s worth 20% of your final grade and can give you a significant advantage going into exams. Start early and make it count!”

MAXIMIZE YOUR IA

ADVICE FROM EXPERT TUTORS

“

"Organize your time and break the syllabus into manageable sections. Consistent study over a longer period is far more effective than cramming at the last minute."

EFFECTIVE TIME MANAGEMENT



ADVICE FROM EXPERT TUTORS



“

"Write concise, to-the-point answers in exams—this isn't a literature paper! Keep your handwriting clear, stay within the space provided, and ensure your responses are structured and accurate."

BE CONCISE



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FINAL THOUGHTS

IB is challenging but totally achievable if you work smart. It's a content-heavy subject that requires consistent effort, but with the right strategies—like understanding concepts, building connections, and practicing effectively—you'll be on track for success.

WHAT IF I FEEL STUCK?

Sometimes all you need is a little extra guidance to save countless hours of frustration. Lanterna's tutors are IB experts who've been exactly where you are. More than just teaching content, they'll coach you on how to study smarter, manage your time, and build habits that lead to top marks. We've helped students go from 4s to 7s in a few months, and you can do the same with the right support.

WHO IS TUTORING FOR?

1

IF YOU FEEL STUCK AND DON'T KNOW HOW TO CATCH UP

When you've fallen behind, it can feel overwhelming. Having a tutor who's recently done your subject—and aced it—means you get targeted, personal guidance to catch up quickly and focus on what matters most. They'll help you minimise wasted time and maximise your chances of top grades.

2

IF YOU LACK GUIDANCE ON HOW TO STUDY OR TACKLE IAS

If you're unsure how to approach your IA, EE, or even how to revise effectively, a tutor can make all the difference. A lot of stress and time-waste comes from not knowing exactly what you're supposed to do and how to do it. Our tutors guide you step by step and make sure that things are done right the first time, and avoid the frustration later on.

3

IF YOU STRUGGLE WITH MOTIVATION, STUDY SKILLS, OR HABITS

Sometimes it's not about content—it's about knowing how to work efficiently. That's where our tutors at Lanterna stand out. With over 300 tutors, all recent IB graduates who scored 7s in their HL subjects, we know exactly how to help you best.

We don't just teach content—we coach you on building smart habits, managing your time, and studying effectively.



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SEE YOU AT THE TOP!

We hope you found this
guide useful.

Be sure to check out other our
study guides, as well as our
world class tutors.



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