Prva gimnazija Varaždin
International Baccalaureate Diploma Programme

ENTRANCE ASSESSMENTS

Outcomes and Sample Questions

A preparation guide for candidates

IB Diploma Programme, school year 2026/2027

Published together with the enrolment announcement

June 2026

About this guide

This guide is published together with the enrolment announcement to help candidates prepare for the entrance assessments and the competence checks, in the IB Diploma Programme admission procedure at Prva gimnazija Varaždin. It is meant to remove uncertainty: you can see in advance what each assessment expects and what the questions look like.

For every subject the guide is organised in the same way. **Part A, outcomes and skills,** lists the knowledge and skills the assessment is built on, and **Part B, sample questions,** shows examples in the style of the real assessment. The samples are for orientation; the actual questions change each year.

Not every candidate takes every assessment. As set out in the Admission Policy, the language checks are organised for all candidates, mainly for advising and correct placement, while the mathematics and science checks apply only in specific cases:

- **Croatian, English, German and French**: for all candidates, to confirm readiness and the right course and level.
- **Mathematics**: for candidates whose grade in mathematics in the first or second year is below very good (4), and for all candidates educated abroad.
- **Sciences at higher level**: for candidates who wish to take Biology, Chemistry or Physics at higher level (HL) without the required grade in that subject.
- **Computer Science at higher level**: for candidates who wish to take Computer Science at higher level (HL) without the required grade or background in informatics, programming or computer science.

A note on academic integrity. Academic integrity is expected from the very first day, including during these assessments. You may not bring mobile phones, smartwatches or any other electronic devices. You may bring standard writing equipment (pen, pencil, eraser, sharpener, ruler) and, where the assessment allows it, a graphic display calculator. The full rules are in the Admission Policy and the Academic Integrity School Policy, both published on the school website.

1. Croatian language (Croatian A: Literature)

Format: a written analysis and interpretation of a given literary text, with introductory guidance.
Starting text: a poem, poetic prose, or a prose or drama extract, provided at the assessment.
Language of the assessment: Croatian.

Part A. Outcomes and skills

The assessment checks whether you can read a literary text closely and write a structured interpretation of it. It is built on the following:

- knowledge of fundamental literary-theory concepts: the main structural and stylistic features of the literary genres and forms,
- reading literary texts with understanding: identifying the main ideas and the meaning of the text,
- language competence: orthographic, morphological, syntactic and lexical accuracy,
- writing a focused and well-structured connected text (an analysis and interpretation) with an introduction, a development and a conclusion.

Part B. Sample question

In the sample task you write a complete analytical and interpretive essay on a given poem. The prompt is in Croatian, as in the real assessment; the poem itself is handed out at the sitting. The example below uses the poem *Vraćanje* by Dobriša Cesarić.

Zadatak. Pozorno pročitajte pjesmu *Vraćanje* Dobriše Cesarića i interpretirajte sve elemente njezine strukture (motive, temu, oblik, kompoziciju, ritam, jezik, stilska izražajna sredstva, ugođaj, glavnu misao). Svoju interpretaciju oblikujte kao cjeloviti tekst s uvodom, razradom i zaključkom.

Dobriša Cesarić - Vraćanje

Katkad u vrevi ljudi posve stranih
Neko te lice sjeti mrtva druga.
Nestanak njegov ponovo ti rani
Zbunjeno srce, i svlada te tuga.

U žamorenju začuješ mu glas.
I ti ga vidiš. Izašav iz mraka
U tebi živi. Ali samo čas:
Desetak, dvadeset koráka.

Prošlost se javi slatko ko flauta
U zimskoj noći. Ti mu gledaš kretnje,
Smijeh, govor čuješ davne neke šetnje.

No kad te naglo truba nekog auta
Trgne, odjednom nestane mu lika:
Oko tebe su lica prolaznika.

2. English language

Format: 90 minutes, 70 marks, two parts sat together.
Texts: all texts are unseen; no dictionaries are allowed.
Language of the assessment: English.

Part A. Outcomes and skills

The assessment checks how you read and think about texts in English, and how clearly you write about them. It is built on the following:

- reading literary and non-literary texts with understanding: identifying main ideas and specific detail, and making inferences,
- working out the meaning of vocabulary from its context,
- recognising how a writer uses language, structure and form to create effects,
- writing a focused analytical paragraph that moves from a claim to evidence to the effect on the reader,
- writing a structured commentary with your own focus and organisation.

The test has two parts, summarised below.

Part 1. Reading comprehension (40 min, 40 marks)	Part 2. Literary text analysis (50 min, 30 marks)
Two texts to answer on: a literary prose extract and a magazine or feature article. Question types include true/false with justification, multiple choice, short answer in your own words, vocabulary matching, finding words in the text, connecting sentence halves, matching paragraph headings and gap fill.	Write a full commentary on the literary prose extract from Part 1. A commentary is a piece of writing of several paragraphs in which you discuss how the text works as a whole and give your personal response to it. Explain the meaning of the text, its characters and setting, and how the writer uses language, structure and form to create that meaning and why those choices matter, paying attention to literary devices such as symbolism, metaphor and motif. Explain the effect the text, setting and characters have on you. You decide what to focus on and in what order; there are no guiding questions. Write at least 200 words.

A few practical notes:

No preparation needed All texts are unseen. The test measures how you read and think, not what you already know.	**No dictionaries** Vocabulary questions test your ability to work out meaning from context.
Time management In Part 1, aim for about 20 minutes per text.	**Depth over breadth** In Part 2, build an argument: what is the text doing, how does it do it, and what is the effect on you as a reader.

Part B. Sample questions

Read the short passage below, then look at the example questions in the style of Part 1 and Part 2. The passage here is a practice text written for this guide.

> *The lighthouse had not worked in years, but the old man climbed it every evening all the same. From the top he could see the whole bay turning silver, then grey, then black. He told the village he was checking the lamp. In truth he was checking the sea, the way a parent checks a sleeping child, for no reason he could have named.*

Part 1 (reading) example questions:

- True or false, with justification from the text: "The lighthouse was still in use." Quote the words that support your answer.
- In your own words, explain why the old man really climbed the lighthouse.
- Find a word in the passage that means "calmly watching over someone".
- What is the effect of the colour sequence "silver, then grey, then black"?

Part 2 (analysis) example task:

- Write one analytical paragraph about how the writer presents the old man's feelings. Move from a clear claim to a short quotation, to the effect of that choice on the reader.

3. German language

Who takes it: candidates who choose German as their Language B (acquisition) subject, or German ab initio.
Purpose: to confirm the right level: German B at HL or SL, or German ab initio for true beginners with little or no previous German.
Language of the assessment: German.

Part A. Outcomes and skills

German B is offered at two levels, and the check confirms the level that matches your prior learning. As a guide, German B SL works towards CEFR A2 to B1 and German B HL works towards CEFR B1 to B2. The descriptions below show what is expected at each level, so you can see where your German fits.

Level	Language and speaking	Writing
A2 (entry for SL)	Describe yourself, your family and background, friends, education and everyday situations such as local geography, shopping, work, hobbies and holidays; take part in simple, direct exchanges of information.	Write short, basic notes, messages and personal details.
B1 (SL to HL)	Describe experiences, events, hopes and plans, and give brief reasons and explanations for opinions; understand familiar matters from work, school and leisure; cope in most situations while travelling.	Produce simple connected text on topics that are familiar or of personal interest.
B2 (HL target)	Use a wide vocabulary and idiomatic expressions with fluency and spontaneity, including with native speakers; understand the main ideas of complex concrete and abstract texts.	Produce clear, detailed text for different purposes and explain a viewpoint, giving advantages and disadvantages.

Part B. Practice and preparation

The German B competence check has two parts: a reading comprehension section based on a short-unseen text, and a writing task completed together in one sitting of 45 minutes. In the writing task you produce a connected text of 150 to 250 words at SL, or 200 to 300 words at HL, at a level matched to your prior learning. The check confirms the right level for you (German B SL or HL) rather than being a pass-or-fail test. The Goethe-Institut offers free online practice by level:

- A2 practice: exercise 1, exercise 2
- B1 practice: exercise 1, exercise 2
- B2 practice: exercise 1, exercise 2

4. French language

Who takes it: candidates who choose French as their Language B (acquisition) subject, or French ab initio.
Purpose: to confirm the right level: French B at HL or SL, or French ab initio for true beginners with little or no previous French.
Language of the assessment: French.

Part A. Outcomes and skills

French B is offered at two levels, and the placement test confirms the level that matches your prior learning. As a guide, French B SL works towards CEFR A2 to B1 and French B HL works towards CEFR B1 to B2. The descriptions below show what is expected at each level, so you can see where your French fits.

Level	Language and speaking	Writing
A2 (entry for SL)	Describe yourself, your family and background, friends, education and everyday situations such as local geography, shopping, work, hobbies and holidays; take part in simple, direct exchanges of information.	Write short, basic notes, messages and personal details.
B1 (SL to HL)	Describe experiences, events, hopes and plans, and give brief reasons and explanations for opinions; understand familiar matters from work, school and leisure; cope in most situations while travelling.	Produce simple connected text on topics that are familiar or of personal interest.
B2 (HL target)	Use a wide vocabulary and idiomatic expressions with fluency and spontaneity, including with native speakers; understand the main ideas of complex concrete and abstract texts.	Produce clear, detailed text for different purposes and explain a viewpoint, giving advantages and disadvantages.

Part B. Format and sample tasks

The placement test has two parts, a reading comprehension (20 minutes) and a writing task (25 minutes), completed together in one sitting of 45 minutes. The reading comprehension is based on a short-unseen text, either a short literary extract or a short mass media text. The writing task asks you to describe personal experiences on everyday topics such as hobbies or travel, or to express an opinion on a topic connected to the interests of young people. The check confirms the right level for you (French B SL or HL) rather than being a pass or fail test.

Task 1. Reading comprehension

Read the following extract and answer the questions. The extract here is a practice text for this guide.

> ***"Le musée de peintures"***
>
> *Ce matin, à l'école, la maîtresse nous a annoncé une bonne nouvelle.*
>
> *« La semaine prochaine, nous allons visiter le musée de la ville », a-t-elle dit.*
>
> *Toute la classe était très contente. Geoffroy a immédiatement demandé s'il pouvait apporter son appareil photo. Alceste voulait savoir s'il y aurait un café près du musée.*
>
> *La maîtresse nous a expliqué qu'il fallait être sages et respecter les règles. Nous devions écouter le guide et ne toucher à rien.*
>
> *À la récréation, tout le monde parlait déjà de la visite. Moi, je n'étais jamais allé dans un musée. J'imaginais des salles immenses pleines de trésors et d'objets mystérieux.*
>
> *« Tu crois qu'il y aura des dinosaures ? » m'a demandé Clotaire.*
>
> *« Peut-être », ai-je répondu.*
>
> *Mais la visite n'était prévue que pour la semaine suivante. Il fallait encore attendre plusieurs jours.*

Extract adapted from "Le musée de peintures" (from Les Récrés du Petit Nicolas by René Goscinny).

A. Vrai ou Faux ? Justifiez avec une phrase du texte.

- La visite du musée aura lieu demain. (Vrai / Faux)
- Geoffroy souhaite prendre des photos. (Vrai / Faux)
- Nicolas visite souvent les musées. (Vrai / Faux)

B. Questions ouvertes

- Quelles consignes la maîtresse donne-t-elle aux élèves ?
- Comment Nicolas imagine-t-il le musée ?
- Quel personnage semble particulièrement intéressé par la nourriture ?

C. Vocabulaire en contexte. Choisissez la meilleure réponse.

- « être sages » signifie : a) être intelligents ; b) être calmes et bien se comporter ; c) être rapides ; d) être drôles.
- « toucher à rien » signifie : a) ne rien prendre dans ses mains ; b) ne rien voir ; c) ne rien acheter ; d) ne rien dire.
- « immenses » signifie : a) petites ; b) modernes ; c) très grandes ; d) anciennes.
- Trouvez dans le texte un synonyme de « heureux ».

Task 2. Writing

You write a short text in response to a prompt. The example below is in the style of the real task.

> *Tu viens de passer tes premières vacances d'été à l'étranger sans tes parents, dans un pays francophone (par exemple en France, au Canada ou en Belgique). Cette expérience a changé ta vision du monde et ton idée de l'indépendance. Écris une lettre à ton ami(e). Raconte une anecdote précise de ton voyage et explique ce que tu as appris sur toi-même ou sur la culture locale.*

Write a text of 180 to 200 words describing this experience and expressing how you felt.

To practise:

- https://www.lepointdufle.net/penseigner/comprehension-ecrite-fiches-pedagogiques.htm
- https://francaisfacile.rfi.fr/en/dipl%C3%B4mes-tests/
- https://apprendre.tv5monde.com/en

5. Mathematics

Format: 60 minutes, 24 marks. Questions are arranged in two columns; each question in the left column is worth 1 mark and each in the right column is worth 2 marks.
Allowed: a calculator and the formula sheet provided with the paper.
Threshold: at least 14 of 24 marks are required for placement in Mathematics at standard level (SL).
Language of the assessment: Croatian.

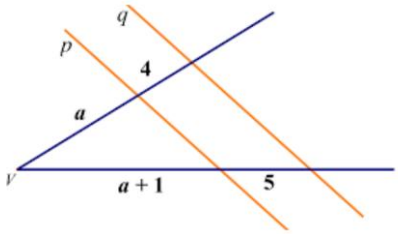
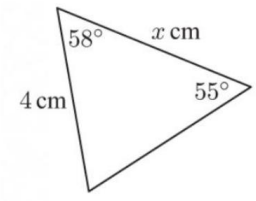
Part A. Outcomes and skills

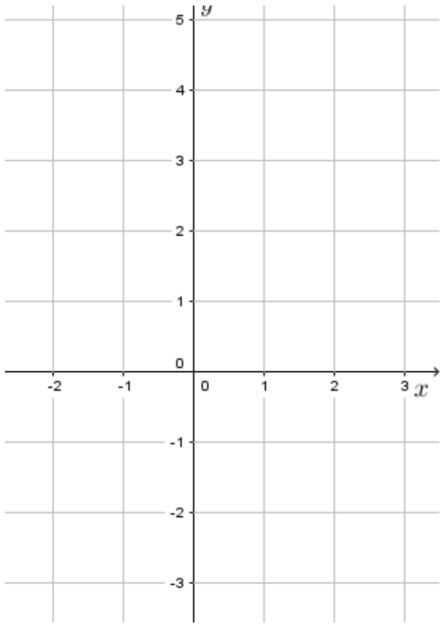
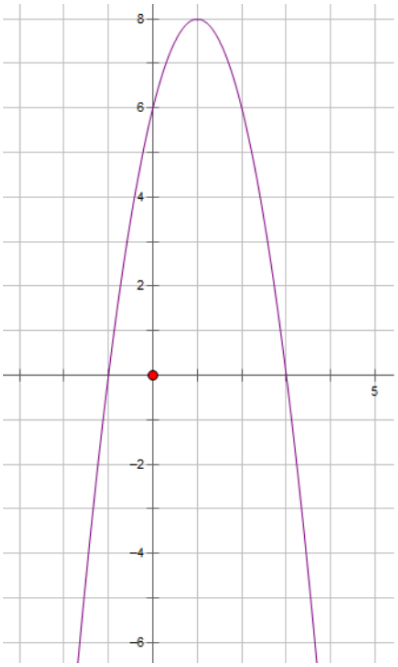
The assessment covers core topics from the first two years of secondary mathematics. The outcomes checked are:

- operations with powers and roots (square and cube roots), and rationalising the denominator of a fraction,
- working with algebraic expressions and fractions,
- solving linear equations and inequalities, and systems of linear equations and inequalities,
- solving quadratic equations, using the discriminant, and equations that reduce to a quadratic (biquadratic, irrational),
- graphing linear, quadratic and absolute-value functions,
- determining and applying the different forms of the equation of a line and of a parabola,
- right-triangle trigonometry, and the sine and cosine rules,
- Thales' intercept theorem on proportional segments,
- finding the mode, median and mean of a data set,
- calculating the volume and surface area of solids.

Part B. Sample questions

The questions below show the style and level of the paper. They follow the real two-column layout, where left-column questions are worth 1 mark and right-column questions are worth 2 marks.

Left column, 1 mark each	Right column, 2 marks each
1. Pojednostavni: *(Simplify the expression:)* $2\cdot(2-3y)^2-(2-4y)(2+4y)$	**1.** Riješi nejednadžbu: *(Solve the inequality:)* $\frac{1-x}{4x-1}\geq 2$
2. Riješi sustav jednadžbi: *(Solve the system of equations:)* $\begin{cases}\frac{3}{2}x=2y-4\\9x-3y+6=0\end{cases}$	**2.** Faktoriziraj izraz: *(Factorise the expression:)* $(9a^2-12a+4)-\frac{49}{36}a^2$
3. Racionaliziraj: *(Rationalise the denominator:)* $\frac{5\sqrt{3}-1}{4\sqrt{3}+\sqrt{2}}$	**3.** Riješi jednadžbu: *(Solve the equation:)* $2-3x=-x-7+2\sqrt{x+7}-1$
4. Izrazi b iz formule: *(Express b from the formula:)* $c=\frac{a-b}{1-ab}$	**4.** Odredi realan broj p tako da sljedeća jednadžba nema realnih rješenja: *(Find the real number p so that the following equation has no real solutions:)* $px^2+2px+2x=-p-3$
5. U pravokutnom trokutu je duljina hipotenuze 12 cm, a jedan šiljasti kut 30°. Izračunaj duljinu visine na hipotenuzu. *(In a right triangle the hypotenuse is 12 cm, and one acute angle is 30°. Find the length of the altitude to the hypotenuse.)*	**5.** Duljine stranica trokuta su 13 cm, 14 cm i 15 cm. Izračunaj veličinu najvećeg kuta tog trokuta i površinu tog trokuta. *(The sides of a triangle are 13 cm, 14 cm and 15 cm. Find its largest angle and its area.)*
6. Koliko je a sa skice ako su pravci p i q usporedni? *(In the figure the lines p and q are parallel. Find a.)* 	6. Koliko je x sa skice? *(Find x in the figure.)* 
7. Odredi mod danog niza podataka: 3, 5, 7, 2, 5, 8, 6, 9, 5, 1, 1, 4, 3, 12, 1, 4, 5. *(Find the mode of the data set: 3, 5, 7, 2, 5, 8, 6, 9, 5, 1, 1, 4, 3, 12, 1, 4, 5.)*	7. Odredi jednadžbu pravca koji prolazi točkom (0, 5) i paralelan je pravcu s jednadžbom: *(Find the equation of the line through the point (0, 5) that is parallel to the line:)* $6=2y-3x$

8. Nacrtaj pravac dan jednadžbom: (*Sketch the line given by the equation:*) $-3x - y + 3 = 0$ 	8. Odredi jednadžbu parabole sa slike. (*Determine the equation of the parabola shown in the figure*.) 

6. Sciences at higher level (Biology, Chemistry, Computer Science, Physics)

Who takes it: candidates who wish to take Biology, Chemistry, Physics or Computer Science at higher level (HL) without the required grade or recommended background in that subject, and candidates who have not completed the first two years of a grammar-school programme or who completed those years of schooling abroad.

Format: a written check in two parts, general scientific literacy (for everyone), and a short section in the chosen subject or subjects.

Allowed: a calculator and the formula sheet provided with the paper. Key terms may be given in both English and Croatian.

Aim: to confirm readiness for the faster pace of an HL science.

Part A. Outcomes and skills

A1. General scientific literacy (all candidates). These are the working habits of science, the same in every subject:

- identifying variables in an investigation: the independent variable (the one you change), the dependent variable (the one you measure) and the controlled variables (the ones you keep the same),
- writing a clear research question and a testable hypothesis,

- reading and completing data tables; plotting and reading graphs; describing a trend; spotting an anomalous result; drawing a line of best fit,
- using SI base units and common prefixes (kilo, centi, milli, micro) and converting between units,
- working with significant figures and understanding that every measurement carries some uncertainty,
- calculating the mean of repeated measurements and drawing a simple, supported conclusion from data.

A2. Subject knowledge from the first two years of gimnazija. You only need the section for the subject or subjects you wish to take at HL.

Biology

Year 1 (from the biosphere down to the organism):

- the levels of biological organisation, from the cell up to the biosphere,
- ecosystems: relationships between organisms and their environment, and biotic and abiotic factors,
- the flow of energy and the cycling of matter in an ecosystem (producers, consumers, decomposers),
- biodiversity and the classification of living things, including the use of a simple dichotomous key.

Year 2 (comparative physiology from single-celled organisms to humans):

- the diversity and classification of living things: the three domains and six kingdoms, and the body plans of single-celled and multicellular organisms
- regulation and homeostasis
- reproduction and life cycles: asexual and sexual reproduction
- the life processes compared across organisms: gas exchange, transport of substances and nutrition

Chemistry

Year 1 (substances, atomic structure and bonding):

- substances and mixtures, and physical properties such as density, melting and boiling point, and states of matter; solutions and solubility,
- a basic model of the atom: protons, neutrons and electrons, the proton (atomic) number and the nucleon (mass) number, and valence electrons shown with Lewis symbols,
- the periodic table: groups, periods and simple periodic trends,
- chemical bonding: ionic and covalent bonds, and how the type of bond relates to the properties of a substance,
- the basics of chemical calculations: amount of substance (the mole) and molar mass.

Year 2 (chemical change and energy):

- chemical reactions, and writing and balancing chemical equations,
- basic stoichiometry from balanced equations,
- the amount (molar) concentration of solutions,

- the difference between a physical and a chemical change, and energy changes in reactions at a basic level (the link between particle motion and temperature).

Physics

Year 1 (motion, interactions and energy):

- physical quantities, SI units and unit conversion,
- kinematics: uniform and uniformly accelerated rectilinear motion, velocity and acceleration, motion graphs and free fall, and the basics of circular motion,
- forces and Newton's three laws; weight, friction and the elastic force; momentum and the conservation of momentum,
- work, energy and power, and the conservation of energy,
- gravitation: Newton's law of gravitation at a basic level.

Year 2 (fluids, heat and electricity):

- fluids: pressure, buoyancy (Archimedes' principle) and the hydraulic press,
- the structure of matter: Brownian motion and diffusion,
- temperature and heat, and thermal equilibrium at a basic level,
- basic electricity: electric charge, electric current, voltage and resistance, and simple circuits.

Computer Science

Year 1 (computational thinking and the basics of programming):

- analysing a problem in terms of its inputs, processes and outputs, and breaking it down into smaller parts (decomposition),
- recognising patterns between problems, and setting out a step-by-step solution as an algorithm using a flowchart or pseudocode,
- tracing the execution of an algorithm, and finding and correcting logical errors,
- variables, constants and the basic data types (integer, real, character, string, Boolean), with arithmetic and logical operators,
- input and output, conditional statements (if, else) and iteration with loops (for, while),
- simple functions and procedures and working with arrays or lists.

Year 2 (computer systems, data and society):

- the main hardware and software components, and the roles of the CPU, memory, storage and the input and output devices,
- the binary representation of data, and conversion between binary and decimal,
- computer networks and the Internet at a basic level, and the fundamentals of cybersecurity and the safe use of technology,
- the difference between data and information, data storage and retrieval, and simple databases and records,
- the ethical use of data and questions of privacy.

Part B. Sample questions

These examples show the style and level and cover both years. The general questions are for everyone; the subject questions are only for the subject you wish to take at HL.

General scientific literacy	
1.	A student investigates how the length of a pendulum affects the time of one full swing (the period). State the independent variable, the dependent variable and one variable that should be controlled.
2.	Convert each of the following: 2.5 km to m; 250 mg to g; 0.75 dm^3 to cm^3.
3.	Five repeated readings of a time are 4.1, 4.3, 4.2, 5.9 and 4.2 seconds. Identify the anomalous reading and calculate the mean of the remaining readings.

Biology	
1.	In the food chain grass → grasshopper → frog → snake, state which organism is the producer and explain why less energy is available to each organism along the chain.
2.	Living things are divided into three domains and six kingdoms. Name the three domains, and state one feature used to place an organism in the plant kingdom.
3.	Land animals exchange gases using lungs, while fish use gills and plants use stomata. State the gas taken in during respiration and explain one feature these exchange surfaces have in common.
4.	Compare asexual and sexual reproduction in one sentence each and state one advantage of sexual reproduction for a population.

Physics	
1.	A car speeds up uniformly from 0 to 20 m/s in 8 s. Calculate its acceleration and state the unit.
2.	A box of mass 5 kg is lifted vertically through 2 m. Calculate the work done against gravity (use $g = 9.81\ m/s^2$).
3.	A metal block has a mass of 240 g and a volume of 30 cm^3. Calculate its density, and state whether it would float in water (density of water = 1 g/cm^3).
4.	A resistor of 10 Ω carries a current of 2 A. Calculate the voltage across it ($U = R \cdot I$).

Chemistry	
1.	20 mL of water is added to 80 mL of a sodium chloride solution of molar concentration 2.5×10^{-3} mol dm^{-3}. Calculate the molar concentration of the resulting solution.
2.	The combustion of propane in pure oxygen is represented by the equation $C_3H_8(g) + 5\ O_2(g) \rightarrow 3\ CO_2(g) + 4\ H_2O(l)$. The combustion of one mole of propane releases 2220 kJ of heat. Calculate how much energy is released if the reaction produces six moles of carbon dioxide.
3.	The molality of a solution is the amount of solute divided by the mass of solvent. Calculate the molality of a glucose solution whose mass fraction is 0.25 (25%).
4.	The boiling points of the first four alkanes at atmospheric pressure are: methane −161.49 °C, ethane −88.5 °C, propane −42 °C, butane −1 °C. Give the best possible explanation for the observed trend.
5.	Three things are known about element X: it has a greater electronegativity than nitrogen; it has a smaller ionisation energy than fluorine; it has a greater electron affinity than oxygen. Identify element X.
6.	According to VSEPR theory, which of these molecules is most likely to be tetrahedral: a) BCl_3, b) CCl_4, c) NCl_3, d) SCl_4?
7.	Give the best possible explanation why alkali metals are more reactive than alkaline earth metals.

Computer Science	
1.	A student wants to build an application that works out a person's Body Mass Index (BMI). State the inputs and the output of the system and write an algorithm or pseudocode that calculates the BMI.

2.	What is the output of the following code?
	`x = 4`
	`y = 7`
	`if x < y:`
	`  print(y - x)`
	`else:`
	`  print(x - y)`

3.	Write pseudocode that counts how many even numbers appear in the list [4, 7, 12, 15, 20, 23].
4.	Explain the difference between RAM (main memory) and secondary storage.
5.	Convert the binary number 101101_2 into decimal form.
6.	A company collects location data from the users of its mobile application. Identify one ethical concern this raises and suggest one way to address it.

Questions about the assessments or the programme are welcome. Please contact the IB DP Coordinator at ib@gimnazija-varazdin.skole.hr. Full details of the admission procedure are in the Admission Policy, published on the school website together with this guide.