

## **THE preDP CURRICULUM**

The preDP year gives students a chance to become familiar with the subjects offered in the IB Diploma Programme at Mattlidens gymnasium, as well as to develop their language and study skills.

Most of the courses are compulsory, but in many subjects there are optional subjects available. These optional subjects must be studied in order to be able to choose that subject in the IB.

During the preDP a MINIMUM of 28 courses must be completed successfully.

In the table below, the courses are listed. More detailed course descriptions are in the pages that follow.

Subject	Compulsory	Optional	National curriculum	Page where course descriptions begin
English	2EN101		course 1	4
	2EN102		course 2	
	2EN103		course 3	
Finnish (Äidinkieli)	2FI101		AI01	6
	2FI102		AI03, AI04	
	2FI103		AI02	
Swedish (Modersmål)	2SW101		MO1	7
	2SW102		MO2	
	2SW103		Mo3	
Finnish B (compulsory for Swedish-speakers)	2FIB01		FINA1	9
	2FIB02		FINA2	
	2FIB03		FINA3	
French B		2FRAB01	FrB301	10
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		2FRE02	FrB202/304	
Spanish B		2SPAB01	SpB301	12

## Matlidents gymnasium: PreDP course descriptions

		2SPAB02	SpB302	
		2SPA01	SpB201/303	
		2SPA02	SpB202/304	
Swedish B (compulsory for Finnish-speaking students)	2SWB01		RUOB1	14
	2SWB02		RUOB2	
	2SW03		RUOB3	
Economics	2ECO01		SL02	15
		2ECO02	MAB06/MAA14	
Global Politics	2GP01		SL01	16
		2GP02	SL03	
History	2HIS01		HI01	17
	2HIS02		HI03	
Biology	2BI01		BI01	18
	2BI02		BI04	
		2BI03	BI06	
Chemistry	2CHE01		KE01	21
	2CHE02		KE02 (1/2 course)	
		2CHE03	KE06 (1/2 course)	
Physics	2PHY01		FY01	24
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		2PHY03	FY02	
Mathematics	2MA01		MAG1	26
	2MA02		MAA03	
	2MA03		MAA03	
	2MA04		MAA0	
	2MA05		MAA05	
Music	2MUS01		course 1	29

## Matlakens gymnasium: PreDP course descriptions

		2MUS02	course 3	
Visual Arts	2ART01		course 1	30
		2ART02	KO3	
Theory of knowledge (0,5 course)	2TOK01		FI04	31
CAS (0,5 course)	2CAS01		N/A	31
Physical education	2PEH01		course 1	32
Counselling	2COU01		course 1	32

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Studies in language and literature</b>
<b>Subject</b>	<b>English</b>

2EN101	
Course name	Language: readers, writers, and texts
Finnish national curriculum content	English Course 1
Links to IB Diploma subject	English A: Lang/Lit and Lit (Area of exploration: Readers, writers, and texts)
Description of main course components <ul style="list-style-type: none"> <li>• looking at how the meaning of a text is affected by the context of production and consumption</li> <li>• exploring the links between texts and global issues</li> <li>• close reading of literary and non-literary texts</li> <li>• review of academic writing techniques (from the paragraph to a complete analysis)</li> <li>• personal portfolio with reflections on literary texts of the student's choosing</li> <li>• oral commentary on a poem (student choice, in pairs)</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>• How is meaning created in a text?</li> </ul>	

2EN102	
Course name	Mermaids in Texts
Finnish national curriculum content	English Course 2
Links to IB Diploma subject	English A: Lang/Lit and Lit (Area of exploration: Intertextuality)
Description of main course components <ul style="list-style-type: none"> <li>• Analyzing a range of text types (esp. visual and digital) to do with Mermaids (interdisciplinary work with Visual Studies and Music)</li> <li>• World Englishes</li> <li>• Learner portfolio focusing on students' ability to link texts studied in class, including to global issues</li> <li>• Essay-writing skills (textual/visual analysis)</li> <li>• Oral commentary on an intertext (student-chosen)</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>• How meaning is shaped by context / history / intertextuality</li> </ul>	

2EN103	
Course name	Culture: Time & Space
Finnish national curriculum content	English Course 3 (Kulttuuri-ilmiötä)

## Matlidents gymnasium: PreDP course descriptions

Links to IB Diploma subject	English A: Lang/Lit (Area of Exploration: Time & Space)
Description of main course components	
<ul style="list-style-type: none"><li>• US Civil Rights movement (Toni Cade Bambara's <i>Gorilla, My Love</i>)</li><li>• Comparing text types and genres</li><li>• Contemporary issues of global significance in the English-speaking world</li></ul>	
Links to TOK / CAS	
<ul style="list-style-type: none"><li>• Progress and context in literature / the Arts (creative writing)</li><li>• Language and culture</li></ul>	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Studies in language and literature</b>
<b>Subject</b>	<b>Finnish A</b>

2FI101	
Course name	Literary genres
Finnish national curriculum content	AI01
Links to IB Diploma subject	How to read different texts
Description of main course components <ul style="list-style-type: none"> <li>• Literary genres: prose, drama, poetry</li> <li>• Concentrating in short prose -&gt; reading short stories and writing an analysis</li> <li>• Starting to analyse poetry as well - familiarizing with the concepts needed to analyse literature</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>• Not everything is said clearly - literary analysis is all about reading something that is there but is not mentioned.</li> </ul>	

2FI102	
Course name	World Literature
Finnish national curriculum content	AI03, AI04
Links to IB Diploma subject	Literary essay, introducing world literature, Paper 1
Description of main course components <ul style="list-style-type: none"> <li>• WL: literary movements</li> <li>• Long prose: reading a novel and writing a literary essay</li> <li>• Analysing more poetry</li> <li>• Context in literature</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>• Context in literature</li> </ul>	

2FI103	
Course name	Finnish Literature and identity
Finnish national curriculum content	AI02
Links to IB Diploma subject	Part 2 books, Paper 2
Description of main course components <ul style="list-style-type: none"> <li>• Reading a novel originally written in Finnish, reading diaries and group discussions</li> <li>• History of Finnish literature</li> <li>• Writing a comparative essay</li> </ul>	
Links to TOK / CAS	

## Mattlidens gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Studies in language and literature</b>
<b>Subject</b>	<b>Swedish A</b>

2SW101	
Course name	En värld av texter (MO1)
Finnish national curriculum content	En värld av texter (MO1)
Links to IB Diploma subject	Swedish A
Description of main course components <ul style="list-style-type: none"> <li>• olika textgenrer</li> <li>• epikanalys med fokus på novellen</li> <li>• saktexter med fokus på medietexter samt källkritik</li> <li>• materialbaserat skrivande</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>• fiktion vs fakta</li> <li>• diskussioner kring källkritik och informationssökning</li> </ul>	

2SW102	
Course name	Språk, kultur och identitet (MO2)
Finnish national curriculum content	Språk, kultur och identitet (MO2)
Links to IB Diploma subject	Swedish A
Description of main course components <ul style="list-style-type: none"> <li>• språkvård, språkkänedom</li> <li>• finlandssvensk litteratur och identitet</li> <li>• nordiska språk</li> <li>• skrivandet som process</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>• diskussioner om kultur och identitet</li> </ul>	

2SW103	
Course name	Att analysera och tolka litteratur (MO3)
Finnish national curriculum content	Att analysera och tolka litteratur (MO3)
Links to IB Diploma subject	Swedish A
Description of main course components <ul style="list-style-type: none"> <li>• läsa, analysera och tolka epik, drama och lyrik, med fokus på diktanalys</li> </ul>	

## Matlidens gymnasium: PreDP course descriptions

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- språk och stil i litteraturen
- litterära samtal
- läsa och tolka multimodala uttrycksformer, till exempel i bildkonstverk, film och teater
- producera egna texter utgående från skönlitterära texter

Links to TOK / CAS

- samtal kring skrivandet och multimodalitet



## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Language acquisition</b>
<b>Subject</b>	<b>Finnish B</b>

2FIB01	
Course name	Introducing Finnish
Finnish national curriculum content	FINA1
Links to IB Diploma subject	Finnish B
Description of main course components <ul style="list-style-type: none"> <li>• Verbs, object etc</li> <li>• Short oral presentations, some writing</li> <li>• Some reading</li> </ul>	
Links to TOK / CAS	

2FIB02	
Course name	Traveling and nature
Finnish national curriculum content	FINA2
Links to IB Diploma subject	Finnish B
Description of main course components <ul style="list-style-type: none"> <li>• Texts about traveling and nature</li> <li>• Nouns, conjugation</li> <li>• Oral presentation</li> </ul>	
Links to TOK / CAS	

2FIB03	
Course name	Business, technology and communication
Finnish national curriculum content	FINA3
Links to IB Diploma subject	Finnish B
Description of main course components <ul style="list-style-type: none"> <li>• Lauseenvastikkeet</li> <li>• Vehicles, traffic rules</li> <li>• Instructions</li> </ul>	
Links to TOK / CAS	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Language acquisition</b>
<b>Subject</b>	<b>French B</b>

2FRAB01 (for beginners)	
Course name	Bonjour, enchanté!
Finnish national curriculum content	FrB301 French for beginners Developing a basic knowledge of French Family, social relationships Communication in everyday situations Focus on oral communication
Links to IB Diploma subject	French B
Description of main course components <ul style="list-style-type: none"> <li>● Greetings, introducing oneself and others, asking questions</li> <li>● Communication in everyday situations, e.g. going to a café and ordering in French</li> <li>● French numbers, most common verbs, articles</li> <li>● Pronunciation, the alphabet</li> </ul>	
Links to TOK / CAS	

2FRAB02 (for beginners)	
Course name	Le voyage du monde
Finnish national curriculum content	FrB302 French for beginners Family, friends, social relationships Daily routines & travelling Focus on oral communication and listening comprehension
Links to IB Diploma subject	French B
Description of main course components <ul style="list-style-type: none"> <li>● Communication in everyday situations, e.g. shopping, asking for and giving directions</li> <li>● Prepositions, adjectives, time</li> <li>● Paris, France</li> <li>● Communication strategies</li> </ul>	
Links to TOK / CAS	

## Matlidents gymnasium: PreDP course descriptions

2FRE01	
Course name	FRE01 Ressentir et vivre
Finnish national curriculum content	FrB201/303 Leisure and interests Young people's everyday life Reinforce vocabulary and basic structures Emphasis on oral communication
Links to IB Diploma subject	French B
Description of main course components <ul style="list-style-type: none"> <li>● Social relationships, hobbies</li> <li>● Use of media</li> <li>● Revision of basic structures (present tense, questions words, adjectives)</li> </ul>	
Links to TOK / CAS	

2FRE02	
Course name	FRE02 La vie de tous les jours
Finnish national curriculum content	FrB202/304 At home and abroad People, geography, history and sights Reinforce vocabulary and basic structures Written communication
Links to IB Diploma subject	French B
Description of main course components <ul style="list-style-type: none"> <li>● Society &amp; people</li> <li>● French-speaking countries (Francophonie)</li> <li>● Revision of basic structures (past tense, negation words, object pronouns)</li> <li>● Intercultural communication</li> </ul>	
Links to TOK / CAS	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Language acquisition</b>
<b>Subject</b>	<b>Spanish B</b>

<b>2SPAB01</b>	
Course name	Buenos días, ¡encantado de conocerte!
Finnish national curriculum content	SpB301 Spanish for beginners Developing a basic knowledge of Spanish Family, social relationships Communication in everyday situations Focus on oral communication
Links to IB Diploma subject	Spanish B
Description of main course components <ul style="list-style-type: none"> <li>● Greetings, introducing oneself and others, asking questions</li> <li>● Communication in everyday situations, e.g. going to a café and ordering in Spanish</li> <li>● Spanish numbers, most common verbs, articles</li> <li>● Pronunciation, the alphabet</li> </ul>	
Links to TOK / CAS	

<b>2SPAB02</b>	
Course name	Un viaje alrededor del mundo
Finnish national curriculum content	SpB302 Spanish for beginners Family, friends, social relationships Daily routines & travelling Focus on oral communication and listening comprehension
Links to IB Diploma subject	Spanish B
Description of main course components <ul style="list-style-type: none"> <li>● Communication in everyday situations, e.g. shopping, asking for and giving directions</li> <li>● Prepositions, adjectives, time</li> <li>● Spain, Latinamerica</li> <li>● Communication strategies</li> </ul>	
Links to TOK / CAS	

## Matlidents gymnasium: PreDP course descriptions

2SPA01	
Course name	Intereses y pasatiempos
Finnish national curriculum content	SpB201/303 Interests and Leisure Young people's everyday life Reinforce vocabulary and basic structures Emphasis on oral communication
Links to IB Diploma subject	Spanish B
Description of main course components <ul style="list-style-type: none"> <li>● social relationships, hobbies</li> <li>● use of media</li> <li>● revision of basic structures</li> </ul>	
Links to TOK / CAS	

2SPA02	
Course name	La vida diaria
Finnish national curriculum content	SpB202/304 At home and abroad People, geography, history and sights Reinforce vocabulary and basic structures Written communication
Links to IB Diploma subject	Spanish B
Description of main course components <ul style="list-style-type: none"> <li>● Society &amp; people</li> <li>● Spanish-speaking countries</li> <li>● Revision of basic structures</li> <li>● Intercultural communication</li> </ul>	
Links to TOK / CAS	

## Matlakens gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Language acquisition</b>
<b>Subject</b>	<b>Swedish B</b>

2SW01	
Course name	Våga tala svenska!
Finnish national curriculum content	RUOB1
Links to IB Diploma subject	Swedish B
Description of main course components <ul style="list-style-type: none"> <li>• Fritid och studier.</li> <li>• Muntliga diskussioner om familj, vänner och studier.</li> <li>• Räkneord, adjektivets böjning</li> <li>• Textläsning</li> <li>• Muntliga presentationer</li> </ul>	
Links to TOK / CAS	

2SW02	
Course name	Medier på svenska
Finnish national curriculum content	RUOB2
Links to IB Diploma subject	Swedish B
Description of main course components <ul style="list-style-type: none"> <li>• TV, film, Internet, sociala medier, poddar på svenska. Diskussioner och skriftliga arbeten om släkt, boende.</li> <li>• Oregelbundna verb, pronomen och ordföljd</li> </ul>	
Links to TOK / CAS	

2SW03	
Course name	Det svenska Finland
Finnish national curriculum content	RUOB3
Links to IB Diploma subject	Swedish B
Description of main course components <ul style="list-style-type: none"> <li>• Svensk och finlandssvensk kultur. Projekt.</li> <li>• Verbet</li> </ul>	
Links to TOK / CAS	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Individuals and societies</b>
<b>Subject</b>	<b>Economics</b>

<b>2ECO01</b>	
Course name	Introduction to Economics
Finnish national curriculum content	SL02
Links to IB Diploma subject	Basic economics from micro-, macro- and international
Description of main course components <ul style="list-style-type: none"> <li>● Micro-economics; supply and demand and market allocation</li> <li>● Market failure; under-production and over-production</li> <li>● Macro-economics; growth, unemployment and inflation</li> <li>● Exchange rates and international trade</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● Ethics and the free market</li> <li>● Knowing what is in Society's best interests</li> </ul>	

<b>2ECO02</b>	
Course name	2 <sup>nd</sup> course in Economics
Finnish national curriculum content	MAB06 / MAA14
Links to IB Diploma subject	In depth study of one area of economics
Description of main course components <ul style="list-style-type: none"> <li>● One of these: Market structure, Environment, Distribution of income or Globalisation</li> <li>● Essay and End-of-course Test</li> <li>● Presentation (in group or individually)</li> <li>● Formal debate (between groups)</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● Knowing quality of life</li> <li>● NGOs (Non-Government Organisations) and service</li> </ul>	

## Matlidens gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Individuals and societies</b>
<b>Subject</b>	<b>Global Politics</b>

2GP01	
Course name	Nordic Society and the Theory of Global Politics
Finnish national curriculum content	Det finländska samhället (SL 01)
Links to IB Diploma subject	Foundational unit: power, sovereignty, and international relations
Description of main course components <ul style="list-style-type: none"> <li>● International Relations theories (realism &amp; liberalism)</li> <li>● Forms of government, especially in the Nordic countries</li> <li>● Statehood, nations, nationalism, and nation-states</li> <li>● Ideologies and political parties, especially in the Nordic states</li> <li>● Relevant case studies (Brexit, Israel–Palestine Conflict, European Refugee Crisis)</li> <li>● Oxford-style debates on global issues (e.g., one-state vs. two-state solution, environmental authoritarianism, death of liberalism in Europe)</li> <li>● Weekly current events review in light of course content</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● How theories shape understanding of current events</li> <li>● Participating actively in a democracy</li> </ul>	

2GP02	
Course name	The World, Europe, and Finland
Finnish national curriculum content	Finland, Europa och en värld i förändring (SL 03)
Links to IB Diploma subject	Human rights / peace and conflict units; HL extension
Description of main course components <ul style="list-style-type: none"> <li>● International Relations theories (constructivism)</li> <li>● Economic &amp; political cooperation, especially between European countries</li> <li>● EU, UN, and other Intergovernmental Organizations (IGOs)</li> <li>● Human rights, peace, and conflict (e.g., HRW, UNHCR, Johan Galtung)</li> <li>● Individual case study research &amp; presentations</li> <li>● Relevant case studies (Darfur genocide/ICC/AU, formation of the UN/EU)</li> <li>● Weekly current events review in light of course content</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● Law vs. reality</li> <li>● Universalism vs. relativism (human rights/dignity vs. non-interventionism)</li> </ul>	



## Matlidens gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Individuals and societies</b>
<b>Subject</b>	<b>History</b>

2HISo1	
Course name	Introduction to History
Finnish national curriculum content	Människan i en föränderlig värld (HI01)
Links to IB Diploma subject	Analytical thinking, source criticism
Description of main course components <ul style="list-style-type: none"> <li>● History as a science.</li> <li>● Hunter-gatherer societies, the neolithic revolution and the development of trade around the Mediterranean.</li> <li>● Ancient Greece and the Roman Empire.</li> <li>● Medieval societies.</li> <li>● Colonialism, the development of world trade, and industrialisation.</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● What is history?</li> <li>● Source evaluation</li> </ul>	

2HISo2	
Course name	Finnish History
Finnish national curriculum content	Det självständiga Finlands historia (HI03)
Links to IB Diploma subject	Analytical thinking, source criticism
Description of main course components <ul style="list-style-type: none"> <li>● Finnish history from 1809.</li> <li>● Grand Duchy of Finland.</li> <li>● Finland becoming independent, the civil war.</li> <li>● Finland during WW2 and the cold war.</li> <li>● Development of the Finnish welfare state.</li> <li>● Academic Essay.</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● Historiography</li> <li>● Critical thinking</li> </ul>	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Sciences</b>
<b>Subject</b>	<b>Biology</b>

2BIO01	
Course name	Classification, ecology and evolution
Finnish national curriculum content	This is the national course number 1, which is mandatory. The central content is the lifecycle of an organism (reproduction, growth and cell types). The course is known as “life and evolution” and covers different organism groups, evolution and ecology with some ethology (time permitting). Also biology as a science.
Links to IB Diploma subject	1.5 The origin of cells 4.1 Species, communities and ecosystems 4.2 Energy flow 5.1 Evidence for evolution 5.2 Natural selection 5.3 Classification of biodiversity
Description of main course components <ul style="list-style-type: none"> <li>● Introduction to biology, including what biology is and the requirements of life.</li> <li>● Fundamental biological ideas, including an outline of cells, biological molecules, respiration and photosynthesis.</li> <li>● Classification, including the 5 kingdoms and the system.</li> <li>● Ecology.</li> <li>● Evolution, including the origins of life, evidence for evolution and evolutionary theories.</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● The scientific process is discussed, which provides an opportunity to discuss what makes a ‘fact’ a fact and the idea of evidence being used to present ideas / models / theories.</li> <li>● Evolution topic provides opportunities to discuss evidence, and especially as it supports a concept that will never be ‘seen’, unless we can observe / replicate evolution experiments. Also, different theories for the origins of life are discussed.</li> </ul>	

## Matlidents gymnasium: PreDP course descriptions

2BIO02	
Course name	Human biology
Finnish national curriculum content	This is the national course number 4, which is a national advanced course in biology. The themes are cell differentiation; the structure, function and importance of the organism, muscles and the skeletal system and chemical homeostasis; regulating life functions, human reproduction (puberty, fertilization, pregnancy and birth).
Links to IB Diploma subject	6.1 Digestion and absorption 6.2 The blood system 6.4 Gas exchange 6.5 Neurons and synapses 6.6 Hormones, homeostasis and reproduction
Description of main course components <ul style="list-style-type: none"> <li>● Digestion</li> <li>● Circulatory system</li> <li>● Respiratory system</li> <li>● Nervous control</li> <li>● Hormonal control</li> <li>● Reproductive system</li> <li>● Muscles, bones and movement</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● Many diagrams are used in this course, so the opportunity arises to discuss how a diagram (or indeed a picture) is a representation of the real object it is supposed to portray.</li> </ul>	

## Matlidents gymnasium: PreDP course descriptions

2BIO03	
Course name	Laboratory course
Finnish national curriculum content	This is our school's own course, i.e. biology 6. It is a voluntary applied course. During the course the students carry out various assignments dealing with microscopy, genetics, cell chemistry, photosynthesis and respiration, human biology and dissection according to the material available and the students' particular areas of interest. The students also plan and conduct an experiment of their own.
Links to IB Diploma subject	1.2 Ultrastructure of cells 1.3 Membrane structure 1.4 Membrane transport 2.1 Molecules to metabolism 2.3 Carbohydrates and lipids 2.4 Proteins
Description of main course components <ul style="list-style-type: none"> <li>● Cell biology</li> <li>● Membrane structure and transport across cells</li> <li>● Biological molecules</li> <li>● Designing and implementing laboratory experiments</li> <li>● Analysing data and writing lab reports</li> </ul>	
Links to TOK / CAS This course deals with a number of subject areas that cannot be seen directly, so raises the question "how do we know?" Discussion of theories based on a body of evidence is appropriate here.	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Sciences</b>
<b>Subject</b>	<b>Chemistry</b>

2CHE01	
Course name	General chemistry
Finnish national curriculum content	<b>Kemi överallt (KE01):</b> - different types of mixtures - atomic structure, the periodic table - chemical bonds
Links to IB Diploma subject	Topic 1.1 Introduction to the particulate nature of matter and chemical change Topic 1.2 The mole concept Topic 3.1 Periodic table Topic 4.1 Ionic bonding and structure Topic 4.2. Covalent bonding Topic 4.4 Intermolecular forces
Description of main course components <ul style="list-style-type: none"> <li>● Matter, different mixtures</li> <li>● The atom, Lewis symbol, isotopes, relative atomic mass</li> <li>● State of matter and phase transition</li> <li>● Temperature scales</li> <li>● The periodic system, ions</li> <li>● Separation methods</li> <li>● Intra- and intermolecular forces</li> <li>● Symbolic representation of chemical reactions</li> <li>● The mole concept</li> <li>● Concentration, dilution of solutions</li> <li>● Safety, data safety sheets, equipment, uncertainties</li> </ul>	
Links to TOK <ul style="list-style-type: none"> <li>● The universal “language” of chemistry</li> <li>● The magnitude of Avogadro’s constant</li> <li>● The subatomic particles cannot be directly observed (indirect evidence through the use of technology)</li> <li>● How many exceptions have to exist for a rule, such as the octet rule, to cease to be useful?</li> <li>● What evidence do we have for existence of ions?</li> <li>● The nature of the hydrogen bond</li> </ul>	

## Matlidens gymnasium: PreDP course descriptions

2CHE02	
Course name	Organic chemistry
Finnish national curriculum content	<b>½ Människans kemi och kemin i livsmiljön (KE02):</b> - groups of organic compounds, their properties and applications, isomerism
Links to IB Diploma subject	Topic 1.2 The mole concept Topic 10.1 Fundamentals of organic chemistry Topic 10.2 Functional group chemistry Topic 20.1 Types of organic reactions Topic 20.3 Stereoisomerism B.1 Introduction to biochemistry
Description of main course components <ul style="list-style-type: none"> <li>• Structures, properties and reactions of organic compounds and the significance of these to people and living environments</li> <li>• Structural formulas, Percentage composition by mass</li> <li>• Functional groups i.e. Hydrocarbons, Alcohols, Aldehydes, Ketones, Carboxylic acids, Esters and Amines</li> <li>• Simulations with Marvin sketch</li> <li>• Naming of compounds, Empirical &amp; molecular formula percentage composition by mass, Stereoisomeri</li> <li>• How to write a lab report, propagation of errors</li> </ul>	
Links to TOK <ul style="list-style-type: none"> <li>• How does classification and categorization help and hinder the pursuit of knowledge?</li> <li>• The label “organic chemistry” developed from a misunderstanding</li> <li>• Which ways of knowing allow us to move from the macroscopic to the microscopic?</li> </ul>	

2CHE03	
Course name	Experimental work in chemistry
Finnish national curriculum content	This is our school’s own course, it is a voluntary applied course. ½ KE06.
Links to IB Diploma subject	Topic 1.3 Reacting masses and volumes Topic 8.2 Properties of acids and bases Topic 8.3 The pH scale Topic 11.1 Uncertainties and errors in measurement and results
Description of main course components <ul style="list-style-type: none"> <li>• Chemical reactions, balancing chemical equations</li> <li>• Stoichiometry, Limiting reactant, percentage yield</li> <li>• Practical skills (choice and use of correct equipment)</li> <li>• Errors and uncertainties in measurements</li> <li>• Acid-base reactions</li> <li>• Acid-base titrations, neutralization</li> <li>• The pH-scale</li> </ul>	

## Matlidens gymnasium: PreDP course descriptions

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### Links to TOK

- What is the role of deductive reasoning in science?
- Which ways of knowing allow us to connect indirect evidence to our theories?

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Sciences</b>
<b>Subject</b>	<b>Physics</b>

2PHY01	
Course name	History of Physics & Kinematics
Finnish national curriculum content	Course Fy01
Links to IB Diploma subject	Physics
Description of main course components <ul style="list-style-type: none"> <li>● SI units: Fundamental &amp; Derived</li> <li>● Scientific notation &amp; metric multipliers</li> <li>● Significant figures &amp; Order of magnitude</li> <li>● Estimation</li> <li>● Vector &amp; Scalar quantities; Combination &amp; Resolution of vectors</li> <li>● Vector &amp; Scalar quantities: distance, displacement, speed, velocity, acceleration</li> <li>● Graphs describing motions: Displacement – velocity – acceleration graphs</li> <li>● Kinematics: Uniform &amp; uniformly accelerated motions along a straight line'</li> <li>● Free falling; air resistance; terminal velocity.</li> <li>● Projectile Motions: downward, upward, horizontal &amp; at an angle</li> <li>● History of physics, Universum, Fundamental forces; Big bang; Solar System</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● What has influenced the common language used in science?</li> </ul>	

2PHY02	
Course name	Dynamics
Finnish national curriculum content	Course Fy4
Links to IB Diploma subject	Physics
Description of main course components <ul style="list-style-type: none"> <li>● Forces: Gravitational, Reaction, Friction, Tension, Net Force</li> <li>● Point particles; Translational equilibrium</li> <li>● Newton's motion laws</li> <li>● Solid Friction</li> <li>● Air resistance &amp; Terminal velocity</li> <li>● Free body diagrams</li> <li>● Motion on an incline</li> <li>● Linear momentum &amp; Impulse;</li> <li>● Conservation of Linear Momentum; Elastic &amp; Inelastic Collisions &amp; Explosions</li> <li>● Work, Power &amp; Efficiency</li> <li>● Kinetic &amp; Gravitational Potential Energy; Principle of Conservation of Energy</li> </ul>	



## Matlidents gymnasium: PreDP course descriptions

- Hooke's Law and Elastic Potential Energy
- Graphical representation of Energy and Impulse

Links to TOK / CAS

- How do scientists work around their intuitions?
- Do conservation laws restrict or enable further development in physics?

### 2PHY03

Course name	Circular Motion & Thermal Physics
Finnish national curriculum content	Course FY2
Links to IB Diploma subject	Physics

Description of main course components

- Uniform circular motion: period, frequency, angular displacement, angular and tangential velocity
- Centripetal force and acceleration
- Newton's Law of Gravitation
- Molecular theory of solids, liquid and gases
- Laws of thermodynamics;
- Celsius & Kelvin scale, Absolute temperature;
- Internal Energy; Average kinetic and potential energy of the atoms
- Heat; Change of phase; Heat capacity
- Ideal Gases: Kinetic model of an ideal gas
- Average kinetic energy of the molecules
- Pressure
- Mole & Avogadro constant
- Ideal gas laws; Average kinetic energy of the molecules
- Differences between real and ideal gases

Links to TOK / CAS

- When does modelling of "ideal" situations become "good enough" to count as knowledge
- Are classical and modern physics compatible?

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Mathematics</b>
<b>Subject</b>	<b>Mathematics</b>

2MA01	
Course name	<i>Algebra 1</i>
Finnish national curriculum content	MAG1
Links to IB Diploma subject	Introduction to topic 1 Algebra (laws of exponents) topic 2 (equations)
Description of main course components <ul style="list-style-type: none"> <li>• Use of addition, subtraction, multiplication and division using integers, decimals and fractions, including order of operations</li> <li>• Prime numbers, factors (divisors) and multiples</li> <li>• Ratio, percentage and proportion.</li> <li>• Number sets: natural numbers; integers, <math>\mathbb{Z}</math>; rationals, <math>\mathbb{Q}</math>, and irrationals; real numbers, <math>\mathbb{R}</math></li> <li>• Manipulation of algebraic expressions, including factorization and expansion</li> <li>• Rearranging formulae</li> <li>• Use of inequalities</li> <li>• Solving linear equations and inequalities</li> <li>• Simplification of expressions</li> <li>• Solving systems of equations in two variables</li> <li>• Modulus</li> <li>• Intervals</li> </ul>	
Links to TOK <ul style="list-style-type: none"> <li>• What is permitted mathematically; True &amp; False statements; Validity of statements</li> <li>• Is “zero” the same as nothing?</li> </ul>	

2MA02	
Course name	<i>Algebra 2</i>
Finnish national curriculum content	MAA02
Links to IB Diploma subject	Introduction to topic 1 Algebra and Quadratic Equations from topic 2
Description of main course components <ul style="list-style-type: none"> <li>• Further manipulation of algebraic expressions, including factorization and expansion</li> <li>• Further rearranging formulae: irrational expressions and fractional indices</li> <li>• Further simplification of expressions</li> <li>• Quadratic equations, &amp; Methods of solving quadratic equations</li> <li>• Discriminant</li> <li>• Quadratic inequalities &amp; Rational Inequalities</li> </ul>	

## Matlidents gymnasium: PreDP course descriptions

Links to TOK / CAS

- How can you apply mathematics taught at school in everyday life?

### 2MA03

Course name	<i>Geometry &amp; Trigonometry</i>
Finnish national curriculum content	MAA03
Links to IB Diploma subject	Trigonometry & Geometry

Description of main course components.

- Properties of triangles and quadrilaterals, including parallelograms, rhombuses, rectangles, squares, kites and trapeziums (trapezoids); compound shapes
- Three-dimensional shapes (prisms, pyramids, spheres, cylinders and cones)
- Surface area and Volume of three dimensional shapes
- Pythagoras' theorem and its converse
- Angle measurement in degrees and radians
- Definition of trigonometric ratios
- Right-angle trigonometry, solving triangles and 3D
- Sin and cosine rule; solving triangles - ambiguous case
- Geometry of simple plane figures
- Compass directions: Bearings, angle of elevation & depression
- Simple geometric transformations: translation, reflection, rotation, enlargement, including the concept of scale factor of an enlargement
- The circle: centre and radius, area and circumference; length of arc and area of sector

Links to TOK / CAS

- How accurate is visual representation of a mathematical concept?

### 2MA04

Course name	<i>Exponents &amp; Logarithms; Coordinate geometry</i>
Finnish national curriculum content	MAA04
Links to IB Diploma subject	Algebra & Coordinate geometry

Description of main course components

- Partial fractions; Factor & Remainder theorem
- Rules of exponential & Logarithmic expressions and equations
- The Cartesian plane: ordered pairs (x,y), origin, axes
- Distance between two points in the Cartesian plane
- Midpoint of a line segment
- Elementary geometry of the plane including the concepts of dimension for point, line, plane and space. The equation of a line in the form  $y=mx +c$
- Gradients of straight lines - as rise against run & Tangent of the angle
- Consideration of parallel and perpendicular lines, including  $m_1 = m_2$ , and  $m_1m_2= -1$

Links to TOK / CAS

## Matlidents gymnasium: PreDP course descriptions

- Using logarithms to describe natural phenomena
- Trigonometry was developed by successive civilizations and cultures. How is mathematical knowledge considered from sociocultural perspective?

2MA05	
Course name	<i>Functions (&amp; Vectors)</i>
Finnish national curriculum content	MAA05
Links to IB Diploma subject	Topic 2 Functions and equations
Description of main course components: <ul style="list-style-type: none"> <li>● Introducing functions, function notation</li> <li>● The domain and range of a function</li> <li>● Linear &amp; Linearly proportional</li> <li>● Quadratic functions</li> <li>● Polynomial functions</li> <li>● Modulus Functions</li> <li>● Rational functions</li> <li>● Exponential and logarithmic functions</li> <li>● Reciprocal functions</li> <li>● Trigonometric functions</li> <li>● Simple transformations of functions</li> <li>● Basic theories of vectors: position vectors, magnitude, direction, representation, sum, difference, dot product</li> </ul>	
Links to TOK <ul style="list-style-type: none"> <li>● How accurately can we model phenomena and predict future results ?</li> </ul>	

## Matlakens gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>The Arts</b>
<b>Subject</b>	<b>Music</b>

2MUSo1	
Course name	Basic music course
Finnish national curriculum content	Course 1, Musiken och jag
Links to IB Diploma subject	Music
Description of main course components <ul style="list-style-type: none"> <li>• Basic knowledge in western music history (individual presentations)</li> <li>• Basic skills in instrument playing / singing</li> <li>• general education in music</li> </ul>	
Links to TOK / CAS	

2MUSo2	
Course name	Performance course
Finnish national curriculum content	Course 3, Fritt fram för musik
Links to IB Diploma subject	Music
Description of main course components <ul style="list-style-type: none"> <li>• Playing/singing together. What kind of musician/artist am I?</li> <li>• Try different instruments and styles</li> <li>• Performing in front of an audience</li> </ul>	
Links to TOK / CAS	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>The Arts</b>
<b>Subject</b>	<b>Visual Arts</b>

2ART01	
Course name	Images and Cultures
Finnish national curriculum content	Course 1, basics of visual culture and understanding contemporary art in our society and in the world.
Links to IB Diploma subject	Visual Arts
Description of main course components <ul style="list-style-type: none"> <li>● Basic Visual Techniques: drawing, painting, ink, mixed media</li> <li>● Portfolio work</li> <li>● Excursion to art exhibition</li> <li>● Expressing personal ideas</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● Creativity</li> <li>● Art and knowledge</li> </ul>	

2ART02	
Course name	Media and Participation
Finnish national curriculum content	Medier och delaktighet KO3
Links to IB Diploma subject	Visual Arts
Description of main course components <ul style="list-style-type: none"> <li>● The goal with the course is to deepen the skills and knowledge in visual communication by examining the connections between media and environments, own pictures, art and cultural heritage by different art making practices.</li> <li>● Techniques introduced: Photography, Film, Photoshop, Graphics, Printmaking</li> <li>● Skills developed: using the lens based and printmaking techniques for own project</li> </ul>	
Links to TOK / CAS <ul style="list-style-type: none"> <li>● Art and Meaning</li> </ul>	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>The Core</b>
<b>Subject</b>	<b>TOK</b>

2TOKo1 (0,5)	
Course name	Theory of Knowledge
Finnish national curriculum content	(Philosophy course 4) FIO4
Links to IB Diploma subject	The course is the first part of the students' DP TOK programme, and covers some areas of the TOK syllabus.
Description of main course components <ul style="list-style-type: none"> <li>● Knowledge claims and expertise</li> <li>● Perspectives</li> <li>● Shared / Personal knowledge</li> <li>● AOKs: Natural sciences I, Ethics I, Religious KSs I</li> <li>● WOKs: Sense perception, Imagination</li> </ul>	
Links to CAS <ul style="list-style-type: none"> <li>● Online/classroom discussions to help develop reflection and thinking skills</li> <li>● Ethical discussions</li> <li>● Developing awareness of differing perspectives, and that "other people, with their differences, can also be right"</li> </ul>	

<b>Subject group</b>	<b>The Core</b>
<b>Subject</b>	<b>CAS</b>

2CASo1 (0,5)	
Course name	Introduction to CAS
Finnish national curriculum content	-
Links to IB Diploma subject	Preparation for DP CAS programme
Description of main course components <ul style="list-style-type: none"> <li>● Introduction to Creativity, Activity, Service-learning</li> <li>● Planning CAS project</li> <li>● Awareness of NGO:s in Finland and worldwide</li> </ul>	
Links to TOK <ul style="list-style-type: none"> <li>● Reflections: links to knowledge</li> <li>● Encouraging CAS engagement in DP subjects</li> </ul>	

## Matlidents gymnasium: PreDP course descriptions

<b>Subject group</b>	<b>Physical education</b>
<b>Subject</b>	<b>Physical education</b>

2PE01	
Course name	Physical Education
Finnish national curriculum content	Course 1
Links to IB Diploma subject	Not directly applicable
Description of main course components <ul style="list-style-type: none"> <li>• The goal of the course is for students to understand that health and well-being in life require physical activity.</li> <li>• The course contains different sports and activities that help develop the students' physical skills.</li> </ul>	
Links to CAS <ul style="list-style-type: none"> <li>• Ideas for an active lifestyle</li> </ul>	

<b>Subject group</b>	<b>Counselling</b>
<b>Subject</b>	<b>Counselling</b>

2COU01	
Course name	Counselling
Finnish national curriculum content	Course 1
Links to IB Diploma subject	Not directly applicable
Description of main course components <ul style="list-style-type: none"> <li>• Information about upper-secondary school studies and IB DP</li> <li>• Information about further education and career opportunities</li> <li>• Developing study skills</li> <li>• Skills linked to time management, organising studies, stress management</li> <li>• Reflection about student's own skills and interests</li> </ul>	
Links to CAS <ul style="list-style-type: none"> <li>• Organisational skills</li> <li>• Time management</li> <li>• Study skills</li> <li>• Reflections skills</li> </ul>	