GERMAN INTERNATIONAL SCHOOL WASHINGTON D.C.

Curriculum for *Chemistry*

Grades 7-12

Short version

Reference curriculum: Thuringia, Germany

Year created: 2018

Grade	Contents
Grade 7 2 hours/week in the first or second semester	1. Introduction to the science of chemistry 2. Chemical substances and their properties: Pure vs. mixed substances, particle model 3. Chemical reaction: chemical experiment, indicators of a chemical reaction
Grade 8 2 hours/week	1. Atomic structure (Rutherford model and nuclear shell model) Periodic table of the elements (classification, main groups, outer electrons, atomic ions) 2. Molecular substances: Orbital, non-polar atomic bond, VSEPR theory, molecular models Structure-property relationship 3. Fundamental principles of chemistry: law of conservation of mass, law of definite proportions 4. Chemical equations 5. Redox reactions

Grade 9 2 hours/week	1. Salts / ionic compounds: table salt (sodium chloride), salts 2. Metal hydroxides and acids: acidic und alkaline solutions, metal oxides and metal hydroxides
Grade 10 3 hours/week	1. Carbon and carbon compounds (carbon dioxide and carbonate) 2. Hydrocarbon: Alkanes, unsaturated hydrocarbons, natural gas and crude oil 3. Other organic substances: Alcohols: ethanol Aldehydes Carboxylic acids Carboxylic acid esters Optional: Nitrogen and nitrogen compounds
Grade 11 3 hours/week	1. Natural substances: Lipids / Tensides Carbohydrates (monosaccharides/disaccarides/polysaccharides) Proteines Nucleic acids 2. Plastics / polymeres 3. Redox reactions as electron donor-acceptor reactions 4. Electrochemical reactions: galvanic cells/batteries und electrolyses

Grade 12 3 hours/week	12.1 1. Indicators and technical application of equilibrium reactions: Reaction speed Law of mass action LeChatelier principle 2. Acid-base equilibrium: Proton donor-acceptor reactions Acid/base starch Titration Buffers 12.2 School-specific curriculum: contents will not be part of the DIA examination. Two of the following 4 topics to be elected: Dyes Nuclear chemistry Thermodynamics Coordinate bonds

Evaluation of class performance:

The combination of written, oral and practical tests and examinations provide a comprehensive overview of a student‘s performance. The weighting of the written exams in comparison with the remaining class performance is detailed in the table below:

	Number of exams	Exam performance	Other Performance: e.g. class participation, oral testing, experimental tasks, lab reports, written quizzes, presentations, group work, papers etc.
		Weighting of performance in %	
Grade 7 (semi-annually)	1 per semester	40	60
Grade 8 to 9	1 per semester	40	60
Grade 10	2 per semester	50	50
Grade 11 and 12/1	1 or 2 per semester [1]	50	50
Grade 12/2	1 per semester	40	60

[1] *As adopted by the Department Meeting as of the 2017/18 school year*