Maturitní témata E-Snc 2023/2024:

1	Introduction to graphs – graph construction PF:Computer graphing – examples of different types of graphs and their usage
2	Geometry- plane and solid figures, construction of triangle centres PF: Great mathematicians of the past and their contribution to geometry; history of the number π
3	Exponential and logarithmic functions, practical applications PF: Leonhard Euler, history of the number e
4	Sound and hearing – perception of sound waves by the human ear PF:Waves (properties: wavelength, amplitude, frequency), types of waves (sound waves, electromagnetic radiation)
5	Energy (heat) transfer (conduction, convection, radiation), conduction of electricity, physiological effects of currents PF: Conduction of electricity in solutions
6	Renewable and nonrenewable resources for electricity generation; electricity generation and distribution PF: Edison, the light bulb invention, DC
7	Optical system of the human eye PF: Index of refraction, refractometric measurement of sugar content, scientific experiment methodology
8	Atoms, periodic table of elements. Radioactivity - types of radioactive decay, properties of rays, danger and usage PF: Atoms – balancing of chemical equations; molecules, chemical reactions; metals and alloys
9	Chemistry of carbon compounds, plastic materials – history and usage PF: Fuels from crude oil – fractionation; plant oils – composition, production, usage
10	Biochemical molecules in the human body: proteins, saccharides, nucleic acids, lipids. Structure and function. PF: Nutrition, nutrients
11	Human anatomy and physiology - cardiovascular and respiratory system PF: Endocrine glands, hormones
12	Diseases, characteristics, symptoms, possibilities of prevention and treatment (examples of diseases: phenylketonuria, hemophilia, high cholesterol levels) PF:Defending against infections
13	Forensic science – examination process, causes of death, autopsy. PF: Forensic toxicology
14	Continents – identifying criteria, extent of a continent; physical geography of Europe; physical geography of North America PF: Highest settlements in the world – adaptation to high altitudes
15	History of the Earth and evolution of organisms PF: Animals – adaptation strategies for winter (or other extreme conditions) survival; Effects of humans on the planet Earth
16	Origin of rock, rock cycle; earthquakes; minerals – characterisation PF: Minerals – structure (Bravais laticces)
17	Meteorology: weather and climate, instruments used in meteorology PF: Lightnings, El Nino effect
18	Celestial bodies, stellar evolution. PF: Halley´s comet – characteristics of comets
19	Scientific inventions – examples (vaccines, mobile phones) PF: Nitroglycerine and dynamite, Nobel – Nobel prizes
20	Environmental problems – cycles in nature (carbon cycle), pollutants, waste recycling. PF: Greenhouse effect, carbon neutral fuels.