

Maturitní témata pro školní rok 2026/2027

Tematická angličtina Extra – Science

1. Functions and graphs, steps in a 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 (longitudinal – sound waves, transverse – 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 (Edison) vs AC (Westinghouse, Tesla)
7. Optical system of the human eye
PF: Index of refraction, refractometric measurement of sugar content in fruit and beverages samples, scientific experiment methodology
8. Atoms, periodic table of elements. Radioactivity – types of radioactive decay, properties of alpha, beta, gamma rays, danger, 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, haemophilia, sickle cell anaemia, high cholesterol levels)
PF: Defending against infections
13. Forensic science – examination process, causes of death, autopsy.
PF: Forensic toxicology
14. Geography – 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

PF: Minerals – characterisation, structure (Bravais lattices)

17. Meteorology: weather and climate, instruments used in meteorology

PF: Lightnings, El Niño 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 issues – cycles in nature (carbon cycle), pollution, waste recycling.

PF: Greenhouse effect, carbon neutral fuels