

COMPUTER SCIENCE

Year 9

(70 hrs, term I – 32 hrs, 2 hrs per week, term II – 38 hrs, 2 hrs per week)

1	<p>Software and cybersecurity</p> <p>Software licenses and their types. Malware and ways to counter it. The main ways to protect PCs from malware. Antimalware and antispy software. Cybersecurity</p>
2	<p>3D graphics</p> <p>Three-dimensional graphics. Principles of three-dimensional navigation. Adding three-dimensional primitives. Moving, scaling, grouping, aligning, rotating, copying, and cloning of objects. Extrusion of object form. Graphic textures. Rendering of a 3D scene. Text objects and editing them. Changing shots. Time scale. Animation. Animation preview.</p>
3	<p>Processing table data</p> <p>Absolute and mixed links. Logical, mathematic, and statistical functions. Diagrams. Selection of diagram type and building of diagrams. Display of data rows. Sorting. Simple and advanced filters. Conditional formatting. Calculating conclusions. Solving the tasks on physics, chemistry, mathematics and other disciplines using a spreadsheet.</p>
4	<p>Databases. Databases control systems.</p> <p>Concept and aim of databases. Concept of a table, a field, an entry, and table key. Adding, removing, and editing data in the database. Filtering and sorting data in tables. Automatic requests in database</p>
5	<p>Algorithms and programs</p> <p>Concept of one-dimensional array. Entering and extracting the values of array elements. Algorithm of array processing: finding conclusion values, specifically, for elements fulfilling the set demands, and search through the array using certain criteria. Algorithm of array arrangement. Concept of array difficulty</p>



Expected results

Pupil:

- Knows how to compress files and unpack archives.
- Uses antimalware software to protect the device from cybersecurity threats; configures antimalware software.
- Installs additional software for specific tasks
- Creates spatial models using 3D primitives.
- Edits the form and display of 3D objects, changes the features of apexes, ribs, sides, and surfaces.
- Creates animated effects
- Selects and uses a suitable function or means of a spreadsheet to solve specific tasks.
- Uses the links of different types to process data rows.
- Selects the most suitable type of diagrams for visual data set presentation.
- Knows how to build and interpret the diagrams of different types.
- Uses conditional formatting for rich data fulfilling certain conditions.
- Solves tasks on sorting and calculating the subtotal and aggregate amounts, uses simple and extended filters to select the objects.
- Knows how to export and import electronic tables
- Enters, sorts, edits and filters data in database tables in one or several fields.
- Finds data in the database using certain selection criteria, creating simple automated sample inquiries.
- Makes up and describes the algorithms of array elements processing using programming language satisfying a certain condition, finds the conclusion values in the arrays, and arranges an array