Goethe Schule

2026 school year program/ *Annual program 2026*
Year/*vintage*: 3ES
Matter/*Little*: Information and communication technology
Teaching/*teacher*: Ricardo Muras

Contents/*Content*

- **Unit 1: History of computers**

  Contents: History of computers, beginning of computer science, historical context, generations of electronic computers, specific use of computers in organizations, milestones in the history of computing

  Objectives: Develop a solid understanding of fundamental computing concepts. Define and differentiate between key terms such as technique, technology and innovation, as well as explore the history of computers and the different generations that have influenced their evolution.

- **Unit 2: Hardware and Software**

  Contents: Definition of Hardware (Classification). Computer components: CPU (and clock speed), Memories (RAM – ROM), Motherboard. Interaction between internal components. Peripherals: input, output, mass storage and connectivity. Definition of Software (Classification). Program Concept (executables and libraries). Operating System (Definition and classification according to tasks, users, resources and distribution). OS Administration. Digitization. Binary System (Decimal to binary conversion and vice versa).

  Objectives: Investigation of the functions of internal components. Critical analysis of different types of software, classification of programs, practical application in various contexts.

- **Unit 3: Spreadsheet (Microsoft Excel/ Google Sheets)**

  Contents: basic tools, cell editing, font formats, fill, borders. Sort alphabetically by categories. Simple mathematical functions: sum and average.

  Logical functions: If, Count, Countif, Max, Min. Charts: Introduction and editing

LIVEWORKSHEETS

of charts with values from a table.

Objectives: Identify and use basic spreadsheet software tools, edit cells, apply text formatting, and enhance presentation using fills and borders. Calculate totals and averages, implement logical functions to evaluate conditions, count entries and determine maximum and minimum values. Introduce concepts about graphics and improve their clarity by editing them.

- **Unit 4: Block programming with Scratch**

  Contents: Review of basic programming concepts with functional blocks: movement of sprites. Creation of simple animations.

  Incorporation of sound effects. Use of control blocks for program logic.

  Introduction to the concept of variables.

  Using variables to store information. Use of basic mathematical operators.

  Conditional functions and repetition cycles.

  Call to subroutines.

  Objectives: review the fundamentals of programming using functional blocks, develop basic animations that express creative ideas, implement sound effects to enrich the user experience, apply control blocks to establish logical conditions, introduce the concept of variables to manage data, use variables to store and update information

- **Unit 5: Introduction to robotics (Tinkercad and Arduino)** Contents: Introduction to the platform: registration on the platform - basic electronic components - Simulation - Programming blocks - Conversion to text - Adaptation to the Arduino language to compile programs

  Arduino IDE Platform: Basic notions - Commands - Programming board selection - Upload programs to the Arduino board.

  Introduction to Electronics: Basic components (Resistors, LEDs, buzzers, pushbuttons), Breadboard, wiring. Sensors and actuators of the robotics kit.

  Objectives: understand basic electronic components, simulate circuits, use programming blocks, convert codes to text, adapt programs to the Arduino

LIVEWORKSHEETS

language for compilation, acquire basic notions about the Arduino IDE platform, know the commands and selection of the programming board, upload programs to the Arduino board and become familiar with the basic electronic components, the breadboard, the wiring and the sensors and actuators of the robotics kit.

- **Unit 6::Digital Citizenship.**

Digital literacy. Online privacy. Online safety. Online behavior. Fact-checking. Cyberbullying and harassment. Online reputation management. Copyright and intellectual property. Global digital citizenship. Responsible use of technology. Artificial intelligence. Online Gambling. Grooming. Phishing.

Evaluation and accreditation criteria / *Assessment and passing criteria*

LIVEWORKSHEETS

Goethe Schule

**Evaluation rubric for class participation**

| | insufficient (1, 2, 3) | Well (4, 5, 6, 7) | very good (8, 9, 10) | outstanding (11, 12, 13, 14, 15) |
|---|---|---|---|---|
| Participation in oral class (amount) | He almost never participates orally in class | Sometimes participates orally in class | Participate frequently in class | Always or almost always participates in class |
| Participation in oral case (quality) | It cannot be evaluated because it does not participate, does not demonstrate any basic domain knowledge, or its participation is not relevant | Your contributions are relevant to the topic and show interest. Many times his knowledge is largely erroneous but he demonstrates mastery of basic knowledge | His contributions are consistent with the topic, and he also prepares questions related to the topic that show a careful look at the topics addressed. | Their contributions are consistent, correct and enriching. As soon as he considers he can add knowledge, he does so in an orderly manner and in cooperation with his colleagues. |
| Use of language and | Does not understand or | Basic understanding | Demonstrates considerable | The use of subject-specific |

LIVEWORKSHEETS

Goethe Schule

| | | | | |
|---|---|---|---|---|
| vocabulary | use subject-specifi c language.<br><br>Never uses the language in which the subject is taught | of vocabulary specific of the matter but uses it little or incorrectly.<br><br>Sometimes he addresses the teacher in the language of the subject or makes an effort to do so. | mastery and interest in knowing the specific vocabulary of the subject.<br><br>He almost always addresses the teacher in the language of the subject and sometimes uses it with classmates | vocabulary is necessary.<br><br>Always use the language of the subject, with the teacher and with your classmates. |

| | insufficient (1, 2, 3) | Well (4, 5, 6, 7) | very good (8, 9, 10) | outstanding (11, 12, 13, 14, 15) |
|---|---|---|---|---|
| Commitment to the subject | Generally he does not bring the material that is requested, he does not have the information on the subject organized (folders on the computer)<br><br>Does not show interest in the subject or only very occasionally.<br><br>Generally does not complete | Sometimes it brings the requested material, it has the materials, but they are disordered or incomplete<br><br>Shows interest in some topics of the subject but not in others.<br><br>Fails to deliver all tasks and eventually fails to meet | Generally, he brings the requested material, has the materials organized and can answer what has been done from that material.<br><br>Almost always shows interest or makes an effort to engage with the subject. | It almost always brings the requested material, has a folder with all the materials and combines them with the LMS<br><br>Shows continuous and sustained interest in the subject.<br><br>Always perform assigned tasks in a timely manner. |

LIVEWORKSHEETS

| | | | | |
|---|---|---|---|---|
| | assignments or does not deliver them on time. | deadlines. | Generally performs assigned tasks in a timely manner. | Show interest and commitment beyond class hours. |
| Group work and academic honesty | In group work he does not fulfill his part or collaborate with the result.<br><br>Copies texts or plagiarizes works from authors or colleagues, infringing copyright. | In group work he does not always assume his responsibilities.<br><br>Sometimes he produces original works but frequently infringes copyright. | In group work he usually collaborates and is honest with the group, assuming his responsibilities.<br><br>Produces original work and is honest, respecting the work of others. | Sustainedly demonstrates a positive attitude in the group, precisely in the distribution of tasks and with his colleagues and assumes the role that is necessary to enhance the effectiveness of the group.<br><br>Do not copy colleagues' tasks or let them be done by another person, respecting copyright and demonstrating commitment and honesty. |

LIVEWORKSHEETS

| | | | | |
|---|---|---|---|---|
| Attitude in class | He is generally unpunctual.<br><br>It does not adequately take care of the available resources (computers, books, etc.) nor does it take care of the common spaces.<br><br>He does not demonstrate supportive attitudes with the teacher or with his classmates.<br><br>Constantly interrupts, causing disruption in the class. | He is frequently unpunctual.<br><br>It does not always adequately take care of the available resources.<br><br>Eventually he presents supportive attitudes with the teacher and/or with his classmates.<br><br>Frequently interrupts or bothers in class. | He is usually punctual to class.<br><br>Take care of resources and common spaces.<br><br>He is usually supportive and empathetic with his classmates and with the teacher.<br><br>He almost never interrupts class. | Tardiness is exceptional and for justified reasons.<br><br>Take care of resources, common spaces and be proactive in multiplying these habits.<br><br>He is very supportive and attentive to the needs of others, spontaneously offering help and contributing to a better climate in class.<br><br>Disrupts class very exceptionally. |

Written evaluations/term exams/ (integrative)/
*Written exams / written exams / (integrative exams)*

Other evaluations: short tests- oral presentations- TPs- projects / *Other assessments: tests, oral presentations, practical work (TPs), projects*

- Practical work/individual evaluations: 40%
- Group work/various activities: 40%
- Class participation: 20%

LIVEWORKSHEETS