



# ARAB UNITY SCHOOL

CURRICULUM OVERVIEW

COMPUTING

YEAR 8

2021 – 2022

A guide for Parents and Students

# SUBJECT: Computing

Year: 8

## Overview of the year:

The national curriculum for computing aims to ensure that all pupils:

- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- Can analyze problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- Are responsible, competent, confident and creative users of information and communication technology.

| Topic  | Objectives  | Assessment/Activity   | Skills(SECRET)   |
|--|---|---|--|
| <p><b>TERM ONE</b></p> <p>Main topic, skills and content:</p> <ul style="list-style-type: none"> <li>• Communication and networks</li> <li>• Hardware &amp; Processing</li> <li>• Programming and development</li> </ul> | <p><b>Networking and e-commerce –</b></p> <ul style="list-style-type: none"> <li>• Networking and e-commerce: Computer networking</li> <li>• Types of networks</li> <li>• How do internet works?</li> <li>• Hardware requirements for networking</li> <li>• Need for networking</li> <li>• E-site, E-governance and E-learning</li> <li>• E-commerce and its types</li> <li>• Introduction to Client and server</li> <li>• Types of data transmission (Simplex, half duplex and duplex).</li> </ul> <p><b>Hardware -</b></p> <ul style="list-style-type: none"> <li>• Introduction to Direct data entry devices</li> <li>• Working of smart cards</li> <li>• OCR and OMR</li> </ul> <p><b>Introduction to MS access -</b></p> <ul style="list-style-type: none"> <li>• Introduction to Access 2013: What is a Database?</li> <li>• Database Management System.</li> <li>• Creating a database</li> <li>• Setting Data Types</li> <li>• Modifying Table Design.</li> <li>• Totalling, sorting, filtering and searching data.</li> </ul> <p><b>Microsoft Access: design view, queries, forms and reports</b></p> <ul style="list-style-type: none"> <li>• Create a table in design view.</li> <li>• Queries.</li> <li>• Reports.</li> </ul> | <p><b>ASSESSMENTS:</b></p> <p><b>1.</b> The current situation has drastically improved the use of distance learning and has made us proficient in using it. Identify the various devices required in order to setup online learning and is it similar to your PAN setup. Explain their differences with proper reasons.</p> <p><b>2.</b> Students will be assessed on their knowledge and understanding of the essential core content of the discipline of Computing, and demonstrate the ability to apply content knowledge in the specification, analysis, design, implementation and testing of a software solution. Practical experience of using MS Access, creating query and a report as well as doing calculations will guide them to improve their programming and development skills.</p> | <p>Reflective learning involves students thinking about what they have read, done, or learned, relating the lesson at hand to their own lives and making meaning out of the material.</p> <p>Self manager - Students create skills in managing and looking at problems or situations from a fresh perspective.</p> |

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|--|--|---|--|
| <p><b>TERM TWO</b><br/>Main topic, skills and content:</p> <ul style="list-style-type: none"> <li>Algorithms</li> <li>Data &amp; Data Representation</li> <li>Programming and development</li> </ul>         | <p><b>Problem solving tools: Advanced</b></p> <ul style="list-style-type: none"> <li>Algorithm and Pseudocode.</li> <li>Algorithm and flowchart.</li> <li>Flowchart: Symbols in decision making</li> <li>Simple and Nested Decision making</li> </ul> <p><b>Digital system</b></p> <ul style="list-style-type: none"> <li>Digital Systems -Logic gates- AND, OR, NOT</li> <li>What are logic gates?</li> <li>Difference between AND, OR and NOT gate</li> <li>Simple bitwise operations</li> <li>Boolean expression and solve complex logic circuits</li> </ul> <p><b>Introduction to Photoshop -</b></p> <ul style="list-style-type: none"> <li>Starting Adobe Photoshop.</li> <li>Selection and other Tools</li> <li>Working with images</li> <li>Painting and drawing tools</li> <li>Transforming Objects</li> </ul> <p><b>More tools used in Photoshop -</b></p> <ul style="list-style-type: none"> <li>Retouching tools</li> <li>Working with text</li> </ul> | <p><b>ASSESSMENTS:</b></p> <p><b>1.</b> An Algorithm is defined as a finite set of instructions. Explain the steps to create an algorithm and write an algorithm that computes the average of three input quizzes, and then display the result.</p> <p><b>2.</b> Photo edit your image and make it creative. Use retouching tools and lighten the dark areas. At last, you need to insert a text “HAPPY BIRTHDAY” at the end. Also, apply stained Glass Effect Texture to this text. Then, insert one more text: “Done By: Your Name &amp; Class” &amp; also give Flag style to this text. This text will come at the bottom right corner of the image.</p> | <p>Effective organizer - Students become effective organizers as they write algorithm for the given problem.</p> <p>Creative thinker – Students create the ability to devise new ways to carry out tasks, solve problems, and meet challenges.</p> |
| <p><b>TERM THREE</b><br/>Main topic, skills and content:</p> <ul style="list-style-type: none"> <li>Data &amp; Data Representation</li> <li>Digital literacy</li> <li>Programming and development</li> </ul> | <p><b>Representation of Data: Octal &amp; Binary</b></p> <ul style="list-style-type: none"> <li>Octal Number System</li> <li>Relationship between Octal &amp; Binary numbers</li> <li>converting decimal to octal number.</li> <li>converting octal to decimal number.</li> <li>converting binary to octal number.</li> <li>converting octal to binary number.</li> </ul> <p><b>Introduction to digital literacy -</b></p> <ul style="list-style-type: none"> <li>Introduction to digital literacy.</li> <li>Benefits of digital literacy.</li> <li>Advantages and disadvantages of using web camera.</li> </ul> <p><b>Making Decisions with Python -</b></p> <ul style="list-style-type: none"> <li>Relational operators.</li> <li>Logical operators.</li> <li>Simple If statements.</li> <li>If...else statements.</li> </ul>  | <p><b>ASSESSMENTS:</b></p> <p><b>1.</b> Consider a banker who has to process cheques, processes cash request and provide new cards to customers. List the basic digital knowledge the person must have and how far the literacy will further guide in understanding the latest technology that is prevailing at present.</p> <p><b>2.</b> Joe has bought a few things from Ajwah Supermarket. The list is given below.</p>  | <p>Self Organizer- Students organize the content in chronological order and prepare a report on it.</p> <p>Enquirers- Students perform systematic investigation and study of materials</p>   |

- Elif statements.

| Item name             | Quantity | Price per piece | Total Price of each item |
|-----------------------|----------|-----------------|--------------------------|
| Kelloggs chocoo pops  | 2        | Dhs.17          |                          |
| Cadbury dairy milk    | 3        | Dhs.10          |                          |
| lays potato chips     | 2        | Dhs.7           |                          |
| Tiffany mango cream   | 1        | Dhs.6           |                          |
| Glenda creamy delight | 4        | Dhs.10          |                          |
|                       |          | Grand Price     |                          |

Using python create variables for each product, calculate price with quantity and finally calculate the grand total.

and sources in order to establish facts and reach new conclusions about programming languages.