# Computer Science Principles
# At-A-Glance - Lamar CISD

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| **Ongoing Skills Imbedded All Year** | **Professional Standards/Employability Skills/Technical Skills** | | |
| | . ● Increase and diversify participation in computer science ● Students, regardless of prior experience in computing, will develop confidence using computer science as a tool to express themselves and solve problems, and this confidence will prepare them for success in future endeavors in the field of computer science ● Students will understand the core principles of computing, a field which has and continues to change the world ● Students will be able to develop computational artifacts to solve problems, communicate ideas, and express their own creativity ● Students will be able to collaborate with others to solve problems and develop computational artifacts 1● Students will be able to explain the impact computing has on society, economy, and culture ● Students will be able to analyze existing artifacts, identify and correct errors, and explain how the artifact functions ● Students will be able to explain how data, information, or knowledge is represented for computational use ● Students will be able to explain how abstractions are used in computation and modeling ● Students will learn to be informed and responsible users of technology | | |
| **Ongoing Ways to Show** | ● Practice 1: Computational Solution Design ○ Design and evaluate computational solutions for a purpose.<br>● Practice P2: Algorithms and Program Development ○ Develop and implement algorithms.<br>● Practice P3: Abstraction in Program Development ○ Develop programs that incorporate abstractions.<br>● Practice P4: Code Analysis ○ Evaluate and test algorithms and programs. ● Practice P5: Computing Innovations ○ Investigate computing innovations.<br>● Practice P6: Responsible Computing ○ Contribute to an inclusive, safe, collaborative, and ethical computing culture. | | |
| **Grading Period** | **Unit Name** | **Estimated Time Frame** | **TEKS** |
| **Grading Period 1 29 Days** | **Unit 1: Introduction to Programming (Karel the Dog)** | **25 Days** | CRD-2.G.1 CRD-2.B.5 CRD-2.G.2 AAP-3.D.1 AAP-2.M.1 AAP-3.D.2 AAP-2.M.3 AAP-3.D.3 CRD-2.B.1 AAP-3.D.4 CRD-2.B.2 AAP-3.D.5 |
| | • Abstractions<br>• Programming Style<br>• Control Structures<br>• Debugging Strategies<br>• Designing Algorithms<br>• Pair-Programming Activity | | |
| | **Unit 2: Programming with JavaScript** | **4 Days** | AAP-2.A.2 AAP-2.A.3 CRD-1.A.1 CRD-1.A.2 CRD-2.B.1 |
| | • Abstractions<br>• Programming Style<br>• Control Structures<br>• Debugging Strategies<br>• Designing Algorithms<br>• Pair-Programming Activity | | |
| **Grading Period 2 27 Days** | **Unit 3: Programming with JavaScript** | **10 Days** | AAP-2.A.2 AAP-2.A.3 CRD-1.A.1 CRD-1.A.2 CRD-2.B.1 |
| | • Programming Languages<br>• Variables<br>• Arithmetic Expressions<br>• User Input | | |
| | **Unit 4: JavaScript Control Structures** | **10 Days** | AAP-2.E.1 AAP-2.F.4 AAP-2.E.2 AAP-2.F.5 AAP-2.F.1 AAP-2.F.2 AAP-2.F.3 |
| | • Comparison Operators<br>• Selection<br>• Iteration | | |

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| | **Unit 5: Functions and Parameters** | **7 Days** | CRD-2.C.6 AAP-3.A.3<br>CRD-2.D.2 AAP-3.A.4<br>CRD-2.B.3 AAP-3.B.5<br>CRD-2.C.4 AAP-3.C.1<br>AAP-3.A.1 AAP-3.C.2<br>AAP-3.A.2 AAP-2.M.2 |
| | • Parameters<br>• Return Values<br>• PT Practice | | |
| **Grading Period 3 28 Days** | **Unit 5: Functions and Parameters** | **5 Days** | CRD-2.C.6 AAP-3.A.3<br>CRD-2.D.2 AAP-3.A.4<br>CRD-2.B.3 AAP-3.B.5<br>CRD-2.C.4 AAP-3.C.1<br>AAP-3.A.1 AAP-3.C.2<br>AAP-3.A.2 AAP-2.M.2 |
| | • Parameters<br>• Return Values<br>• PT Practice | | |
| | **Unit 7: Basic Data Structures** | **11 Days** | DAT-1.A.1 AAP-1.A.1<br>AAP-1.C.1 AAP-1.C.2<br>AAP-1.C.3 AAP-1.D.6<br>AAP-1.D.7 AAP-1.D.8<br>AAP-2.N.2 AAP-2.N.1 |
| | • Data Structures<br>• Data Abstractions<br>• Traversing a List<br>• Algorithm Efficiency<br>• Simulation | | |
| | **Unit 8: Digital Information** | **12 Days** | CRD-2.C.1 DAT-1.A.7<br>CRD-2.D.1 DAT-1.B.1<br>CRD-2.J.2 DAT-1.B.2<br>CRD-2.J.3 DAT-1.B.3<br>CRD-2.I.4 DAT-1.C.1<br>DAT-1.A.2 DAT-1.C.2<br>DAT-1.A.3 DAT-1.C.3<br>DAT-1.A.4 DAT-1.C.4<br>DAT-1.A.5 DAT-1.C.5 |
| | • Number Systems<br>• Data Compression<br>• Cryptography<br>• PT Practice | | |
| **Grading Period 4 31 Days** | **Unit 11: Internet** | **12 Days** | CSN-1.A.1 CSN-1.A.8<br>CSN-1.A.2 CSN-1.B.3<br>CSN-1.A.3 CSN-1.B.4<br>CSN-1.A.4 CSN-1.A.7 |
| | • Internet Hardware and Addresses<br>• Routing<br>• Packets and Protocols<br>• Computing Systems<br>• Impact of the Internet<br>• Cybersecurity<br>• PT Practice | | |

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| | **Unit 13: Data** | **14 Days** | DAT-2.A.1 DAT-2.D.5<br>DAT-2.A.2 DAT-2.D.6<br>DAT-2.C.1 DAT-2.E.1<br>DAT-2.D.1 DAT-2.E.2<br>DAT-2.D.2 DAT-2.E.3<br>DAT-2.D.3 DAT-2.E.5<br>DAT-2.D.4 |
| | • Visualizing and Interpreting Data<br>• Collecting Data and Data Limitations | | |
| | **Certification Review?** | **5 Days** | IOC-2.A.2 IOC-2.A.10<br>IOC-2.A.3 IOC-2.A.14<br>IOC-2.A.4 IOC-1.F.11<br>IOC-2.A.5 CRD-1.A.1<br>IOC-2.A.6 CRD-1.A.2 |
| | • Review coding concepts<br>• Practice program questions | | |
| **Grading Period 5 30 Days** | **Practice PT: Shopping List (add)** | **5 Days** | IOC-2.A.2 IOC-2.A.10<br>IOC-2.A.3 IOC-2.A.14<br>IOC-2.A.4 IOC-1.F.11<br>IOC-2.A.5 CRD-1.A.1<br>IOC-2.A.6 CRD-1.A.2 |
| | • Practice PT<br>• Preparation<br>• Programming Period | | |
| | **Unit 16: Create PT** | **15 Days** | CRD-2.E.2 CRD-2.F.4<br>CRD-2.F.7 CRD-2.F.3<br>CRD-1.A.5 IOC-1.D.1<br>CRD-1.A.6 IOC-1.D.2<br>CRD-1.A.4 IOC-1.D.3<br>CRD-2.E.3 IOC-1.F.11 |
| | • Create PT<br>• Preparation<br>• Programming Period | | |
| | **Unit 17: AP Exam Review (Create Performance Task- Effective 2023-2024)** | **10 Days** | IOC-2.A.2 IOC-2.A.10<br>IOC-2.A.3 IOC-2.A.14<br>IOC-2.A.4 IOC-1.F.11<br>IOC-2.A.5 CRD-1.A.1<br>IOC-2.A.6 CRD-1.A.2 |
| | • Scheduled Mock Exam TBD<br>• Big Ideas Review | | |
| **Grading Period 6 27 Days** | **Unit 17: AP Exam Review** | **10 Days** | IOC-2.A.2 IOC-2.A.10<br>IOC-2.A.3 IOC-2.A.14<br>IOC-2.A.4 IOC-1.F.11<br>IOC-2.A.5 CRD-1.A.1<br>IOC-2.A.6 CRD-1.A.2 |

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| | • Short Answer Response Review<br>• Big Ideas Review | | |
| | **Unit 11: Creative Development Projects** | **10 Days** | AAP-2.A.2 AAP-2.A.3 CRD-1.A.1 CRD-1.A.2 CRD-2.B.1 |
| | **Final Review** | **7 Days** | |