

## Curriculum Guide

### Foundational Technology Skills for STEM Scholars Hub, Aligned with ISTE Standards

| Lesson                                        | ISTE Standard                                      | Concept                | Objective                                                                    | Practical Application in Everyday Life                                   | Suggested Grade Level(s) | Suggested Days to Teach |
|-----------------------------------------------|----------------------------------------------------|------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------|-------------------------|
| 1. <b>Defining Technology</b>                 | ISTE Standard 7: <b>Global Collaborator</b> (7a)   | What is technology?    | Understand and define what technology is and its role in everyday life       | Understanding how technology impacts daily life and communication        | 6th-7th                  | 1 day                   |
| 2. <b>Introduction to Computer Components</b> | ISTE Standard 4: <b>Innovative Designer</b> (4b)   | Parts of a computer    | Learn the different components of a computer and their functions             | Identifying and understanding the function of computer components        | 6th-7th                  | 2 days                  |
| 3. <b>Using Operating Systems</b>             | ISTE Standard 5: <b>Computational Thinker</b> (5b) | Operating systems      | Learn how to navigate and use different operating systems                    | Navigating different operating systems (Windows, Mac, Linux)             | 6th-7th                  | 2 days                  |
| 4. <b>Basic Word Processing Skills</b>        | ISTE Standard 6: <b>Creative Communicator</b> (6a) | Microsoft Word basics  | Use Microsoft Word to create, format, and edit documents                     | Creating and editing documents, formatting text, adding images           | 6th-7th                  | 3 days                  |
| 5. <b>File Management</b>                     | ISTE Standard 5: <b>Computational Thinker</b> (5c) | File organization      | Understand how to organize, save, and manage digital files                   | Creating folders, saving, and organizing digital files                   | 6th-7th                  | 2 days                  |
| 6. <b>Introduction to Spreadsheets</b>        | ISTE Standard 6: <b>Creative Communicator</b> (6a) | Microsoft Excel basics | Learn how to create spreadsheets, enter data, and perform basic calculations | Creating spreadsheets, entering data, and performing simple calculations | 7th-8th                  | 3 days                  |

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|------------------------------------------------|-------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------|--------|
| <b>7. Basic Internet Skills</b>                | ISTE Standard 7:<br><b>Global Collaborator (7b)</b>   | Navigating the internet     | Learn how to conduct research and use search engines effectively        | Conducting research online, using search engines effectively                                 | 6th-7th | 2 days |
| <b>8. Email Communication</b>                  | ISTE Standard 6:<br><b>Creative Communicator (6a)</b> | Sending and managing emails | Learn to send and manage professional emails                            | Writing professional emails, managing inbox, and using email safely                          | 7th-8th | 2 days |
| <b>9. Cybersecurity and Online Safety</b>      | ISTE Standard 7:<br><b>Global Collaborator (7a)</b>   | Internet safety             | Learn about safe online behaviors and how to protect privacy online     | Learning about safe online behaviors, avoiding phishing, and protecting privacy              | 7th-8th | 1 day  |
| <b>10. Introduction to Digital Citizenship</b> | ISTE Standard 7:<br><b>Global Collaborator (7a)</b>   | Digital ethics              | Understand the importance of digital responsibility and online behavior | Understanding the responsibilities of being online and creating a positive digital footprint | 7th-8th | 2 days |
| <b>11. Basic Graphic Design Skills</b>         | ISTE Standard 6:<br><b>Creative Communicator (6b)</b> | Using design software       | Learn how to use digital tools to create graphic designs                | Creating simple designs with tools like Canva or Adobe Spark                                 | 8th-9th | 3 days |
| <b>12. Cloud Computing Basics</b>              | ISTE Standard 5:<br><b>Computational Thinker (5a)</b> | Cloud storage               | Learn how to store and share files using cloud computing platforms      | Storing, accessing, and sharing files through cloud services like Google Drive               | 8th-9th | 2 days |
| <b>13. Basic Coding Concepts</b>               | ISTE Standard 4:<br><b>Innovative Designer (4a)</b>   | Introduction to coding      | Learn the basics of coding and programming concepts                     | Learning simple coding through Scratch or HTML basics                                        | 8th-9th | 3 days |
| <b>14. Problem-Solving with</b>                | ISTE Standard 4:<br><b>Innovative</b>                 | Computational thinking      | Use technology tools to solve real-                                     | Solving real-life problems using                                                             | 8th-9th | 3 days |

| <b>Technology</b>                           | <b>Designer (4b)</b>                                  |                                 | life problems                                                                                | technology tools<br>(e.g., spreadsheets,<br>coding)                            |          |        |
|---------------------------------------------|-------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------|--------|
| <b>15. Introduction to Robotics</b>         | ISTE Standard 7:<br><b>Global Collaborator (7b)</b>   | Basic robotics concepts         | Understand the principles of robotics and how robots are programmed                          | Understanding how robots are programmed and used in different fields           | 8th-9th  | 3 days |
| <b>16. Using Search Engines Effectively</b> | ISTE Standard 7:<br><b>Global Collaborator (7b)</b>   | Search engine skills            | Learn how to perform effective and advanced online searches                                  | Conducting advanced searches using keywords and filters                        | 6th-7th  | 2 days |
| <b>17. Creating Digital Presentations</b>   | ISTE Standard 6:<br><b>Creative Communicator (6b)</b> | Presentation software           | Learn to create effective digital presentations using tools like Google Slides or PowerPoint | Creating slideshows with Google Slides or Microsoft PowerPoint                 | 7th-8th  | 3 days |
| <b>18. Introduction to Databases</b>        | ISTE Standard 5:<br><b>Computational Thinker (5c)</b> | Database basics                 | Learn how to manage and organize data within a database                                      | Understanding databases and organizing information (e.g., using Google Sheets) | 8th-9th  | 3 days |
| <b>19. Understanding Algorithms</b>         | ISTE Standard 4:<br><b>Innovative Designer (4a)</b>   | Algorithms and problem-solving  | Learn the concept of algorithms and how to apply them in problem-solving                     | Learning about algorithms through coding games or exercises                    | 8th-9th  | 3 days |
| <b>20. Exploring Virtual Reality</b>        | ISTE Standard 7:<br><b>Global Collaborator (7a)</b>   | Virtual reality and simulations | Explore virtual worlds and simulations for learning purposes                                 | Exploring virtual worlds and simulations for learning purposes                 | 8th-9th  | 3 days |
| <b>21. Introduction to App</b>              | ISTE Standard 4:<br><b>Innovative</b>                 | App development                 | Learn how to design and build simple                                                         | Learning to design and build simple                                            | 9th-10th | 3 days |

| <b>Development</b>                                 | <b>Designer (4a)</b>                                  | basics                       | apps                                                                    | mobile apps                                                               |          |        |
|----------------------------------------------------|-------------------------------------------------------|------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|----------|--------|
| <b>22. Data Analysis and Visualization</b>         | ISTE Standard 5:<br><b>Computational Thinker (5b)</b> | Analyzing data               | Learn to analyze and visualize data using spreadsheet tools             | Using Excel or Google Sheets to visualize and interpret data              | 8th-9th  | 3 days |
| <b>23. Introduction to Video Editing</b>           | ISTE Standard 6:<br><b>Creative Communicator (6a)</b> | Basic video editing          | Learn to edit videos using tools like iMovie or Windows Movie Maker     | Learning to edit videos for different media projects                      | 8th-9th  | 3 days |
| <b>24. Designing Web Pages</b>                     | ISTE Standard 6:<br><b>Creative Communicator (6b)</b> | HTML and CSS                 | Learn the basics of HTML and CSS to create simple web pages             | Learning HTML and CSS to build simple websites                            | 9th-10th | 3 days |
| <b>25. Collaborating with Technology</b>           | ISTE Standard 7:<br><b>Global Collaborator (7a)</b>   | Using collaborative tools    | Learn how to use collaborative platforms for teamwork                   | Working with Google Docs, Google Slides, or other collaborative platforms | 6th-7th  | 2 days |
| <b>26. Introduction to Artificial Intelligence</b> | ISTE Standard 7:<br><b>Global Collaborator (7b)</b>   | AI concepts and applications | Understand the basics of artificial intelligence and how it's applied   | Exploring AI technologies used in everyday life                           | 9th-10th | 3 days |
| <b>27. Basic Robotics Programming</b>              | ISTE Standard 4:<br><b>Innovative Designer (4b)</b>   | Programming robots           | Learn to program robots using block-based tools like Blockly or Scratch | Programming robots through simple block-based programming tools           | 8th-9th  | 3 days |
| <b>28. Web Development Basics</b>                  | ISTE Standard 6:<br><b>Creative Communicator (6b)</b> | HTML and CSS basics          | Learn to design and create web pages using HTML and CSS                 | Understanding the fundamentals of building web pages                      | 9th-10th | 3 days |
| <b>29. 3D Printing</b>                             | ISTE Standard 4:<br><b>Innovative Designer (4b)</b>   | 3D printing basics           | Learn the basics of 3D printing, including design and                   | Exploring 3D design tools and creating 3D printed objects                 | 9th-10th | 3 days |

|                                               |                                                  |                         |                                                       |                                                                            |          |        |
|-----------------------------------------------|--------------------------------------------------|-------------------------|-------------------------------------------------------|----------------------------------------------------------------------------|----------|--------|
|                                               |                                                  |                         | printing                                              |                                                                            |          |        |
| <b>30. Tech-Driven Environmental Projects</b> | ISTE Standard 7: <b>Global Collaborator (7a)</b> | Tech for sustainability | Learn how to apply technology to environmental issues | Designing projects that use technology to address environmental challenges | 9th-10th | 3 days |

Note: The United States does not have specific Common Core State Standards (CCSS) for technology. Instead, the educational community relies on the **International Society for Technology in Education (ISTE) Standards**, which provide a comprehensive framework for teaching and learning with technology. The ISTE standards are widely adopted by schools in the U.S. to guide the integration of technology into classrooms. These standards focus on empowering students to use technology to enhance their learning, promote creativity, and solve real-world problems. The ISTE Standards are recognized as a global framework for technology integration in education, emphasizing skills such as digital citizenship, creativity, collaboration, and computational thinking.

**Reference:**

International Society for Technology in Education. (2016). *ISTE standards for students*. <https://www.iste.org/standards/iste-standards-for-students>

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