

Grades K-2 Overview

In the primary grades (Grades K-2), students begin their formal study of digital literacy and computer science skills. As they are introduced to the digital world, students explore concepts by integrating basic digital literacy skills with simple ideas about computational thinking. At this level, the focus is on learning with digital tools, enhancing the process and student outcomes. Students begin to choose the best tool to meet a need or solve a problem. They discover ways to think and to use digital tools to complete tasks more easily, collaboratively, and efficiently.

Students in kindergarten through second grade will meet the following learning goals:

- As ***Computational Thinkers***, students explain how computing is an integral part of our world.
- As ***Citizens of a Digital Culture***, students demonstrate ways to be good digital citizens.
- As ***Global Collaborators***, students collaborate with other learners and contribute ideas to their joint projects.
- As ***Computing Analysts***, students use their growing knowledge of computers to create artifacts systematically and efficiently.
- As ***Innovative Designers***, students undertake challenges and create new ways to address existing problems.

By the end of second grade, students understand the importance of perseverance as they create plans, collect data, and analyze data to make informed decisions.

Kindergarten Overview

Kindergarten content for digital literacy and computer science is organized into five strands of focused study outlined below in the column on the left and identified by bold print in shaded bars. Related content standards are grouped by topic below each strand.

The Recurring Standards for Digital Literacy and Computer Science are listed below in the column on the right. These recurring standards should be incorporated into classroom instruction at the appropriate level of rigor in each grade.

Content Standard Strands and Topics

Computational Thinker

Abstraction
Algorithms
Programming and Development

Citizen of a Digital Culture

Safety, Privacy, and Security
Legal and Ethical Behavior
Digital Identity
Impact of Computing

Global Collaborator

Communication
Digital Tools
Collaborative Research

Computing Analyst

Data
Systems

Innovative Designer

Human/Computer Partnerships
Design Thinking

Recurring Standards

Safety, Privacy, and Security

1. Identify, demonstrate, and apply personal safe use of digital devices.

Legal and Ethical Behavior

2. Recognize and demonstrate age-appropriate responsible use of digital devices and resources as outlined in school/district rules.

Impact of Computing

3. Assess the validity and identify the purpose of digital content.

Systems

4. Identify and employ appropriate troubleshooting techniques used to solve computing or connectivity issues.

Collaborative Research

5. Locate and curate information from digital sources to answer research questions.

Digital Tools

6. Produce, review, and revise authentic artifacts that include multimedia using appropriate digital tools.

Kindergarten

Students in kindergarten explore ways they relate to their world and to digital environments. They start to learn that certain information should be confidential. As a class, students begin to collaborate beyond the walls of their classroom by learning from others, exploring new ideas, collecting data, and analyzing data to make decisions. Kindergartners learn to use digital tools to express ideas, complete tasks, solve problems, and begin to comprehend how technology can help them understand and relate to others. Underlined words appear in the glossary.

Students can:

Computational Thinker

Algorithms

1. List the sequence of events required to solve problems.
Examples: Tying shoes, making a sandwich, brushing teeth.

Programming and Development

2. Demonstrate use of input devices.
Examples: Mouse, touch screen, keyboard.

Citizen of a Digital Culture

Safety, Privacy, and Security

3. Distinguish between private and public information.
Example: Your birth date is private; your shirt color is public.
4. Identify age-appropriate methods for keeping personal information private.
Example: Keeping passwords, name, address, and phone number confidential.

Legal and Ethical Behavior

5. Demonstrate appropriate behaviors for working with others responsibly and kindly.
Examples: Face-to-face collaborative groups or interactions, online interactions, role play.

Impact of Computing

6. Recognize ways in which computing devices make certain tasks easier.
Examples: Communication, doctor's visits/medical records, maps and directions.

Global Collaborator

Digital Tools

7. Locate letters and numbers on the keyboard.

Collaborative Research

8. Present information from a variety of digital resources.
9. Create a research-based product collaboratively using online digital tools, given specific guidance.
Examples: Find simple facts about a specific topic, create a slide that contains facts located in trade books or other sources as a group or with a partner.

Computing Analyst

Data

10. Collect data and organize it in a chart or graph collaboratively.
11. Describe how digital devices save information.

Systems

12. Use a variety of digital devices, in both independent and collaborative settings.
Examples: Interactive boards, tablets, laptops, other handheld devices.

Innovative Designer

Design Thinking

13. Use a design process in a guided setting to create an artifact or solve a problem.
Example: Problem - understanding locations on the school campus. Solution - draw paper or digital maps of the school.

Grade 1 Overview

Grade 1 content for digital literacy and computer science is organized into five strands of focused study outlined below in the column on the left and identified by bold print in shaded bars. Related content standards are grouped by topic below each strand.

The Recurring Standards for Digital Literacy and Computer Science are listed below in the column on the right. These recurring standards should be incorporated into classroom instruction at the appropriate level of rigor in each grade level.

Content Standard Strands and Topics

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Computing Analyst

Data
Systems

Innovative Designer

Human/Computer Partnerships
Design Thinking

Recurring Standards

Safety, Privacy, and Security

1. Identify, demonstrate, and apply personal safe use of digital devices.

Legal and Ethical Behavior

2. Recognize and demonstrate age-appropriate responsible use of digital devices and resources as outlined in school/district rules.

Impact of Computing

3. Assess the validity and identify the purpose of digital content.

Systems

4. Identify and employ appropriate troubleshooting techniques used to solve computing or connectivity issues.

Collaborative Research

5. Locate and curate information from digital sources to answer research questions.

Digital Tools

6. Produce, review, and revise authentic artifacts that include multimedia using appropriate digital tools.

Grade 1

Students in first grade describe and utilize the basic functions of computing devices. They begin to create algorithms collaboratively and start learning keyboarding skills. First graders explore and identify the appropriateness of specific online behaviors. As a class, students communicate and collaborate with people outside their immediate environment to understand how others use technology in their daily lives. Students use digital tools to demonstrate their knowledge to others and use feedback to solve problems.

Underlined words appear in the glossary.

Students can:

Computational Thinker

Abstraction

1. Classify and sort information into logical order with and without a computer.
Examples: Sort by shape, color, or other attribute; sort A-Z.

Algorithms

2. Order events into a logical sequence or algorithm.
Examples: Unplugged coding activities, sequence of instruction.

Programming and Development

3. Construct elements of a simple computer program in collaboration with others.
Examples: Block programming, basic robotics, unplugged programming.

Citizen of a Digital Culture

Safety, Privacy, and Security

4. Demonstrate age-appropriate methods for keeping personal information private.
Example: Keep passwords confidential, use anonymous profile picture or avatar, develop user names that are non-identifying or do not include actual name.

Legal and Ethical Behavior

5. Differentiate between prior knowledge and ideas or thoughts gained from others.
6. Identify appropriate and inappropriate behaviors for communicating in a digital environment.
Examples: Cyberbullying, online etiquette.

Digital Identity

7. Recognize that a person has a digital identity.

Impact of Computing

8. Identify ways in which computing devices have impacted people's lives.
Example: Location services, instantaneous access to information.

Global Collaborator

Communication

9. Use a variety of digital tools collaboratively to connect with other learners.
Examples: Video calling, blogs, collaborative documents.

Digital Tools

10. Identify an appropriate tool to complete a task when given guidance and support.
Examples: Choosing a word processing tool to write a story, choosing a spreadsheet for a budget.
11. Type five words per minute minimum with 95% accuracy using appropriate keyboarding techniques.

Collaborative Research

12. Identify keywords in a search and discuss how they may be used to gather information.
13. Create a research-based product collaboratively using online digital tools.
Examples: Find simple facts about a specific topic, create a slide that contains facts located in trade books or other sources

Computing Analyst

Data

14. Discuss the purpose of collecting and organizing data.
15. Interpret data displayed in a chart.
Example: Using charts which depict data students interpret the data either verbally or in written form (which has more, less, are equal).
16. Demonstrate how digital devices can save information as data that can be stored, searched, retrieved, and deleted.

Systems

17. Use digital devices with a variety of operating systems.
Examples: Interactive boards, tablets, laptops, other handheld devices
18. Label visible components of digital devices.
Examples: Visible input and output components such as USB, touch screen, keyboard, audio and video connectors, speakers.

Innovative Designer

Design Thinking

19. Identify and revise problem-solving strategies to solve a simple problem.
Examples: Scientific method, visual images or mind pictures, look for patterns, systematic list.

Grade 2 Overview

Grade 2 content for digital literacy and computer science is organized into five strands of focused study outlined below in the column on the left and identified by bold print in shaded bars. Related content standards are grouped by topic below each strand.

The Recurring Standards for Digital Literacy and Computer Science are listed below in the column on the right. These recurring standards should be incorporated into classroom instruction at the appropriate level of rigor in each grade level.

Content Standard Strands and Topics

Computational Thinker

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Recurring Standards

Safety, Privacy, and Security

1. Identify, demonstrate, and apply personal safe use of digital devices.

Legal and Ethical Behavior

2. Recognize and demonstrate age-appropriate responsible use of digital devices and resources as outlined in school/district rules.

Impact of Computing

3. Assess the validity and identify the purpose of digital content.

Systems

4. Identify and employ appropriate troubleshooting techniques used to solve computing or connectivity issues.

Collaborative Research

5. Locate and curate information from digital sources to answer research questions.

Digital Tools

6. Produce, review, and revise authentic artifacts that include multimedia using appropriate digital tools.

Grade 2

Students in second grade take proper care of computing devices and use them responsibly, gaining benefits from various digital tools as they find ways to use them in their daily tasks. Students research meaningful topics using appropriate sources and acknowledge their sources properly. Students exchange information through various media and present their ideas to diverse audiences. Second graders demonstrate their knowledge of computational thinking by creating multi-step algorithms to solve problems.

Underlined words appear in the glossary.

Students can:

Computational Thinker

Abstraction

1. Create and sort information into useful order using digital tools.
Examples: Sort data spreadsheets A-Z, simple filters, and tables.

Algorithms

2. Create an algorithm for other learners to follow.
Examples: Unplugged coding activities, illustrate sequence of a process such as baking a cake.

Programming and Development

3. Construct elements of a simple computer program using basic commands.
Examples: Digital block-based programming, basic robotics.
4. Identify bugs in basic programming.
Examples: Problem-solving, trial and error.

Citizen of a Digital Culture

Legal and Ethical Behavior

5. Cite media and/or owners of digital content at an age-appropriate level.
Example: Basic website citation.
6. Demonstrate appropriate behaviors for communicating in a digital environment.
Example: netiquette.

Digital Identity

7. List positive and negative impacts of digital communication.
Example: Anything posted or communicated electronically may be easily reproduced and could remain a positive or negative part of your digital identity/footprint.

Impact of Computing

8. Interpret ways in which computing devices have influenced people's lives.
Example: Discuss tasks completed daily in which some type of device is used to make the tasks easier (calculator, microwave to quickly heat food, mobile phone for instant communication).

Global Collaborator

Communication

9. Use a variety of digital tools to connect with other learners.
Examples: Online conferences, blogs, collaborative documents.

Digital Tools

10. Identify multiple tools which could be used to complete a task.
11. Type 10 words per minute with 95% accuracy using appropriate keyboarding techniques.

Collaborative Research

12. Conduct basic keyword searches to gather information.
13. Create a research-based product using online digital tools.

Computing Analyst

Data

14. Collect, create, and organize data in a digital chart or graph.
15. Explain how users control the ways digital devices save information in an organized manner.
Examples: Folders, cloud-based, pictures, chronologically, naming files.

Systems

16. Compare the different operating systems used on digital devices.
17. Explain the purposes of visible input and output components of digital devices.
Examples: Purpose of keyboard, mouse, ports, printers, etc.

Innovative Designer

Design Thinking

18. Investigate the design process and use digital tools to illustrate potential solutions to a problem, given guidance and support.
Examples: Create a presentation, drawing or graphic, audio tool, or video.