| **Information and Communication Technology/Coding Grade 4** |
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| **Strategies and Skills (to Support Indicators)** | **Outcomes** | **Performance/Assessment Indicators** |
| * use appropriate and safe behaviors online
* demonstrate good practices in personal information security
* awareness of health and safety issues when using information technology
 | **Outcome 1: Digital Citizenship**Students will understand and demonstrate behaviors which ensure their own and others health, safety and privacy. | * Create and maintain a secure online, account for classroom use. (CZ, PCD, TF)
* Demonstrate correct ergonomics. (PCD, TF)
* Create and follow a class plan around screen time, privacy expectations, and digital footprint awareness. (CZ, CT, CI, Com, PCD, TF)
* Show an awareness of the strategies for the safe and efficient use of computers. (PCD, TF)
 |
| * cultural understanding and global awareness
* advocate and practice safe, legal, and responsible use of information and technology
 | **Outcome 2: Digital Citizenship**Students will follow best practices of active digital citizenship as they interact and contribute in the digital - connected global world.  | * With teacher direction follow *Public Network Access and Use Policy.* (CZ, CT, Com, PCD, TF)
* Follow classroom guidelines regarding the acceptable use of digital tools. (CZ, CT, Com, PCD, TF)
* Discuss and follow proper ethical behaviors while using digitals tools. (CZ, CT, Com, PCD, TF)
* With teacher support, follow legal and ethical behaviors when using information and digital tools. (CZ, CT, Com, PCD, TF)
* Understand the consequences of misuse.  (CZ, CT, Com, PCD, TF)
 |
| * interact with others locally and globally using a range of technologies
* communication etiquette
* communicate information and ideas effectively using a variety of media and formats
* communication in various digital environments
* use a range of digital tools that creatively enhances presentation, performance or communication of information and ideas
 | **Outcome 3: Communication**Students will use digital tools to communicate and work collaboratively, including at a distance, to support individual learning and to contribute to the learning of others. | * With assistance, use a variety of media and formats to communicate ideas and information using teacher selected digital tools. (CZ, CT, CI, Com, PCD, TF)
* With assistance, communicate and collaborate electronically with others inside and outside the classroom in teacher selected digital environments. (CZ, CT, CI, Com, PCD, TF)
* Use appropriate communication etiquette. (CZ, CT, Com, PCD, TF)
* Develop cultural understanding and global awareness by engaging with learners of additional cultures. (ISTE) (CZ, CT, CI, Com, PCD, TF)
 |
| * use digital tools in the inquiry process to plan, create and publish their work
* select and use grade appropriate tools to solve problems
* work co-operatively when using digital tools
* understand and demonstrate how to choose the most effective tool for the intended audience
 | **Outcomes 4: Productivity and Innovation**Students will use digital tools to plan, create, and publish their work both individually and collaboratively. | * Accomplish curriculum-based tasks by using teacher selected digital tools. (CZ, CT, CI, Com, PCD, TF)
* With assistance, collaboratively accomplish curriculum-based tasks by using teacher selected and using digital tools. (CZ, CT, CI, Com, PCD, TF)
* Use a range of media. (CZ, CT, Com, PCD, TF)
* Apply existing knowledge to generate new ideas, products, or processes. (CZ, CT, CI, Com, PCD, TF)
 |
| * use search strategies to access electronic information
* critically evaluate, scan and select relevant information from electronic sources
* record and manipulate information electronically
* use content specific electronic sources to support and enhance research
* use appropriate digital tools and resources to accomplish research tasks
* understand and demonstrate critical literacy skills across all mediums
* work collaboratively
 | **Outcome 5: Research, Problem Solving and Decision Making**Students will use digital tools to gather, record, share and interpret information and data to support learning. | * With assistance, use Internet search engines and other online search resources. (CT, Com, TF)
* Use menus, icons and other tools to locate relevant information from familiar sources. (CT, Com, TF)
* Investigate various media formats and how they are organized. (CT, CI, Com, TF)
* Use prepared databases and spreadsheets to enter and organize data. (CT, CI, Com, TF)
* Retrieve data from a variety of information technology sources. (CT, CI, Com, TF)
* Use digital tools to organize information from different sources (CT, CI, Com, TF)
* Demonstrate the ability to draw simple conclusions from information retrieved from electronic and other sources. (CT, CI, Com, TF)
* With teacher assistance use digital tools to extract and gather data. (CT, CI, Com, TF)
 |
|  | **Outcome 6: Research, Problem Solving and Decision Making**Students will demonstrate problem solving skills using digital tools both individually and collaboratively. | * With assistance, use teacher selected digital tools to support problem solving individually and collaboratively. (CZ, CT, CI, Com, PCD, TF)
 |
| * independently operate computer equipment and associated peripherals
* efficiently use programs and systems
* use appropriate terminology while working with digital tools
* troubleshoot systems and applications
* take care of digital tools
 | **Outcome 7: Technology Operations and Concepts**Students will demonstrate an understanding of technology operations and concepts while safely and responsibly using digital tools and equipment. | * With assistance, use technology systems. (CZ, CT, CI, Com, PCD, TF)
* With teacher support, troubleshoot systems and applications. (CT, Com, PCD, TF)
* With assistance, integrate the use of peripherals into projects and presentations  (CZ, CT, CI, Com, PCD, TF)
 |
| Purpose* Control/robotics *- writing programs to control and influence external devices. Using external input devices to control output. E.g. robots , Makey Makey- Teach students that programming applies to more than just games and computers*
* Gaming
* Real world situations

Problem solving* Pattern Recognition
* Sequencing
* Debugging
* simplification/efficiency

Communication* Abstraction

Concept* Conditions (If … Then …)
* Loops
* Variables
* Languages
* Understand limitations of computers.
 | **Outcome 8: Coding**Students will understand and apply the basic concepts of computer science, including algorithms, abstraction, and computational thinking. | * Organize a sequence of events into a series of steps (CT, CI, Com, TF)
* Predict the behavior or outcome of a simple coding sequence. (CT, CI, Com, TF)
* Recognize and suggest solutions to simple errors in a sequence of code or instructions. (CT, CI, Com, TF)
* With support use “if” statements and loops to construct a set of statements to be acted out to accomplish a simple task. (CT, CI, Com, TF)
* Recognize that computers are machines and are limited to the conditions that are created for them. (CT, CI, Com, TF)
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| **Information and Communication Technology/Coding Grade 5** |
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| **Strategies and Skills (to Support Indicators)** | **Outcomes** | **Assessment/Performance Indicators** |
| * use appropriate and safe behaviors online
* demonstrate good practices in personal information security
* awareness of health and safety issues when using information technology
 | **Outcome 1: Digital Citizenship**Students will understand and demonstrate behaviors which ensure their own and others health, safety and privacy. | * Create and maintain a secure online account for classroom use. (CZ, PCD, TF)
* Demonstrate correct ergonomics. (PCD, TF)
* (e.g., posture, time on computer, proximity to screen, adequate lighting)
* Create and follow a personal plan around screen time, privacy expectations, and digital footprint awareness. (CZ, CT, CI, Com, PCD, TF)
* With teacher support use the strategies for the safe and efficient use of computers. (PCD, TF)
 |
| * cultural understanding and global awareness
* advocate and practice safe, legal, and responsible use of information and technology
 | **Outcome 2: Digital Citizenship**Students will follow best practices of active digital citizenship as they interact and contribute in the digital - connected global world.  | * With teacher assistance follow *Public Network Access and Use Policy.* (CZ, CT, Com, PCD, TF)
* Follow classroom guidelines regarding the acceptable use of digital tools. (CZ, CT, Com, PCD, TF)
* Exhibit legal and ethical behaviors when using information and ICT. (CZ, CT,, Com, PCD, TF)
* Understand the consequences of misuse. (CZ, CT, Com, PCD, TF)
 |
| * interact with others locally and globally using a range of technologies
* communication etiquette
* communicate information and ideas effectively using a variety of media and formats
* communication in various digital environments
* use a range of digital tools that creatively enhances presentation, performance or communication of information and ideas
 | **Outcome 3: Communication**Students will use digital tools to communicate and work collaboratively, including at a distance, to support individual learning and to contribute to the learning of others. | * With teacher selected digital tools and support, communicate ideas and information using a variety of media and formats. (CZ, CT, CI, Com, PCD, TF)
* **I**ndependently communicate and collaborate electronically with others inside and outside the classroom in teacher selected digital environments. (CZ, CT, CI, Com, PCD, TF)
* Use appropriate communication etiquette. (CZ, CT, Com, PCD, TF)
* Develop cultural understanding and global awareness by engaging with learners of additional cultures. (CZ, CT, CI, Com, PCD, TF, TE)
 |
| * use digital tools in the inquiry process to plan, create and publish their work
* select and use grade appropriate tools to solve problems
* work co-operatively when using digital tools
* understand and demonstrate how to choose the most effective tool for the intended audience
 | **Outcome 4: Productivity and Innovation**Students will use digital tools to plan, create, and publish their work both individually and collaboratively. | * Individually and collaboratively accomplish curriculum-based tasks with support by selecting and using digital tools. (CZ, CT, CI, Com, PCD, TF)
* Use a range of media and digital tools. (CZ, CT, Com, PCD, TF)
* Apply existing knowledge to generate new ideas, products, or processes. (CZ, CT, CI, Com, PCD, TF)
 |
| * use digital tools in the inquiry process to plan, create and publish their work
* select and use grade appropriate tools to solve problems
* work co-operatively when using digital tools
* understand and demonstrate how to choose the most effective tool for the intended audience
 | **Outcome 5: Research, Problem Solving and Decision Making**Students will use digital tools to gather, record, share and interpret information and data to support learning. | * Suggest words required to effectively search electronic sources while using internet search engines. (CT, Com, TF)
* Identify and distinguish points of view expressed in electronic sources on a particular topic. (CZ, CT, Com, TF)
* Analyze electronic sources for accuracy or relevance to the purpose (CT, Com, TF)
* Create and use simple organizers and outlines (CT, CI, Com, TF)
 |
| * use search strategies to access electronic information
* critically evaluate, scan and select relevant information from electronic sources
* record and manipulate information electronically
* use content specific electronic sources to support and enhance research
* use appropriate digital tools and resources to accomplish research tasks
* understand and demonstrate critical literacy skills across all mediums
* work collaboratively
 | **Outcome 6: Research, Problem Solving and Decision Making**Students will demonstrate problem solving skills using digital tools both individually and collaboratively. | * Use teacher selected digital tools to support problem solving individually and collaboratively. (CZ, CT, CI, Com, PCD, TF)
 |
| * independently operate computer equipment and associated peripherals
* efficiently use programs and systems
* use appropriate terminology while working with digital tools
* troubleshoot systems and applications
* take care of digital tools
 | **Outcome 7: Technology Operations and Concepts**Students will demonstrate an understanding of technology operations and concepts while safely and responsibly using digital tools and equipment. | * Understand and use [technology systems](http://georgianets.wikispaces.com/Glossary#Technology_System). (CZ, CT, CI, Com, PCD, TF)
* With growing independence, troubleshoot systems and applications. (CT, Com, PCD, TF)
* With growing independence integrate the use of peripherals into projects and presentations. (CZ, CT, CI, Com, PCD, TF)
 |
| Purpose* Control/robotics *- writing programs to control and influence external devices. Using external input devices to control output. E.g. robots , Makey Makey - Teach students that programming applies to more than just games and computers*
* Gaming
* Real world situations

Problem solving* Pattern Recognition
* Sequencing
* Debugging
* simplification/efficiency

Communication* Abstraction

Concept* Conditions (If … Then …)
* Loops
* Variables
* Languages
* Understand limitations of computers.
 | **Outcome 8: Coding**Students will understand and apply the basic concepts of computer science, including algorithms, abstraction, and computational thinking. | * With support, analyze an event or task and identify the steps required to complete it. (CT, CI, Com, TF)
* Predict the behavior or outcome of a coding sequence. (CT, CI, Com, TF)
* Recognize and offer solutions to multiple errors in their own code and that of others. (CT, CI, Com, TF)
* Use “and”, “or” statements and “for” loops to construct a set of statements to be acted out to accomplish a task. (CSTA K-12) (CZ, CT, CI, Com, PCD, TF)
* With support include variables in a sequence of their own code (CT, CI, Com, TF)
* Recognize that programming occurs in a variety of coding languages and that each language has different iterations that achieve the same result.(CT, CI, Com, TF)
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| **Information and Communication Technology/Coding Grade 6** |
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| **Strategies and Skills (to Support Indicators)** | **Outcomes** | **Assessment/Performance Indicators** |
| * use appropriate and safe behaviors online
* demonstrate good practices in personal information security
* awareness of health and safety issues when using information technology
 | **Outcome 1: Digital Citizenship**Students will understand and demonstrate behaviors which ensure their own and others health, safety and privacy. | * **C**reate and maintain a secure account for classroom use. (CZ, PCD, TF)
* Demonstrate correct ergonomics. (PCD, TF)
* Create and follow a personal plan around screen time, social media use, privacy expectations, and digital footprint awareness. (CZ, CT, CI, Com, PCD, TF)
* Model strategies for the safe and efficient use of computers. (PCD, TF)
 |
| * cultural understanding and global awareness
* advocate and practice safe, legal, and responsible use of information and technology
 | **Outcome 2: Digital Citizenship**Students will follow best practices of active digital citizenship as they interact and contribute in the digital - connected global world.  | * Follow *Public Network Access and Use Policy.* (CZ, CT, Com, PCD, TF)
* Follow classroom guidelines regarding the acceptable use of digital tools.(CZ, CT, Com, PCD, TF)
* Understand the various laws and policies as they pertain to the student’s use of digital tools. (CZ, CT, Com, PCD, TF)
* Demonstrate ethical and legal use of information.  (CZ, CT, Com, PCD, TF)
* Understand the consequences of misuse. (CZ, CT, Com, PCD, TF)
 |
| * interact with others locally and globally using a range of technologies
* communication etiquette
* communicate information and ideas effectively using a variety of media and formats
* communication in various digital environments
* use a range of digital tools that creatively enhances presentation, performance or communication of information and ideas
 | **Outcome 3: Communication**Students will use digital tools to communicate and work collaboratively, including at a distance, to support individual learning and to contribute to the learning of others. | * Independently communicate ideas and information using teacher or student selected digital tools.  (CZ, CT, CI, Com, PCD, TF)
* Communicate information and ideas effectively to multiple audiences using a variety of media and formats. (CZ, CT, CI, Com, PCD, TF)
* Independently communicate and collaborate electronically with others inside and outside the classroom. (CZ, CT, CI, Com, PCD, TF)
* Use appropriately communication etiquette. (CZ, CT, Com, PCD, TF)
* Develop cultural understanding and global awareness by engaging with learners of other cultures. (CZ, CT, CI, Com, PCD, TF, TE)
 |
| * use digital tools in the inquiry process to plan, create and publish their work
* select and use grade appropriate tools to solve problems
* work co-operatively when using digital tools
* understand and demonstrate how to choose the most effective tool for the intended audience
 | **Outcome 4: Productivity and Innovation**Students will use digital tools to plan, create, and publish their work both individually and collaboratively. | * Accomplish curriculum-based tasks by independently selecting and using digital tools individually and collaboratively. (CZ, CT, CI, Com, PCD, TF)
* Use a range of media and digital tools. (CZ, CT, CI, Com, PCD, TF)
* Apply existing knowledge to generate new ideas, products, or processes.  (CZ, CT, CI, Com, PCD, TF)
 |
| * use digital tools in the inquiry process to plan, create and publish their work
* select and use grade appropriate tools to solve problems
* work co-operatively when using digital tools
* understand and demonstrate how to choose the most effective tool for the intended audience
 | **Outcome 5: Research, Problem Solving and Decision Making**Students will use digital tools to gather, record, share and interpret information and data to support learning. | * Efficiently use Internet search engines and other online search resources. (CT, Com, TF)

(Booleans)* Select and use a variety of electronic resources to build a knowledge base. (CT, CI, Com, TF)
* Make decisions, and draw conclusions to create something new. (CT, CI, Com, TF)
* Compare formats of print, electronic and multimedia reference materials to facilitate selection of resources and information. (CT, CI, Com, TF)
* Create visual organizers to sequence, classify and analyze information. (CT, CI, Com, TF)
* Use digital tools to extract, gather and collate data. (CT, CI, Com, TF)
 |
| * use search strategies to access electronic information
* critically evaluate, scan and select relevant information from electronic sources
* record and manipulate information electronically
* use content specific electronic sources to support and enhance research
* use appropriate digital tools and resources to accomplish research tasks
* understand and demonstrate critical literacy skills across all mediums
* work collaboratively
 | **Outcome 6: Research, Problem Solving and Decision Making**Students will demonstrate problem solving skills using digital tools both individually and collaboratively. | * Independently select and use digital tools to support problem solving individually and collaboratively. (CZ, CT, CI, Com, PCD, TF)
 |
| * independently operate computer equipment and associated peripherals
* efficiently use programs and systems
* use appropriate terminology while working with digital tools
* troubleshoot systems and applications
* take care of digital tools
 | **Outcome 7: Technology Operations and Concepts**Students will demonstrate an understanding of technology operations and concepts while safely and responsibly using digital tools and equipment. | * Understand and use [technology systems](http://georgianets.wikispaces.com/Glossary#Technology_System). (CZ, CT, CI, Com, PCD, TF)
* Troubleshoot systems and applications. (CT, Com, PCD, TF)
* Independently integrate the use of peripherals into projects and presentations. (CZ, CT, CI, Com, PCD, TF)
 |
| Purpose* Control/robotics *- writing programs to control and influence external devices. Using external input devices to control output. E.g. robots , Makey Makey- Teach students that programming applies to more than just games and computers*
* Gaming
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Problem solving* Pattern Recognition
* Sequencing
* Debugging
* simplification/efficiency

Communication* Abstraction

Concept* Conditions (If … Then …)
* Loops
* Variables
* Languages
* Understand limitations of computers.
 | **Outcome 8: Coding**Students will understand and apply the basic concepts of computer science, including algorithms, abstraction, and computational thinking. | * Identify an event, task or challenge and create the code required to complete it. (CT, CI, Com, TF)
* Use prediction to analyze their code. (CT, CI, Com, TF)
* Use a variety of techniques to fix, improve and analyze their own code. CT, CI, Com, TF)
* Use loops, with a variable as the condition, to construct a set of statements to be acted out to accomplish a task. ( CT, CI, Com, TF)
* Use variables to enhance a sequence of their own code.(CT, CI, Com, TF)
* Recognize that programs have impacts, bias and consequences, not all of which can be foreseen. (CT, CI, Com, TF)
 |