



ISTE SEAL OF ALIGNMENT REVIEW FINDINGS REPORT

Google CS First
NOVEMBER 2020

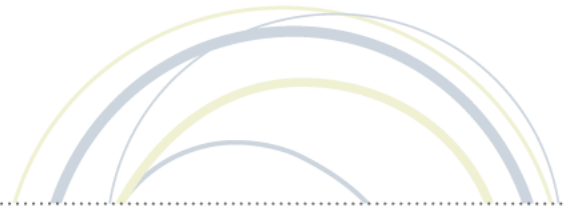
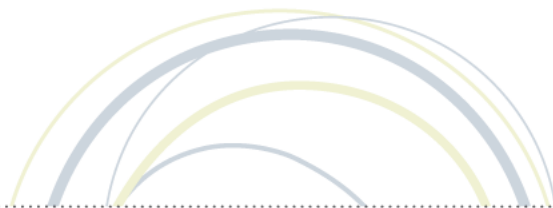


TABLE OF CONTENTS

ABOUT	2
About ISTE	2
ISTE Seal of Alignment	2
RESOURCE DESCRIPTION	3
What is the Google CS First Program?	3
How is the Google CS First Program implemented?	3
ISTE SEAL OF ALIGNMENT REVIEW	4
Review Methodology	4
Scope of Review	4
Review Findings	4
Conclusion	8



ABOUT

ABOUT ISTE

The International Society for Technology in Education (ISTE) is the premier nonprofit membership organization serving educators and education leaders. ISTE is committed to empowering connected learners in a connected world and serves more than 100,000 education stakeholders throughout the world.

As the creator and steward of the definitive education technology standards, our mission is to empower learners to flourish in a connected world by cultivating a passionate professional learning community, linking educators and partners, leveraging knowledge and expertise, advocating for strategic policies, and continually improving learning and teaching.

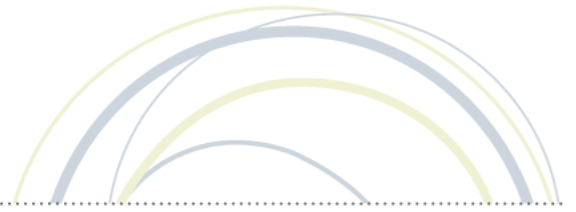
ISTE SEAL OF ALIGNMENT

Resources and products designed with the ISTE Standards in mind are choosing to demonstrate their commitment to support critical digital age learning skills and knowledge. Regardless of a solution's intended grade level, purpose or content area, by addressing the ISTE Standards and earning a Seal of Alignment, a solution is shown to consciously, purposefully and meaningfully support best practices for digital age teaching and learning.

ISTE considers a solution aligned to the ISTE Standards only after an extensive review conducted by trained ISTE Seal of Alignment reviewers, and it has been determined to meet all critical elements of a particular standard indicator in accordance with specific review criteria.

By earning a Seal of Alignment, ISTE verifies that this product:

- Promotes critical technology skills
- Supports the use of technology in appropriate ways [L]
[SEP]
- Contributes to the pedagogically robust use of technology for teaching and learning
- Aligns to the ISTE Standards in specific ways as described in the review finding report



RESOURCE DESCRIPTION

WHAT IS THE GOOGLE CS FIRST PROGRAM?

Google CS First is a free online computer science and coding curriculum for students in upper elementary and middle school (ages 9-14). Lessons and activities are designed to be engaging and relevant, with themes such as Storytelling, Art, Sports, Fashion Design, Social Media and Animation. The product site provides a rich and deep set of resources designed to support computer science learning activities for formal and informal, in-school and after school programs.

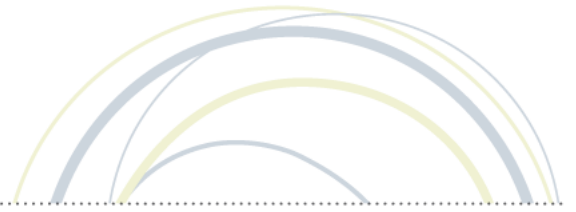
Resources include detailed, step-by-step sets of instructions that guide students through independent or facilitated learning about core computer science concepts and coding using Scratch. Teachers are encouraged to create “clubs” (or classes) of students who want to undertake projects based on a number of interesting themes or topics. The learning activities are divided into units designed to be completed within an hour or so. Some activities are “stand alone” and can be completed in a single session. Others are organized for multiple days or class meetings.

HOW IS THE GOOGLE CS FIRST PROGRAM IMPLEMENTED?

Teachers are provided with step-by-step lesson plans for helping students pursue their learning and complete their projects. Projects are focused on practical and appealing real-world activities such as Storytelling, Art, Sports, Social Media and Animation. Online videos and instructions walk students through their project development. There are 12 one-hour units with two activities, and 7 multi-day units that include 8 activities each. Teachers who set up classes assign student logins and can then assign activities to students, monitor progress, review projects and access survey data completed by students, however materials can be used without setting up a class formally.

The activity lesson plans include Common Core Language Arts Curriculum Standards and CSTA Standards addressed in the activity and provide resources and videos to introduce the ELA standards addressed. Students are encouraged to save their projects and share them with other club members and post them on the Scratch Web Site. Quizzes included in the lessons can help both students and teachers monitor their progress. Student are encouraged to collect their projects into a portfolio and share them with other club members and with the wider community of Scratch users.

The accompanying digital resources include text, graphics and approximately 700 videos that support the learning and creative activities. In addition to the core curriculum materials and resources, each set of activities includes sections with “Adaptations/Extensions” and “Optional Resources.”



ISTE SEAL OF ALIGNMENT REVIEW

Product: CS First

Company: Google

Date of Award: November 2020

REVIEW METHODOLOGY

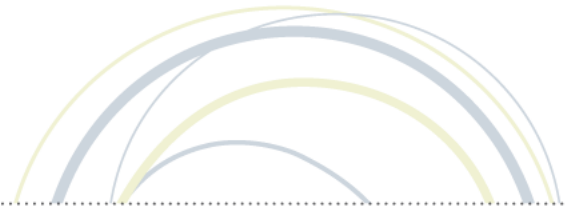
ISTE Seal of Alignment reviews are conducted by a panel of education and instructional experts. Reviewers use data collected both separately and collectively to determine how a solution addresses specific elements described in each of the indicators of the ISTE Standards. Special instruments are used by reviewers to collect data on potential alignment across all resource materials. Alignment is determined based on the extent to which all or some of specific elements are addressed within the materials. Reviewers conduct regular calibrations to assure the validity and reliability of the results and final review findings are combined for an overall score for alignment on each individual indicator.

The Google CS First resource was reviewed for alignment against the ISTE Standards for Students, at the Readiness level. Readiness level reviews examine how a resource instructs and/or assesses specific skills and knowledge that have been identified as foundational to the elements of the ISTE Standards.

SCOPE OF REVIEW































During the review process for the Google CS First program, reviewers:

- collected data on when and how each activity addressed specific skills and knowledge described in the ISTE Standards for Students.
- compiled findings to determine overall alignment across all ISTE Standards for Students standards and indicators.
- used aggregate findings to form the basis of the overall alignment results.



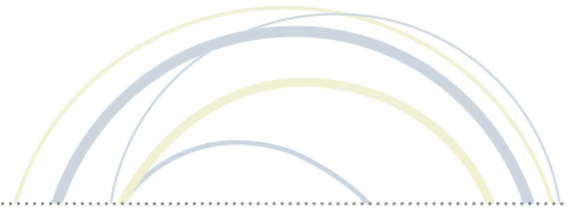
REVIEW FINDINGS

The Google CS First resource supports the following indicators of the ISTE Standards for Students:

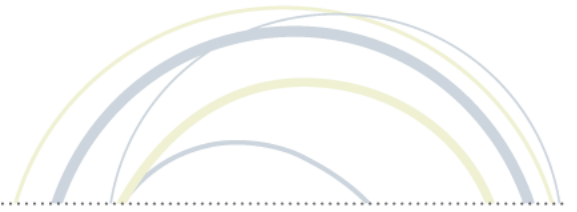
ISTE STANDARDS FOR STUDENTS							
	Standard 1 Empowered Learner	Standard 2 Digital Citizen	Standard 3 Knowledge Constructor	Standard 4 Innovative Designer	Standard 5 Computational Thinker	Standard 6 Creative Communicator	Standard 7 Global Collaborator
Indicator A							
Indicator B							
Indicator C							
Indicator D							
	Foundational resources and activities focus primarily on knowledge that facilitates skills acquisition to eventually meet ISTE Standards indicators.				Applied resources and activities focus primarily on practical, real-world and/or relevant opportunities to practice the skills and knowledge learned in the curriculum.		

The Google CS First resource aligns to the ISTE Standards for Students at the readiness level in the following ways:

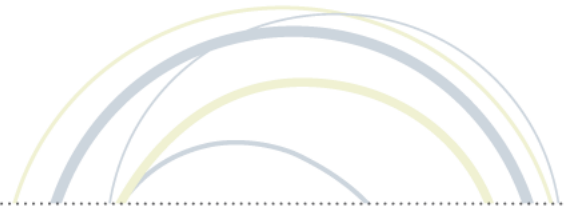
ISTE Standard	Finding Statement
1. Empowered Learner	
1.a. Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.	Students are encouraged to share their projects by posting to the Scratch Website or among classmates and to reflect on their learning in a survey available at the end of all but one of the activity sequences. Students can choose ways to expand their project by clicking on an option for adding to the project.



<p>1.c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.</p>	<p>Students share their projects with others in their class in real time and post their projects online to the Scratch Community. The variety of projects they create allow for learning to be demonstrated in a variety of ways. Teachers are encouraged to discuss projects with students individually and have access within the class they set up online in CS First to access projects and track student progress individually.</p>
<p>1.d. Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.</p>	<p>In all activities, the main focus is on coding and software development; however, students have to successfully use hardware to participate. Students learn to use a debugging process for testing, reflecting on their outcomes, and transferring their knowledge by applying what they have learned in more challenging projects (two of the eight units are intermediate). They troubleshoot issues that arise as they follow steps guiding them through the programming process.</p>
<p>3. Knowledge Constructor</p>	
<p>3.c. Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.</p>	<p>The curation in CS First activities is focused on the creation of digital artifacts that require the thoughtful organization of a variety of coding elements that demonstrate student proficiency in reaching a number of meaningful goals related both to Language Arts and coding. A variety of themes and product types offer practice creating and sharing collections of theme-based projects. Students have the opportunity to remix existing projects or create a project all on their own from a variety of programming elements.</p>
<p>3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.</p>	<p>Each activity includes a brief introduction video to introduce the project theme along with references to how CS is applied in the real world (art, music, writing, etc).</p>
<p>4. Innovative Designer</p>	
<p>4.a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.</p>	<p>CS First activities engage students in custom programming projects using detailed step-by-step instructions that are designed to help students learn effective design principles and processes, generate ideas, test theories, solve coding problems and create personalized projects.</p>
<p>4.c. Develop, test and refine prototypes as part of a cyclical design process.</p>	<p>All activities engage students in building coding projects focused on a number of real-world themes such as an interactive presentation, a public broadcasting announcement, or a story</p>



	about a hero, or pitching an idea. Students develop and test coding prototypes and refine them through a cyclical design process using Scratch coding blocks.
4.d. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.	Students are asked to complete tasks and check that they function as planned, making revisions as needed to reach their goal. Adjustments are suggested to improve outcomes in the instructional videos provided and the iterative programming process and open-ended opportunities increase perseverance and tolerance.
5. Computational Thinker	
5.c. Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.	The video guides in every coding activity are sequenced into a step-by-step process to show students how to break problems into their component parts and focus on the key information in each step.
5.d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	Coding projects from easy to intermediate level, engage students in practicing the sequence of steps needed to create and test automated solutions. Students use algorithmic thinking during the add-on stage of each project as they expand the project and add content using coding blocks and they learn how automation works as they complete each of the activities, coding dialog, sequencing actions and creating interactive presentations and games in Scratch.
6. Creative Communicator	
6.b. Create original works or responsibly repurpose or remix digital resources into new creations.	Coding projects start with a “starter project” or a set of code created previously, then ask students to repurpose or remix parts of it to create something new, so students are involved in remixing throughout the activities.
6.d. Publish or present content that customizes the message and medium for their intended audiences.	Students learn to present reports, research, or alternative story endings in a way that engages an audience and encourages collaboration. They might choose to tell a story in first or third person to personalize their project or build a project about an idea, activity, item or cause they feel strongly about to influence others.



CONCLUSION

Google CS First activities are well-designed to appeal to its audience of students in grades 3-5. It is also designed to be easily adaptable to a wide range of settings. The materials are clear, detailed, user-friendly and visually appealing. The use of videos throughout make the learning process particularly appealing to beginning students and the use of blended lesson plans involving teachers or volunteer facilitators builds in ongoing support for students of all levels.

The theme-based projects reference real world applications of skills being learned. The activities address Language Arts Content Standards, and in some cases the themes are career oriented. The learning environment encourages sharing, peer support and participation in a wider learning community on the Scratch Website.

Teacher lesson plans include mappings to the CSTA standards, and Language Arts Common Core standards. The lessons also address a number of foundational knowledge and skills for the ISTE Standards for Students. Given the strength, adaptability and focus on the popular topic of coding and application to real world tasks, these lessons reflect not just solid alignment with the standards but a strong example of the kind of learning strategies that support the ISTE mission.

The lessons help educators meet the Standards by encouraging and supporting integration of coding and problem solving in classroom lessons that target content standards in addition to computer science skills. Teachers are encouraged to allow students the opportunity to apply computational thinking skills as they solve real world problems using Scratch.