SCRATCH SPECIAL

What is Scratch? Who Invented Scratch? Where did the idea come from?

Scratch is a visual programming language designed for children and beginners. It was developed by the Lifelong Kindergarten Group at the Massachusetts Institute of Technology (MIT). The project was led by Professor Mitchel Resnick, who envisioned a tool that would make programming



accessible and engaging for young people. The idea stemmed from Resnick's belief that everyone should have the opportunity to express themselves creatively through technology. This belief was somewhat inspired by the pioneering work of Seymour Papert. His work on Logo, a programming language designed for children, laid the groundwork for many of the concepts that later informed Scratch. Papert's emphasis on learning through exploration and discovery, as well as his belief in the power of technology to empower children, were instrumental in shaping Resnick's vision for Scratch.

Why is Scratch So Popular?

Scratch has gained immense popularity due to several factors:

- **Accessibility:** Its drag-and-drop interface eliminates the need for complex syntax, making it easy for children to learn and experiment with programming concepts.
- **Creativity:** Scratch empowers children to create their own interactive stories, games, and animations, fostering their imagination and problem-solving skills.
- **Collaboration:** The Scratch community encourages sharing and collaboration, allowing children to learn from each other and develop a sense of belonging.
- Educational Benefits: Scratch has been shown to improve computational thinking, logical reasoning, and creative problem-solving skills.

What is the Educational Theory Behind Scratch?

Scratch's educational theory is rooted in the constructivist approach to learning, which emphasizes active engagement and discovery. By allowing children to experiment and create their own projects, Scratch helps them build knowledge and understanding through hands-on experience.

What is the Creative Learning Spiral and how does that apply to Scratch?

The Creative Learning Spiral is a pedagogical model developed by Mitchel Resnick that outlines a cyclical process for fostering creativity and innovation. This iterative approach emphasizes the importance of active engagement, experimentation, and reflection in the learning process.

The spiral consists of five key stages:

Imagine: Learners envision new ideas, possibilities, and projects.

Create: They bring their imaginations to life by designing, building, or producing something tangible.

Play: Learners experiment with their creations, explore different possibilities, and have fun.

Share: They share their work with others, receive feedback, and collaborate on new projects.

Reflect: Learners reflect on their experiences, identify areas for improvement, and generate new ideas.

The Creative Learning Spiral is closely aligned with the philosophy of Scratch, which provides a platform for children and young adults to engage in creative coding and project-based learning. The creative learning spiral enables learners can continuously develop their creative skills, problem-solving abilities, and computational thinking. Read more: <u>Ten Tips for Cultivating</u> <u>Creativity | by Mitchel Resnick</u>

What is the Significance of Peers, Projects, Passion, and Play?

Resnick emphasizes the importance of these four elements in fostering creativity and learning:

- **Peers:** Collaboration with peers helps children develop social skills, learn from others, and feel supported in their endeavours.
- **Projects:** Engaging in meaningful projects allows children to apply their knowledge and skills, develop problem-solving abilities, and experience a sense of accomplishment.
- **Passion:** When children are passionate about a topic, they are more motivated to learn and explore.
- **Play:** Playful learning creates a positive and enjoyable environment that fosters creativity and exploration.

The Missing P's Purpose and Perseverance

Resnick refers to the above elements as the four P's of learning. In this book Lifelong Kindergarten, he hints there are two missing P's. Resnick believes that purpose and perseverance are essential for success in learning and creativity. Purpose provides a sense of direction and motivation, while perseverance enables individuals to overcome challenges and persist in their goals.

Read more about the four P's in - Lifelong Kindergarten: Cultivating Creativity through Projects, Passion, Peers and Play Review to follow.

What Does it Mean to Be a Scratcher?

A Scratcher is a member of the Scratch community. Scratchers can create and share projects, participate in forums, and collaborate with other users. Being a Scratcher provides a supportive environment for children to learn, grow, and connect with like-minded individuals.

Scratch and Digital Citizenship

Scratch comes with a code of conduct - Scratch is a friendly and welcoming community for everyone, where people create, share, and learn together. Welcoming people of all ages, races, ethnicities, religions, abilities, sexual orientations, and gender identities. To help keep Scratch a welcoming, supportive, and creative space for all the following community guidelines have been created:

Treat everyone with respect.

Scratchers have diverse backgrounds, interests, identities, and experiences. Everyone on Scratch is encouraged to share things that excite them and are important to them—we hope that you find ways to celebrate your own identity on Scratch, and allow others to do the same. It's never OK to attack a person or group's identity or to be unkind to someone about their background or interests.

Be safe: keep personal and contact information private.

For safety reasons, don't give out any information that could be used for private communication, in person or online. This includes sharing real last names, phone numbers, addresses, hometowns, school names, email addresses, usernames or links to social media sites, video chatting applications, or websites with private chat functionality.

Give helpful feedback.

Everyone on Scratch is learning. When commenting on a project, remember to say something you like about it, offer suggestions, and be kind, not critical. Please keep comments respectful and avoid spamming or posting chain mail. We encourage you to try new things, experiment, and learn from others.

Embrace remix culture.

Remixing is when you build upon someone else's projects, code, ideas, images, or anything else they share on Scratch to make your own unique creation.

Remixing is a great way to collaborate and connect with other Scratchers. You are encouraged to use anything you find on Scratch in your own creations, as long as you provide credit to everyone whose work you used and make a meaningful change to it. And when you share something on Scratch, you are giving permission to all Scratchers to use your work in their creations, too.

Be honest.

It's important to be honest and authentic when interacting with others on Scratch, and remember that there is a person behind every Scratch account. Spreading rumors, impersonating other Scratchers or celebrities, or pretending to be seriously ill is not respectful to the Scratch Community.

Help keep the site friendly.

It's important to keep your creations and conversations friendly and appropriate for all ages. If you think something on Scratch is mean, insulting, too violent, or otherwise disruptive to the community, click "Report" to let us know about it. Please use the "Report" button rather than engaging in fights, spreading rumors about other people's behavior, or otherwise responding to any inappropriate content. The Scratch Team will look at your report and take the appropriate action.

How Has Scratch Evolved Over the Years?

Scratch has undergone significant evolution since its inception; we are currently in the era of Scratch 3.0. New features and capabilities have been added over time, including support for hardware integration, online broadcasting, and a wider range of creative tools. These enhancements have kept Scratch relevant and engaging for young programmers. The blocks have been expanded and redesigned, the layout of the interface refined, characters and backgrounds added and the community has grown markedly. The Scratch Foundation was established in 2013 as an independent nonprofit organization. This was formed to support the continued growth of Scratch and to help the project continue to scale. Scratch has become the world's largest coding community for kids. In 2022, Scratch reached more than 100 million registered users. The 2024 Scratch Conference is a good reflection of the new and current directions of Scratch. It highlights the growth in accessibility and global outreach.

We will highlight two innovations that have been featured in this year's Scratch Conference later in this newsletter - Block Talk and OctoStudio.

How Can a Teacher Best Get Started with Using Scratch in the Classroom?

Teachers can introduce Scratch into the classroom by following these steps:

- 1. Join Scratch: sign up using a <u>Teacher Account</u>.
- 2. **Familiarize Yourself with Scratch:** Explore the Scratch interface and create your own projects to understand the basics. Try the <u>tutorials</u>.
- 3. Create Engaging Activities: Develop project ideas that align with your learning objectives and spark students' interest. Start with something simple Eg. <u>About Me</u> <u>Project</u>
- Provide Support and Guidance: Offer assistance and encouragement as students work on their projects. There are many online resources - <u>Scratch - Starter Projects</u>, .<u>Animate a Name Cards</u>, <u>Scratch Team - YouTube</u>. Don't be afraid to learn with your students and from your students.
- 5. **Facilitate Collaboration:** Encourage students to share their work and collaborate with their peers. You can create <u>studios</u> for sharing projects in Scratch.
- 6. Be familiar with the <u>Creative Computing Curriculum</u> it's a comprehensive guide for teachers and it provides structure, planning and assessment ideas.
- 7. Other projects that you should know about <u>Assessing Creativity</u>, <u>Getting Unstuck</u>, <u>Computational Thinking with Scratch</u>, <u>Designing Creative Classrooms</u> and BlockTalk.

What is the Future for Scratch?

The future of Scratch looks promising. As technology continues to advance, Scratch will likely evolve to incorporate new features and capabilities. The Scratch community continues to grow and provide supportive environments for young programmers to learn, create, and collaborate. Offshoots such as ScratchJr and OctoStudio have made creative coding more accessible. Scratch has developed a number of special blocks to integrate with physical devices such as Lego EV3, Makey Makey and MicroBit. This is an area that has great potential for future development.





Mitchel Resnick's *Lifelong Kindergarten* is a compelling manifesto for educators seeking to harness the potential of

digital technology to foster creativity and innovation. With a foreword by the late Ken Robinson, champion of creativity, the book offers a powerful argument for shifting our educational paradigm - **life should be more like kindergarten**. "The digital revolution has put sophisticated tools within reach of almost everyone. This is a grounded and visionary call for education as a whole to cultivate the creative powers that lie within us through the new tools that we now have."

For digital technology teachers, this book is a great resource for guiding our teaching approaches and reflecting on pedagogical practices. Resnick outlines his four pillars of creative learning: projects, passion, peers, and play. These elements can often be overlooked in classrooms and are essential for developing the critical thinking, problem-solving, and collaborative skills demanded by the 21st century.

The four P's of learning:

<u>Projects</u> - Open-ended projects: Encourage students to explore their interests and experiment with different solutions. Authentic tasks: Connect projects to real-world problems and challenges. Student agency: Empower students to take ownership of their learning and make decisions.

<u>Passion</u> - **Personalized learning:** Tailor instruction to students' individual interests and learning styles. **Choice-based activities:** Offer students a variety of options to explore different topics and skills.**Growth mindset:** Foster a belief in continuous learning and improvement.

<u>Peers</u> - **Collaborative projects:** Encourage students to work together on shared goals. **Peer feedback:** Create opportunities for students to provide and receive constructive feedback. **Diverse perspectives:** Promote inclusivity and respect for different viewpoints.

<u>Play</u> - **Experimentation:** Encourage students to try new things and make mistakes without fear of failure. **Imagination:** Foster creativity and problem-solving skills. **Joyful learning:** Create a fun and engaging learning environment.

The author's emphasis on project-based learning is particularly relevant to digital technology educators. Resnick provides practical insights into creating engaging, open-ended projects that inspire students to explore their passions and develop real-world skills. He also highlights the importance of peer collaboration, a cornerstone of successful digital projects, and the role of play in fostering creativity and innovation.

While the book is grounded in educational theory, it is also filled with practical examples and case studies. Resnick's work with Scratch, a visual programming language, serves as a model for how to create tools that empower young people to become creators, not just consumers, of technology.

Lifelong Kindergarten is a call to action for educators to rethink their approach to teaching and learning. It is a blueprint for creating classrooms where students are not merely passive recipients of information but active participants in their own education.

Key takeaways for digital technology teachers:

- Embrace project-based learning as a core pedagogical approach.
- Foster a culture of creativity, collaboration, and play in the classroom.
- Leverage digital tools to empower students as creators and problem-solvers.
- Continuously reflect on and refine teaching practices to align with the principles of lifelong learning.

The principles outlined in *Lifelong Kindergarten*, empower teachers to create learning environments that inspire and equip students to thrive in an increasingly complex and interconnected world.



Scratch Conference 2024

Every year, the Scratch Conference is a key focus for the Educational Scratch Community. It's fully online and in-person making it highly accessible. Furthermore for teachers in different time zones such as New Zealand, much of the Conference is recorded and shared so we can access it asynchronously. Here is a link to a full playlist of the presentations:

Scratch Conference 2024 - Opening Ceremony - Includes a full playlist.

There is a fantastic amount of great ideas and resources shared over the proceedings of the conference. I have outlined this years conference below and will focus on two presentations in this months Newsletter:

The Outline: Key Themes and Announcements

The opening talk for Scratch Conference 2024 set the tone for the event, emphasizing the importance of creative learning, community, and collaboration. The speakers highlighted the global reach of Scratch and its impact on young people's education and development.

Highlights from the Opening Talk:

- Welcome and Introduction: The conference hosts, Prashant Nori and Marin Vernon, welcomed attendees from around the world and provided essential information about the event, including translation options and schedule.
- Scratch Foundation Address: Dr. Margaret Honey, Scratch Foundation President and CEO, expressed gratitude to the Scratch community, staff, partners, and funders for their contributions to the platform's success. She highlighted the importance of celebrating

achievements, learning from one another, and building a community that empowers young people.

- ScratchJr Anniversary: Dr. Marina Bers, creator of ScratchJr, celebrated the 10th anniversary of the platform and announced the upcoming launch of a new coding curriculum for young children.
- **Civic Engagement and Scratch:** Mitch Resnik, co-founder of Scratch, discussed the concept of "purpose" in Creative Learning and shared examples of how young people are using Scratch to engage in civic engagement projects.
- Scratch in Action: The talk featured videos showcasing student projects from India, highlighting how Scratch is being used to address issues like gender inequality and climate change.
- **Community and Networking:** The speakers encouraged attendees to connect with each other, participate in networking sessions, and explore the virtual poster session.
- Lego Foundation Message: The Lego Foundation shared a message about the importance of play and creativity in children's development and expressed their support for the Scratch community.

Overall, the opening talk provided a strong foundation for the conference by inspiring attendees, highlighting the platform's impact, and encouraging community engagement. The focus on creative learning, collaboration, and civic engagement set the stage for the inspiring sessions and workshops that followed.



BlockTalk: Enhancing Debugging Skills in Scratch Projects



Introducing Block Talk Video by Creative Computing Lab - Harvard Graduate School of Education

BlockTalk is an innovative platform designed to help educators improve their debugging skills in Scratch projects through interactive conversational simulations. This tool leverages generative Al to create realistic scenarios where teachers can practice diagnosing and solving common coding issues students encounter.

How BlockTalk Works

BlockTalk offers a series of simulations where an AI student presents a Scratch project with a specific problem. Educators interact with the AI student to understand the issue, ask questions, and suggest solutions. This hands-on approach helps teachers develop effective strategies for guiding students through debugging processes.

Key Features

Interactive Simulations: BlockTalk provides 10 different simulations, each focusing on a common challenge in Scratch projects. These scenarios are based on real-world issues that students often face.

Conversational AI: The AI student responds to questions and suggestions, mimicking the interaction between a teacher and a student. This feature helps educators practice their problem-solving and communication skills.

Resource Integration: The platform includes links to additional resources and detailed explanations of the challenges, offering multiple approaches to solving each problem.

Teacher Testimonials

Educators who have used BlockTalk have shared positive feedback about its impact on their teaching practices:

Ms. Johnson, Middle School Teacher: "BlockTalk has been a game-changer in my classroom. The interactive simulations allow me to practice debugging strategies in a realistic setting, which has significantly improved my ability to help students with their Scratch projects." *Mr. Lee, High School Computer Science Teacher:* "The conversational aspect of BlockTalk makes it feel like I'm working with real students. It's an excellent tool for understanding common issues students face and finding effective ways to guide them."

BlockTalk is a valuable tool for educators looking to enhance their debugging skills and better support their students in coding projects. By simulating real-world classroom scenarios, BlockTalk helps teachers develop effective strategies for troubleshooting and guiding students through common coding challenges.

<u>BlockTalk</u> is free and available to the public, and we hope you consider trying it out! For additional resources on teaching with Scratch, we recommend exploring our <u>Creative</u> <u>Computing Curriculum</u> and <u>Getting Unstuck Curriculum</u>. Connect with our team and with other educators on X/Twitter at <u>@HGSE_CCL</u>, in the <u>Teaching with Scratch Facebook group</u>, or via email at <u>BlockTalk@gse.harvard.edu</u>.

To view the workshop from this year's **Scratch Conference** - **BlockTalk: Conversational Simulations to Practice Debugging** click the link below:

A hands-on workshop to explore BlockTalk, a new platform that uses interactive conversational simulations with generative AI to practice debugging common problems in student projects.

Scratch Conference 2024 Workshop - BlockTalk: Conversational Simulations to Practice ...



Scratch Conference 2024 Workshop -8 Things to do with OctoStudio

Scratch Conference 2024 Workshop - 8 Things to Do with OctoStudio

Exploring OctoStudio a new app for creating interactive projects on mobile phones and tablets created by the Lifelong Kindergarten group at the MIT Media Lab.

Presenters:

Teo: A member of the OctoStudio team who is passionate about making coding accessible to all.
Kreg: The lead engineer on the OctoStudio team, responsible for bringing the platform to life.
Eric: A longtime Scratcher and educator who is excited about the possibilities of OctoStudio.
Natalie: A member of the OctoStudio team who is dedicated to making the platform accessible to all.

Key Features Demonstrated by OctoStudio:

1. Shake Block: Try: De How to Make a Cooking Game on the Phone | OctoStudio Tutorial

- Demonstrated Project: A kangaroo that jumps and changes color when the phone is shaken.
- Key Features: Uses the phone's accelerometer to detect shaking and triggers actions like jumping and changing color.

2. Tilt Block:

- Demonstrated Project: A taco that moves around the screen when the phone is tilted.
- Key Features: Uses the phone's gyroscope to detect tilting and controls the movement of a character.

Try: Feature Highlight: Tilt Blocks | OctoStudio

How to Make a Phone Game in OctoStudio | Item ... This is my students' favourite tutorial at the moment. We have created many variations of this project.

3. Camera Integration:

- Demonstrated Project: A project using a photo of a stuffed animal as a sprite.
- Key Features: Allows users to take photos and use them as sprites or backdrops in their projects.





- 4. Physical World Interaction:
 - Demonstrated Project: A project that uses a magnet to control a character's movement.
 - Key Features: Enables users to interact with projects using physical objects like magnets, buttons, or other sensors.

Try: Dake a Phone Game with a Magnet | OctoStudio Tutorial

5. Sonification:

- Demonstrated Project: A project where the code is read aloud as it runs.
- Key Features: Makes projects more accessible to users with visual impairments by providing auditory feedback.





- Demonstrated Project: Sharing a project file, video, or GIF.
- **Key Features:** Allows users to easily share their projects with others using various methods.



7. Beam:

- **Demonstrated Project:** A project that sends a signal to another device to trigger an action.
- Key Features: Enables wireless communication between multiple OctoStudio devices.

Try: Feature Highlight: Beam Blocks | OctoStudio

8. Explore and Remix:

- Demonstrated Project: Remixing a sample project.
- Key Features: Provides users with a variety of sample projects to explore and modify.

Resources to explore:

OctoStudio the website.

OctoStudio - YouTube Channel

<u>OctoStudio Explorations | Exploratorium</u> - Join us in exploring different ways to combine code with everyday materials as tools for creative expression! The Tinkering Studio is a Key Collaborator with the Lifelong Kindergarten Group at the MIT Media Lab, creators of a free coding application for mobile devices called OctoStudio.



Play with Patterns

Dive into surprising ways to experiment with patterns, symmetry, and repetition.



Bring a Book to Life

Use stories, scenes, and characters as inspiration for your projects!



Making Faces

Arrange materials to make portraits and animate them with code.



Hack a Magazine Hide coded surprises inside the pages of a magazine.

Sign up for Newsletters: please fill out the form.

Sign up for Newsletters: To receive emails about OctoStudio updates, resources, and events,



Googley Tips for Googley Teachers



Made with Gemini

New Google Classroom Groups

New Feature: Google Classroom now offers a **Groups** feature that allows teachers to create subgroups within their main class. This feature is very easy to use and super helpful for teachers.

How to Use Groups:

- 1. Access the Groups Feature: Log into your Google Classroom course and navigate to the "People" tab.
- 2. **Create a Group:** Click the "Create Group" button at the bottom of the page.
- Name and Assign Students: Give your group a name and assign students to it. You can create up to 50 groups with a maximum of 100 students per group. Students can be part of multiple groups.
- 4. Use Groups for Assignments: When creating a new assignment, go to the "Students" section on the right side. Instead of selecting individual students, choose the group you want to assign the assignment to.

Important Notes:

- Students cannot see which group they are in. Only teachers and co-teachers can view group membership.
- To use the Groups feature, you need a premium Google Classroom license (Teaching and Learning or Education Plus). If you don't have a premium license, you can use a workaround involving manually selecting students for groups.

Source: Managing small groups with Google Classroom (NEW for 2024) by John R. Sowash



Halloween Special

Create a Digital 3D Jack O'Lantern

Entry for Google Classroom:

We are learning how to create a basic 3D sculpture using a free online app called Sculpt GL. SculptGL is fun to do this on your computer or iPad it's like Play-Doh for your computer.

Watch the videos below to learn about the history of the Jack O'Lantern.

"Did you know that the original Jack O'Lantern was a carved-out turnip not a pumpkin as it is today?"

To watch and listen to the story of the Jack O'Lantern: <u>The Tale of Stingy Jack</u>

Read about the Jack O'Lantern: How Jack O'Lanterns Originated in Irish Myth

Next watch the video tutorial on how to create your own Jack O'Lantern.



Two Minutes of Tech Episode #17

To get started go to SculptGL

Introduction to SculptGL for Teachers

SculptGL is a powerful, free, and web-based 3D sculpting tool that is perfect for introducing students to the world of digital art and 3D modeling. Whether you're teaching art, design, or technology, SculptGL offers an accessible platform for students to explore their creativity and develop new skills.

Key Features:

- User-Friendly Interface: SculptGL's intuitive interface makes it easy for beginners to start sculpting right away. The tools are straightforward, allowing students to focus on their creativity rather than getting bogged down by complex software.
- Web-Based Access: Since SculptGL is web-based, there's no need for installations or high-end hardware. Students can access it from any device with an internet connection, making it ideal for classroom settings and remote learning.
- Versatile Tools: The software includes a variety of sculpting tools such as brushes, symmetry options, and dynamic topology, which help students create detailed and intricate models.
- Export Options: Students can export their creations in multiple formats, including OBJ and STL, which are compatible with other 3D software and 3D printers. This feature is particularly useful for projects that involve 3D printing.

Educational Benefits:

- Enhances Creativity: SculptGL encourages students to experiment and think creatively as they bring their ideas to life in three dimensions.
- Develops Technical Skills: Working with SculptGL helps students develop important technical skills, including spatial awareness, digital sculpting techniques, and familiarity with 3D modeling concepts.
- Supports Cross-Disciplinary Learning: The software can be integrated into various subjects, from art and design to science and engineering, providing a versatile tool for interdisciplinary projects.

For Further Getting Started Ideas:

SculptGL -- easy first project -- part 1

SCULPTGL web app - basic sculpting tutorial (jigglypuff)

Check out the original Sculpt GL Gallery