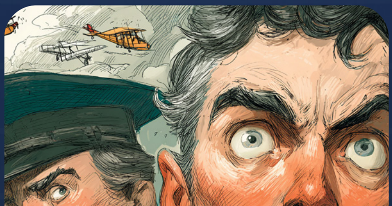
schoolai

AI isn't replacing thinking

Teachers are using SchoolAI to deepen it and boost engagement





See every student. Understand why. Know what to do.

Teachers can use SchoolAI to expand their awareness and capacity, helping them deliver the personalized 1:1 attention every student deserves.

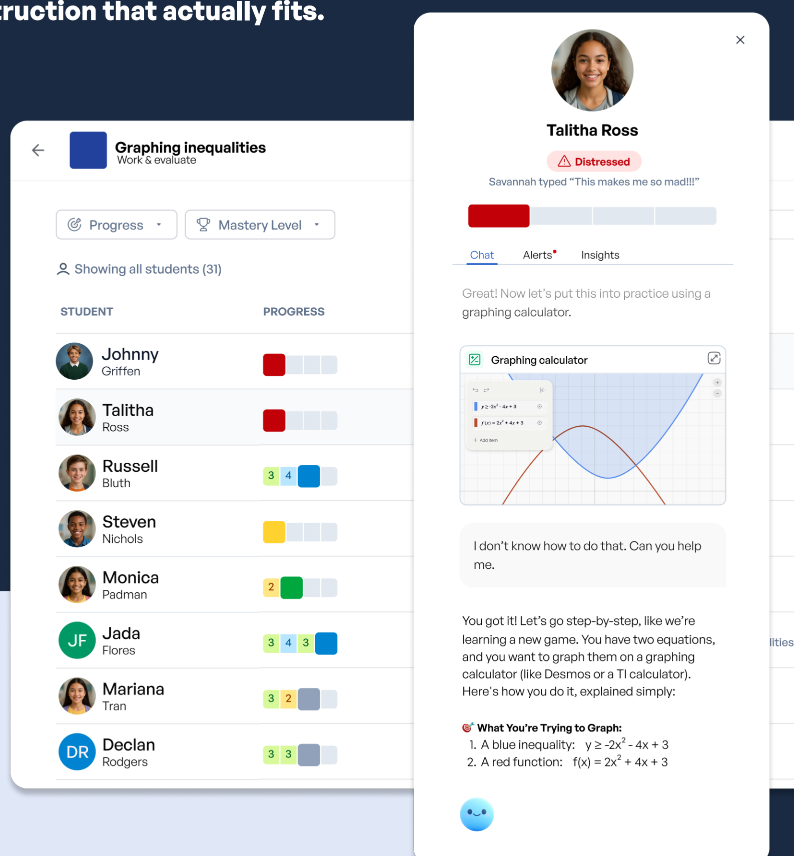
Schools should be able to see how every student is doing, understand why, and know what to do about it, in real time.

SchoolAI gives educators what they've never had before: **a way to see how every student approaches learning and personalize instruction that actually fits.**

SchoolAI does this with two main features

Spaces: AI-powered learning work spaces that follow the guidance of the teacher scaled across the entire classroom.

Mission Control: A live teacher dashboard that transforms student Space sessions into actionable insights.While the educators who support them get the clarity and insight they need to make the impact they've always known is possible.



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Executive summary

As AI becomes more present in classrooms, educators and policymakers are asking urgent questions:

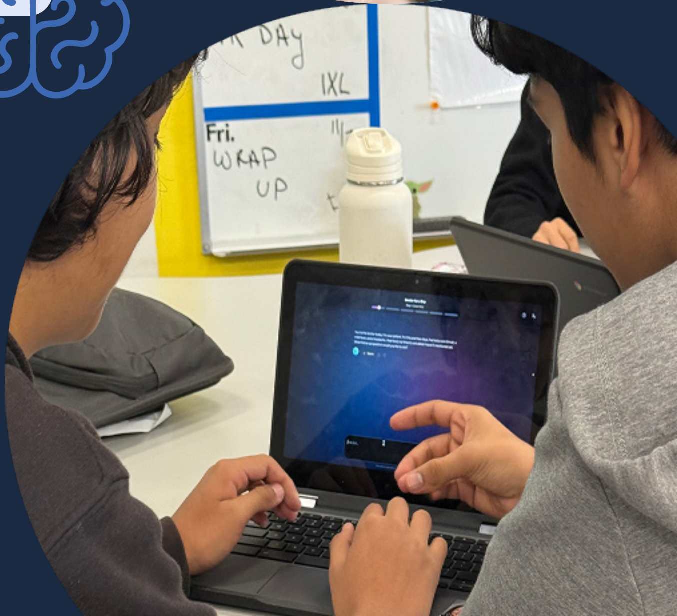
Does AI support or undermine critical thinking? Does it encourage students to reason and explore, or simply provide quick answers?

To understand how teachers are actually using AI in their instruction, this study examined more than 23,000 SchoolAI Spaces created during the 2024–25 school year across ELA, Math, Science, and Social Studies.

In SchoolAI Spaces, teachers, not the AI, design the learning experience. They supply the description and prompts that guide how Dot, the AI assistant, engages with students. This makes Spaces a unique window into how educators are choosing to integrate AI into real instructional practice.

Author: **Cynthia Chiong, Ph.D., Principal Research Scientist**

Spaces are AI-powered learning workspaces that teachers create to design instruction that adapts automatically to each student's interests, level, and pace. Students work within these Spaces with an AI sidekick that guides their learning while teachers maintain full oversight.



Finding 1: Core content, reimagined

Teachers use SchoolAI to deliver core curriculum through more personalized, interactive, and interdisciplinary experiences. Over 75% of Spaces still center on traditional subjects, while extending once-familiar routines in new ways such as interactive libraries, individualized math tutors, virtual lab assistants, and interdisciplinary environments. In this way, teachers use SchoolAI both to reinforce core material and to reimagine everyday classroom activities.

Finding 2: Designed for thinking, not just answers

Across subjects and grade bands, teachers are designing SchoolAI Spaces that ask students to reason, interpret, and decide rather than simply receive answers. Analysis revealed a strong emphasis on understanding, analysis, and evaluation well beyond basic recall, with creative tasks also meaningfully present. Overall, Spaces consistently prompt students to engage in deeper cognitive work, signaling that teachers are using SchoolAI to support thinking, not replace it.

Finding 3: Engagement by design, scaled with AI

Teachers leverage SchoolAI to increase interactivity and student agency in ways that benefit uniquely from AI. Simulations, role-play, and game-like elements appear frequently across Spaces. Many experiences also promote choice, curiosity, and inquiry through personalized pathways that AI makes far easier to create and sustain. SchoolAI continues to keep teachers in the driver's seat. Unlike general purpose LLMs like ChatGPT or Gemini, SchoolAI is built to never give away answers, and teachers reinforce this by designing experiences that push students toward deeper reasoning, not shortcuts.

Taken together, these findings show teachers using SchoolAI to strengthen core instruction, deepen cognitive demand, and expand engagement in ways that benefit from AI. Across subjects and grade levels, educators design Spaces that reinforce traditional content while transforming how students interact with it. Rather than automating learning, SchoolAI Spaces show educators designing tasks that push students to think, explore, and create. This demonstrates how AI, when guided by teacher design, becomes a tool for deeper and more meaningful learning.

Introduction

Recent headlines have raised urgent questions about whether AI chatbots actually support learning in classrooms, or whether they simply make it easier for students to get quick answers, sometimes inaccurate ones. These concerns are especially strong when it comes to critical thinking: Will AI undermine students' ability to reason, analyze, and make decisions for themselves, or can it be used to deepen those skills?

In this context, SchoolAI Spaces take a different approach by positioning AI as a partner in thinking rather than a shortcut to answers. Teachers design the learning experience by providing titles, descriptions, curriculum standards, prompts, and activity details that shape how the AI engages with students. Dot, the AI guide, works within these teacher-created parameters to support discussion, exploration, and feedback. As a result, **Spaces reflect not only what teachers choose to teach but also how they want students to think and participate in the learning process.**

Hi, I'm Dot!

This study examined how teachers are using SchoolAI in practice and how AI is changing the kinds of tasks students experience. Specifically, we asked:

- **To what extent do the SchoolAI Spaces that teachers create promote critical thinking and deeper cognitive engagement?**
- **How have teachers adapted their instructional design when AI is integrated into classroom routines?**

To answer these questions, we analyzed more than **23,000 Spaces** created during the 2024–25 school year in ELA, Math, Science, and Social Studies. We examined cognitive demand, interactivity, student agency, and teacher rules across subjects and grade bands.

Across this dataset, we found that teachers are using SchoolAI Spaces to reinforce, not replace critical thinking, designing tasks that ask students to reason, analyze, evaluate, and make decisions rather than simply retrieve answers. At the same time, an emerging trend is clear: teachers are beginning to use SchoolAI Spaces to introduce new forms of engagement, including simulations, role-play, personalized inquiries, and creative tasks that extend what is possible in traditional classroom routines.

Alongside this innovation, teachers are also embedding explicit guardrails for how AI should interact with their students. These rules are intentional supports for responsible use, but they also reflect a felt necessity. A recognition that, as AI becomes more involved in learning, educators must actively guide students toward appropriate, ethical, and productive engagement. Together, these patterns show that teachers are leveraging SchoolAI to deepen cognitive engagement while also pioneering new ways for students to interact, explore, and make meaning with AI.

Method

Throughout this report, you will find Space Highlights that offer deeper examples of the types of spaces teachers are creating. These examples were intentionally selected because they represent many of the coding categories analyzed in this report and serve as inspiration for educators.

Sample:

Analyses were conducted on all Spaces created during the 2024–25 school year by teachers of ELA, Math, Science, or Social Studies/History.

When creating a Space, teachers can provide a title, subtitle, description, student-facing “About” text, standards, and additional instruction. Dot uses this information to generate the Space. For this study, all text fields were analyzed. Spaces containing fewer than 10 total words across these fields were removed from the sample.

Example Space information:

Title: Statistics in the “Real World”

Subtitle: Analyzing Data in Everyday Life

Description:

Discover how statistics underpin decisions in the ‘Real World’. This space invites grade 7 students to explore the fundamental role that data analysis plays in various industries and everyday situations. By linking their personal interests, such as music, sports, or video games, to statistical concepts, students will gain a practical understanding of this essential math skill. Engage in real-world applications and make data-driven connections to the things you love!

Student about:

Ever wonder how your favorite video game was designed, or what makes a movie a box-office hit? Dive into the world of statistics to find out how data shapes the entertainment you enjoy!

Statistics in the “Real World” Space

Activity instructions:

This is a grade 7 statistics class. Check for understanding of statistics and how it relates to real-world careers and situations from the perspective of a 7th grader. Ask them about what interests them. Music? Films? Sports? Video Games? Fashion? Art? Whatever they answer, relate that to why statistics is essential to those interests in careers, companies, organizations, activities, etc. Before you start, remind them of the basic concept and then explore it with them.

Table A. Sample Size

Subject	Initial sample size	Spaces with <10 words	Final sample size
ELA	6,380	131	6,249
Math	7,407	170	7,237
Science	3,076	45	3,031
Social studies/History	7,527	202	7,325

Codebook Development and Process

1 Preliminary Coding Round

ChatGPT conducted an initial coding pass using broad code categories. Frameworks for cognitive depth and curated keyword lists were provided.

Cognitive Depth Frameworks: Bloom's Taxonomy, Webb's DOK, Hess' Cognitive Matrix

Additional Categories:

- **Interactivity:** ex. role-play, gamification, scenarios, fun language
- **Student agency:** ex. choice, interest, curiosity, personalization
- **Teacher rules:** ex. guidance such as "don't give the answer"

2 Human Review

For each subject, researchers reviewed 25 ChatGPT-coded Spaces and 100 that the model could not classify. Five primary issues were identified:

1. **Foreign-language Spaces.** Attempts to automatically remove or translate these Spaces were unreliable. They remain in the dataset and are categorized as unclassified.

2. **Unclassified scenario-based prompts.** Many Spaces used imaginative or interactive prompts (e.g., "pretend to be...", "imagine a future world...") that did not map cleanly onto Bloom's or Webb's terminology. Keywords aligned to these patterns were added.

3. **False negatives due to word variation.** Related terms (e.g., "create" vs. "make") were inconsistently coded. Word families and synonyms were expanded.

4. **Insufficient descriptions.** Spaces with fewer than 10 descriptive words were removed.

5. **Teacher-directed inputs causing false positives.** Descriptions often included directions written for Dot mixed with language written for the student, inflating counts. Broad terms (e.g., "write") were replaced with student-oriented phrases (e.g., "write a story," "write an essay").

3 Iterative Review of False Positives

After codebook expansion, ChatGPT re-coded the sample. Categories with ≥50% activation were manually reviewed. Overly broad triggers were replaced with a series of longer, more precise phrases.

4 Coding Rules

Given the use of longer phrases, ChatGPT was instructed to:

- apply partial matching (allowing for plurals and tense variations
- match full n-grams
- use only codebook terms

Attempts to allow autonomous codebook expansion reintroduced overly broad terms, increasing false positives. A conservative, codebook-only approach was therefore maintained, prioritizing under-reporting rather than over-reporting.

5 Final Validation

A final spot-check of 100 Spaces across all subjects was conducted using the completed codebook. Minor adjustments were made.

Statistical testing

While this study is exploratory in nature, logistic regressions were used to guide interpretation because sample sizes across subjects were large and uneven. This method helps ensure that observed differences in coding patterns are not simply the result of disproportionate group sizes but reflect meaningful instructional differences. **See logistic regression details.**

The Codebook

All Spaces were coded for the following 6 categories. **See full keywords.**

1. Subject Topics

2. Bloom's Taxonomy

- Remember
- Understand
- Apply
- Analyze
- Evaluate
- Create

3. Webb's Depth of Knowledge

- DOK 1: Recall and reproduction
- DOK 2: Skills/Concepts
- DOK 3: Strategic thinking
- DOK 4: Extended reasoning

4. Interactivity

- Simulation/Scenario-based
- Role-play/Character-based
- Gamified/Quiz
- Fun/Engaging Language

5. Student Agency

- Choice/Autonomy
- Interest/Curiosity
- Inquiry/Open-ended Tasks
- Personalization/Creative Agency
- Rules

The future of research in AI education

As AI platforms like SchoolAI generate increasingly large and rich datasets, new methodological approaches are needed to analyze this information effectively. In this study, the coding process combined human judgment with AI-assisted analysis, producing a conservative codebook guided by human-defined rules. Building on these insights, we are now developing a semantics-focused coding bot to support future analyses of this kind. This tool is designed to enhance validity by maintaining conceptual fidelity across large datasets and to strengthen reliability by applying coding criteria consistently and transparently at scale.

“

As AI platforms like SchoolAI generate increasingly large and rich datasets, new methodological approaches are needed to analyze this information effectively.

Science High School

Crime scene simulation - Michael Evans

Students will explore a detailed crime scene, analyze evidence, and use scientific methods to solve a murder case. This text-based role-playing game offers an immersive experience in forensic investigation, helping students develop critical thinking and problem-solving skills in a controlled environment.

You are a highly detailed and interactive forensic science simulation. The student will be able to explore the scene, request forensic tests, and gather evidence to solve the crime.

Scene details:

Location: a detached, two-story suburban house at 14 oakwood drive, a quiet residential street in bridgend.
Victim: michael evans, a 45-year-old male, found deceased in his study.
Initial scene: The study door is ajar. The victim is slumped over his desk, a single gunshot wound visible on his temple. A shattered glass of whiskey is on the floor near his right hand. The room is generally tidy, but a few drawers on the desk are slightly open. A laptop is on the desk, screen off.
Time of discovery: 8:00 am, Tuesday, 11th March 2025.

Suspects:

- **Sarah Evans:** the victim's estranged wife, known to have had heated arguments with him recently. does not live with Michael
- **David Miller:** a business partner of the victim, suspected of financial disputes.
- **Emily Carter:** a neighbour who reported hearing a loud bang around 10:00 pm the previous night.

Evidence:

- A .38 caliber handgun is found inside a desk drawer.
- Traces of a reddish-brown substance are observed near the shattered glass.
- Fingerprints are visible on the whiskey glass and the handgun.
- A handwritten note is on the desk, partially obscured by the victim's arm.
- A security camera is placed above the front door of the house.

Weather: Overcast, light rain.

Initial responders: police officers smith and jones arrived on the scene.

Space highlights

Student interaction:

The student can ask questions about the scene, request specific forensic tests (e.g., fingerprint analysis, blood spatter analysis, toxicology reports, firearm analysis, dna analysis, digital forensics), and examine evidence.

- Provide detailed and scientifically accurate responses to the student's questions, mimicking real-world forensic procedures and limitations.
- Do not reveal the solution directly. The student must deduce the cause of death and identify the perpetrator through their own investigation and analysis.
- Provide a realistic timeline of events based on the students actions and requests.
- If the student requests a specific test, provide a description of the test, and the time it would take to complete. Then when the student asks for the results, provide the results.
- If the student asks to view cctv footage, give them a detailed text based description of the footage, and the time stamps of the video.
- If the student asks to view the note, provide the text of the note.
- Provide accurate information regarding the uk law and how it pertains to the crime scene.

Example student commands:

examine the handwritten note.

request a toxicology report on the victim.

request a ballistics test on the firearm.

request fingerprint analysis of the whiskey glass.

take photographs of the crime scene.

request cctv footage from the front door.

examine the victim's body.

interview officer smith.

Results

Finding 1: Core content, reimagined

Teachers are using SchoolAI not only to cover traditional content but also to wrap core curriculum in personalized, interactive, and interdisciplinary experiences.

Across subjects, over 75% of Spaces were anchored in standard curriculum topics (e.g., literary comprehension, algebra, life science, civics). **See topic descriptions.** The remaining Spaces were not necessarily off-task; instead, they highlighted new ways teachers are leveraging AI.

Tables B: Percent of Spaces by Topic and Subject

Reading	N	%
Comprehension - Literary	2,007	32.12%
Writing	595	9.52%
Comprehension - Info	575	9.20%
Speaking and listening	364	5.82%
Vocabulary/ word study	334	5.34%
Research Inquiry	219	3.50%
Phonics/Phonemic	116	1.86%
Fluency	53	0.85%
Unknown	1,987	31.81%

Math	N	%
Fractions/Decimals/Ratios	1,875	25.9%
Algebra	1,739	24.0%
Number/Operations	1,162	16.1%
Geometry	663	9.2%
Data/Statistics/Probability	296	4.1%
Problem solving	134	1.9%
Functions/Modeling	103	1.4%
Unknown	1,265	17.5%

Science	N	%
Life Science/Biology	1,220	40.2%
Chemistry	751	24.8%
Physics	348	11.5%
Earth/Space	268	8.8%
Engineering Design/STEM	111	3.7%
Scientific Inquiry	75	2.5%
Unknown	258	8.5%

Social Studies	N	%
Civics	2,129	29.1%
History	1,769	24.2%
Geography	1,298	17.7%
Culture/Identity	277	3.8%
Economics	151	2.1%
Argumentation	46	0.6%
Current Events	27	0.4%
Unknown	1,628	22.2%

Unknown topics

A substantial number of Spaces, especially in Reading and Social Studies, could not be assigned a specific topic. These "unknowns" primarily fell into two categories: Insufficient Information and Task-oriented.

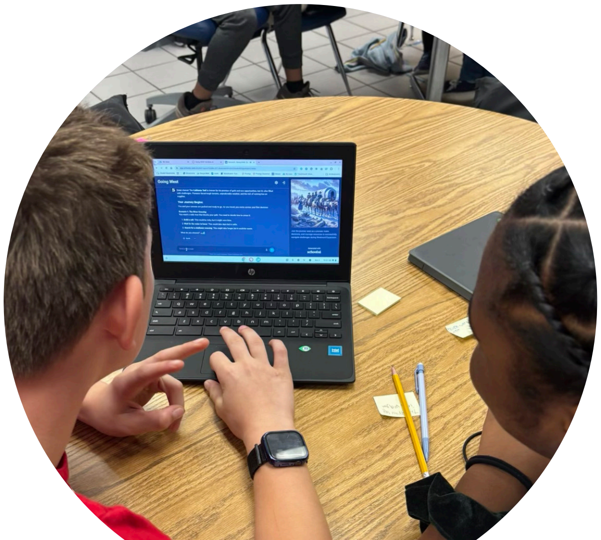
Table C: Topic Unknowns by Subject

Subject	Insufficient information	Task-oriented
Reading	59% (n=1,172)	41% (n=815)
Math	68% (n=865)	32% (n=400)
Science	87% (n=225)	13% (n=33)
Social Studies	63% (n=1,032)	37% (n=596)

Insufficient Information: Spaces were categorized as Insufficient when they lacked enough information for the AI to infer a topic. These fell into three main types:

1. **Not student-facing**. A small number were created for teachers or administrative use.
2. **Foreign-language.** As described in the Methods section, foreign-language Spaces could not be reliably translated or coded and remain unclassified.

Insufficient detail. These Spaces were generally too short or included only isolated proper nouns or highly specific terms (e.g., "Isaac Newton," Charlotte's Web, "Big Bang Theory") without enough surrounding context to indicate the broader instructional intention. While a human reader could often infer the likely topic, the AI could not reliably assign one based on the limited text. Because the vast majority of Spaces were successfully categorized, an exhaustive topic dictionary was not necessary for this exploratory study.



Task-oriented: Many unknowns were well-constructed learning activities that supported core subject areas but did not reference a specific topical domain. These reflect the creative ways teachers are using SchoolAI to personalize and extend classroom routines.

1. Reading – Interactive Library

Reading had the highest proportion of task-oriented Spaces. These often supported independent reading routines, book selection, or simulated an interactive library experience. Example:

> "**Book recommendations:** What book should I read next? Having trouble finding your next book to read? Answer a few simple questions about yourself to see what you may want to read next!
>
> Be a friendly, helpful librarian and make book recommendations for middle school students to read. Ask students what genres they like to read. Ask students what movies they like. Ask students what their hobbies are. Ask students to name one of their favorite books. Suggest middle-grade and young adult books they might like to read. Give them a list of genres to choose from. Give a summative list of books.

These uses highlight how teachers utilize SchoolAI as an interactive reading library that encourages independent reading and fosters student autonomy.

2. Social Studies – Interdisciplinary Environment

Social studies may have been the messiest to code for topic as many of the unknown Spaces were designed to be interdisciplinary, often focusing on reading texts, reflective writing, SEL-oriented work, or global-awareness activities that did not map cleanly onto civics, history, geography, or economics. These Spaces often used AI to help scaffold student thinking through personalized scenario-based tasks. One could imagine that the teacher presented a lesson on the Syrian refugee crisis or the earthquake in Haiti and then followed-up with this Space:

> "**Practicing empathy with global perspectives:** Students should be given multiple scenarios to practice empathy and imagine themselves in somebody else's shoes, as well as showing empathetic responses. Scenarios should challenge students to think globally and empathize with people who are different from themselves. Students should be challenged to think of their own privilege. Please give real-world examples of students around the world with challenges different from students in Canada and ask them to imagine how those people must feel."

These examples show how teachers used the platform to support interdisciplinary thinking, perspective-taking, and reflective writing—learning experiences that extend beyond traditional social studies domains.

3. Math – Individualized General Practice

Math unknowns often included broad prompts such as "Try this question" or "Practice today's skill," relying on AI to tailor math questions to student skill levels. Some were designed as more elaborate, themed tasks bringing new meaning to "tutor." For example:

> **"Haunted math mansion — solve puzzles, escape specters!** Enter the haunted math mansion, where each room holds a new math challenge! Students in grades K–12 can test their skills against grade-appropriate problems presented by our pun-loving ghostly inhabitants. As they navigate the eerie corridors, they'll need to solve math puzzles to unlock doors and escape the mansion. It's a spooky, entertaining way to reinforce math concepts and have a ghastly good time!"

These activities highlight how teachers used SchoolAI to create engaging, individualized practice experiences that reinforce math skills without anchoring them in a specific mathematical domain.

4. Science – Lab Assistant

While the fewest number of unknowns in general, there was still a small subset of science unknowns that included an interactive element. Many focused on lab procedures—introducing equipment, modeling safety expectations, or preparing students for hands-on work in a more interactive way. For example:

> **"Lab equipment exploration:** Discover lab tools and uses in this Space, students will explore various laboratory equipment and their uses. This interactive session will help students familiarize themselves with the tools they will encounter in the lab. Through guided exploration and discussion, students will gain a deeper understanding of how to properly and safely use each piece of equipment."

These uses show how teachers leveraged SchoolAI to support procedural readiness and lab-based routines in interactive ways rather than discipline-specific science content.

Social Studies Elementary

Space highlights

Students are exploring the history and culture of Native American tribes across different regions of North America. This adventure will serve as a reteaching or enrichment activity.

Introduction: Start with a captivating introduction about Native American migration and settlement.

Choose Your Path:

- **Migration journey:** Decide how Native Americans migrated from Asia to North America.
- **Regional settlement:** Choose a region to explore – Greater Mississippi River area, Southwest, Northeast, Southeast, or Arctic/Subarctic.
- **Cultural adaptation:** Discover how a tribe adapted to its environment, focusing on food, housing, and cultural practices.
- **Cultural identity:** Learn about unique cultural stories or idioms, such as "cold shoulder."
- **Language and spelling:** Engage with spelling and grammar through interactive challenges.
- **Morphology challenge:** Solve puzzles involving suffixes like –ish, –ness, –able, and –ible.

Conclusion: Congratulate students on completing the adventure. Encourage them to reflect on their learning and check with their teacher for further instructions. Invite them to return for a different adventure path next time.

Guidelines:

- Provide the list of all of the scenarios that students can choose to go on the adventure for.
- Use simple, engaging language appropriate for 3rd graders.
- Provide 3 options to choose from for each scenario they are in. Each scenario should only go on for 4 questions/choices/segments.
- Make sure the "adventure" only last for 4 questions or follow ups.
- Close the adventure when you have asked 4 questions.
- Encourage curiosity and connection with the material.
- Provide supportive feedback and hints to guide them through the adventure.
- Only let students do one adventure for each time they join the Space.

Finding 2: Designed for thinking, not just answers

Across subjects and grade bands, teachers are generally using SchoolAI to design Spaces that require students to reason, interpret, and decide, not just receive answers.

More than 23,000 Spaces were coded for cognitive depth using Bloom's Taxonomy, Webb's Depth of Knowledge (DOK), and Hess' Cognitive Matrix. Because Bloom's and Webb's frameworks capture different dimensions of thinking, codes were not mutually exclusive. Together, the results indicate that Spaces generally require mid- to high-levels of cognitive demand, with many tasks asking students to analyze, reason, and make decisions rather than simply recall information.

Table D: All Spaces by Bloom's Taxonomy

Bloom's Taxonomy	N	%
Remember	7,982	33.5%
Understand	17,508	73.4%
Apply	10,641	44.6%
Analyze	14,152	59.4%
Evaluate	13,810	57.9%
Create	8,912	37.4%
Unclassified	1,821	7.6%

About 60% of Spaces asked students to analyze or reason, and make decisions rather than simply recall information.

Nearly all Spaces were successfully coded using Bloom's Taxonomy, with most unclassified cases attributable to text that was extremely short or written in another language. The distribution shows a strong emphasis on conceptual understanding (73.43%), analytical reasoning (59.36%), and evaluative judgment (57.92%). Importantly, these results suggest that, across subjects, teachers are using SchoolAI to design tasks that go beyond surface-level recall. While creation-oriented tasks (37.38%) were less common, their presence indicates meaningful opportunities for deeper, generative and open-ended learning. This balance aligns with research identifying analysis and evaluation as key transitional skills that prepare students for more advanced creative work.

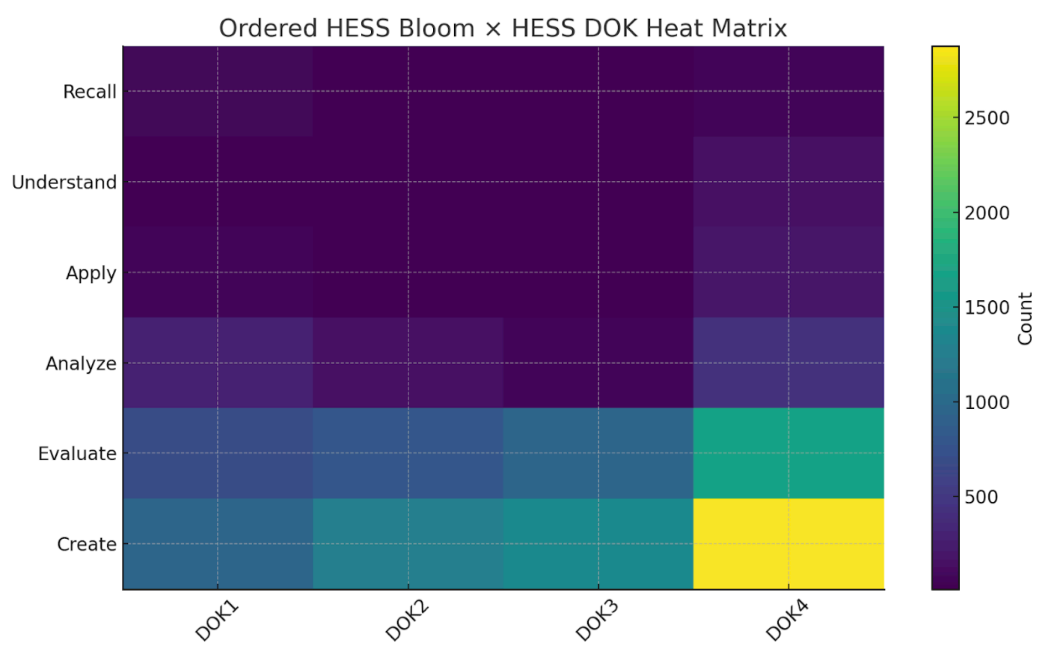
Table E: All Spaces by Webb's DOK

Webb's DOK	N	%
DOK 1 - Recall and Reproduction	5,750	24.1%
DOK 2 - Skill/Concept	5,224	21.9%
DOK 3 - Strategic Thinking	3,825	16.0%
DOK 4 - Extended Reasoning	5,710	24.0%
Unclassified	11,140	46.7%

Among coded Spaces, the distribution across DOK levels was relatively balanced, with representation at every level, from basic recall to extended reasoning. However, the large unclassified category reflects a structural challenge of applying DOK to teacher-entered text. DOK coding requires explicit evidence about the process a student must use (e.g., required steps, strategy use, time needed, level of reasoning), not just the task prompt itself. Because many Spaces describe goals or contexts without detailing procedural steps, essential information for DOK classification was often missing. This limitation does not necessarily indicate low complexity; rather, it highlights the difficulty of inferring DOK from partial task descriptions.

Hess

Table F: Heatmap of Hess' Cognitive Matrix



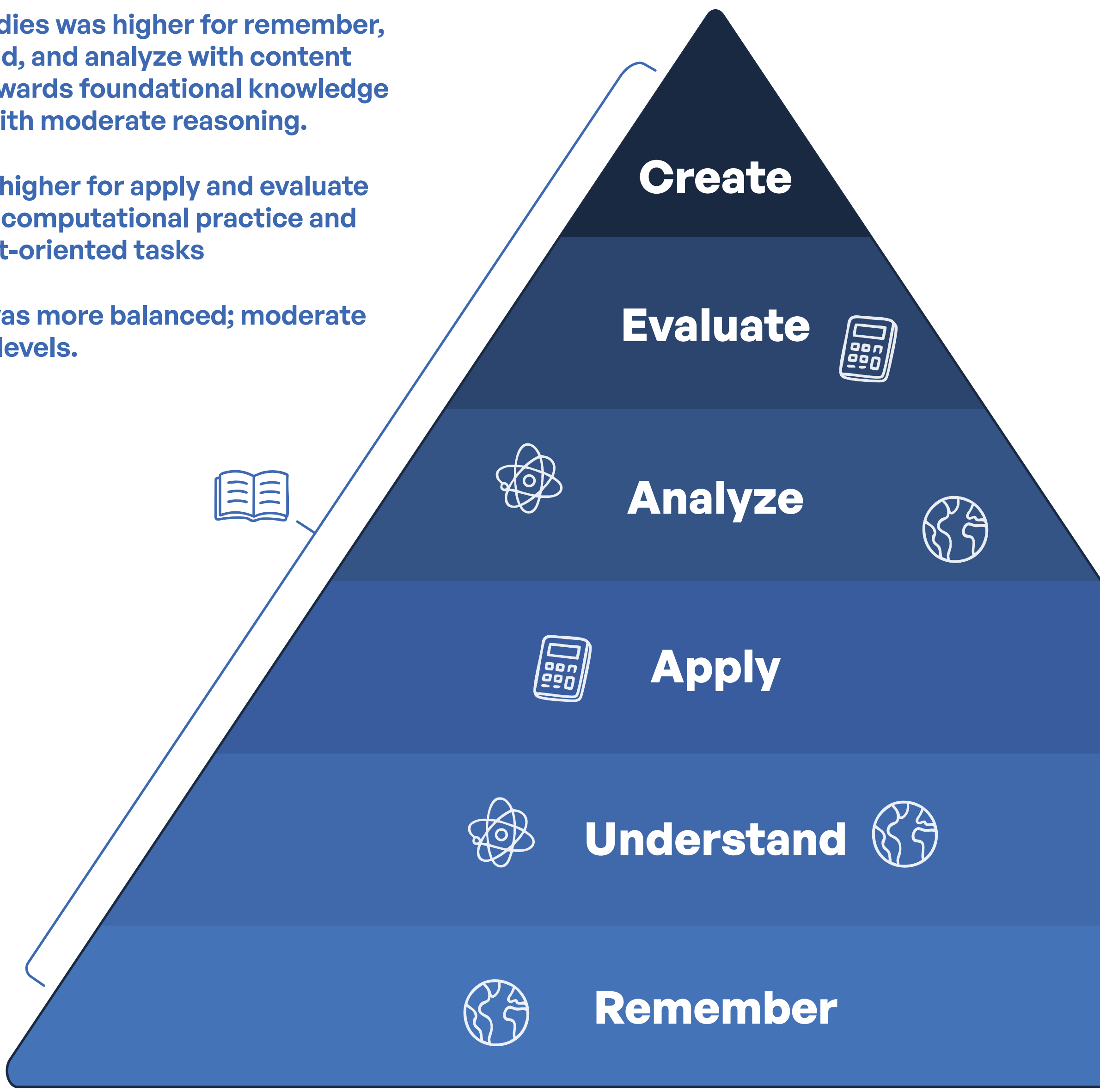
For Spaces that received both Bloom and Webb codes, we mapped them onto Hess' Cognitive Matrix. Results were promising: higher-order thinking dominated, with the greatest concentrations in Evaluate + DOK 4 and Create + DOK 4. These combinations represent some of the most cognitively demanding learning experiences: those requiring extended reasoning, synthesis, judgment, and original production.

However, because nearly half of the DOK codes were unclassified, interpretations using Hess should be viewed as directional rather than definitive. For this reason, subsequent analyses focus primarily on Bloom's Taxonomy, where classification was substantially more reliable and comprehensive.

Cognitive Depth by Subject and Grade Band

The results are fairly similar across grade bands per subject. However, a few subject differences surfaced, specifically:

- **Science was higher for understand and analyze, indicating deeper conceptual and analytical engagement.**
- **Social studies was higher for remember, understand, and analyze with content leaning towards foundational knowledge building with moderate reasoning.**
- **Math was higher for apply and evaluate reflecting computational practice and judgement-oriented tasks**
- **Reading was more balanced; moderate across all levels.**



Tables G: Spaces by Bloom's Taxonomy and by Grade Level for Reading, Math, Science, and Social Studies

Reading

Bloom's Taxonomy	Elementary (n)	Middle (n)	High (n)
Remember	29.7% (630)	32.2% (507)	36.9% (635)
Understand	71.3% (1511)	74.5% (1173)	77.4% (1,333)
Apply	39.3% (832)	33.1% (521)	34.0% (586)
Analyze	58.1% (1231)	63.4% (998)	64.4% (1,109)
Evaluate	55.5% (1176)	55.5% (874)	51.5% (886)
Create	39.6% (840)	40.7% (641)	37.5% (646)
Unclassified	8.3% (175)	8.5% (134)	7.84% (135)

Math

Bloom's Taxonomy	Elementary (n)	Middle (n)	High (n)
Remember	31.0% (759)	29.9% (568)	31.0% (505)
Understand	67.6% (1,655)	68.5% (1,303)	64.7% (1,053)
Apply	58.8% (1,439)	58.5% (1,112)	53.1% (864)
Analyze	45.9% (1,123)	47.0% (894)	47.1% (767)
Evaluate	68.1% (1,667)	65.5% (1,245)	54.6% (888)
Create	34.1% (834)	36.8% (699)	29.6% (482)
Unclassified	6.4% (156)	6.5% (123)	11.1% (180)

Science

Bloom's Taxonomy	Elementary (n)	Middle (n)	High (n)
Remember	32.8% (245)	35.7% (281)	37.9% (322)
Understand	87.7% (654)	83.0% (654)	82.2% (698)
Apply	44.0% (328)	47.1% (371)	44.8% (380)
Analyze	72.8% (543)	74.5% (552)	70.0% (594)
Evaluate	69.3% (517)	44.2% (348)	58.7% (498)
Create	47.7% (356)	36.8% (699)	39.2% (333)
Unclassified	2.4% (18)	6.5% (123)	4.7% (40)

Social studies

Bloom's Taxonomy	Elementary (n)	Middle (n)	High (n)
Remember	37.0% (641)	41.5% (842)	39.4% (867)
Understand	79.9% (1,383)	77.0% (1,561)	77.1% (1,698)
Apply	39.3% (680)	40.8% (828)	46.1% (1,016)
Analyze	64.1% (1,109)	66.6% (1,350)	66.7% (1,469)
Evaluate	59.7% (1,034)	56.3% (1,142)	56.1% (1,235)
Create	37.8% (655)	41.3% (837)	39.2% (864)
Unclassified	6.0% (104)	6.3% (127)	6.3% (138)

Taken together, these results indicate that teachers are leveraging SchoolAI not merely to present information, but to design tasks that prompt students to reason, analyze, make decisions, and create. These are all cognitive stages associated with deeper learning, transfer, and long-term retention.This pattern appears consistently across subjects and grade levels, suggesting that educators are using the platform to support richer thinking with all of their students, not just content delivery.

ELA High School

Space highlights

Scythe Character Exploration Interactive character and ethics analysis

Explore the intriguing characters and ethical dilemmas of the novel 'Scythe' through an interactive experience. Students will align themselves with characters or factions, participate in role-playing as Scythe apprentices, and face challenges inspired by the book. This Space encourages students to delve into the moral implications of their choices and connect them to contemporary ethical scenarios, enhancing critical thinking and reflective skills.

- Begin with a personality quiz to determine which character or faction from Scythe they align with, gathering insights about each student. Ask at least 3 questions.
- Match them with a main character from the book Scythe.
- Assign them a role as a Scythe apprentice and guide them through interactive adventures where they face ethical dilemmas and challenges from the book.
- Encourage them to make decisions based on their character's values and the societal rules within the novel, exploring the consequences of their choices.
- Connect their experience to modern-day ethical scenarios, asking them to write a reflective piece or debate the implications of their decisions in a contemporary context.

Guidelines

- Use language and scenarios that reflect the novel's tone and setting.
- Reinforce key themes and ideas from the book without altering core facts or events.
- Encourage critical thinking by having students consider the moral implications of their actions.
- Provide feedback and insights on student choices to promote reflective learning. Explore characters and ethics from 'Scythe' through quizzes and interactive adventures. Make decisions based on your assigned role and reflect on their impact.

Finding 3: Engagement by design, scaled with AI

Teachers leverage SchoolAI to increase interactivity, support student agency, ... and also to set explicit rules around AI use.

3A. Interactivity - Many Spaces use AI to bring new forms of fun into the learning experience, engagement patterns that would be difficult to scale in a traditional classroom.

A notable portion of the Spaces added a level of fun. Overall, about 1/3 of all Spaces presented language like, "playful," "cool," and "exciting." Leveraging AI, teachers designed Spaces where Dot played another character to be interviewed, brought science experiments to life through simulations, and redefined what a quiz could be by upleveling it into game scenarios.

Overall, about 1/3 of all Spaces presented language like, "playful," "cool," and "exciting."

Tables H: Spaces by Interactivity and by Grade Level for Reading, Math, Science, and Social Studies

Reading

Interactivity	Elementary	Middle	High	All Reading
Simulation	3.16% (67)	3.05% (48)	2.50% (43)	**2.88% (180)**
Role-play	17.04% (361)	22.05% (347)	22.36% (385)	**20.16% (1,260)**
Game	8.21% (174)	5.78% (91)	4.94% (85)	**6.37% (398)**
Fun	37.23% (789)	33.10% (521)	25.26% (435)	**31.78% (1,986)**

Math

Interactivity	Elementary	Middle	High	All Math
Simulation	2.62% (64)	2.42% (46)	1.78% (29)	**2.21% (160)**
Role-play	6.99% (171)	7.83% (149)	9.59% (156)	**8.24% (596)**
Game	17.74% (434)	12.25% (233)	9.77% (159)	**13.06% (945)**
Fun	41.97% (1027)	32.02% (609)	35.22% (573)	**36.00% (2,605)**

Science

Interactivity	Elementary	Middle	High	All Science
Simulation	5.63% (42)	3.05% (24)	4.48% (38)	**4.16% (126)**
Role-play	10.46% (78)	8.25% (65)	11.07% (94)	**8.81% (267)**
Game	8.31% (62)	13.07% (103)	12.25% (104)	**9.93% (301)**
Fun	47.86% (357)	39.97% (315)	35.69% (303)	**37.02% (1,122)**

Social studies

Interactivity	Elementary	Middle	High	All Social Studies
Simulation	2.77% (48)	1.78% (36)	2.32% (51)	**2.32% (170)**
Role-play	17.33% (300)	17.06% (346)	18.26% (402)	**17.99% (1,318)**
Game	6.30% (109)	5.92% (120)	6.49% (143)	**5.99% (439)**
Fun	34.32% (592)	30.37% (618)	25.89% (571)	**29.04% (2,127)**

There were clear differences across subjects and grade bands.

- **Science was the most interactive and exploratory subject,** with higher levels of simulation, role-play, and fun elements, suggesting that science tasks often invite hands-on exploration and imaginative engagement.
- **Social studies showed the lowest overall interactivity,** particularly in game-based and fun interactions, reflecting a more traditional, text- or content-driven structure.
- **Reading included significantly more role-play,** aligning with narrative, perspective-taking, and interpretive activities.
- **Math,** despite high raw percentages for games, **did not show significantly higher gamification** once grade and sample distributions were controlled for, indicating that math interactivity is more modest than it first appears.
- Developmentally, **interactivity declined from elementary to middle and high school,** with role-play in reading as a notable exception, remaining elevated across grade levels.

3B. Student agency: Teachers starting to leverage SchoolAI to provide students with more opportunities for agency, offering personalized pathways that are far easier to create and sustain with AI.

A smaller subset of Spaces also demonstrated how teachers use SchoolAI to offer students greater choice and personalization. In these Spaces, students were encouraged to make their own decisions, exercise autonomy, and see their interests and curiosities reflected in Dot's interactions. They were prompted to ask questions, wonder, and explore at their own pace, and were given opportunities to express creative agency by shaping ideas and solutions in ways that reflected their own thinking.

Tables I: Spaces by Student Agency and by Grade Level for Reading, Math, Science, and Social Studies

Reading

Student Agency	Elementary	Middle	High	All Reading
Autonomy	2.50% (53)	3.11% (49)	2.03% (35)	**2.35% (147)**
Interest	7.50% (159)	7.56% (119)	6.16% (106)	**7.04% (440)**
Inquiry	12.79% (271)	16.84% (265)	14.00% (241)	**14.03% (877)**
Creative Agency	4.20% (89)	4.07% (64)	3.14% (54)	**3.84% (240)**

Math

Student Agency	Elementary	Middle	High	All Math
Autonomy	1.14% (28)	1.05% (20)	0.49% (8)	**0.88% (64)**
Interest	2.25% (55)	1.84% (35)	1.84% (30)	**2.03% (147)**
Inquiry	6.66% (163)	7.57% (144)	7.68% (125)	**7.10% (514)**
Creative Agency	0.94% (23)	1.89% (36)	1.23% (20)	**1.33% (96)**

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In contrast, math consistently showed the lowest levels of student agency, with fewer opportunities for choice-making, inquiry, or personalization relative to other subjects.

Science

Student Agency	Elementary	Middle	High	All Science
Autonomy	4.16% (31)	2.16% (17)	1.65% (14)	**2.28% (69)**
Interest	15.68% (117)	9.90% (78)	6.60% (56)	**9.40% (285)**
Inquiry	34.32% (256)	30.84% (243)	20.49% (174)	**24.68% (748)**
Creative Agency	2.68% (20)	4.44% (35)	3.65% (31)	**3.60% (109)**

Social studies

Student Agency	Elementary	Middle	High	All Social Studies
Autonomy	4.16% (31)	2.16% (17)	1.65% (14)	**2.28% (69)**
Interest	15.68% (117)	9.90% (78)	6.60% (56)	**9.40% (285)**
Inquiry	34.32% (256)	30.84% (243)	20.49% (174)	**24.68% (748)**
Creative Agency	2.68% (20)	4.44% (35)	3.65% (31)	**3.60% (109)**

Student agency varied clearly across subjects and grade bands.

- **Science showed the strongest levels** of Autonomy and Inquiry, suggesting that scientific tasks are particularly well-suited for curiosity, exploration, and student-driven investigation.
- **Reading also provided substantial opportunities for agency,** consistently incorporating Autonomy, Inquiry, and Creative Agency.
- **Social studies demonstrated high levels across all student agency categories,** reflecting the subject's inherent emphasis on perspective-taking, interpretation, and connecting ideas to lived experience.
- In contrast, **math consistently showed the lowest levels of student agency,** with fewer opportunities for choice-making, inquiry, or personalization relative to other subjects.
- **Clear developmental patterns also emerged:** Interest and Inquiry declined from elementary to middle and high school, indicating that opportunities for agency become more limited as students get older. Autonomy dropped sharply in high school, while Creative Agency did not differ significantly across grade bands, suggesting that opportunities to make personal connections remain relatively stable regardless of age.

3C. Rules. Along with new opportunities in lesson design, teachers also had to address guidelines for student and AI interactions.

About 20% of all Spaces across subject and grade band included language that instructed the AI NOT to do something. For example "Do not provide the answer," "Avoid doing the work," and "Should not calculate." While Dot is programmed not to provide the answer, teachers felt the need to reiterate such rules.

Tables J: Spaces by Rules and by Grade Level for Reading, Math, Science, and Social Studies

Subject	Elementary (n)	Middle (n)	High (n)	Aggregate %
Math	18.80% (460)	21.56% (410)	21.57% (351)	20.37% (1,474)
Reading	19.68% (417)	22.62% (356)	26.77% (461)	21.97% (1,373)
Social Studies	17.85% (309)	24.06% (488)	20.48% (451)	20.66% (1,513)
Science	21.45% (160)	20.18% (159)	22.85% (194)	19.80% (600)

In general, reading and the older grade bands tended to include more rules and constraints in the teacher descriptions than the other subjects and than elementary Spaces. This may stem from the way AI is positioned in these lessons: reading tasks often require guardrails to prevent over-reliance on AI for comprehension, interpretation, or summarization, and upper-grade assignments usually involve higher-stakes analysis or writing where teachers explicitly outline what AI can and cannot do. As a result, teachers include more rules to ensure students use AI appropriately in order to maintain academic integrity, meet assignment expectations, and engage with the material themselves.

Recommendations for Educators

Based on these patterns, several practical recommendations emerge for teachers designing AI-supported lessons:

1 Design for thinking, not just answers

- Start with a clear cognitive goal (e.g., analyze, evaluate, create), then design your Space description and instructions to elicit that kind of thinking.
- Use prompts that require students to explain, compare, justify, or design, rather than simply recall or summarize.

2 Leverage interactivity intentionally

- Use simulations, role-play, and game-like formats when they genuinely support your learning goals (e.g., modeling a scientific phenomenon, practicing perspective-taking, or rehearsing a historical debate).
- Avoid interactivity that is “fun but flat”; pair playful language with meaningful decision-making or reasoning.

3 Build in student agency, especially in math and older grades

- Offer students choice over topics, examples, or products (e.g., “choose the context,” “pick the scenario,” “select which problem type to explore”).
- Encourage student-generated questions and inquiry: prompt them to ask Dot questions, not just answer Dot’s.
- In math, consider where students can choose strategies, contexts, or representations, even within structured problem sets.

4 Use SchoolAI to extend, not replace, core routines

- Think of Spaces as extensions of classroom routines such as reading conferences, lab prep, problem-solving practice, Socratic discussion, rather than standalone replacements.
- Align each Space with an existing instructional goal: clarify what Dot adds (e.g., personalization, more practice, feedback) that would be hard to sustain at scale without AI.

5 Design for all learners

- Leverage power-up tools, like image generators, to incorporate information in different ways to maximize the principles of Universal Design for Learning.
- Particularly, for multi-language learners, leverage tools like text translators.

6 Provide clear, descriptive inputs for the AI; be explicit about AI rules and roles

- Some Spaces were difficult to classify because the descriptions were too short, too vague, or written in other languages. Clear, descriptive prompts help Dot respond appropriately and ensure every learner can engage meaningfully with the activity.
- Frame AI as a coach, lab assistant, editor, or thought partner, not a solution engine.
- Explain to students why these rules exist: to protect their learning, thinking, and integrity.

Conclusions

This study provides an early look at how teachers are using SchoolAI at scale to design AI-supported learning experiences. Contrary to fears that AI will hand students answers or diminish thinking, the Spaces in this sample largely move beyond recall. Teachers are creating tasks that emphasize understanding, analysis, evaluation, and, in many cases, creation. Across subjects, they are using SchoolAI to layer core curriculum with interactive, personalized, and exploratory elements, while also setting clear expectations for how AI should and should not be used.

At the same time, the findings surface important tensions and opportunities for further development, particularly in how subjects and grade bands differ. Science emerged as the most interactive subject overall. Student agency was stronger in science, reading, and social studies than in math, and it declined as students moved into middle and high school. Interactivity and playfulness were more common in elementary grades, while rule-setting appeared most often in reading and older grades, where concerns about over-reliance on AI may be greater.

Taken together, these patterns show that AI, when guided by thoughtful teacher design, can amplify critical thinking rather than erode it. The challenge ahead is not simply whether to use AI, but how to leverage it to elevate learning: to design Spaces that invite deeper thinking, expand student agency, and bring lessons to levels of interactivity, personalization, and exploration that would be difficult to achieve without AI.

"Taken together, these patterns show that AI, when guided by thoughtful teacher design, can amplify critical thinking rather than erode it.

Math Middle School

Space highlights

Algebraic Adventure Island: Embark on a quest to unlock the secrets of the Arithmetic Jungle

An introduction Space that guides 6th-grade students from arithmetic to algebraic expressions through narrative-driven puzzles and quests. Students discover a mysterious island where solving algebraic challenges unlocks treasures and secrets.

Audience:

6th-grade students who know basic arithmetic but are new to algebra. They engage better with stories, games, and interactive elements, and benefit from clear, step-by-step explanations in fun contexts.

Story and setting:

Students discover a mysterious island where ancient algebraic puzzles unlock treasures and secrets.

Puzzles and progression

- Whole-number exponents presented as magical spells or codes to decipher
- Contextual hints bridge arithmetic to algebraic thinking (e.g., comparing multiplication to raising a number to a power)
- Interactive elements let students guess, receive immediate feedback, and earn “adventure points”
- Encourages teamwork and collaboration

Core theme:

Learning algebra is like uncovering a hidden language that solves mysteries and unlocks discoveries.

Guidelines:

- Use engaging, story-telling language appropriate for 6th graders
- Keep explanations clear, concise, and simple
- Pose questions and puzzles that relate directly to the adventure
- Offer hints like discovering secret clues
- Gradually guide understanding of whole-number exponents and algebraic expressions
- Be supportive and interactive, building enthusiasm for algebra

Students **create, play, and learn** at their own pace

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