




Building Future Ready CTE Classroom Environments and Innovation Labs

Sue Ann Highland, PhD
National Education Strategist

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TODAY'S PLAN

Who are today's students?
COVID impact on this generation

Defining CTE and Innovation Labs

Preparing for the Workplace

Cross Curricular Connection

Environment Elements and Examples

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YOUR SPEAKER

Sue Ann Highland, PhD

- National Education Strategist
- Industrial/Organizational Psychologist
- 30 years in education as a teacher, Principal, Curriculum and Assessment Director, Federal Programs, Gifted Education Director, CTE Director
 - Half of those years spent in rural districts
- PhD I/O Psychology
- MA Educational Leadership and Policy Studies
- BA Liberal Studies, emphasis in Elementary Education

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A PARTNER AT EVERY STEP


Your district **VISION** and goals...

plus our team of **EXPERTS**, partnering with you...

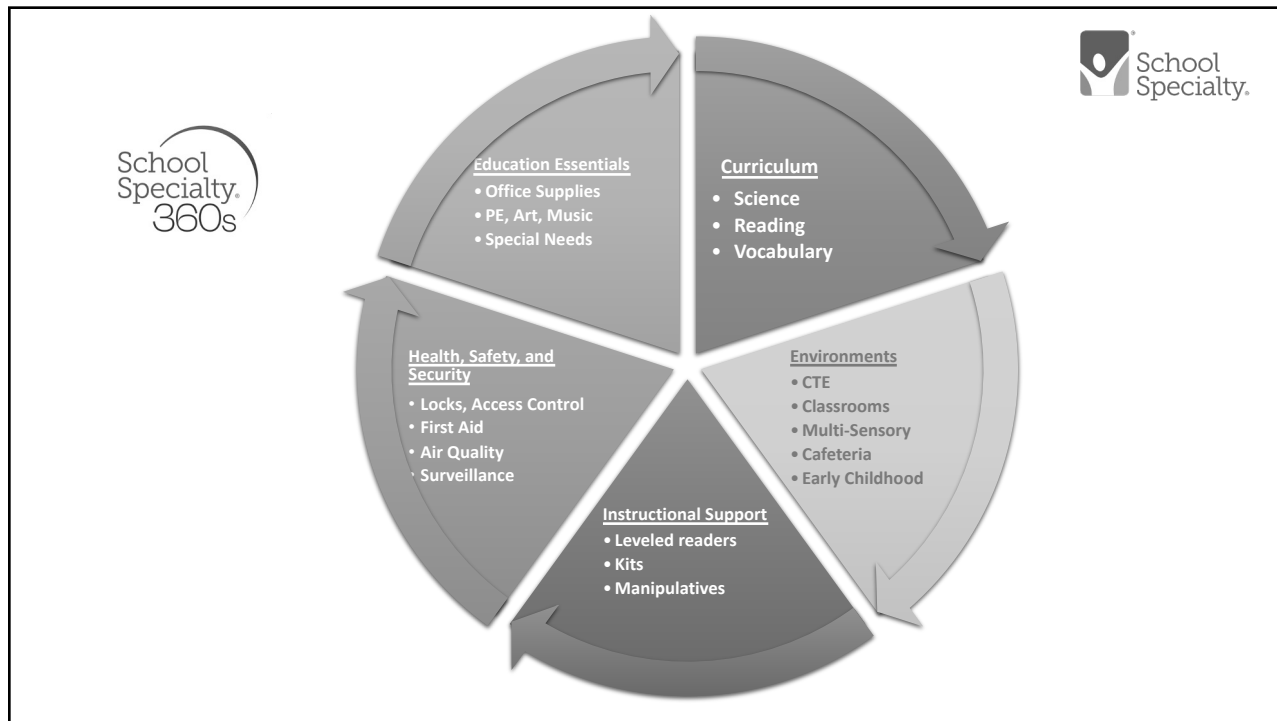
to **DESIGN** effective comprehensive learning environments...

including the **BREADTH** of supplies, curriculum and furniture you need...

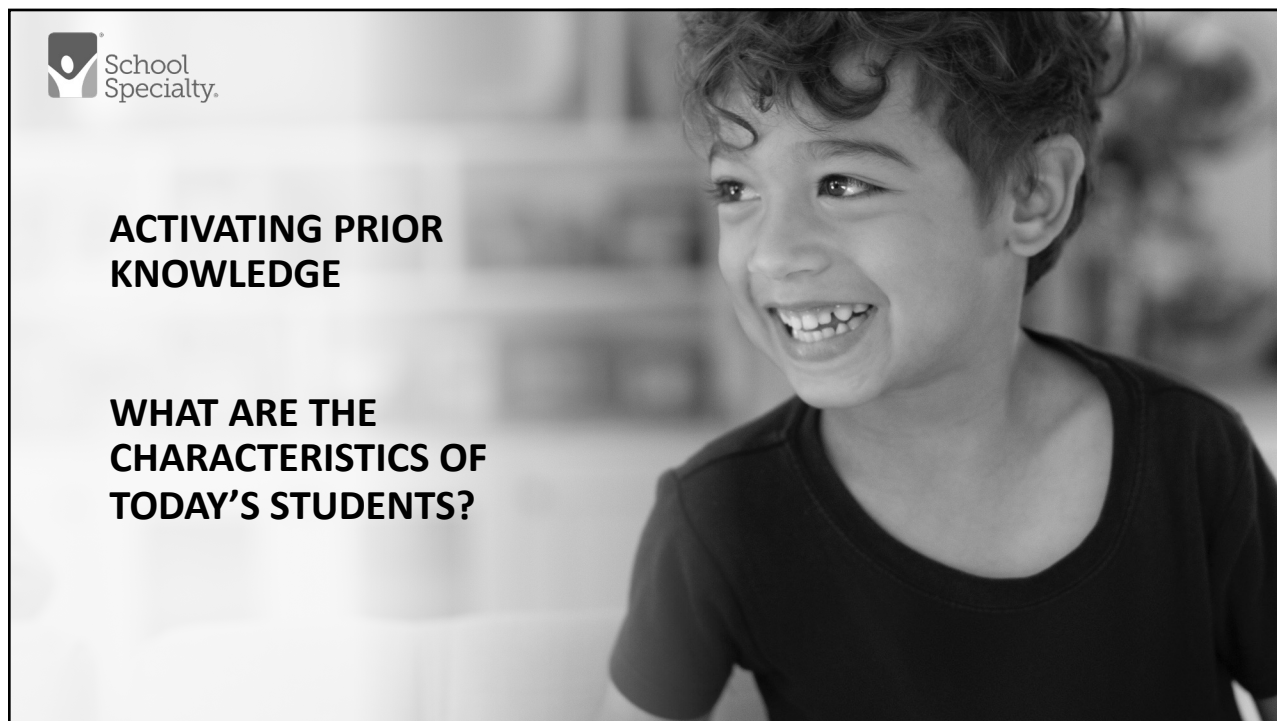
and ongoing **PARTNERSHIP** – from execution to professional support and beyond



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CATEGORY	BUILDERS	BABY BOOMERS	GENERATION X	GENERATION Y	GENERATION Z	GEN ALPHA
Slang terms	We prefer proper English if you please Born: < 1946 Age: 74+	Be cool Peace Groovy Way out Born: 1946-1964 Age: 55-73	Dude Ace Rad As if Wicked Born: 1965-1979 Age: 40-54	Bling Funky Dah Fashizz Whassup? Born: 1980-1994 Age: 25-39	Fam GOAT Slay Yass queen Born: 1995-2009 Age: 10-24	lit yeet hundo oaf m idrc Born: 2010-2024 Age: under 10
Social markers	World War II 1939-1945	Moon landing 1969	Stock market crash 1987	September 11 2001	GFC 2008	Trump / Brexit 2016
Iconic cars	Model T Ford Final, 1927	Ford Mustang 1964	Holden Commodore 1978	Toyota Prius 1997	Tesla Model S 2012	Autonomous vehicles 2020s
Iconic toys	Roller skates	Frisbee	Rubix cube	BMX bike	Folding scooter	Fidget spinner
Music devices	Record player LP, 1948	Audio cassette 1962	Walkman 1979	iPod 2001	Spotify 2008	Smart speakers Now
Leadership style L - Leader l - New leaders	Controlling	Directing	Coordinating	Guiding	Empowering	Inspiring
Ideal leader	Commander	Thinker	Doer	Supporter	Collaborator	Co-creator
Learning style	Formal	Structured	Participative	Interactive	Multi-modal	Virtual
Influence/advice	Officials	Experts	Practitioners	Peers	Forums	Chatbots

	From	To
Baby Boomers	1946	1964
Gen X	1965	1979
Millennials/ Gen Y	1980	1994
iGen/Gen Z	1995	2012
Gen Alpha	2013	2025

Credit: Mccrindle

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Generation Alpha

CRISIS EXPOSED
Beginning their early school life during crisis (many held out of starting)

DIGITAL NATIVES
Digital natives

ATTENTION SPAN
Still small attention span compared to prior generations - 9 seconds

INDEPENDENT
Would rather watch a video summary over reading an article of book

WORK PLAY
Can switch from work to play faster

LEARNING STYLE
Switch from structural and auditory to engaging, visual, multi-modal and hands-on methods

SOCIAL
More social than any other prior generation

BULLYING
Increased expectation of schools and parents to protect their child from social bullying

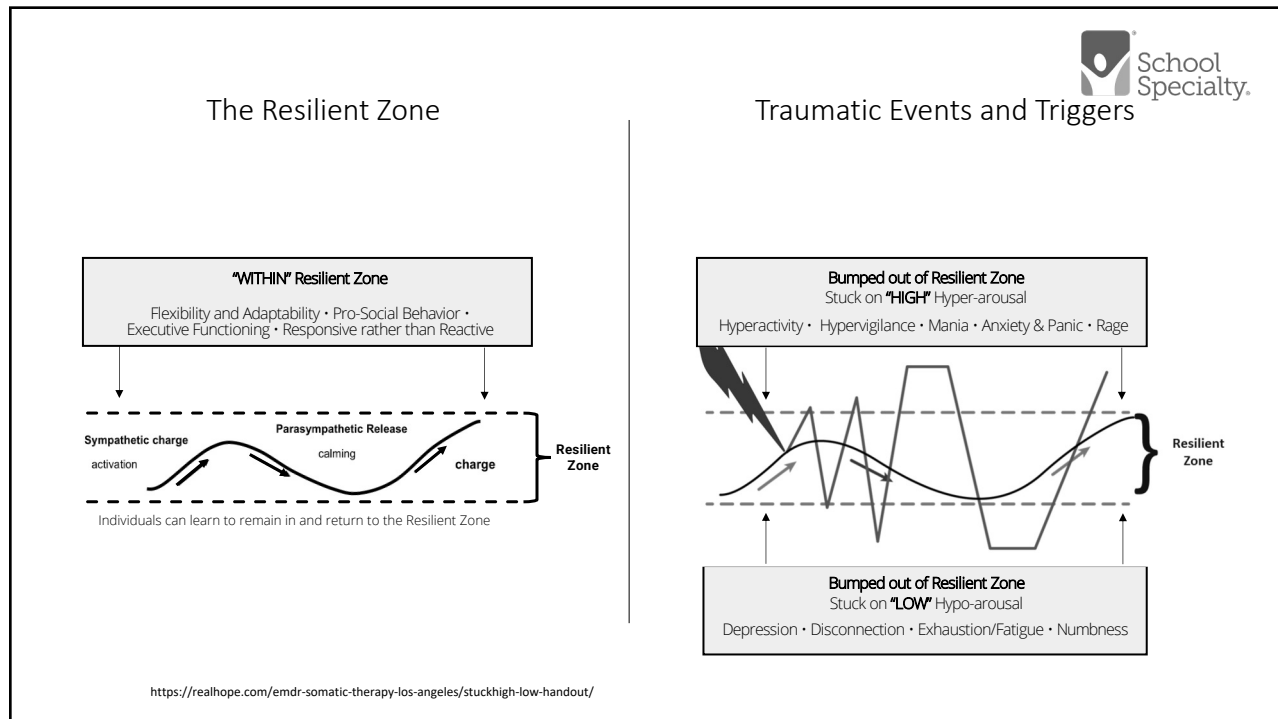
LIFE EXPECTANCY
Will more than likely have a longer life span than other recent generations

GLOBAL CITIZEN
Global vocabulary, thinking


GLOBAL WORKER
Need to be prepared for a global workforce

SOURCES: Dr. Vickie Cook, University of Illinois, Springfield · National Economic Forum · Forbes · Medium.com · Business Insider · Oxford · Jena Pugh and Matt Moore-Waitkus, Ohio State University

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IMPACT OF COVID-19 ON THE ALPHA GENERATION

- **Resilience**
 - Children learn through observation.
 - Adults involved in the lives of these children have tried to hide anxiety, frustration, fear, as well as determination, patience, and grit
 - These emotional highs and lows felt and observed by the Alpha Gen during the the pandemic
 - Elasticity and the ability to bounce back from these lows – they are watching us
- **Digital Literacy**
 - Born into the world of technology, internet and connectivity, the social distancing measures, stay home campaigns, and lockdowns have only encouraged the Alphas to immerse deeper into their gadgets and screens.
 - Likely they will grow up to be the highest digitally literate generation compared to Gen Z and the Millennials
 - Put into the position of reliance on tech such as Zoom learning, during their early developmental years
- More than just a learned skill but develop into an **instinctive skill**

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IMPACT OF COVID-19 ON THE ALPHA GENERATION



- **Non-Conformist**

- 8-11 years old during pandemic - learn a lot about what are socially acceptable behavior and take cues from peers - called social judgements.
- May begin exhibit more independent thinking, defy or even re-define what is considered socially acceptable and the norms of connecting in society in the future

- **Information-Packed**

- More time playing games, reading interactive stories, and connecting with friends via social platforms
- Will be one of the most information-packed generation with a wide breadth of knowledge across borders, cultures and language

- **Live First**

- Saw their parents and adults in their lives struggle during Covid
- Learned the importance of 'living life when you can'
- Possible that they may delay marriage, work, and other life milestones to truly live life first
- Living with their parents and guardians well into their 20s and 30s or beyond

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“When designed and used effectively, flexible learning spaces provide learning environments where students can experience increased autonomy to make a variety of choices about their learning in a way that fosters self-regulation, collaboration and interaction, whilst ensuring their wellbeing”

Basdogan, M and Morrone, A, 2021. Journal of Learning Spaces, 10(3), 2021.



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WHY CTE AND INNOVATION LABS

- Benefits = ingenuity, collaboration, creation, risk taking, supporting one another, “building a case”, resilience, teamwork, application and synthesis of knowledge, creation of new knowledge
- In the workforce - An innovation lab is tasked with **coming up with new ideas, executing them, and iterating until the idea is fully executed or integrated into the business.**
- Draw from cross-functional expertise, interests, and collaboration to create products and services, often for the parent company.

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INNOVATION LABS

- What is an Innovation Lab? It is **a place where students can create, discover, design, and build.** The space inspires and cultivates discovery. It is a place for tools and space for students to work independently and collaboratively.
- Also known as hubs, incubators, or accelerators
- Can you create areas/spaces within the lab for specific purposes?
 - 3d printing, green screen, workshop space, group collaboration, podcasting and broadcasting, among others
- Teacher as facilitator, not “instructor”
 - Someone who can guide students through design thinking and activities that foster innovation.

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WHAT IS CTE?



- Should not be considered “just an old school vocational program”
 - Great for students focusing on vocation and college
 - Dual path approach for students – gives them choice and ownership of their path after high school
- Provides learners with the knowledge and skills they need to be prepared for college and careers.
- CTE gives purpose to learning by emphasizing real-world skills and practical knowledge within a selected career focus.
- Academic and technical skills
- Skills first – businesses are looking beyond just basic skills but want people to be able to problem solve, work together, etc (World Economic Forum)
- Integrates with academics

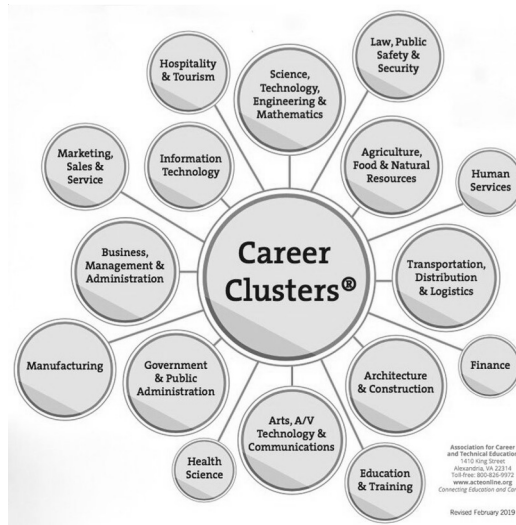
Cite: [World Economic Forum](#) , [Glossary](#)

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QUICK FACTS



81%: High school graduates earning at least one CTE credit	20%: High school students taking a concentration of CTE courses
94%: High school graduation rate for CTE concentrators	69%: Postsecondary students seeking a credential or degree in a career area
16: Career Clusters, each representing a different sector – 79+ pathways	



Citation: www.cte.careertech.org, www.ACTEonline.org


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PROPOSAL FOR MOVEMENT TO 12 CAREER CLUSTERS

- There is currently a move to update/ reduce the national list of clusters from 16 to 12. Comments were requested by 2/25 – but no sign of when this is to be adopted nationally.
- The proposed new 12 are:
 - Business, Management and Public Administration
 - Construction & Built Environment
 - Education
 - Energy
 - Food, Living Systems & Natural Resources
 - Health, Wellbeing & Community Services
 - Information Technology
 - Manufacturing and Operations
 - Media, Entertainment & Experiences
 - Research & Analytics
 - Security & Justice
 - Transportation & Mobility
- <https://ctepolicywatch.acteonline.org/2022/02/new-draft-career-clusters-available-for-public-comment.html>

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PREPARING FOR THE WORKFORCE

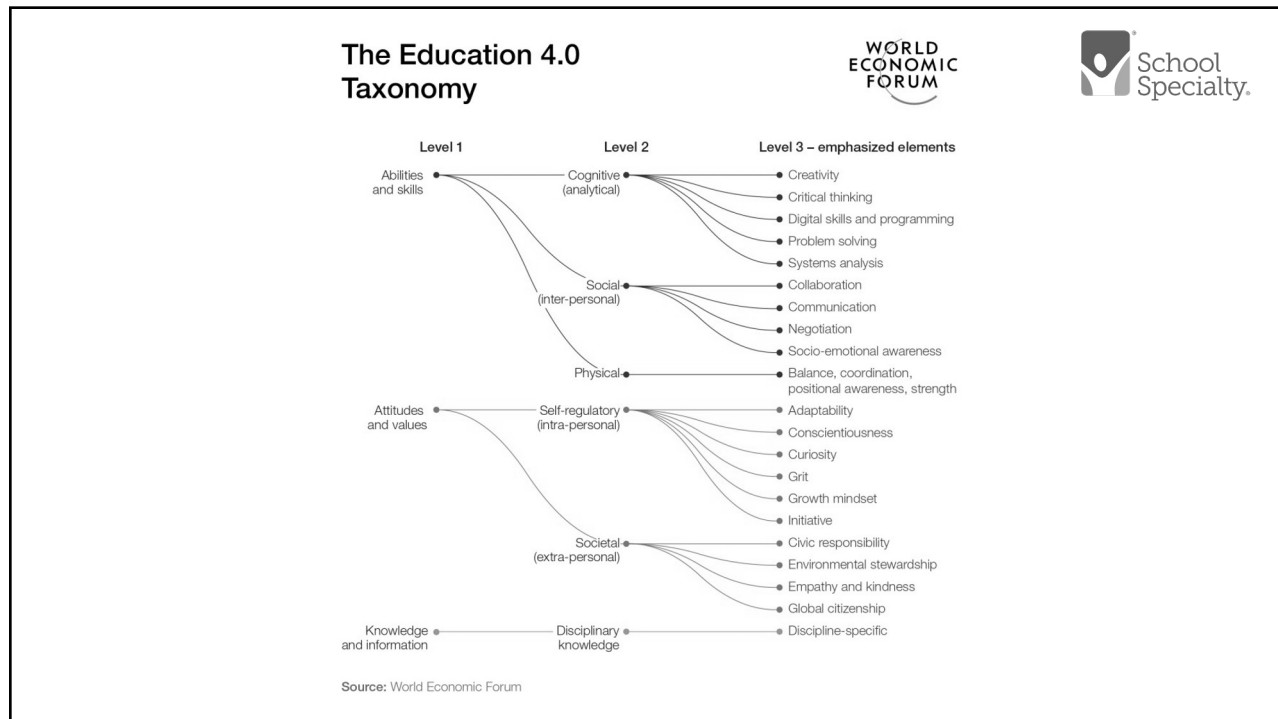


- Core academic skills
- Employability skills
- Technical skills
- Job specific skills
- Human skills
 - Critical thinking
 - Creativity
 - Communication
 - Analytical skills
 - Collaboration
 - Relationship building

- Digital building block skills
 - Analyzing and managing data
 - Software development
 - Computer programming
 - Digital security and privacy
- Business enabler skills
 - Project management
 - Business process
 - Communicating data
 - Digital design


<https://cte.careertech.org/sites/default/files/documents/fact-sheets/CTE Prepares Learners Future Work 2020.pdf>

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WHY IMPLEMENT CTE PROGRAMS?



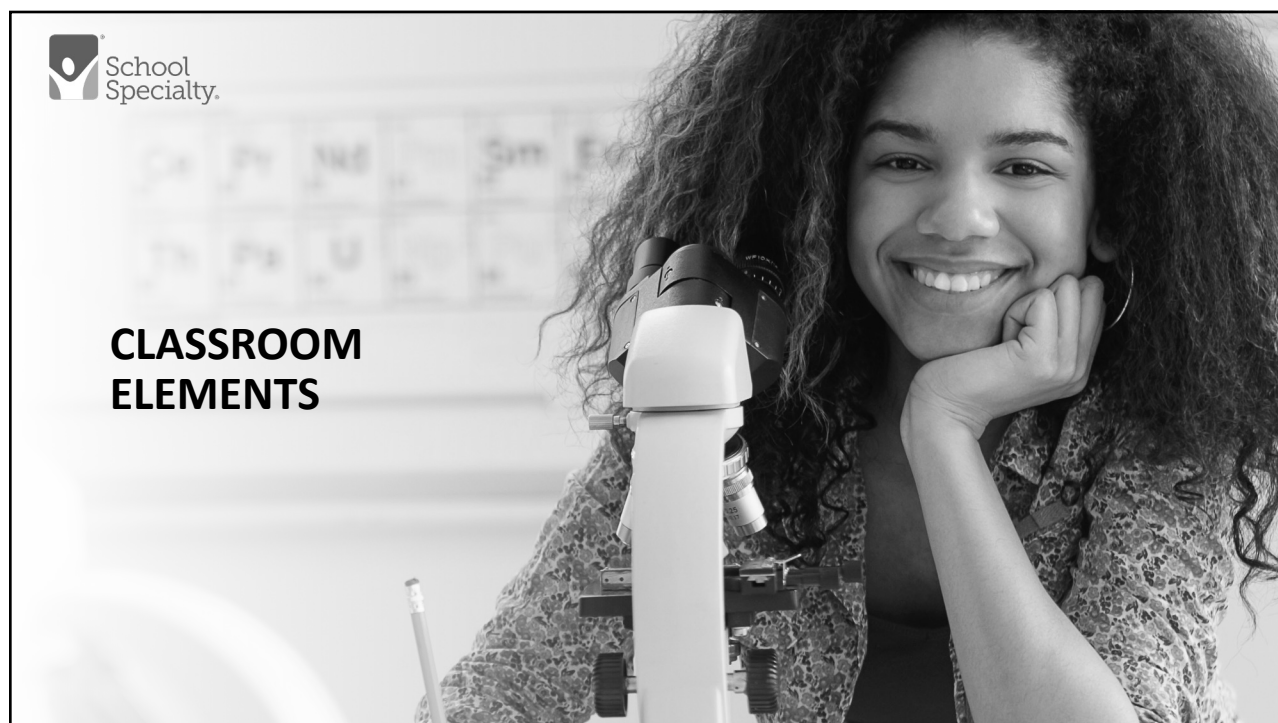
- CTE helps fill the skills gap – Nearly 60 percent of companies report having difficulty filling job openings because of a lack of qualified applicants, which can cost a company upwards of \$800,000 each year in lost productivity and recruitment.¹³ Thirty-nine percent of employers say lack of experience or hard skills are top drivers of the talent shortages.
 - <http://press.careerbuilder.com/2017-04-13-The-Skills-Gap-is-Costing-Companies-Nearly-1-Million-Annually-According-to-New-CareerBuilderSurvey>
 - [https://go.manpowergroup.com/hubfs/TalentShortage%202018%20\(Global\)%20Assets/PDFs/MG_TalentShortage2018_lo%206_25_18_FINAL.pdf?t=1537902614152](https://go.manpowergroup.com/hubfs/TalentShortage%202018%20(Global)%20Assets/PDFs/MG_TalentShortage2018_lo%206_25_18_FINAL.pdf?t=1537902614152)
- The greater the percentage of CTE in a student's total course load, the lower the probability that the student will drop out.
 - Wagner, M. M., Newman, L. A., & Javitz, H. S. (2016). The Benefits of High School Career and Technical Education (CTE) for Youth With Learning Disabilities. *Journal of Learning Disabilities*, 49(6), 658–670. <https://doi.org/10.1177/0022219415574774>
- Career and technical education (CTE) **prepares students with academic, technical, and employability skills for success in the workplace and in further education.** Most high school students take at least one CTE course, and postsecondary students commonly pursue credentials in CTE.
 - <https://ctereseachnetwork.org/research>

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WHY IMPLEMENT CTE PROGRAMS?

- One key finding from these analyses is that different CTE programs help students attain different positive outcomes to varying degrees.
- CTE is associated with a higher students' predicted cumulative earnings over the first seven years after high school evidence that CTE may be especially beneficial as a stopgap to prevent some of the worst possible outcomes for students – poverty and disengagement, as CTE is associated with a decreased likelihood of earning below the poverty line and a decreased likelihood of being completely disengaged from both education and employment.
- Ecton, Walter G., and Shaun M. Dougherty. (2021). Heterogeneity in High School Career and Technical Education Outcomes. (EdWorkingPaper: 21-492). Retrieved from Annenberg Institute at Brown University: <https://doi.org/10.26300/4jwf-wb39>

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 School
Specialty.


CLASSROOM ELEMENTS

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THE INTERSECTION OF DESIGN AND INSTRUCTIONAL PRACTICE



School Specialty.

CHOICE

- In what they learn
- In how they learn
- In seating
- In how they present learning

CONNECTION

- With other students
- With educators
- With the content they are learning
- With their emotions
- Understanding WHY they are learning the content

COMFORT

- Physical safety
- In seating
- Emotional safety
- Safety to take risks
- Environment – warm, cool

STIMULATION

- Cognitive engagement
- “Plus 1” activities
- Getting students excited to learn
- Excitement for learning


VERSATILITY

- Furniture that will last for many years
- If focus changes, then furniture can be reused, moved, etc
- Versatility in the moment
- In the moment management

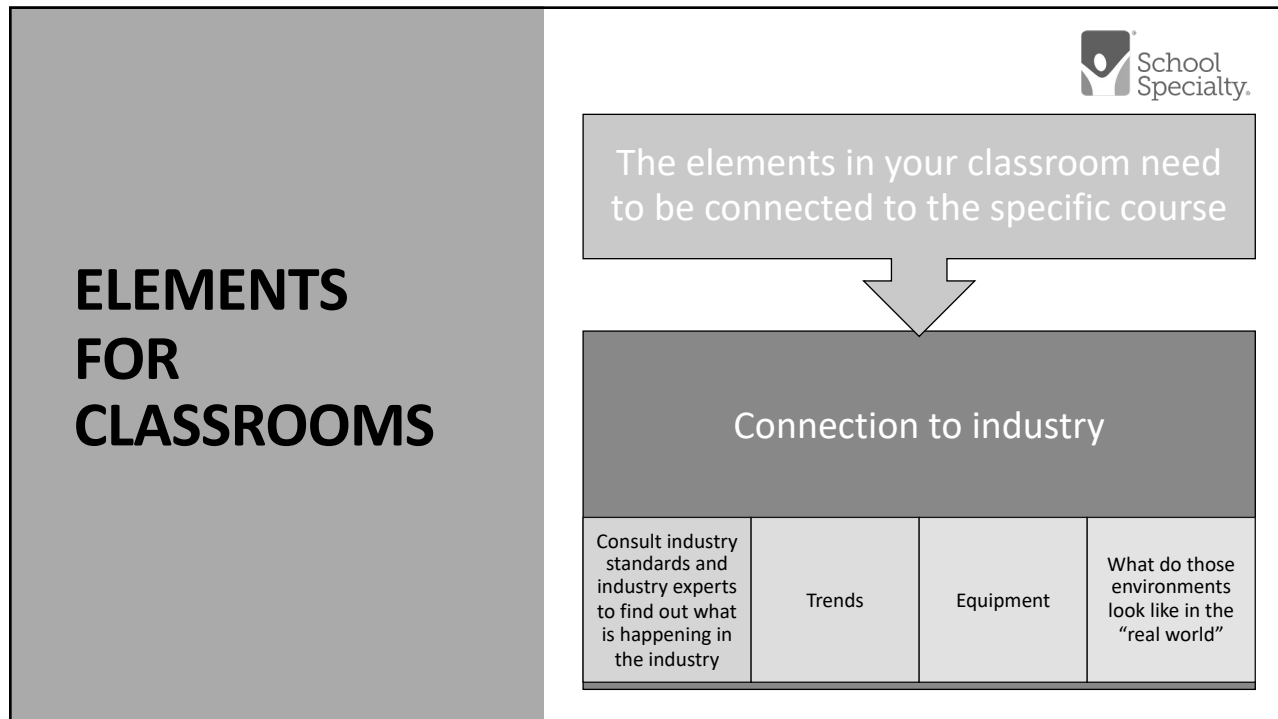
TECHNOLOGY

- Integration with learning
- Use as a tool
- Integration in furniture

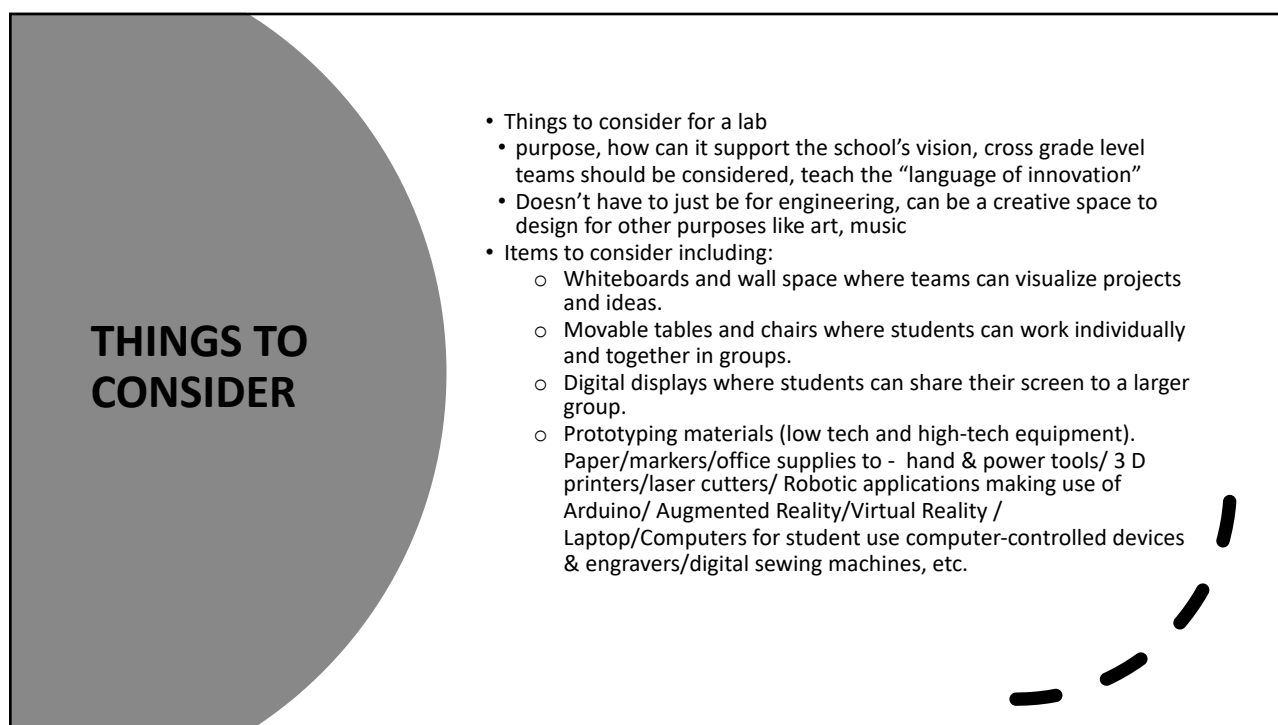
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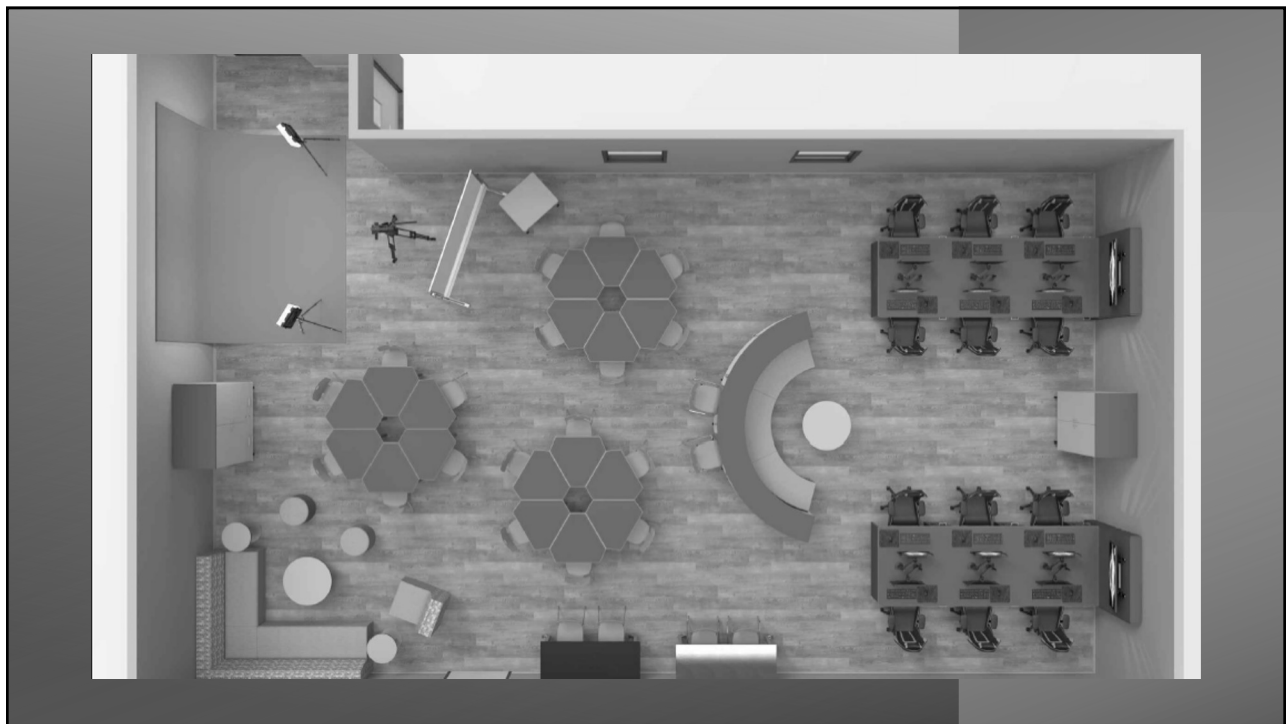
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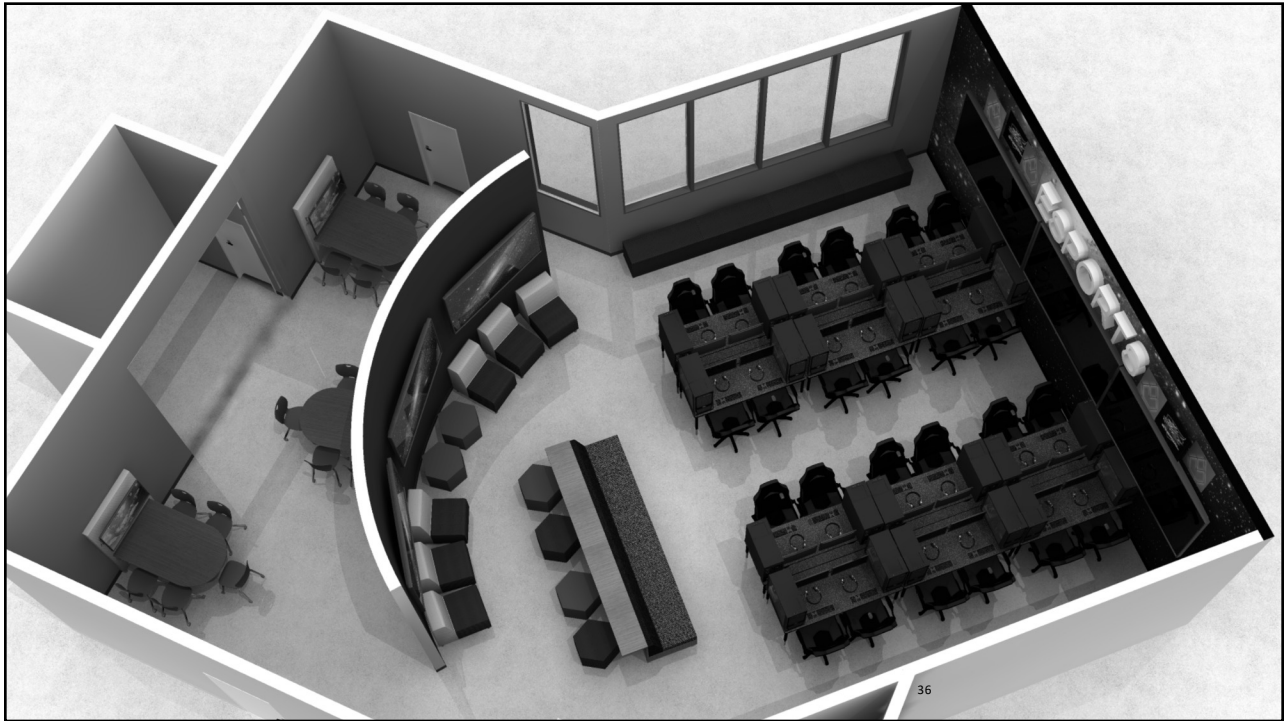
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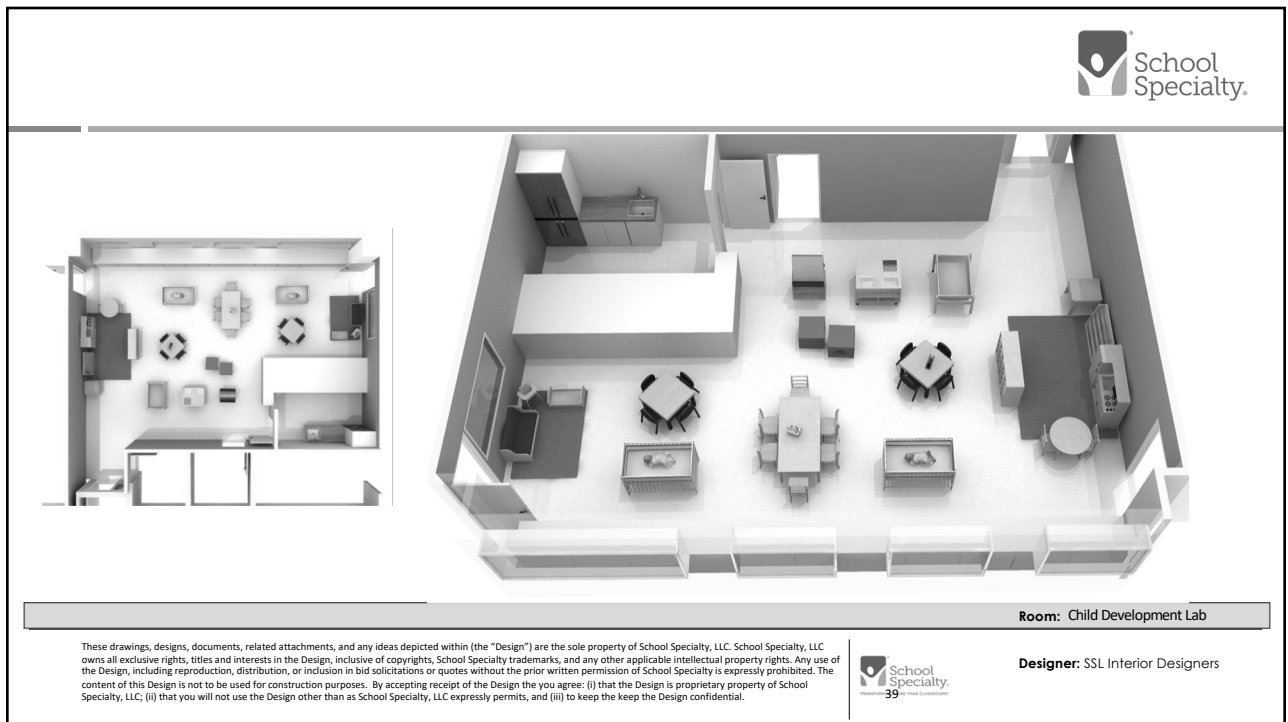
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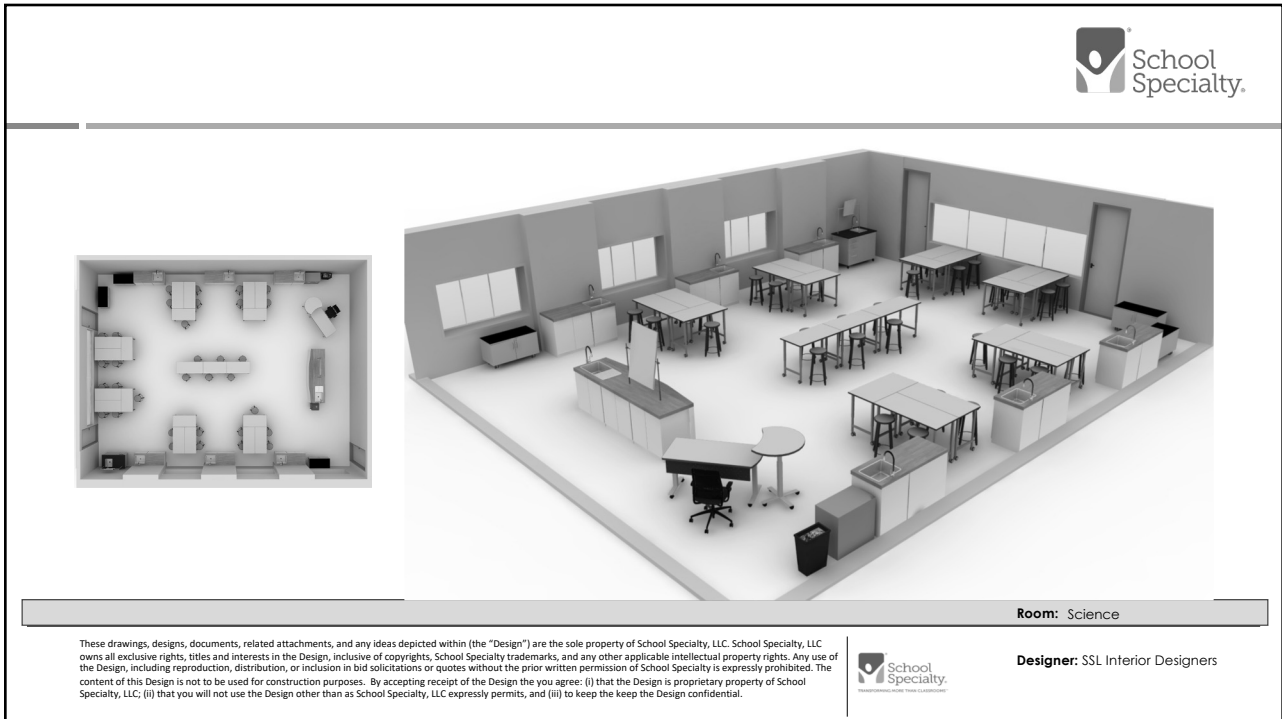
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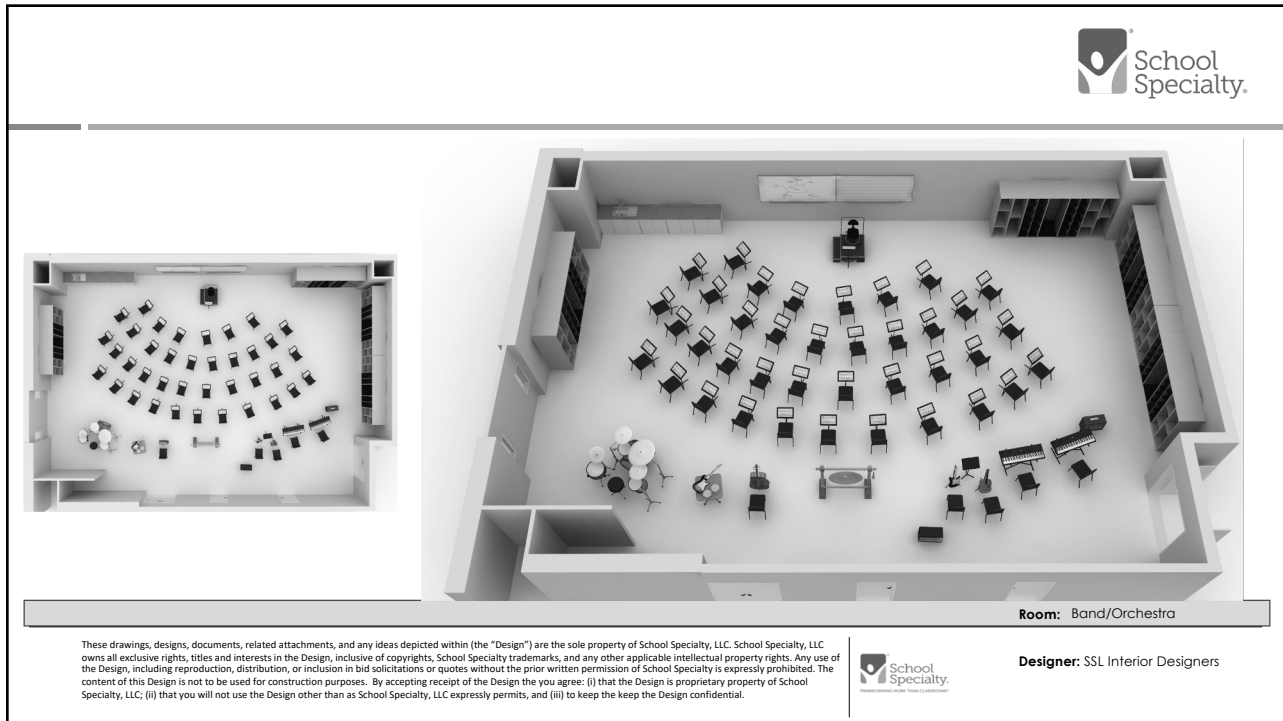
Room: Science

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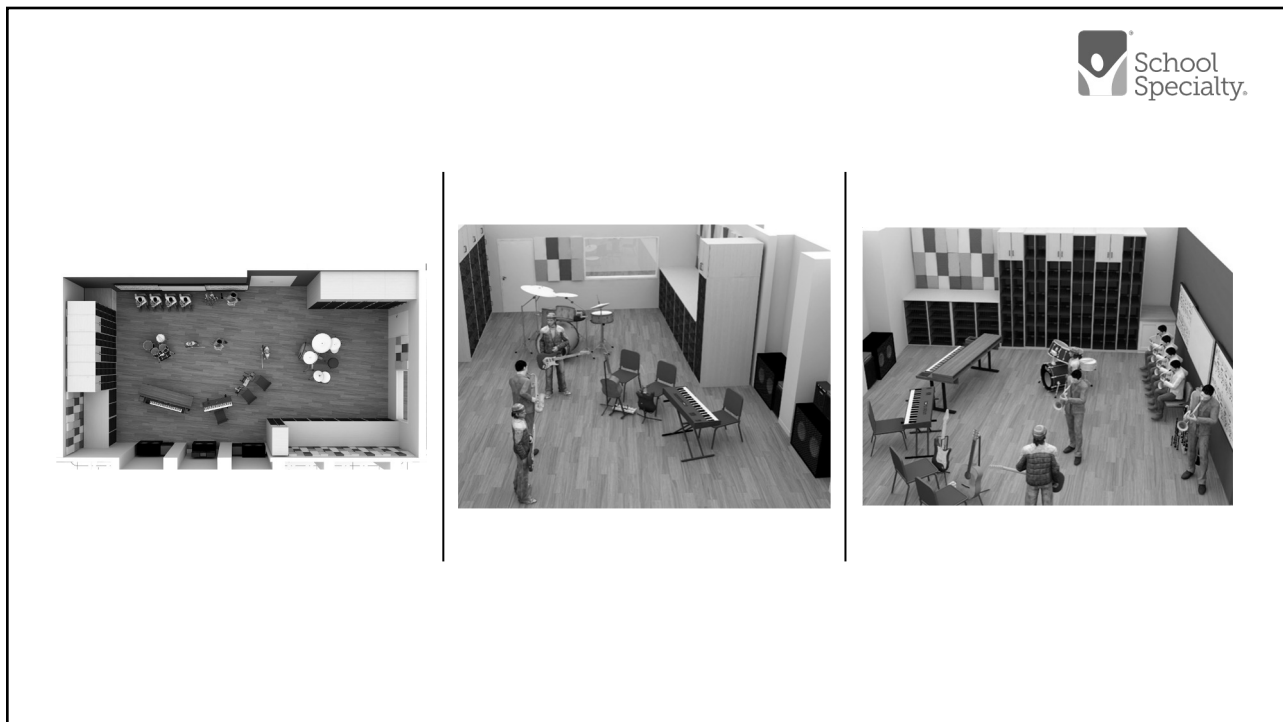


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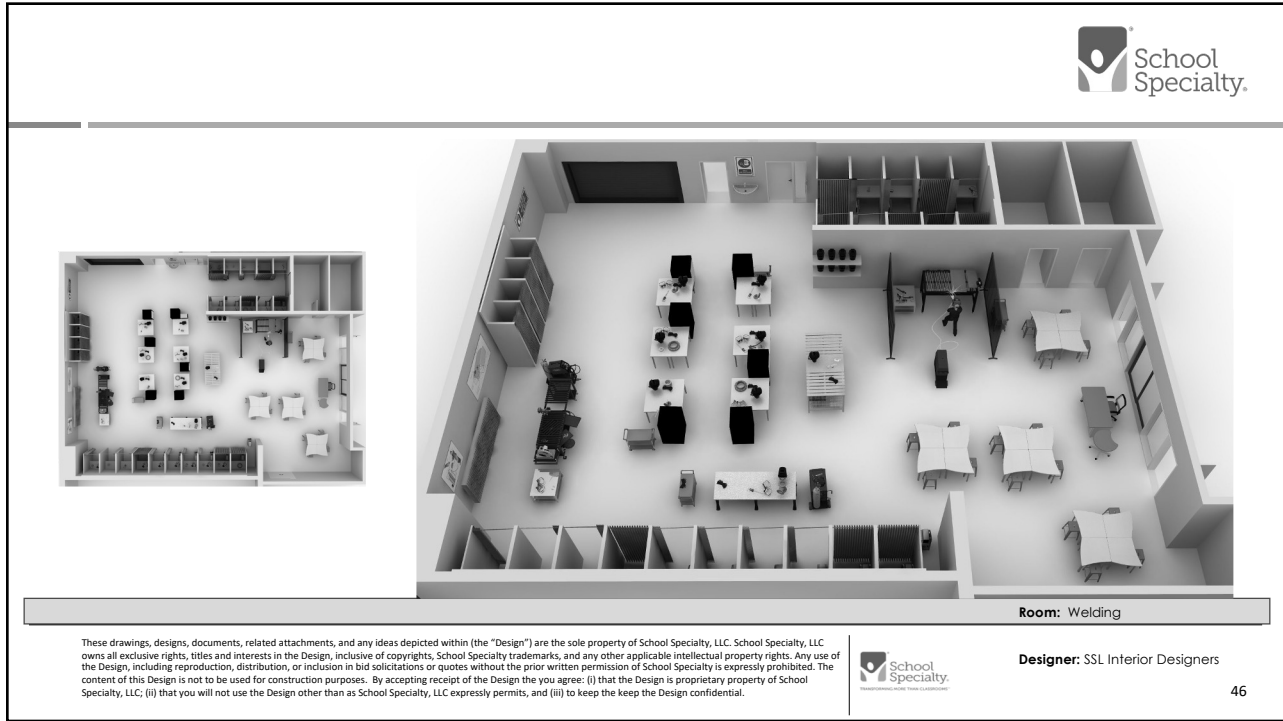
Room: Make-Up

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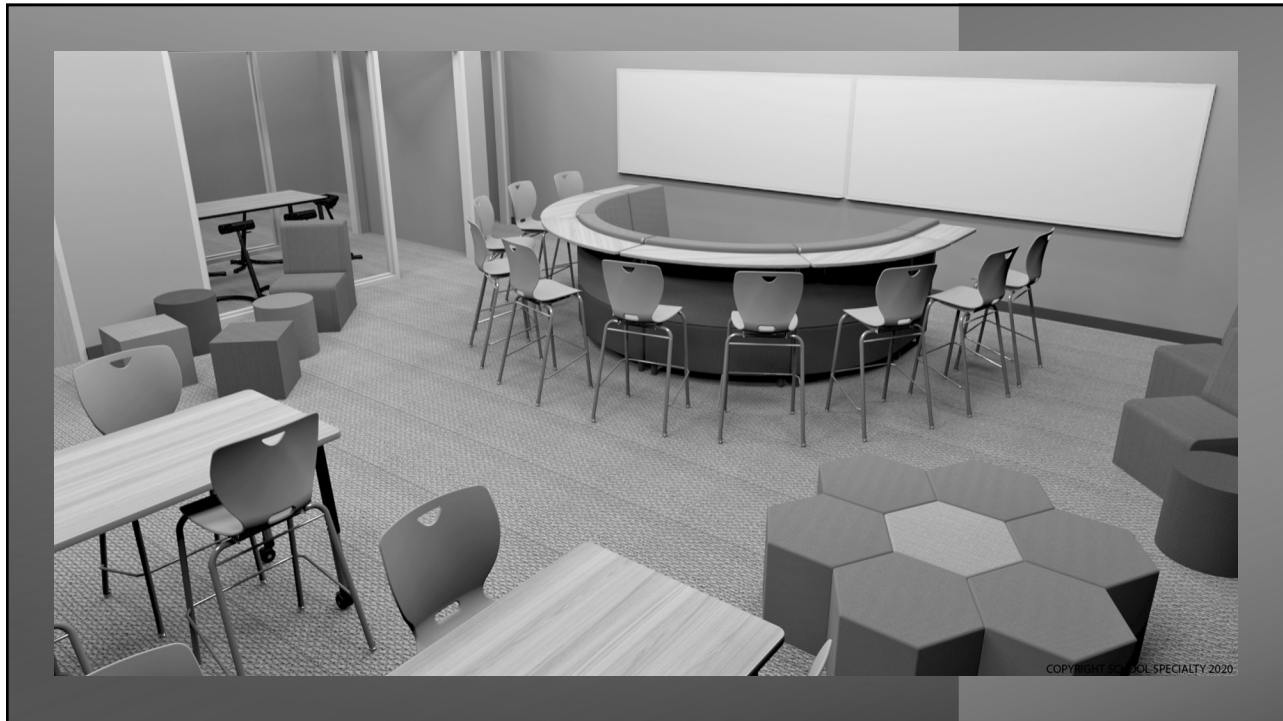


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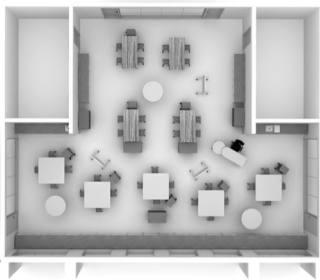
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Room: Maker Space

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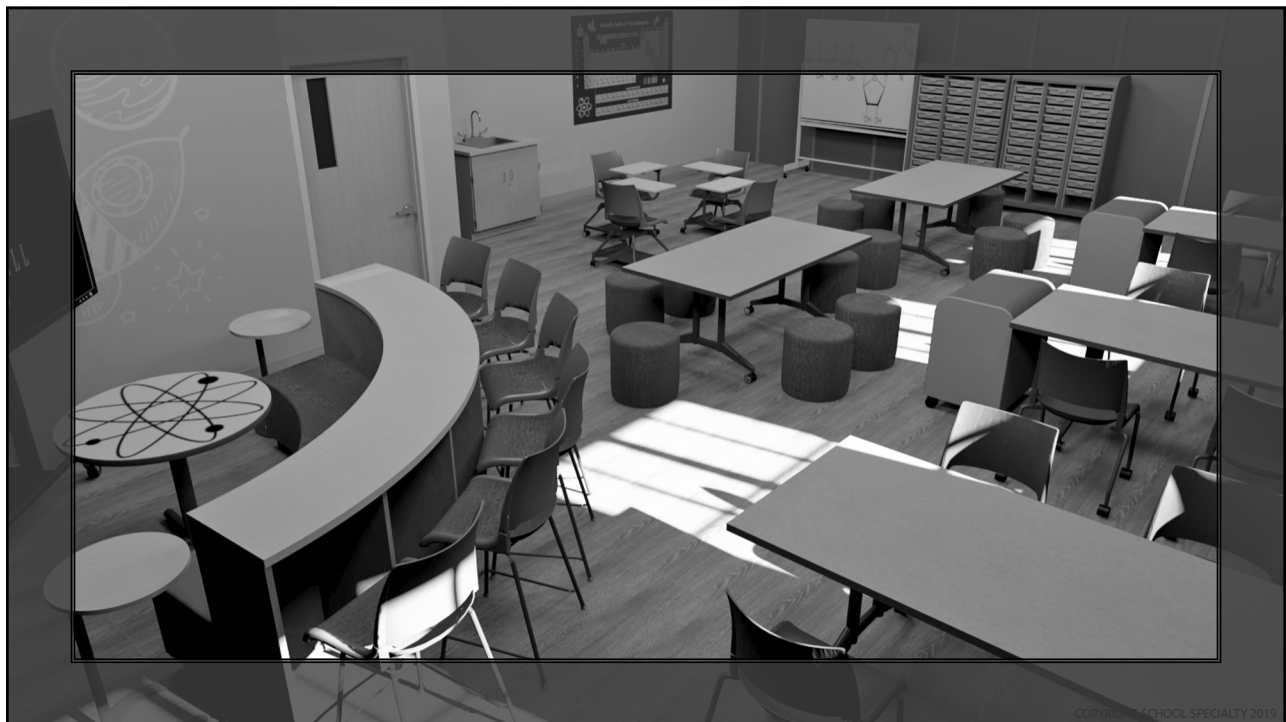
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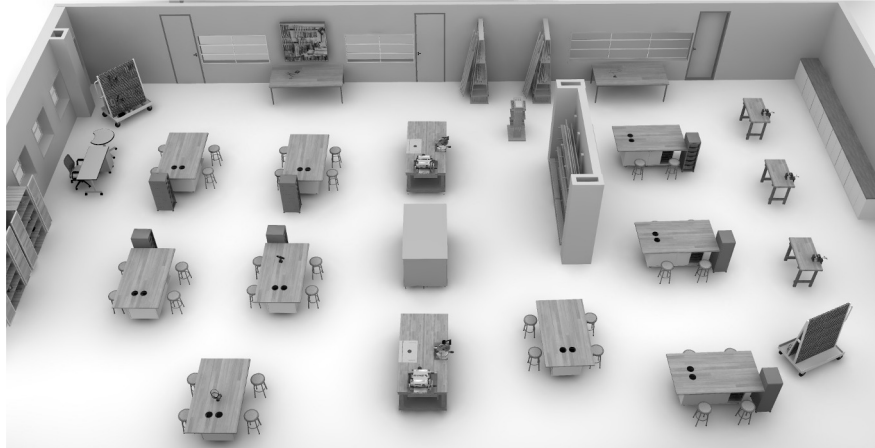
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Room: Construction Lab

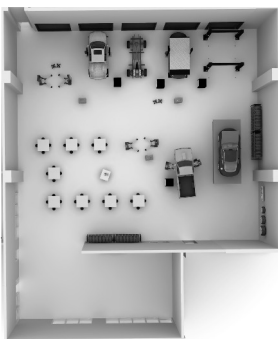
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Room: Automotive Technology

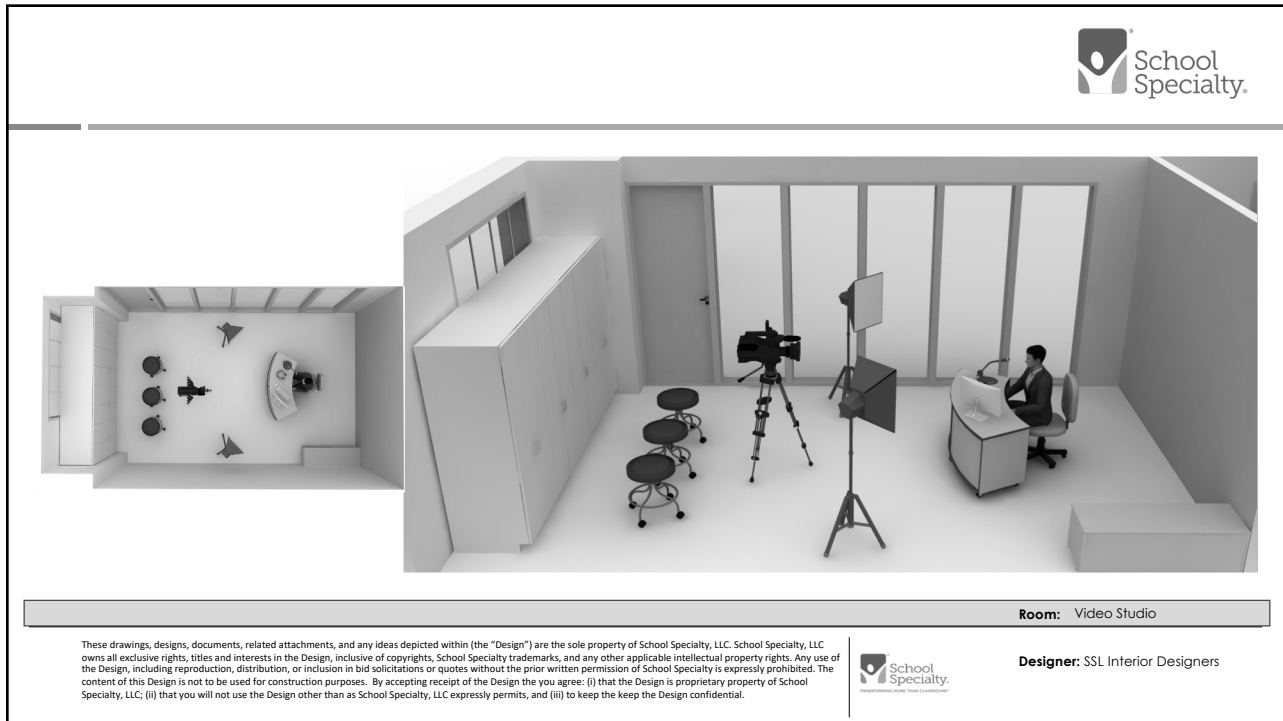
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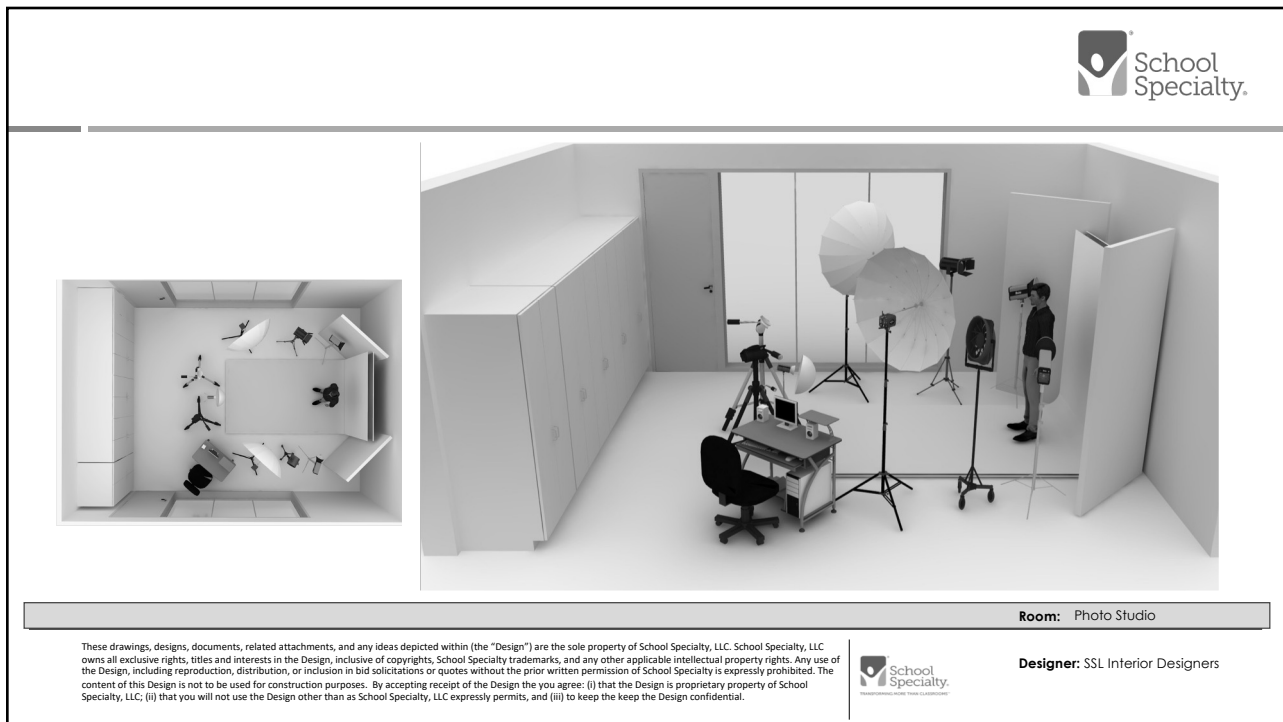
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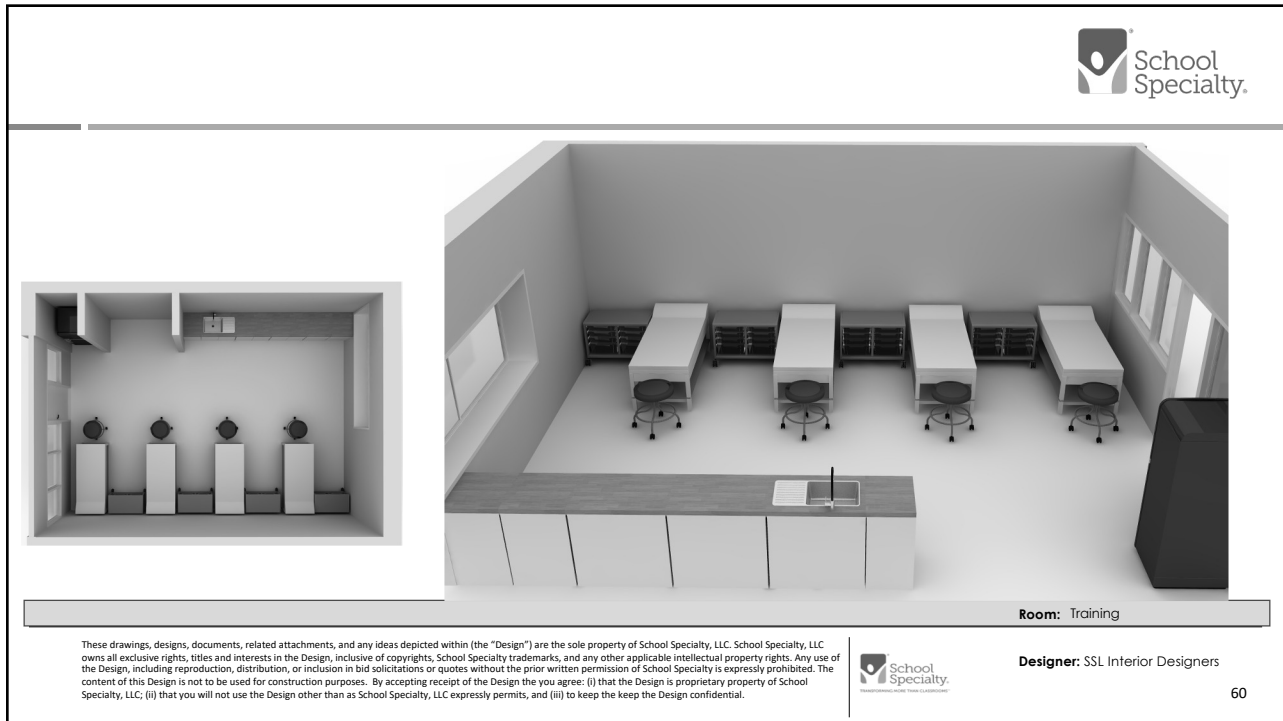
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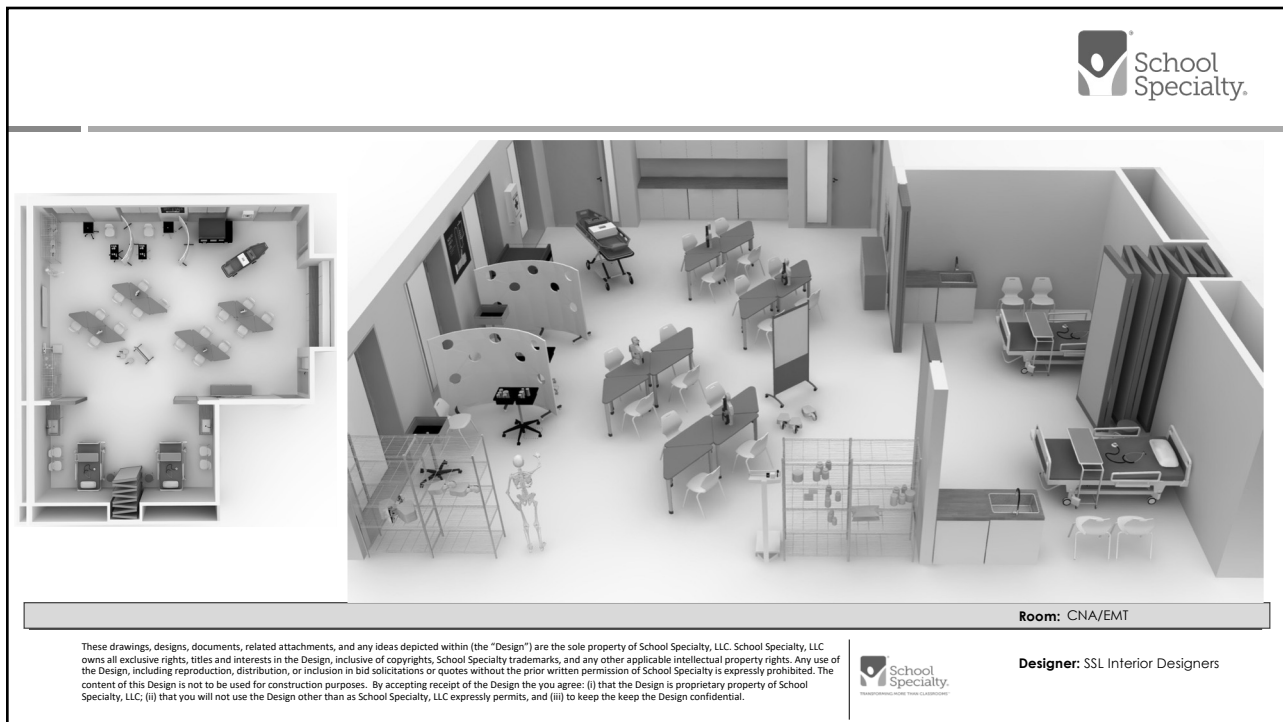
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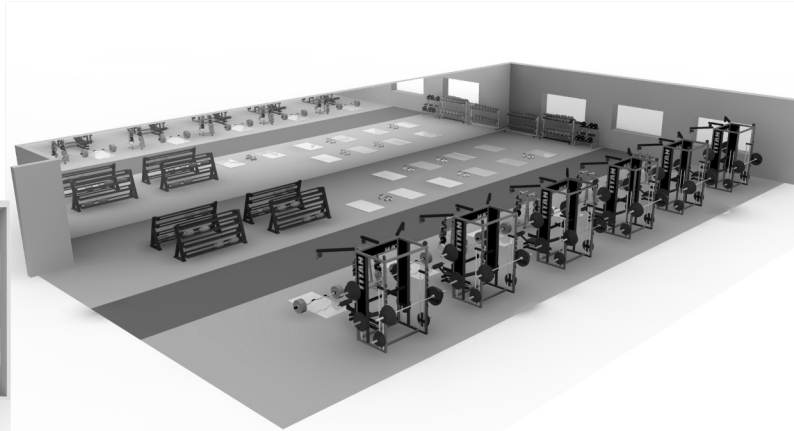
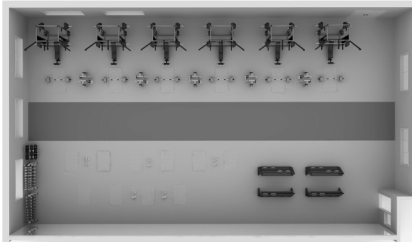
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Room: Fitness Training

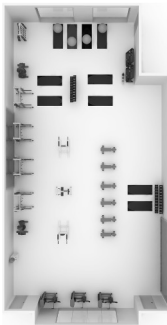
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Room: Fitness

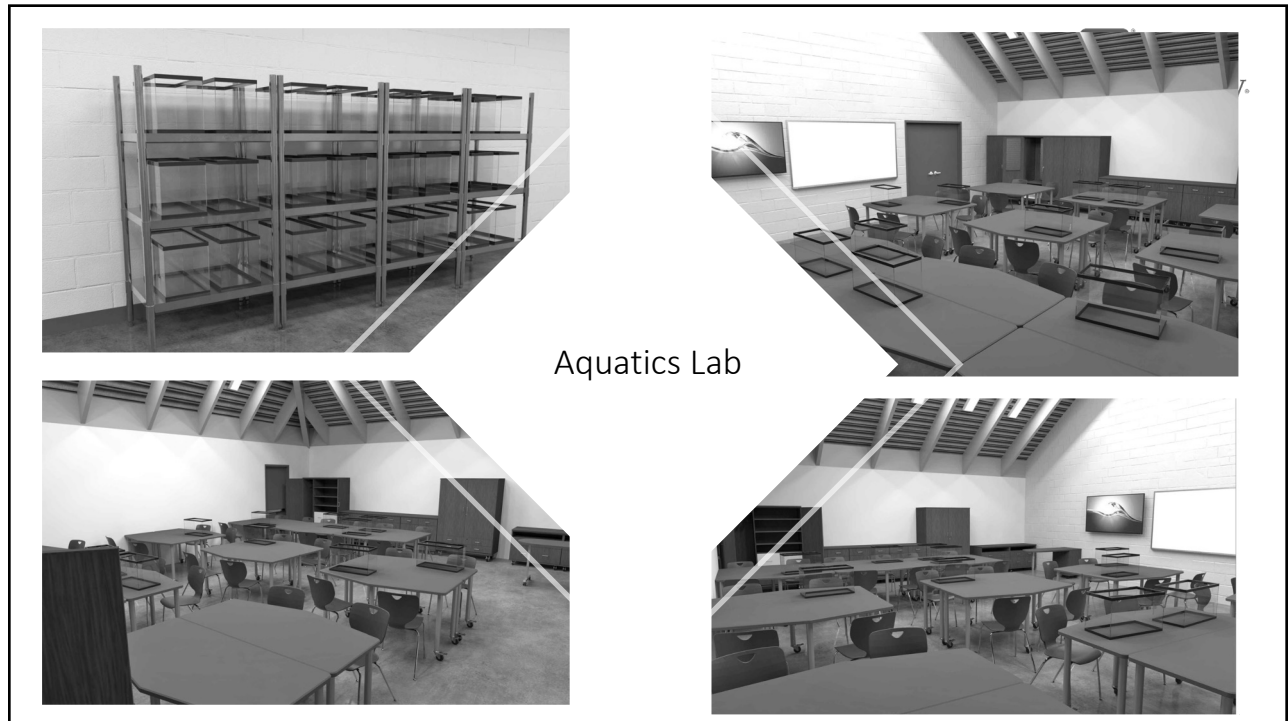
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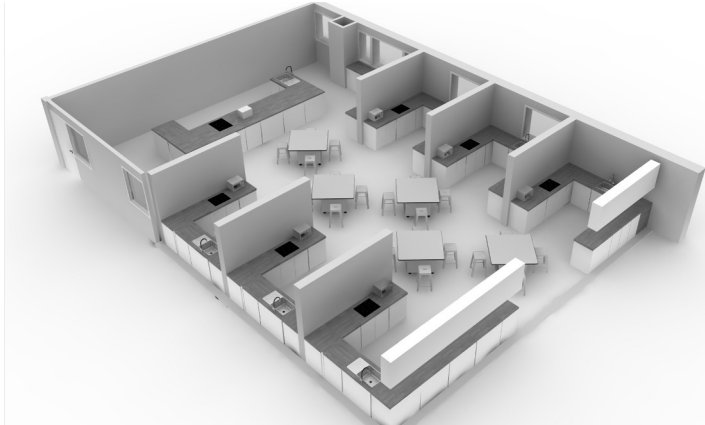
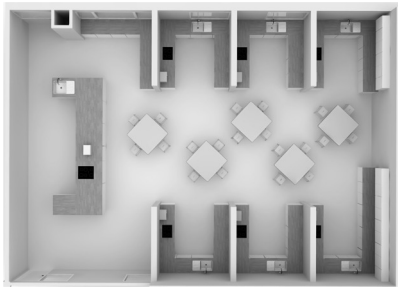
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Room: Culinary Arts

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Room: Culinary Arts

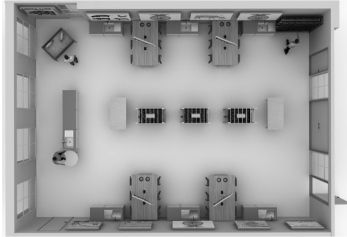
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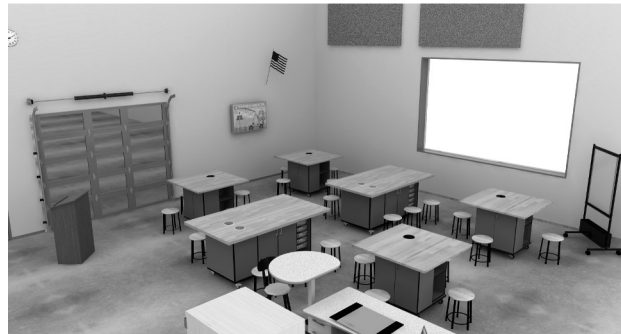


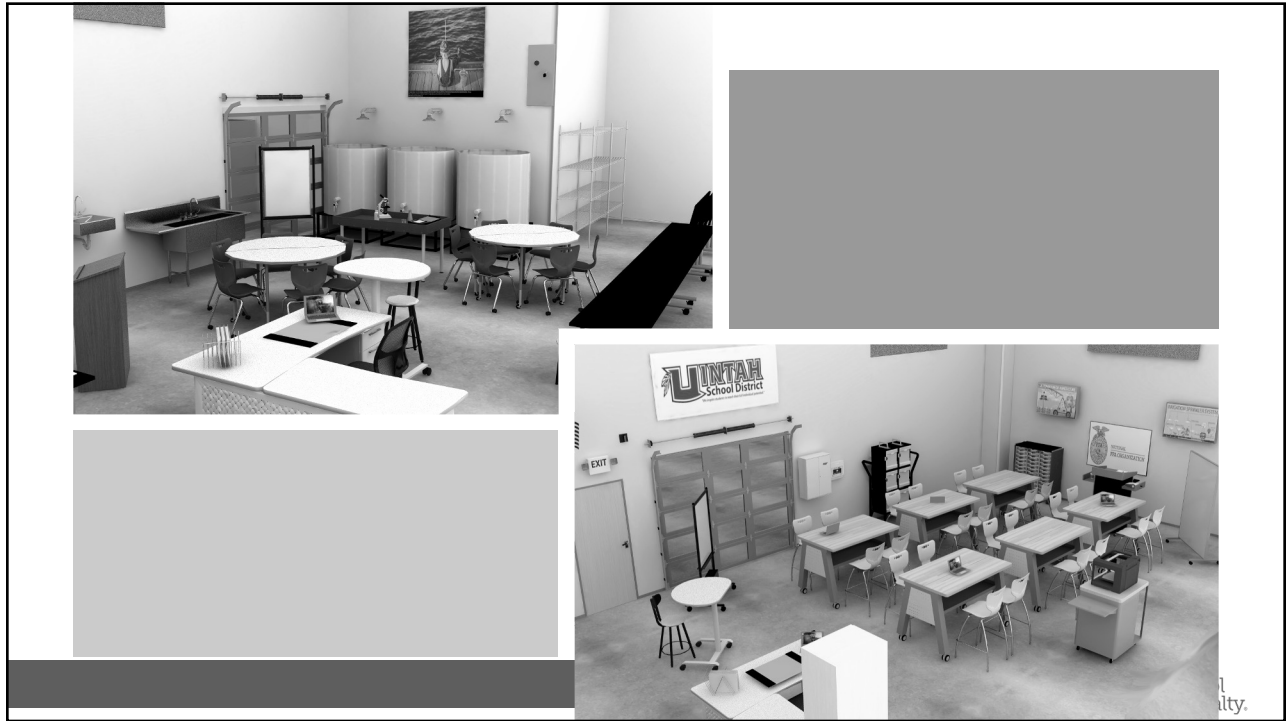
Room: Agriculture

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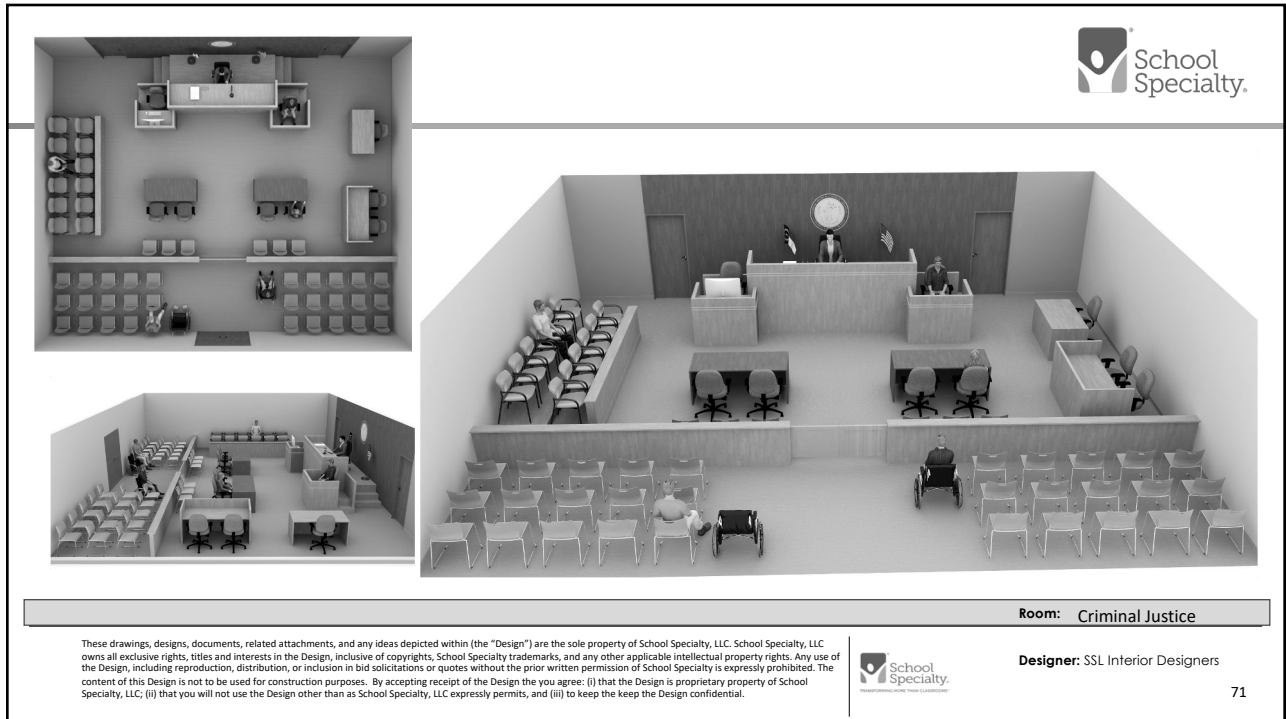


Designer: SSL Interior Designers





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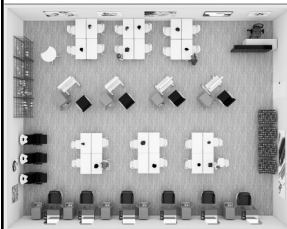
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Room: Criminal Justice
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Room: Cosmetology

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Designer: SSL Interior Designers

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Room: Ceramics

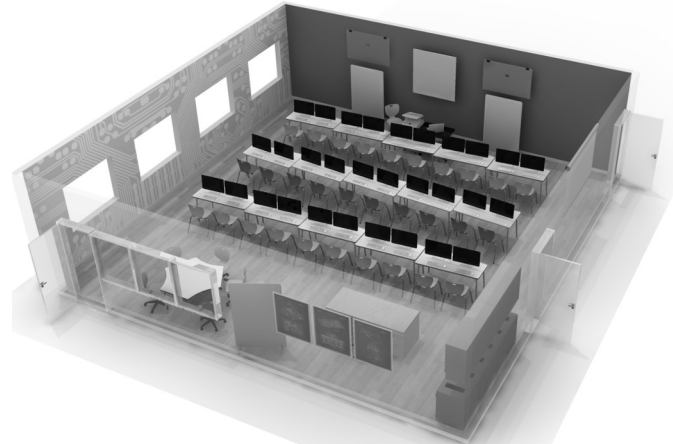
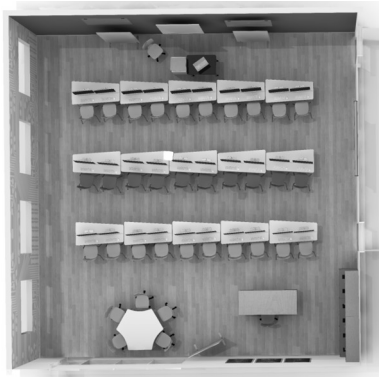
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Designer: SSL Interior Designers

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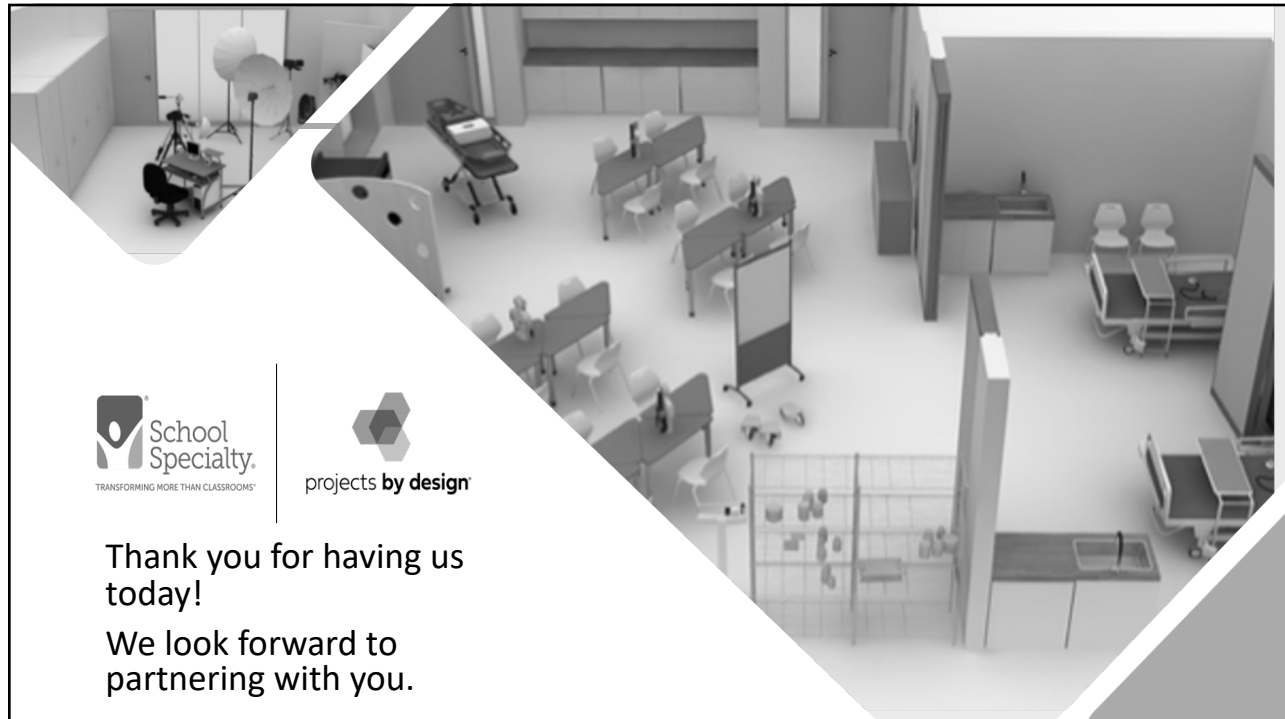


Room: Multi-Media Classroom

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We look forward to partnering with you.