

# 21<sup>st</sup> Century Learning in Deaf Education: Theory to Practice

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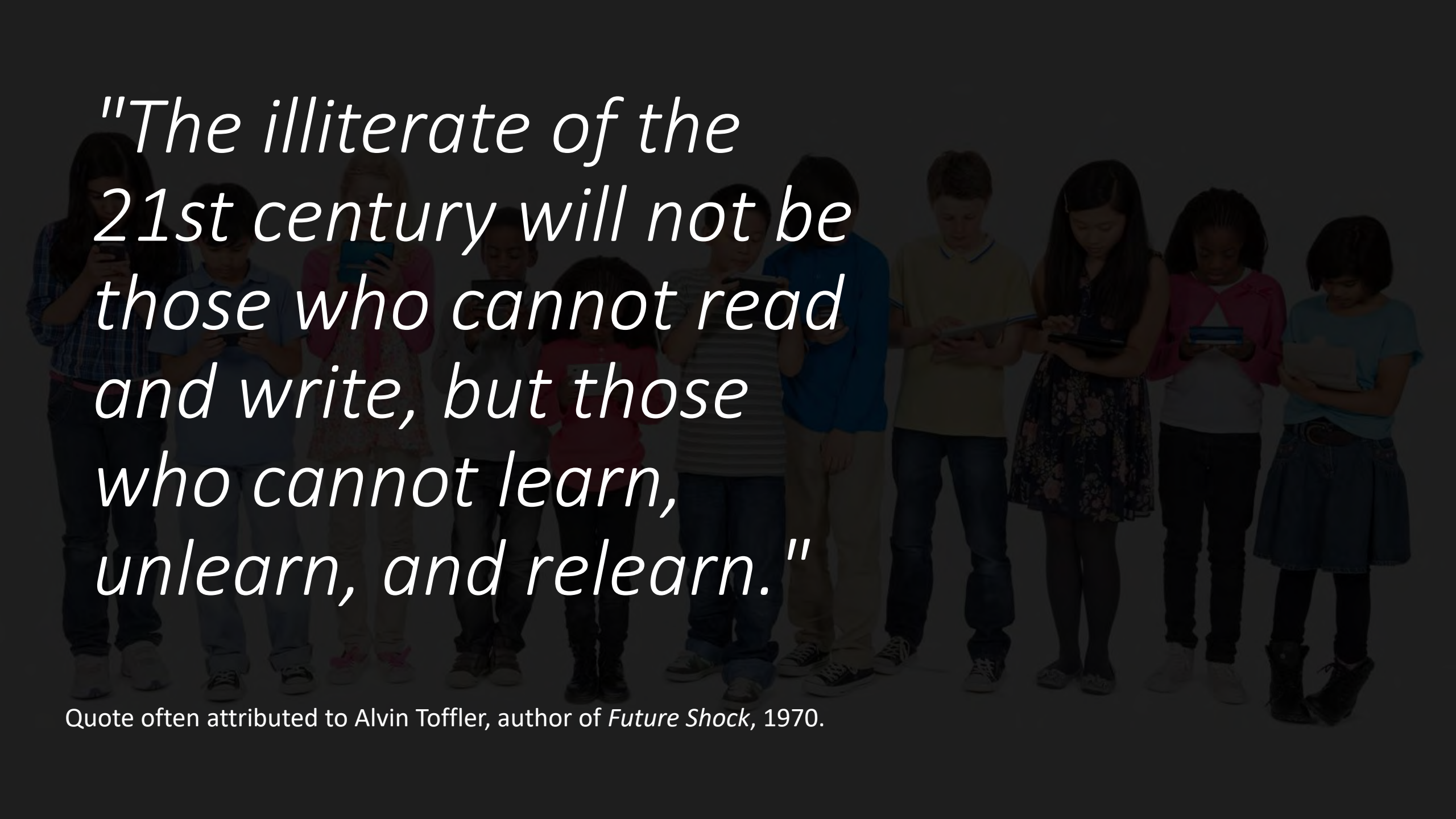
**DeafTec, Rochester, NY, October 2024**



# Objective & Agenda

Participants will be:

- **DEFINING & APPLYING** 21<sup>st</sup> Century Learning to Today's Learning
- **IDENTIFYING** Applications for 21<sup>st</sup> Century Learning in the Deaf Ed Classroom & Teacher Training
- **CREATING** 21<sup>st</sup> Century Learning opportunities based on specific tasks.



*"The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn."*

Quote often attributed to Alvin Toffler, author of *Future Shock*, 1970.




# Evolution of asking the questions

- In the 19<sup>th</sup> and 20<sup>th</sup> centuries:  
*WHO, WHAT, WHERE, & WHEN*
- **BEHAVIOR:** memorizing info
- Information was found in **BOOKS**
- In the 21<sup>st</sup> centuries and beyond:  
*HOW, WHY, & IF*
- **BEHAVIOR:** interact with info
- Information is now found on the  
**WORLD WIDE WEB.**







# What is 21<sup>st</sup> Century Learning?

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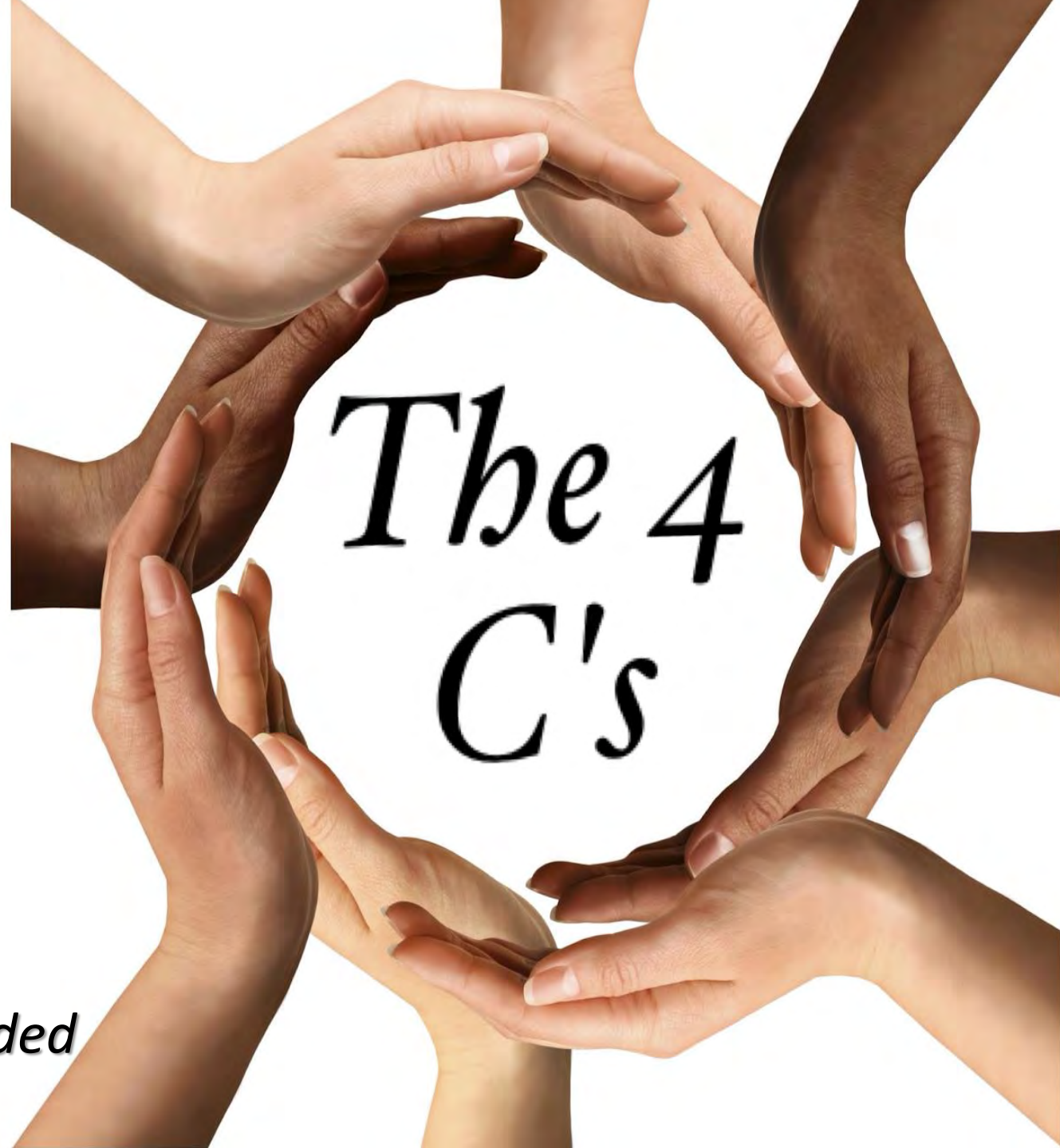
Creativity

Critical Thinking

Communication

Collaboration

*with 21<sup>st</sup> Century technologies included*



*The 4  
C's*

# The 4 C's of 21<sup>st</sup> Century Learning

Creativity

Critical Thinking

Collaboration

Communication

Employee  
behaviors expected  
by employers  
for the 21<sup>st</sup> Century





- Creativity**
- Critical Thinking**
- Collaboration**
- Communication**

- Media Literacy**
- Information Literacy**
- Information Communication Technology Literacy**

- Productivity & Accountability**
- Leadership & Responsibility**
- Flexibility & Adaptability**
- Social & Cross Cultural Skills**
- Initiative & Self Direction**

- Environmental Literacy**
- Global Awareness**
- Financial Literacy**
- Health Literacy**
- Civic Literacy**

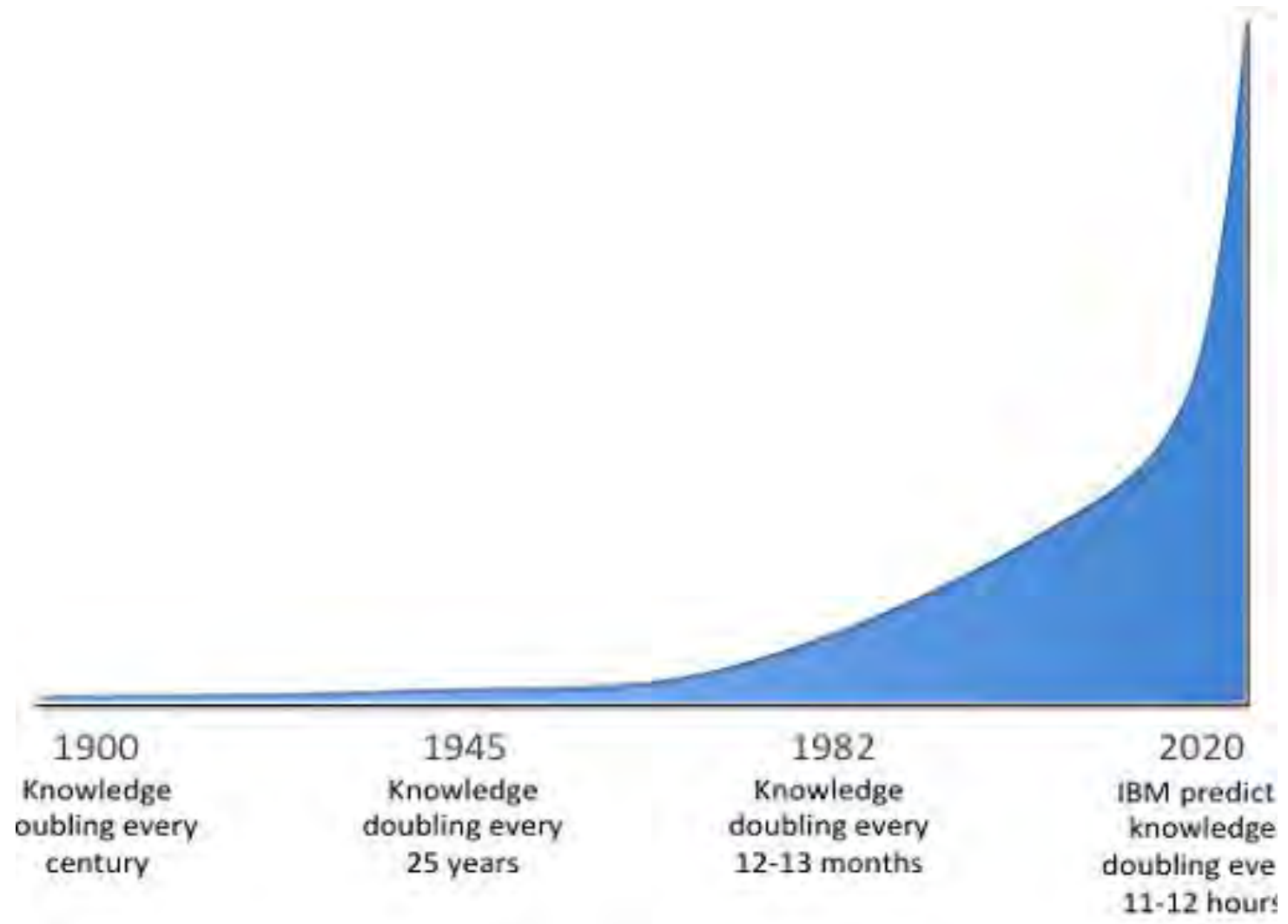


A young child with light hair is sitting on the floor, looking intently at a laptop screen. The child's hand is resting on the laptop's trackpad. The laptop is open and positioned to the left of the child. The background is a plain, light-colored wall. The overall image has a dark, semi-transparent overlay.

**Why are 21st Century Skills  
Important?**

# Knowledge Doubling Curve

- By 2020 there are predicted to be 50 billion interconnected devices in operation
- Humans cannot process or analyze data at the speed it is being generated; Computing is necessary
- Patents for new inventions have increased 600% in the past 50 years
- People no longer need to work independently- worldwide collaborations are possible
- Knowledge is increasing exponentially, but becoming obsolete in half the time



IBM extension of Buckminster Fuller's "Knowledge Doubling Curve"

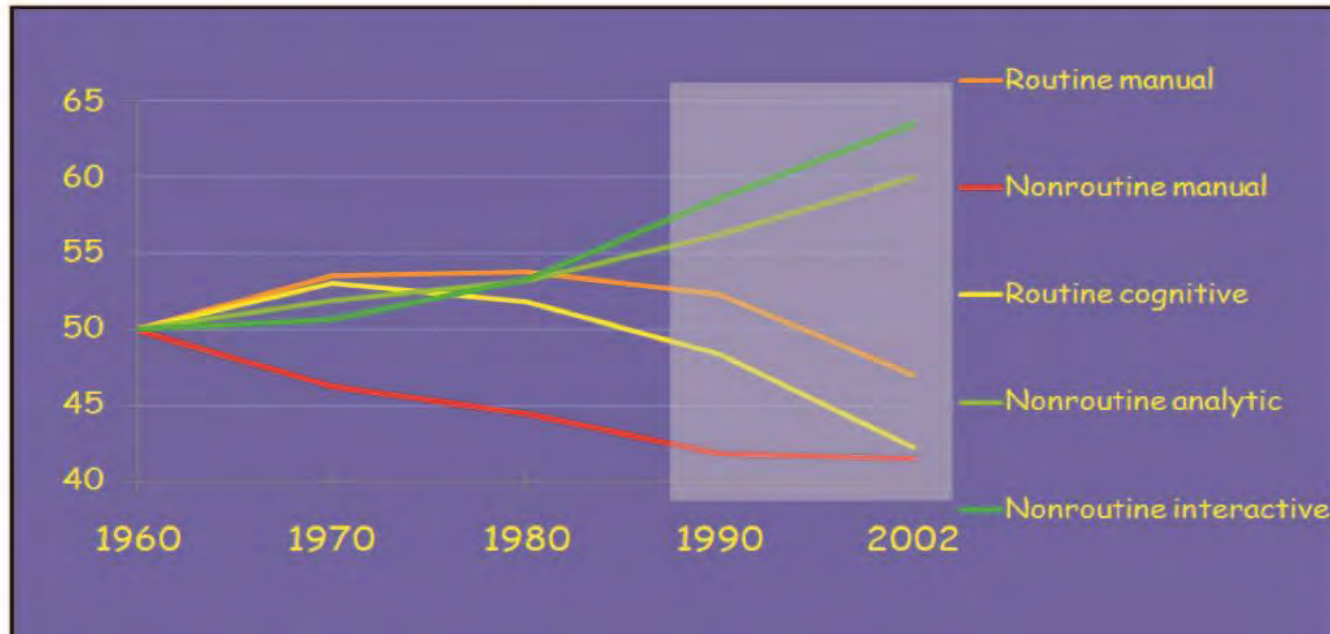
Rosenberg, Marc (2017, October 17). Marc my words: The coming knowledge tsunami. Learning Solutions Magazine

<http://www.learningsolutionsmag.com/articles/2468/marc-my-words-the-coming-knowledge-tsunami> downloaded 2-6-18

## How the demand for skills has changed

an task input as percentiles of the 1960 task distribution

Economy-wide measures of routine and non-routine task input (US)



Today's survival skills require an ability to think critically, solve problems, communicate, collaborate, find information quickly, and use technology in a meaningful way

## Change in Skill Requirements for Current and Future Employment





Code

Double Click

User

Minimize

Copyright

Download

Password

Access Denied

Browser

Network

PDF

Bookmark

JPEG

Wireless

Access

Click

Google-it

Vlog

Website

Blog

# Vocabulary for the 21st Century

Server

Cyberspace

Font

Operating System



## Technology alone does not make a 21st Century Classroom

- Teachers supporting their students' learning, enhance their educational experience. Such teacher mediation create higher levels of learning and make learners more motivated and willing to persevere in their learning.

Sadoughi, M., Hejazi, S. (2023). The effect of teacher support on academic engagement: The serial mediation of learning experience and motivated learning behavior. *Curr Psychol* 42, 18858–18869.

Nir-Gal, O., & Klein, P. S. (2004). Computers for cognitive development in early childhood—the teacher's role in the computer learning environment. *Information technology in childhood education annual*, 2004(1), 97-119.



# Tech Across the Deaf Ed Curriculum

Don't divorce tech from the deaf ed classroom just because you don't teach STEM content.



# 21st Century Learning Examples

Middle school students work with a partner to identify elements needed on a robot to complete specific tasks.



Secondary level students work with peers in a lab setting or online to extract DNA from wheat germ



*What levels of technology use are these?*



# Is this a 21st Century Classroom?

A teacher begins a lesson with her 4th graders on the Solar System. Each student has an iPad. The teacher gives each student a worksheet and directs her students to use the iPad to look up how big each planet is and record this information on the worksheet. Students are directed to work independently.

*What level of technology use is this?*





**What level of technology use is this?**

A teacher finishes the planned lesson with his 3rd graders. There are 15 minutes left until they have to leave for lunch. The teacher directs the students to get out the Spheros (small robots) that “live” on a shelf in the classroom and play until it is time for lunch.

The teacher uses this time to grade assignments that the students completed.



**Is this a high-tech, mid-tech, or low-tech use of technology?**

A teacher is about to begin a lesson on elections and voting practices. He pulls a PowerPoint up on the Smartboard and proceeds to teach his lesson. Students watch as the teacher goes through the slides in his presentation, carefully explaining each one.



# Is this a 21st century classroom?

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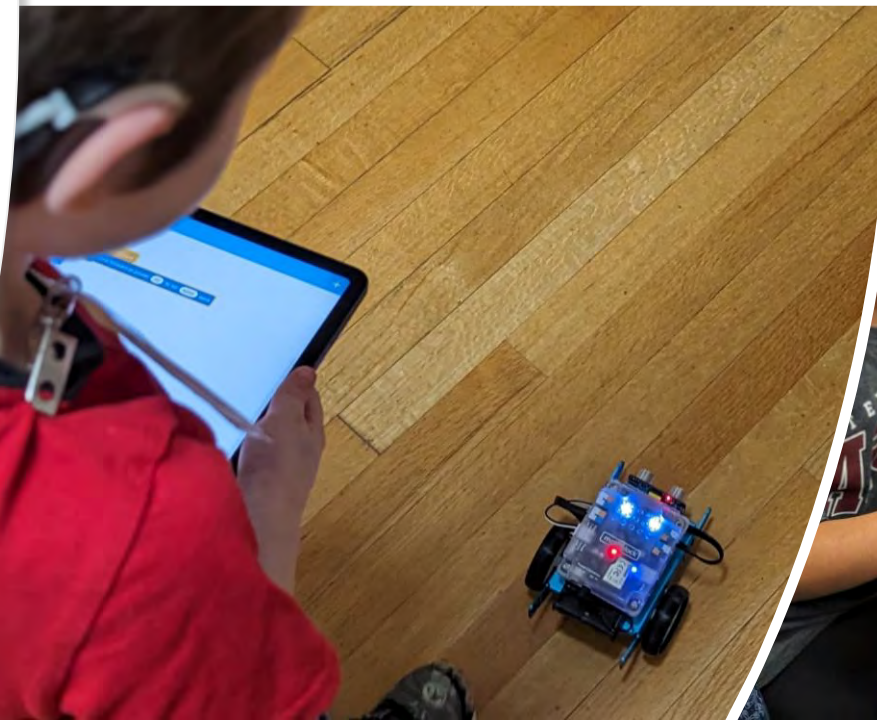
You walk into a high school classroom and see all the students individually working on their own laptop computers. On the Smart Board at the front of the room a slide appears that says, "Write an essay describing three causes of the American Revolution."




*What level of technology use is this?*



# Examples of 21<sup>st</sup> Century Learning





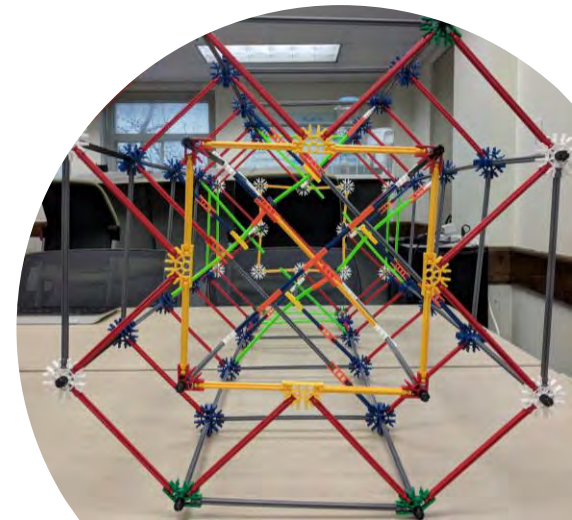
A photograph of two students in a classroom. In the foreground, a young boy with dark curly hair is looking down at a large blue bin filled with various LEGO bricks and pieces. He has his hand near his face, appearing thoughtful. In the background, another student wearing glasses is also working with LEGO bricks. To the right, a laptop is open on the table, displaying a colorful image of a robot. Several small clear plastic containers hold sorted LEGO parts. The overall scene suggests a hands-on learning activity involving technology and engineering.

# Leaving the 20<sup>th</sup> Century Behind to Create Applications for the 21<sup>st</sup> Century

21<sup>st</sup> Century Learning & technology applications can be used across the curriculum. don't need to be electronic.



# Identifying High-Tech, Low-Tech & No-Tech 21<sup>st</sup> Century Learning

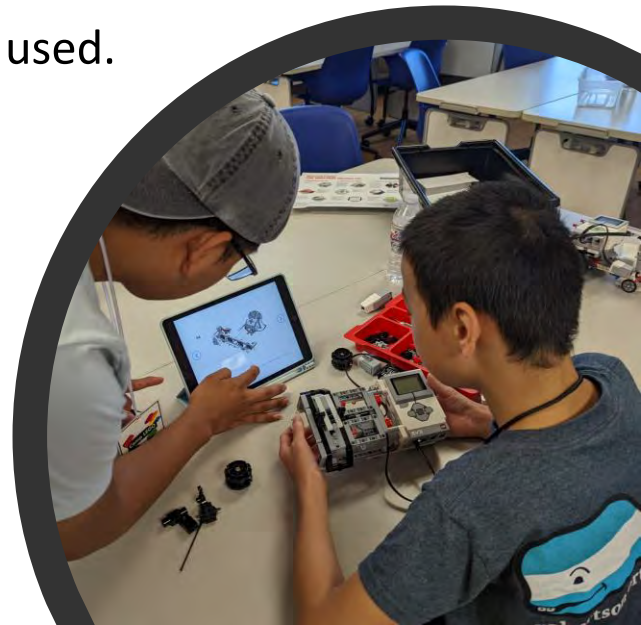






Identify which subject areas the identified tech can be used.

# Fitting it into the curriculum







**Note about the  
technologies present**

Please note that these technologies are not endorsements. They are just examples of high-tech, low-tech, and no-tech opportunities.

- **VISIT** each application station;
- **IDENTIFY** possible applications in language arts, math, and other curriculum content for EACH;
- **WRITE** each idea on a sticky-note and post near that application;
- **REVIEW** & **SHARE** ideas with colleagues;

## 4 C's Activity





# Final Thoughts

- As you progressed through the technology examples, what kinds of creative challenges/experiences did you identify?
- How were you able to relate high/medium/low tech scenarios to your own learning environments?

**As we leave, know that there is no answer.  
Our goal is the exploration of thinking and learning,  
not completing a task.**