

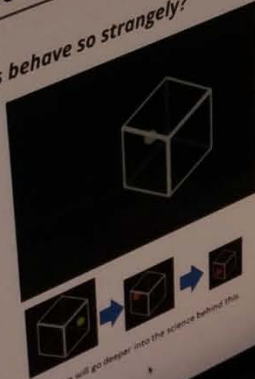
Size-Dependent Behavior

The question is...

Why do nanomaterials behave so strangely?

The answer:

- Electrons are squeezed into a space smaller than they prefer
- a phenomena known as quantum confinement

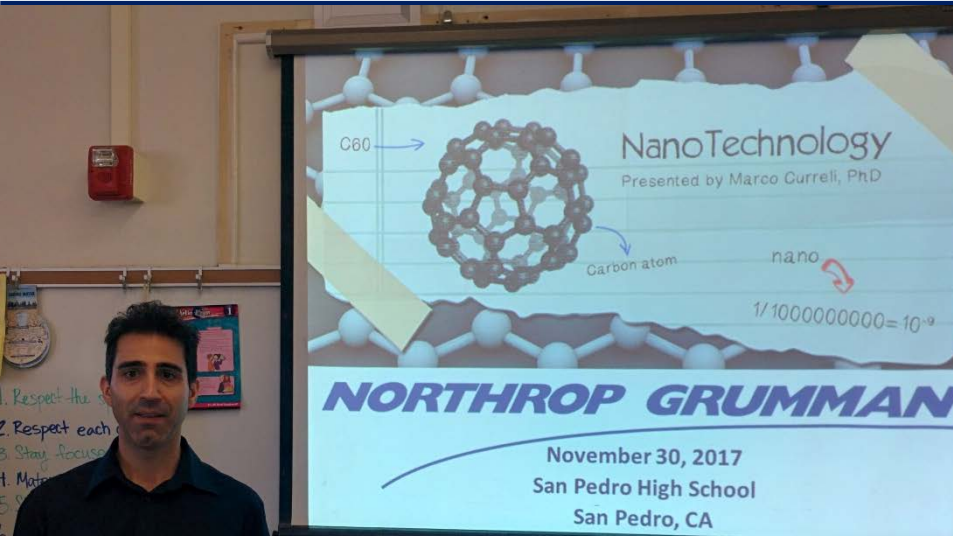


OMNI
NANO

Presentation by
Dr. Marco Curreli

**The First Digital Curriculum for
Global Nanotechnology Education**

What does Omni Nano do?

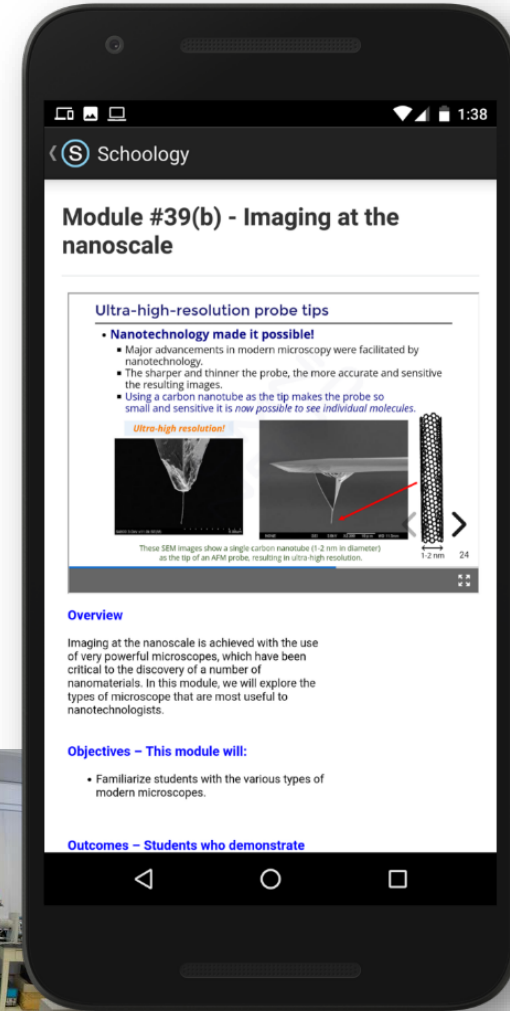


We teach students the science skills they need for the jobs of the future.



About us

- Omni Nano is in the education technology (“**EdTech**”) space.
- Not-for-profit, 501(c)(3) organization.
- Developing **digital educational resources** to teach **nanotechnology** at the high school and college levels.



Today's students

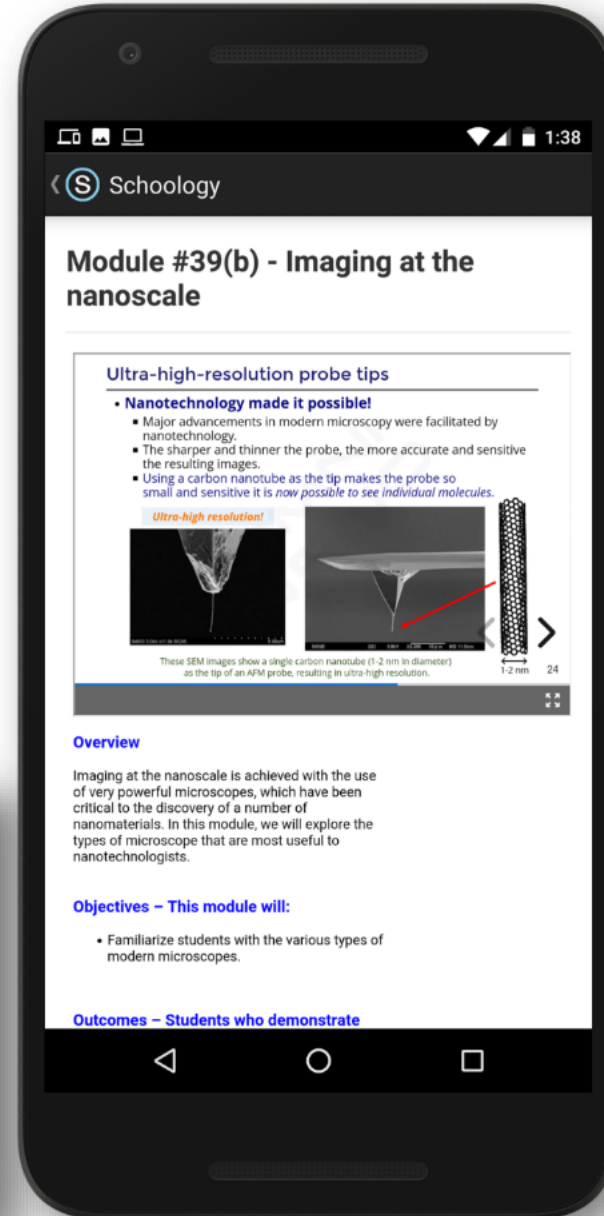
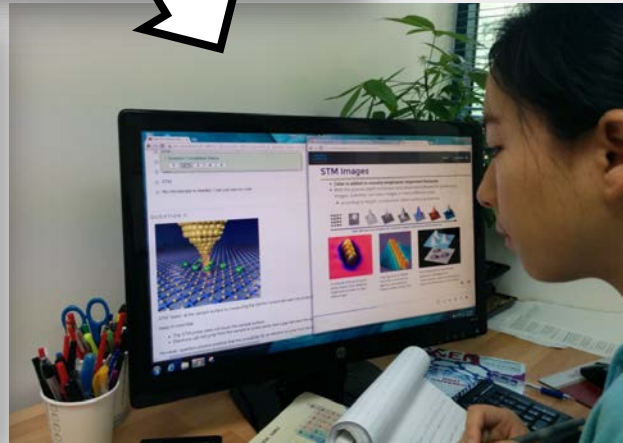
Omni
Nano's
Programs &
Resources



Tomorrow's STEM workforce

Today's students can become tomorrow's STEM workforce with Omni Nano's programs and resources.

Love creating digital educational resources!



A digital curriculum for the next billion

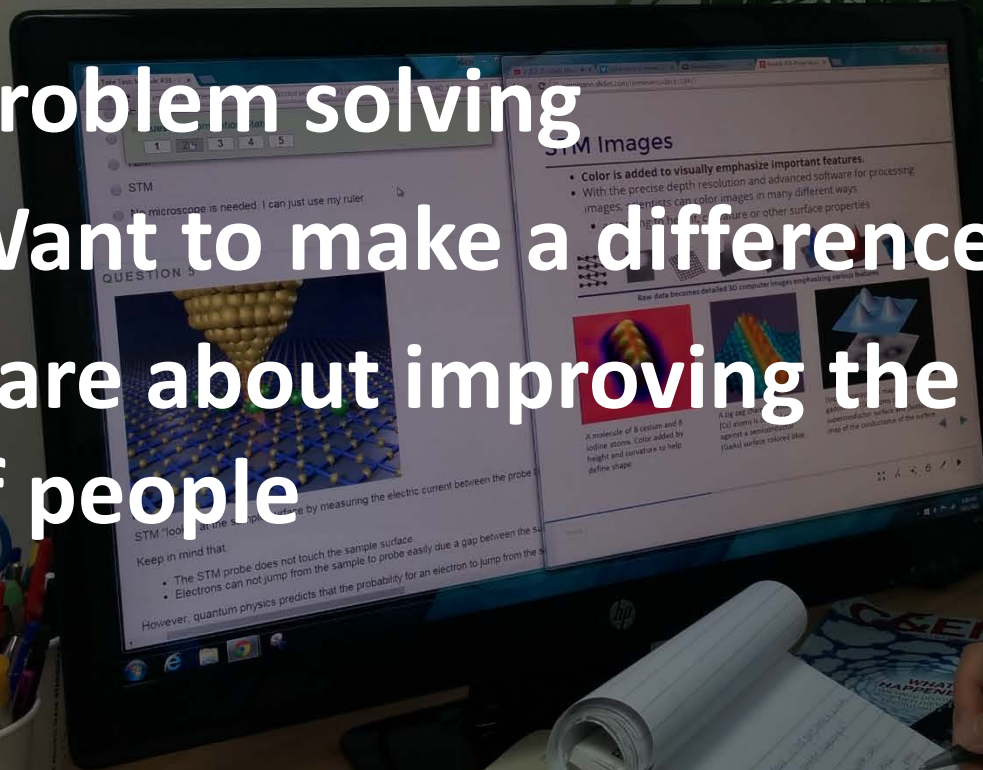


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Ideal STEM class

“Nanotechnology” is an ideal STEM class for students who are:

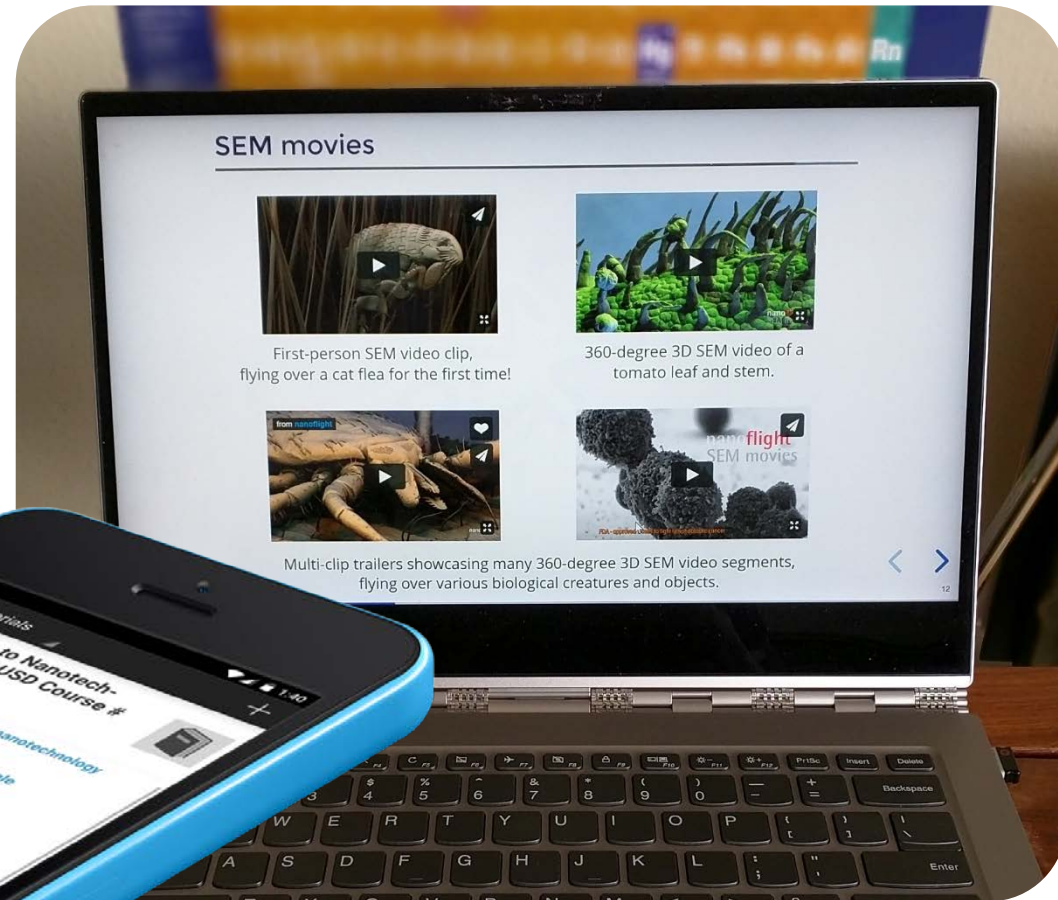
- Creative
- Problem solving
- Want to make a difference in the world
- Care about improving the life of millions of people



Curricula for teachers & students

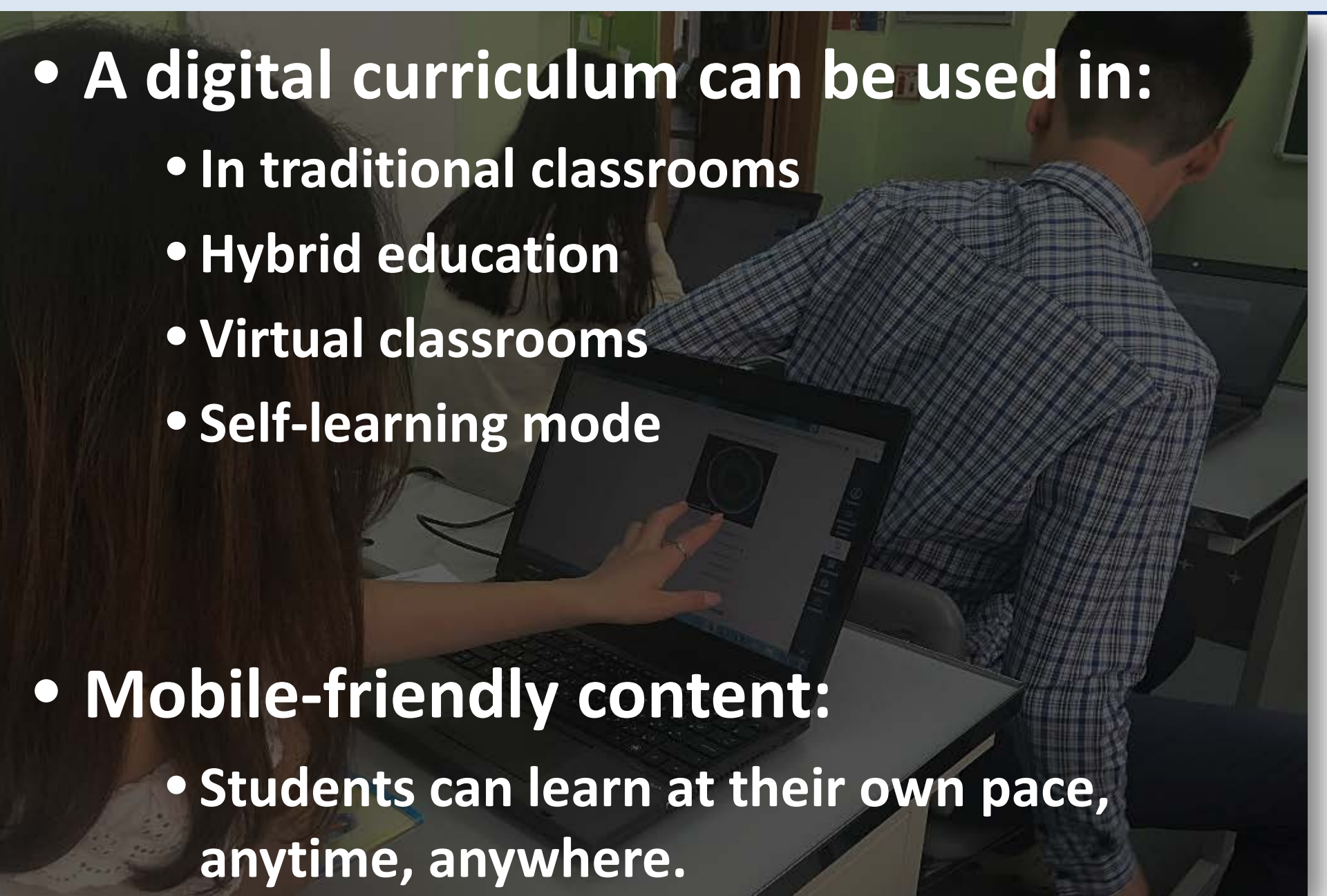
WANTED **A NANOTECHNOLOGY CURRICULUM THAT IS:**

- Comprehensive
- Student-centered
- Teacher-approved
- Fully digital
- Mobile-friendly
- User-friendly



Designed for worldwide distribution

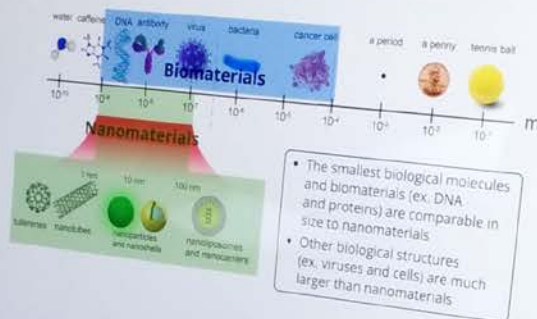
Versatile uses

- **A digital curriculum can be used in:**
 - In traditional classrooms
 - Hybrid education
 - Virtual classrooms
 - Self-learning mode
 - **Mobile-friendly content:**
 - Students can learn at their own pace, anytime, anywhere.
- 
- A photograph of a classroom setting. In the foreground, a student with long dark hair is seen from behind, sitting at a desk and using a laptop. The laptop screen displays a webpage with a circular graphic. In the background, another student is visible, also working at a desk. The room has a green wall and a window.

Preview of the digital textbook?

Biomaterials & Nanomaterials

To talk about bio vs nano tech, we have to understand the different materials.



Email me and I'll send you a link to self-enroll

info@omninano.org



Advantages of a Digital Textbook

Promote collaborative learning

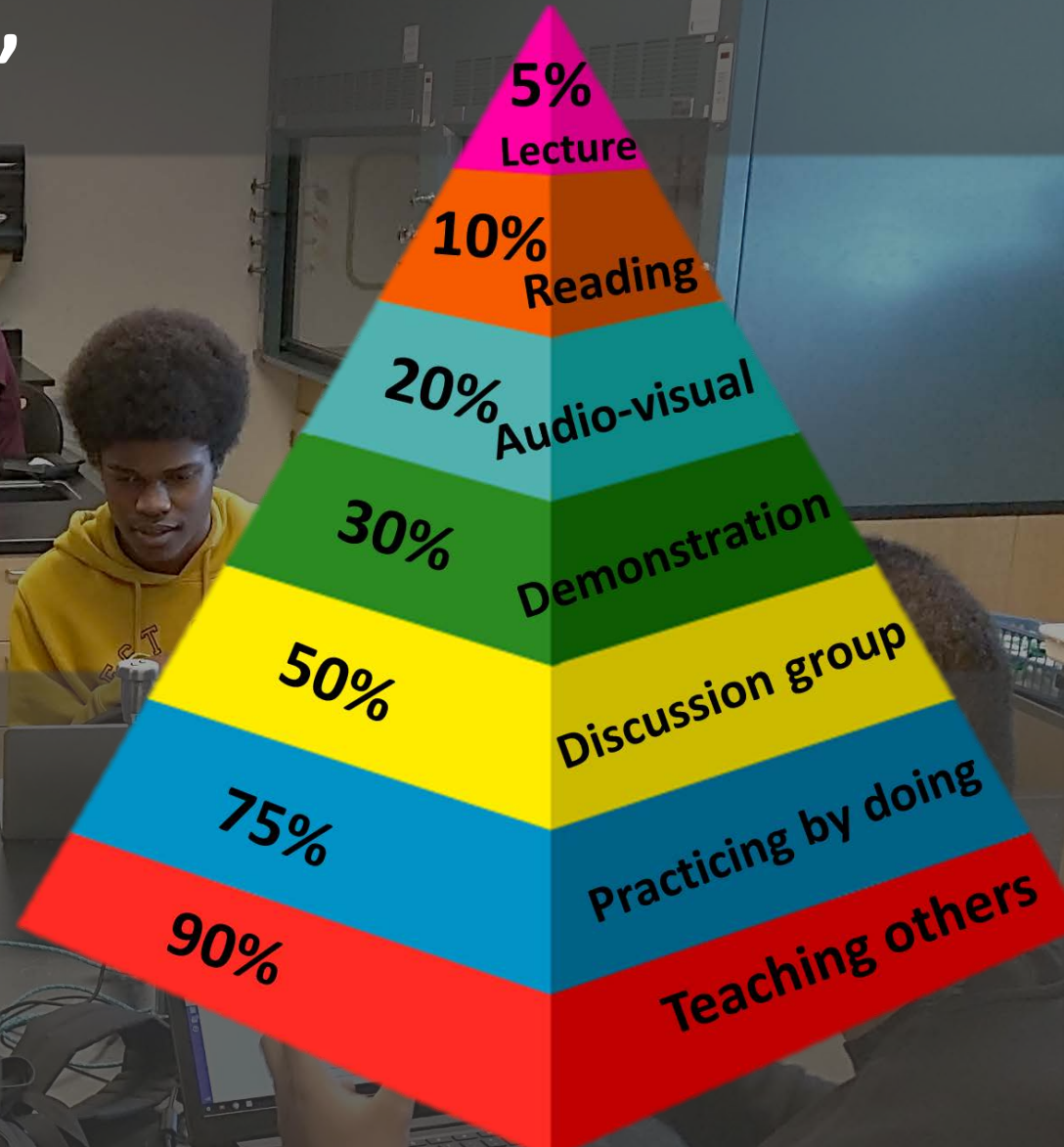
Digital content allows for frequent groups activities, building collaborative and interpersonal skills

- In-class, group activities result in:
 - Improved understanding and retention of information
 - Increased engagement
 - Development of problem-solving skills

Improve learning retention

- Students learn more by “doing things”

- Digital content allows for:
 - Group discussions
 - Practicing
 - Teaching others



Real-time analytics

Why do you think it's important for you to learn nanotechnology?



63%

26%

11%

47%

26%

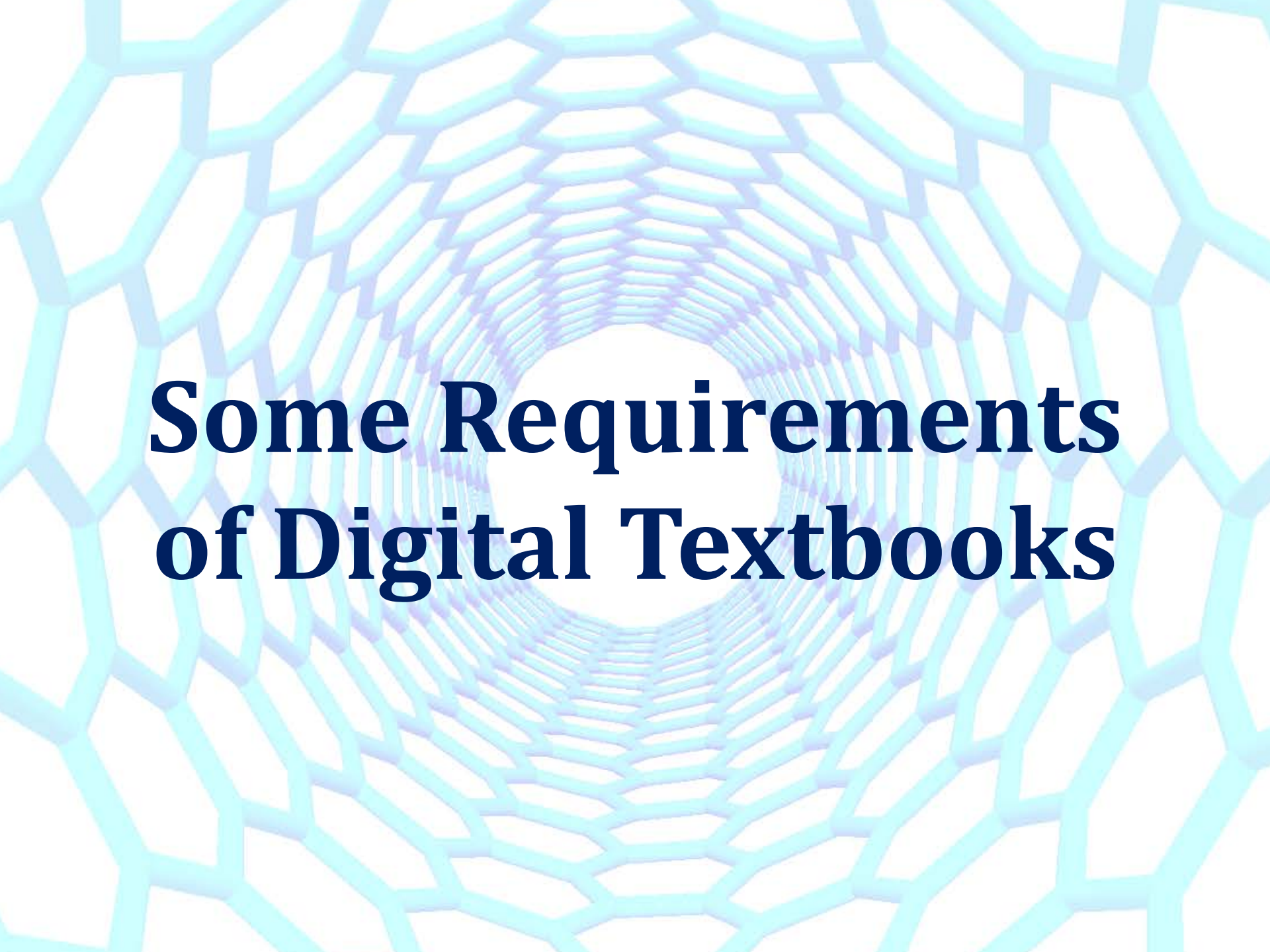
16%

- Analytics of students' performance allow teachers to:
 - Teachers can evaluate the results online.
 - Offer in-depth guidance.
 - Offer personalized feedback.

Why do you think it's important for you to learn nanotechnology?

• *Hint:* Think about how nanotechnology is headed, including future job opportunities.

- 63% It has been predicted that nanotechnology will be at the core of many jobs related to science, technology, and engineering.
- 26% It can provide a way to keep our items/objects free of bacteria.
- 11% There is so much nanotechnology in our smartphones that we must know all of the details, even to make a simple phone call.
- 47% We want to live in a better place, and nanotech is at the core of green energy and environmental remediation.
- 26% We can choose better materials and devices to make our houses "smart" and well-insulated.
- 16% No answer



Some Requirements of Digital Textbooks

Requirements: “508” compliance

- **Accessibility requirements** for information and communication technology (ICT)
- Section **508** of the Rehabilitation Act
- Section 255 of the Communications Act.



LAUSD students with disabilities

● **14%**

LAUSD students have a disability (or 85k/600k)

- **Primary Disability Categories:**
 - Intellectual Disability (ID)
 - **Hard of Hearing (HH)**
 - **Deafness (DEAF)**
 - Speech or Language Impairment (SLI)
 - **Visual Impairment (VI)**
 - Emotional Disturbance (ED)
 - Orthopedic Impairment (OI)
 - Other Health Impairment (OHI)
 - **Specific Learning Disability (SLD)**
 - **Autism (AUT)**
 - Traumatic Brain Injury (TBI)



**Need a “508”
compliant course**

Ensuring 508 Compliance

- **Are all visual parts accessible?**
 - Provide alternative text for images (alt text) for people who are blind.
 - Use strong color contrasts for colorblind learners.
 - Restrict the use of tables.
 - Provide content in text-equivalent form.
 - The entire course should be available in a transcript form.
- **Are all audio parts accessible?**
 - Provide a text transcript for audio files.
 - Include captioning for video files.
- **Does the course allow for keyboard input?**
 - Give learners who cannot use a mouse the opportunity to use assistive technologies that mimic the keyboard, such as speech input.





**Let's inspire
more
students**

Pilot programs in action

Institutions already using our digital curriculum to teach a nanotech course:

- Los Angeles School Districts (many schools within...)
- Inglewood School District
- Torrance School District
- Samueli Academy
- Valencia High School
- CABOCES Consortium of Schools (near Buffalo, NY)
- West Los Angeles College
- University of California, Los Angeles (Extension)
- Lawrence Technological University (MI)
- Israel Sci-Tech School Network (network of 237 educational institutions in Israel)
- Nazarbayev Intellectual Schools (a national network of 20 advanced STEM high schools in Kazakhstan)

Delivered “preview” access to these schools:

- High Tech High (San Diego)
- South Western Community College

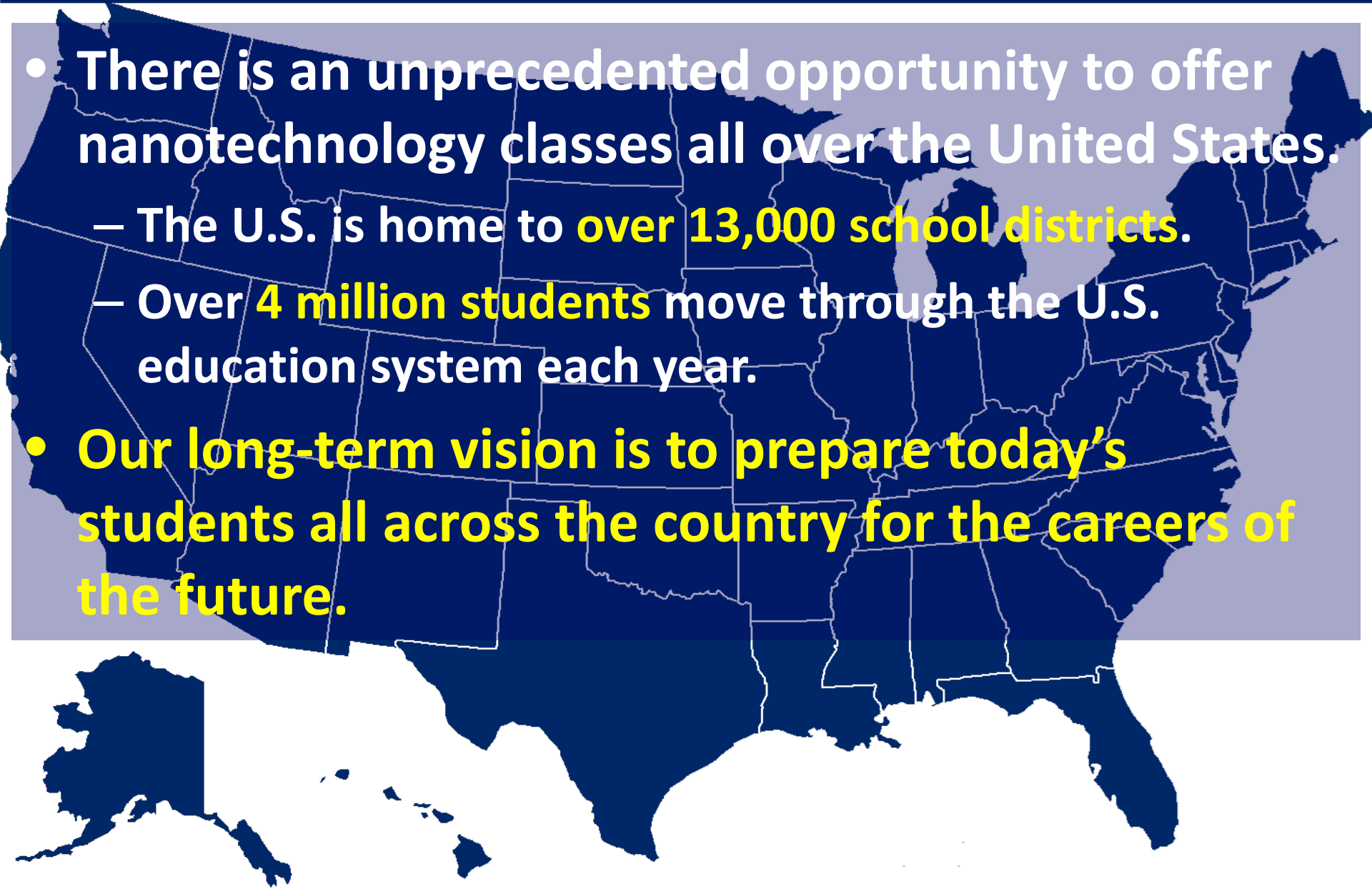
- Santa Monica & Malibu USD
- Boise School District (ID)
- Lone Star Comm College (Houston, TX)
- State and Federal Universities in Brazil
- OmniCoLab (Korea)
- Inquiries from China, Malaysia, South Africa

- **LAUSD Schools considering offering nanotechnology next year:**
 - The Science Academy STEM Magnet
 - San Fernando High School
 - Verdugo Hills High School



Nanotech classes across America

- There is an unprecedented opportunity to offer nanotechnology classes all over the United States.
 - The U.S. is home to **over 13,000 school districts**.
 - Over **4 million students** move through the U.S. education system each year.
- **Our long-term vision is to prepare today's students all across the country for the careers of the future.**



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NORTHROP GRUMMAN

Thank You!



Let's inspire a new generation of scientist and engineers!



**For more, contact:
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info@omninano.org**