

2020-2021

COVID-19 SCIENCE CLASSROOM

Safety Guidelines & Learning Solutions



In times of uncertainty, Flinn understands that clear communication and easy access to facts and recommendations is key—and we are ready to help.

There is an overwhelming amount of information available on returning to school safely and we know your time is limited.



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Please note that Flinn Scientific is providing you with the document to assist in the general guidance for your science department practices and protocols in this dynamic teaching and learning environment. We encourage you to incorporate these best-practices into your school plans and routines and are providing this resource for your convenience only. Flinn makes no representations about the accuracy of these materials and urge you to consult federal, state, and local public health guidelines for the most up-to-date information on science safety protocols in your local jurisdiction.

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The education and safety professionals at Flinn have created several guides curating the key pieces of information designed to help as you plan for returning to your Science Classroom.

Pulling from the guidelines provided by the Organization for Economic Co-operation and Development (OECD), Centers for Disease Control and Prevention (CDC), World Health Organization (WHO), and North American Center for Threat Assessment and Trauma Response (NACTATR)* and more, we have curated relevant information designed to help you with a safer return to school.

Table of Contents:

Classroom and Equipment Considerations:

- 3 General Recommendations-Classroom Set-Up, Safety & Cleaning
- 5 Shared Workspace
- 6 Lab Equipment & Activity Supplies
- 8 Group Activities/Rotations/Stations
- 9 Small Group Instructions
- 10 Acknowledgment of Completion

Science Learning Solutions:

- 11 Teaching Science—Challenges & Solutions
- 12 Science2Go™
- 14 Flinn 360Science™
- 16 FlinnPREP™
- 19 Classroom PPE
- 20 Reference Links & Additional Resources

General Recommendations— Classroom Set-Up, Safety & Cleaning

Here's what you need to know:

Consider maximizing classroom/lab spacing and student safety when creating patterns of movement throughout the classroom (potential use of directional arrows and indicators).

Reinforcement of positive personal hygiene practices - remind students to maintain a clean and safe workspace and personal environment through the minimizing of clutter, and sanitizing workspaces often.



Assist students with guidance on how to safely transition between learning spaces while still maintaining physical distancing. Plan time to practice these transitions with students so that they understand how to move from one area to another.

Encourage students and staff to practice hand hygiene etiquette through the proper washing of hands for 20 seconds or how to properly sanitize hands as they enter and exit the classroom/lab area. Constant reminders about proper hand hygiene, respiratory etiquette, and physical distancing guidelines will be useful to enhance the awareness of the new routines.

Have an inventory of science apparatus, materials and equipment in the science department to identify which items can be easily and effectively sanitized. Cloth or porous materials are more difficult to sanitize properly than vinyl or plastic materials. Some materials (porous or cloth material) cannot be effectively cleaned and should be removed from instructional areas (e.g., area rugs, pillows, cushions).

General Recommendations— Classroom Set-Up, Safety & Cleaning

Staff should be properly trained on how to apply disinfectant safely and have access to the appropriate personal protective equipment needed. Ensure that all cleaners and disinfectants are stored appropriately and out of reach of students.

The WHO, CDC, OECD, UNICEF and other recognized authorities are recommending that high-use items be sanitized pre and post usage. Lab equipment would be considered a high-touch item. Others in this category are art supplies, math manipulatives, toys, sports equipment and other tactile learning products. The recommendation is to use warm soapy water when possible, and to use disinfectant or sanitizer when appropriate such as on electronic and delicate instrumentation.

The Lysol® Dip Method

Disinfection is Key this School Year

Lysol® Disinfectant added to warm water is incredibly effective in cleaning lab instruments or apparatus. Let equipment air-dry.

Safety glasses can be disinfected in a **Lysol® Dip Method**:

- 1-1/4 oz Lysol with one gallon of soft or DI water
- Dip goggles for 15 minutes
- Rinse with water
- Allow to air dry

Using this method there is absolutely no damage or discoloration to any of the products. Water spots remaining on the lenses are easily removed using lens paper or a paper towel and leave no scratches or marks. By using a UV-C goggle sterilizer cabinet afterwards, you have provided 99.99% disinfection.

Shared Workspace

Here's what you need to know:

Plan for opportunities for students to sanitize their own workspace using disinfectant wipes or disinfectant/sanitizer on a paper towel.

Include time for them to wash their hands after sanitizing their area and any possible lab equipment, instruments, apparatus, and materials being used for the activity.

Ideally every student should have their own individual set of common supplies such as scissors, tape, glue, etc.



Please ensure that students are not sharing supply items between each other. When this is not possible, have certain aspects already created for the students (for example, you may need to provide already cut out pieces for them to manipulate as part of the activity).

Properly clean and disinfect shared lab workspaces between classes using approved disinfectant or sanitizer as provided by the school. Open the windows when practical and safe, and this will provide additional fresh air and ventilation to the science lab area.

REMOTE LEARNING & SAFETY CONSIDERATIONS

Should you be involved in a distance or remote learning environment, and there is a need for at-home hands-on activities for science and STEM, please follow the guidance from the NSTA specifically for this type of instructional modality.

[NSTA— Safety for Hands-On Science Home Instruction](#)

Lab Equipment & Activity Supplies

Here's what you need to know:

Limit the use of equipment, apparatus, instrumentation and materials and eliminate the use of science products that would be passed between or shared by multiple students throughout a class period. Sanitize the lab items before and after use according to the guidelines



Sanitize all science equipment between class periods. You can use the Lysol Dip method for most equipment and items, but use disinfectant wipes and ethyl alcohol-based sanitizer on delicate or electronic equipment.

Only select the use of science equipment that can be easily sanitized between each student's use such as balances, microscopes, dissection tools, glassware and common hard surface items found throughout the lab area.

Goggles should not be used unless they can be easily sanitized between each student's use by following the [Lysol® Dip method](#) and ideally the use of a goggle sanitization cabinet with a UV-C light. If a lab calls for goggles, but proper sanitization cannot occur then the activity should not be conducted. Safety is a priority and PPE protocols must be strictly adhered to and ensuring that ALL people in the lab have access to necessary PPE and safety equipment is critical.

Follow CDC guidance on equipment sanitization procedures. Equipment that will be touched or handled by students should be cleaned with soap and water and then disinfected with an EPA-approved disinfectant that is effective for COVID-19 and is safe for that piece of equipment. Work with your custodial staff to obtain the appropriate disinfectant. There are many of them available, but ensure that these are EPA and FDA approved for use in schools and have a 99.9% effectiveness rate.

Lab Equipment & Activity Supplies

Disinfectants should only be used on materials that students are not likely to put in their mouths.

For various science education products that will be handled by students, assign each student their own piece of equipment for that class period. Properly clean and disinfect science apparatus and equipment between classes. If there is not equitable access to equipment

for all students or if equipment cannot be properly cleaned and disinfected between periods, avoid the use of equipment altogether. You may need to use a virtual environment for certain lab investigations from a practical and safety perspective.



If using standard science lab equipment, keep multiple items available in case a piece of equipment being used by a student becomes dirty or unsanitary during a lesson or activity or in the case of a non-functional piece of equipment/apparatus.

Use disposable items if they can be swapped safely. For example, can you use a paper or plastic cup instead of a beaker or a wooden Popsicle stick or plastic coffee stir stick instead of a glass stir rod?

Investigate the ability to transform traditional paper items into digital or virtual versions, such as the scanning of some paper-based lessons into a digital style.

Consider having students perform the lab or activity individually and then collaborate digitally to analyze and debrief based on their observations and unique data sets that they gathered based on the activity.

Group Activities/Rotations/Stations

Here's what you need to know:

In accordance with the school district and State DOE guidance, provide access to digital tools for instructional strategies to shift group activities into a virtual teaching and learning environment. This is essential as part of the training needed to ensure that both students and teachers can communicate and collaborate in a virtual environment.



If you are using hands-on activities with your students, if they are required to work together in close proximity, have them wear PPE including face masks to minimize the spread of airborne droplets and strictly enforce the sanitation and disinfection for students and their equipment both pre and post usage. There needs to be extra time built-in to the activity/investigation to allow for this hygiene and prevention aspect to the curricular framework and classroom time allotment for each class.

Plan to incorporate many standards-based lessons by selecting activities that require minimal or no shared equipment by students. This may require more materials to be consumed since instead of having 6-8 lab stations for the activity, there may be one for each student in the class.

Creatively examine science lesson plans and investigations so they minimize the close proximity interactions for students (ideally no physical contact) and do not require students to be in close physical proximity to each other. The use of virtual lab simulations may be a viable option for providing the continuity of learning to students.

Small Group Instruction

Here's what you need to know:

Consider using diagnostic testing to assist in 'cohorting' students by various levels so that you can better meet their individualized learning needs based on the amount of comprehension and SEL required.

Maintain physical and social distancing if planning to have students participate in a face-to-face situation. If planning to have students do hands-on science activities, ensure that they are wearing face masks when inside of the six-foot threshold for physical distancing and that they are extra vigilant about hygiene and sanitation protocols.



Acknowledgment of Completion

Your signature on this contract indicates that you have read the COVID-19 Science Classroom Safety Guidelines, reviewed them, and are aware of the measures taken to ensure the safety in the science classroom.

Name

Date

Safety Coordinator Name

Date



Teaching Science—Challenges & Solutions

As we continue to communicate with science educators, we have identified some key challenges to teaching Science this school year, including:

- My students need to see things happen.
- I can't just send them to virtual simulations, they need to do labs.
- I don't know what we are going to do, we are looking for stuff to help.
- I want my kids to be able to do labs, but I think we are going to be fully remote so I don't know how that will be possible.

As we look to implement programs that offer solutions to these challenges that:

- Include real data
- Include prompts designed to promote engagement with science practices, so that students can make sense of a topic or question rather than hear about and recapitulate it
- Connect to the natural world
- Are straightforward to implement
- Are adaptable
- Are accessible

Regardless of the instructional methodology, Flinn Scientific curriculum and supplemental solutions provide the content, labs, instructional flexibility and scientific support needed to teach science effectively this school year. We've highlighted three programs we believe answer the challenges, are easy to implement, and are available for this coming school year.

Science2Go™

Science2Go™ is a digital learning solution that offers a new approach to laboratory education for middle school and high school students. It allows students to engage in science and engineering practices in any learning environment without access to supplies or equipment—making it a perfect solution for remote, hybrid and in-school learning.



Real Lab Experiments without the Supplies

Science2Go™ lets students experience the laboratory component of science—wherever they are!

- Students observe and refine experiments, identify design flaws, analyze data, and practice scientific reasoning while connecting science to the natural world.
- Videos focused on lab technique and data collection are combined with prompts and analysis questions to engage students in science and engineering practices. (Each lab includes 2–3 videos.)
- Teachers can edit any lab to include additional content (i.e., images, video links, etc.) and change prompts and analysis questions to best suit their students.
- Highly adaptable, the lab solutions are aligned with NGSS and other state science standards and can be used with any curriculum.
- Each digital lab solution includes a recommendation for a hands-on lab kit.
- Used for synchronous or asynchronous learning, students complete labs individually or in groups in approximately 45 minutes.
- Teachers can assign points/grades and leave comments for students online.

Designed to meet the challenges of remote science labs

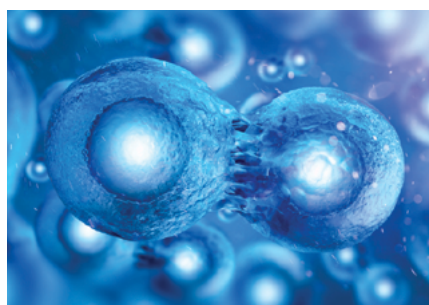
Born out of the need to address the challenges of remote learning for science labs during COVID-19 school closures, Science2Go™ incorporated input from many teachers on how to make the remote lab experience engaging for students while ensuring continued learning.

Bridge classroom to home learning with Science2Go

Science2Go™ enables learning that bridges the classroom to home—and back! When students are in school, Science2Go™ can be used as pre-work to hands-on labs or be used in social distancing classroom so students can still experience lab experiments when complete hands-on learning cannot take place. And because the lab solutions are online, they are ideal for remote or at-home learning.

Science2Go™ is Designed for Middle and High School Students

Science2Go can be used for general and honors science classes. It is focused on main curriculum disciplines and topics.



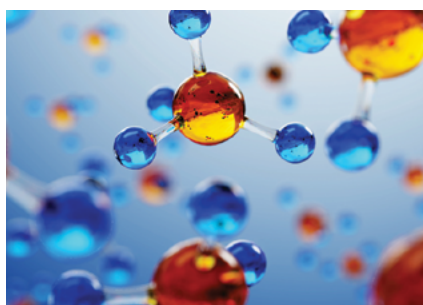
High School Biology

Lab Series 1

Lab Series 1 comes with ten labs on topics including Mitosis, Ecosystems, and Photosynthesis.

Lab Series 2

Lab Series 2 comes with ten labs on topics including Cells, Anatomy and Physiology, and DNA.



High School Chemistry

Lab Series 1

Lab Series 1 comes with ten labs on topics including Chemical Bonds, Acids and Bases, and Kinetics.

Lab Series 2

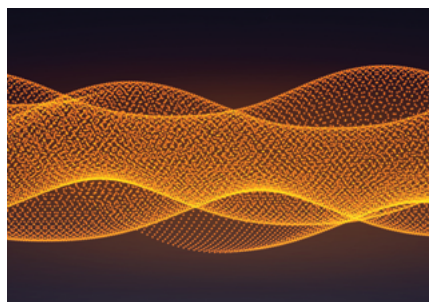
Lab Series 2 comes with ten labs on topics including Equilibrium, the Structure-Property Relationship,



High School Environmental Science

Lab Series

High School Environmental Science comes with ten labs on topics including How Nature Records Changes in Climate, Forest Fires, and Alternative Energy.



High School Physics

Lab Series

High School Physics comes with twelve labs on topics including Newton's Laws, Friction, and Conservation of Momentum.



Middle School Physical Sciences

Lab Series

Middle School Physical Science comes with twelve labs on topics including Chemical Reactions, Heat Transfer, and Waves.



Middle School Life Sciences

Lab Series

Middle School Life Science comes with eleven labs on topics including Seed Genetics, Animal Behavior, and Life Cycles.

360Science™

Flinn's 360Science™ is a customizable lab solution that surrounds teachers with all they need to guide students in exploring and doing science around real-world phenomena - with a unique combination of differentiated hands-on lab experiences that are complemented by robust digital activities.

Scientist's Science Lab

The challenges associated with hands-on science instruction include too little time and too many students at different comfort and ability levels, leaving teachers to provide all students with the same detailed lab procedure driving toward a known result. However, this is not how science works. It doesn't happen in a single lab period with a scripted procedure, but in an environment conducive to exploring and executing the scientific method. Doing this in a teaching lab is easier said than done... but it's possible with 360Science™.



Lab Experiences with Differentiated Levels

With 360Science™, teachers customize and differentiate lessons based on students' skill sets and levels in the high school classroom, (i.e., college prep, honors, dual enrollment, and Advanced Placement courses.) With this differentiated learning, hands-on activity are taught based on the amount of guidance provided students with these four levels: Short on-time Inquiry Lab Guided Inquiry Labs, Open Inquiry Labs and Advanced Inquiry Labs. Adaptable instructions allow for an even more perfect fit for students. A teacher dashboard is included for classroom management.



360Storylines

360Storylines is designed to provide all of the tools needed to guide students to a clear understanding of a phenomenon. Each 360Storyline includes a series of 3-7 360Science labs, along with materials that tie these labs together including an implementation guide, daily planner, driving question template, four versions (Short on-time, guided, open and advanced) of each lab activity and videos that help students perform unfamiliar techniques and connect what they do to what is observable in the world. 16 complete storylines are available including Acid Rain, Fireworks, Droughts, Volcanos and Forest Fires.

Create a Richer, More Effective Lab Education

Every 360Science™ laboratory solution integrates multimedia support for students, accessible on everything from smartphones to Google cardboard.

- Prelab videos prepare students for difficult concepts, demonstrate techniques, and connect the science to something real.
- Summary videos reinforce what they experienced in lab, revisiting difficult concepts, and relating them to everyday ideas.
- Simulations allow students to experience abstract concepts and view processes through engaging virtual reality.

All of this robust digital content is designed to perfectly complement the physical, hands-on labs.

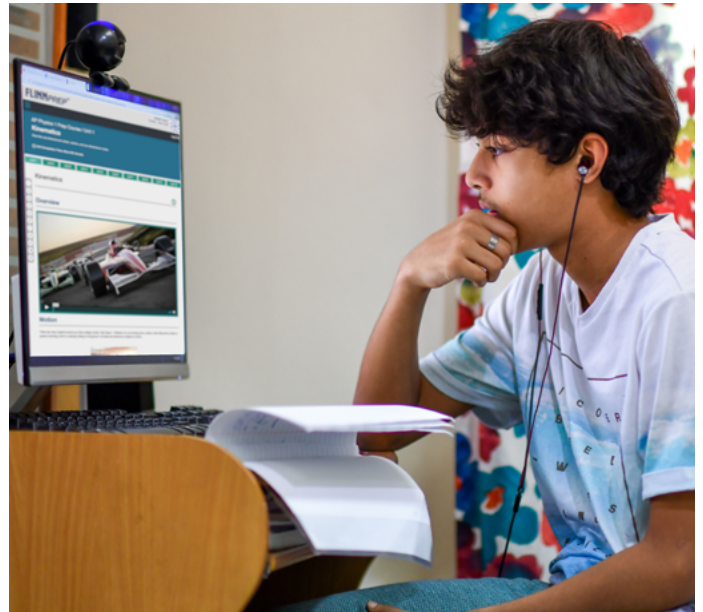
Put 360Science™ to the Test

The best way to learn more is to give it a try. Visit www.flinn360science.com for a **FREE trial** and see how our four differentiated levels of learning transform the way you teach science.

FlinnPREP™

What is FlinnPREP™

FlinnPREP™ is a complete learning solution that helps prepare and support students as they interact with the fast pace and rigor of Advanced Academic science courses. Using a combination of on-line courses and inquiry labs, FlinnPREP™ is built to cover the full AP® Curriculum, from the hands-on to the conceptual, all the way to the exam.



The FlinnPREP™ Approach:

FlinnPREP™ includes on-line courses and inquiry labs that are aligned with the College Board's Big Ideas, Learning Objectives and Science Practices for AP®, ensuring content that supports raising students' AP® test scores and preparing them for higher learning.

- Full-length practice exams are included to replicate the real AP® exam experience.
- FlinnPREP™ on-line courses and inquiry labs cover Biology, Chemistry, Environmental Science, and Physics. Each on-line course features easy-to-understand content, videos and animations that bring the content to life, competitive games to support review, and formative and summative assessments with just-in-time feedback.
- Each inquiry lab includes two implementation paths, a low guided procedure to challenge advanced students with inquiry-based science and a high- guided procedure for students who need more direction, making the program applicable for students in dual-enrollment and honors courses.
- FlinnPREP™'s flexible design and teacher center make it easy to personalize learning for students.

What Does FlinnPREP™ Cover:

Subjects include: AP® Chemistry, AP® Biology, AP® Environmental Science, AP® Physics 1 and AP® Physics 2.

NEW FOR BACK TO SCHOOL 2020 - Inquiry Labs for Environmental Science and Physics, along with new teacher reporting.

Who can use FlinnPREP™?

FlinnPREP™ is designed to be used for high school Advanced Placement® students.

How is FlinnPREP™ Unique:

- **Multimedia Content Source** - FlinnPREP™ is not just practice test questions. FlinnPREP™ includes a multimedia content source—like chapters in a textbook—with pre and post-tests and practice test questions.
- **Foundational Content that Promotes Equity:** FlinnPREP™ can accommodate users beginning in the Summer prior to enrollment in the course, by providing units of “foundational” content that allows students to prepare for their AP® experience. This aspect of the FlinnPREP™ promotes equity, a consistently stated goal of the College Board. FlinnPREP™ is a full-year solution that promotes equity, mastery, and positive AP exam performance
- **Inquiry Labs:** FlinnPREP™ includes a laboratory component with its inquiry lab. This is a significant component because - although the College Board both requires a content source (book) and that students participate in labs, Flinn Scientific is the only provider with a solution. FlinnPREP™, that can support both. Also, FlinnPREP™s inquiry labs are meant to not simply help students with the lab but also help them relate the lab to the exam. Another benefit of FlinnPREP™s inquiry labs is that they save time by allowing students the ability to watch videos before in-classroom labs to get comfortable with unfamiliar procedures.

Learn more about FlinnPREP [here](#).

AP® and Advanced Placement® are trademarks registered by the College Board, which is not affiliated with, and does not endorse, these products.

Classroom PPE

Safety matters. As a trusted partner in schools like yours for more than 40 years, we understand the challenges unique to schools and why having the right PPE matters.

Secure your access to PPE today, so your students and staff can have it when they need it.



Gloves	
AP7080*	Disposable Powder-Free Nitrile Gloves Pkg. of 100. Sizes XL-XS
AP3216*	Disposable Polyethylene Gloves Pkg. of 100. Sizes XI-S
SE1032	Disposable Polyethylene Gloves Pkg. of 500
AP3232	Playtex-Type Gloves 1 Pair
AP4429*	Latex Gloves Pkg. of 100. Sizes XI-S
AP4828*	Powder-Free Latex Glove Pkg. of 100. Sizes XI-S

*each size has it's own product number; numbers listed are for large sizes

Face Shields	
AP11017	Medical Protective Face Shield
SE226	Full Face Protective Shield
AP11068	Adjustable Face Shields—Adult Package of 25
AP11069	Adjustable Face Shields—Child Package of 25

Goggles	
SE1049	Chemical Splash Safety Goggles
AP3306	Chemical Splash Safety Goggles, Standard Size, Vented
AP10655	Over-the-Glass Safety Glasses, Anti-Fog
AP3302	Protective Visitor's Glasses
AP10654	Tall Lens Safety Glasses
AP7474	Uvex® Safety Goggles
AP4661	Bio-Glasses Safety Glasses
AP9033	Cleanse a Lens™ Station
AP7473	Lens Cleaning Towelettes

Goggle Sanitizers	
SE1000	Flinn Classic Goggle Sanitizer
SE1093	Flinn Digital Goggle Sanitizer
SE1094	Flinn Small Digital Goggle Sanitizer
SE1001	Flinn Goggle Sanitizer Replacement Lamp

Classroom PPE

Make sure you have plenty of supplies and equipment so every student can experience all the engaging science you are planning.

From your typical science room gloves and goggles order to acrylic dividers to maximize space and extra face masks, we have what you need for this school year.



Acrylic Dividers	
AP11168	StructureLite Sneeze Guard Plastic Divider, Square with Screw
AP11032	StructureLite Sneeze Guard Plastic Divider, Magnetic, Round Base
AP11148	StructureLite Sneeze Guard Plastic Divider, Magnetic, Square Base
AP11131	EZ-Grip Sneeze Guard Plastic Divider, Screw-Type
AP11114	EZ-Grip Sneeze Guard Plastic Divider, Magnetic
AP11225	Economy Sneeze Guard Plastic Divider
AP11072	4-Way Divider/Barrier

Disposable Face Masks	
BAP9574VV	Surgical Face Mask, Protective Box of 50
AP11071	Face Mask, Child Size Box of 50

Hand Sanitizer	
AP11042	Flinn Multi-Purpose Spray Sanitizer, 4 oz, Package of 10 Bottles
AP11032	Hand Gel Sanitizer, Travel Size, 50 mL, Package of 10 Bottles
AP11066	1 Gallon Gel Sanitizer with Pump, Package of 4 (total 4 Gallons)
AP11070	Gel Sanitizer, 55 Gallon Drum
AP11065	Sanitizer Dispenser—Dispenser Only
AP11064	Sanitizer Dispenser Stand - Stand Only
AP11063	Sanitizer Dispenser With Stand

Cloth Face Masks	
AP11221	Personalized Face Mask: Three-Layer with Black Trim—Adult
AP11220	Personalized Face Mask: Three-Layer with Black Trim—Child

Reference Links & Additional Resources

External Resources:

[NSTA: Safe Hands-on Science for Home Instruction](#)

[EPA Disinfectants for Use Against SARS-CoV-2](#)

[CDC Considerations for Schools](#)

[CDC Disinfecting Building Facility](#)

[OECD Youth and COVID-19 Response Recovery and Resilience](#)

[Public Health Authority of Canada Guidelines on Disinfection in the Workplace](#)

Flinn Resources:

[Flinn Professional Learning 2020: Recorded Webinars](#)

[Science2Go™](#)

[360Science™](#)

[FlinnPREP™](#)

[Return2School Resources](#)

[Flinn Learning Solutions](#)



FLINN PROFESSIONAL LEARNING

Teaching Science in a COVID-19 Environment

The unique challenges facing educators this fall are many, from how to teach as safely as possible in an onsite environment to how to deliver better remote or distance learning. We've curated some expert opinions to help you move forward, available on-demand.

[View our FREE Instructional Solutions webinar series.](#)

FLINN SCIENTIFIC

ASK ABOUT OUR CUSTOM DISTRICT SOLUTIONS DESIGNED TO SUPPORT A SAFE RETURN TO SCHOOL:

- Custom safety and professional development/learning proposals to ensure full school safety
- Full PPE for students, faculty, and support staff
- Blended science learning solutions that provide continuity of lab instruction for both onsite & remote learners