TEACHING SCIENCE IN A COVID-19 ENVIRONMENT

A RESOURCE FOR EDUCATORS

PART 1

INSTRUCTIONAL MODELS AND CONSIDERATIONS FOR SCIENCE EDUCATORS K-12

FLINN SCIENTIFIC

What are Schools Going to Look Like when they Re-Open for Science Teachers & Students?

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As your trusted lab partner, FLINN understands there will not be a 'one-size-fits-all' solution that can be applied universally to school systems. **Each unique school situation will require its own tailored solution to accommodate the students, teachers, support workers and other stakeholders in the educational community.**

When the time comes, we are prepared to help you develop and execute the best solution for you. In this document, we will take a look at some background information that will help to guide the decision-making process in school re-openings.

Pulling from the guidelines provided by the **Centers for Disease Control and Prevention** (CDC), **World Health Organization** (WHO), **North American Center for Threat Assessment and Trauma Response** (NACTATR)* and the Organization for Economic Co-operation and Development (OECD) and more, we have organized this document into four sections that reflect the categories outlined by top physical and mental health organizations

OVERVIEW OF THIS SESSION

1. Planning for the Continuity of Learning
2. Synchronous vs Asynchronous Learning
3. What Will Teaching Science Look Like Now?
4. Potential Instructional Models
5. Instructional Education Model Considerations
6. Managing the Socio-Emotional Traumatic Impact
7. Integration of Science in a Cross-Curricular framework to explore the current environment

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The 5 'Rs' of getting back to school

McKinsey has previously set out five steps to move through and beyond the coronavirus virus. These can also be applied to K–12 education.

1. Resolve focuses on the immediate health threat that COVID-19 poses to students, teachers, staff, and the community.

2. Resilience: educators address near-term challenges, such as setting up remote learning and supporting vulnerable students.

3. Return is about reopening schools and ensuring remediation for lost learning.

4. Reimagine: leaders think what the "next normal" could be like, and how education systems could re-invent themselves.

5. Reform: educators reconsider education priorities in light of lessons learned.

1. https://www.mckinsey.com/industries/public-sector/our-insights/school-system-priorities-in-the-age-of-coronavirus

Planning for the Continuity of Learning

In the case of absenteeism/sick leave or temporary school closures, support continued access to quality education.

This can include the following:

- **Use of online/e-learning strategies**

- **Assigning reading and exercises for home study**

- **Radio, podcast or television broadcasts of academic content**

- **Assigning teachers to conduct remote daily or weekly follow up with students**

- **Review/develop accelerated education strategies**

1. CDC Considerations for Schools

Planning for the Continuity of Learning

Exploring the possibility of a 'blended approach' to teaching and learning that involves some in-person and some remote learning is a strategy that is being discussed and investigated across the globe.

There will not be a 'one size fits all' formula that can be applied to the unique needs of every school or district, but there are some valuable insights into what applications have been successful and the implementation strategies and lessons learned from others which can be shared to accelerate the acceptance and delivery modes for teachers and students alike.

At Flinn, we began with our Flinn At-Home Science campaign and continue to develop the tools you need to go from distance learning to school and back again without losing the continuity key to student learning. **We are following this up with Science2Go and Flinn 360 as solutions for science education globally.**

1. Flinn Scientific Inc. Professional Learning Series Summer 2020

Planning for Continuity in Learning

The U.S. Department of Education, Office of Safe and Supportive Schools administers the REMS TA Center and offers information and guidance for schools in emergency situations including the COVID_19 Pandemic. Continuity of learning is the continuation of education in the event of a prolonged school closure or student absence. It is a critical component of school emergency management, as it promotes the continuation of teaching and learning despite circumstances that interrupt normal school attendance for one or more students.

However, many considerations play a role in the development of distance learning programs, such as accessibility, type and quality of materials, and the length of time that this type of learning must be maintained.

There are also a variety of potentially viable distance learning methods.[1] They have a Web page dedicated to Continuity of Learning, which provides information on curriculum, audience, technology, and strategies, as well as an example of how continuity of learning may occur during a school closure.[1]

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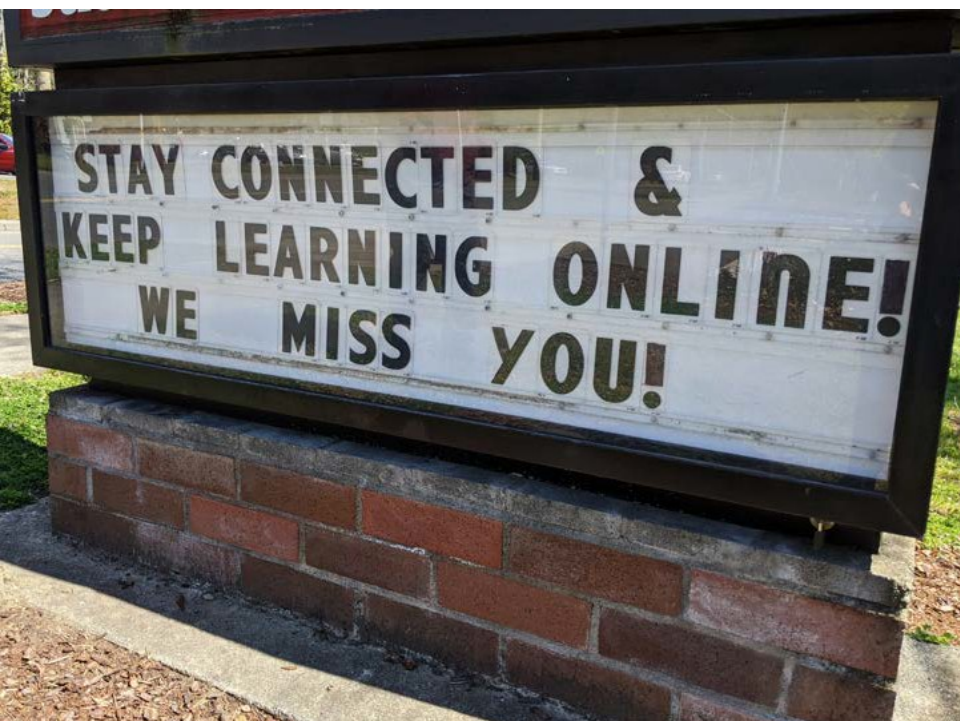
1. REMS: Supporting Continuity of Teaching and Learning During an Emergency

Planning for Continuity in Learning

Continuity Of Learning Key Considerations

- Designing for Different Age Groups

- Supporting System Training

- Ensuring Accessibility

- Preparing for Short- and Long-Term School Closures

- State Policies on Online Learning

Questions To Consider When Planning For Continuity Of Learning

- What technologies do we already have available?

- What training materials will we need to create?

- And for what audiences?

- What individuals will be involved in the training and tutoring process on technologies and systems selected?

- What role does cost play in determining short- and long-term solutions?[1]

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1. REMS: Supporting Continuity of Teaching and Learning During an Emergency

Synchronous vs Asynchronous Learning Applications

We recognize that there are some communities that do not have the digital delivery mechanisms readily available. Because there is no live internet connection or access to tablets, there are options to provide students continuing learning opportunities being developed that will allow for as much understanding as possible.

Synchronous learning also presents some privacy concerns that are addressed by school districts and by teacher unions…

Teacher / student training and access to the technology can be limiting factors to this style of e-live online education.

Providing worksheets for students is not necessarily the best format to provide asynchronous learning, and this will evolve quickly as we move forward with these learning and teaching experiences. **Many districts, publishers, school suppliers, and corporations are working towards curating genuine solutions to enhance student learning and facilitate teacher instruction.**[1]

1. Flinn Scientific Inc. Professional Learning Series Summer 2020
2. https://teachremotely.harvard.edu/best-practices

Asynchronous and Synchronous Learning

Synchronous remote learning has a place in the new educational environment and when used correctly, can be a beneficial modality to the learning continuation of students in all grades.

The COVID-19 outbreak brought to light the inequities in broadband and device access both on and off-campus.

Addressing digital equity for all students continues to be a challenge and stakeholders must work to ensure not only equitable access to broadband and devices in class, as well as away from campus.

Every child...deserves equitable access to personalized, student-centered learning experiences to prepare for living and working in the digital age.[1]

Asynchronous delivery models need to be explored and refined to bridge the gap between worksheets and summary explanations to more involved, inquiry approach learning opportunities.

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1. State Education Agency Considerations for CARES Act Funding Related to Digital Learning

How to Incorporate Asynchronous Learning in 2020 Science Classrooms?

Many science teachers are currently recording lessons and having them accessible online to their classes. This is a great way to transfer the knowledge and provide a platform for students to learn at their own pace.

Many are performing activities for their students or showcasing key pieces of their curricular objectives for their classes.

This asynchronous method works best when the teacher posts lessons and then has 'office hours' for students combined with some personal video or interaction with students.

Asynchronous learning does not imply that there is no collaboration or communication between student – student or student –teacher but that it is not always in 'real-time'. Delivering content is not the focus of asynchronous learning. And it does not mean or imply that it is not collaborative – it can be with some creativity and touchpoints from the instructor.

1. Flinn Scientific Inc. Professional Learning Series Summer 2020

Re-Opening School Considerations

A plan for reopening schools must take the following into account:

1. **the preparations, including changes to physical structures, that must be completed prior to students reentering schools;**

2. **the preparations and training that educators must receive and implement prior to welcoming students back to school;**

3. **the ongoing strategies and policies that must be diligently adhered to in order to keep staff and students safe; and**

4. **preparations and accommodations for potential school closures and extended student and staff absences.**

For these plans to be successful, they must be grounded in sound scientific guidance and incorporate input from educators who know students best and will be expected to carry out new procedures on school campuses. Educators should be authentically engaged in the school reopening process and serve as standing members of any planning committees or similar caucuses that will make critical decisions about school operations.

1. https://educatingthroughcrisis.org/meeting-students-and-families-needs/guidance-for-reopening-schools-covid/

What Will Teaching Science Look Like Now?

There is not going to be 'right' way and a 'wrong' way to teach science going forward. There will be established protocols from the DOE and local school districts that must be strictly followed.

Science teachers will find a modality and a rhythm once they get back into their labs again.[1]

- **How can I teach "X" without all of my class present? Do I need to teach the same lesson multiple times to different students in my class?**

- **Do I need to do the labs myself and record them digitally and share with my classes? I need to have someone else with me in the lab for safety….**

- **Do I need to sanitize everything in the lab before and after each class? Do we have the PPE needed at school?**

- **What instructional model is my school going to use to maintain the continuity of learning for our students?**

1. CDC Considerations for Schools
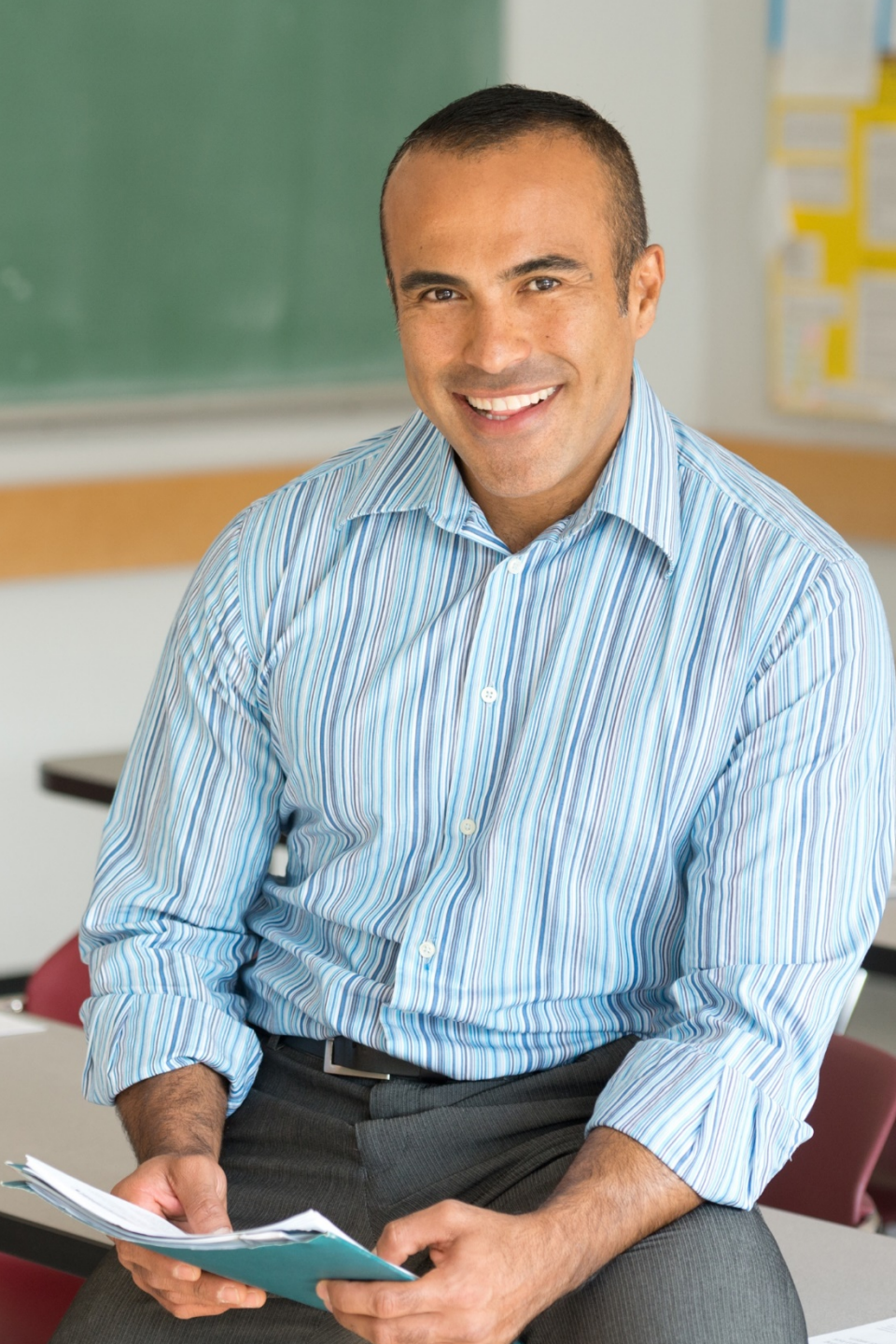
Potential Instructional Models to be Implemented

There are many potential instructional models being discussed today as a best-fit for return to school planning and these are the foundation for the rest of the layers of the educational frameworks being discussed (Child-care, transportation, food services, Janitorial/Sanitation etc.)

The model selected will drive the decisions and the needs for the students, teachers, and support workers all aimed at providing a student success platform and a healthy and safe learning environment.

All models of a safe-return-to-school must be designed and implemented in a manner that has to not only ensure the health and safety of students and staff, but also prioritize long term strategies on student learning and educational equity.

1. Flinn Scientific Inc. Professional Learning Series Summer 2020
2. http://neatoday.org/2020/06/19/nea-guidance-on-reopening-schools/

Instructional Models Being Discussed for Safe School Re-Entry planning

A best-fit universal instructional model does not exist. Period. This will be the result of multiple factors across the spectrum and there is not one state or area that has a uniform model – by that I mean that among states, there will be localized areas of higher community spread of COVID-19 and areas of lower transmission…. The instructional models will be different to reflect that. The most popular models being discussed are as follows:

1. **Return to School with a full contingent of students and staff (this is the ultimate goal)**

2. **Continuation of a complete remote/distance learning environment for students and staff**

3. **Blended Learning (Hybrid of Cohorting / Staggered Entry / Offset instruction / Adapted Day) involving partial in-person and on-line instruction for all students on a rigid schedule.**

1. [CDC Considerations for Schools](#)

Model 1: Returning to School Brick and Mortar Buildings With All Staff and Students

Return to school physical buildings with the full contingent of students and staff with some additional sanitation and hygiene protocols in place.

There would be modifications to timetabling and the layout and flow of the school and restrictions in place but the overall model is face-to-face instruction where possible.

There would be signage and messaging and potentially directional arrows on the hallway floor and walls to minimize the potential for interactions and the likelihood of multiple 'bell times' for students to move from one area to another and staggered lunch times and areas as well.

Population density plays a large role here, and affects mostly urban areas… And there is still research being performed about how students could be vectors in the COVID-19 transmission.

1. http://www.oecd.org/coronavirus/policy-responses/youth-and-covid-19-response-recovery-and-resilience-c40e61c6/

Model 1: Remediation and Review of 'Missed' Instructional Content

Large-scale remedial programs to mitigate learning loss and compensate for school closures. The specific strategies developed to recover learning loss should vary depending on whether the school closures took place at the end of the school year vs. the places where the closures happened at the beginning of the school year and on the results of diagnostic testing to gauge student learning and comprehension.

In addition, where the availability of infrastructure allows this, it may be possible to extend the duration of the school day for the purpose of recovering learning loss

Model 1: Consideration For Student Learning Models

Where schools have to make choices, on-site learning should give priority to struggling students who lack supportive infrastructure at home, while other students can benefit from e-learning and home-schooling; to students in critically important stages of their schooling trajectory; and to classes with a significant share of practical training.

Students and staff with underlying health conditions should be encouraged to continue remote learning when possible.

1. https://read.oecd-ilibrary.org/view/?ref=126_126988-t63lxosohs&title=A-framework-to-guide-an-education-response-to-the-Covid-19-Pandemic-of-2020

Model 1: In-class Instruction Additional Considerations

There will be a focus on the SEL (Social-Emotional Learning) and well-being of the students and providing a safe space for them to express their feelings. Focus on the essential curriculum more so than the whole framework of objectives, outcomes and indicators for the students who will be transitioning back into the school routines.

There will be new routines or protocols in the school that need to be accounted for including health checks, scheduled hygiene breaks, staggered entry times and lunch/recess periods and potentially one way routes in the hallways to minimize interactions.

There will be anxiety among the parents, students, staff and support workers in the buildings which need to be addressed and the likelihood that many schools will be transitioning to a school-home-school model in the event that someone at school becomes symptomatic or has been exposed to someone with COVID-19.

1. http://neatoday.org/2020/06/19/nea-guidance-on-reopening-schools/

Model 2: Remote/Distance Learning For All

Complete Remote/Distance Learning (*like what occurred since March in much of the country*) where students are at home and incorporating some aspect of collaborative learning using some form of technology such as Zoom, MS Teams, or other **programs that allow for real-time synchronous learning and teaching while providing a virtual social stimulus for students.**

Some versions of the remote learning instruction involve having teachers in their actual classroom streaming their coursework to their classes… **but there is a technology and access inequity that exists which is a major hurdle to overcome in certain areas.**

There must be reliable tablets and broadband access for this model to function and there must also be training for the teachers and students on the LMS and instructional programs, schedule, and expectations for all involved which is communicated and understood to ensure this model is functional and practical.

1. http://www.oecd.org/coronavirus/policy-responses/youth-and-covid-19-response-recovery-and-resilience-c40e61c6/

Model 2: Remote/Distance Learning

Presenting your science lesson:

- Practice (at least once) in advance: in conjunction with your TA, rehearse using the Share Screen and switching among windows you intend to display. If you're using your own laptop, remember to close all the windows you won't be using (particularly personal email, etc.) prior to the class.

- Keep your normal pace: just because things are delivered electronically does not mean you should speed up or slow down. Your students will still absorb and process information at the same rate. But you should check in with your students more frequently than you might normally, to make sure that they follow the material and remain engaged (see Additional Tips on Engaging Students).

- Be visible: even when using Share Screen, it's good practice to make sure that your face is visible on a side screen while the materials are being displayed - otherwise, engagement can decrease.

1. http://neatoday.org/2020/06/19/nea-guidance-on-reopening-schools/
2. https://teachremotely.harvard.edu/best-practices

Model 2: Lab Work Virtually

Lab courses: one of the biggest challenges of teaching online from anywhere is sustaining the lab components of classes. Since many labs require specific equipment, they are hard to reproduce outside of that physical space. Consider the following as you plan to address lab activities:

•Define what the lab should achieve: different lab activities serve different purposes. See Remote Labs from the Bok Center for scenarios. Consider some Science2Go or Flinn360 solutions.

•Take part of the lab online: many lab activities require students to become familiar with certain procedures, and only physical practice of those processes will do. In such cases, consider whether there are other parts of the lab experience you could take online (for example, video demonstrations of techniques, online simulations, analysis of data, other pre- or post-lab work). Save the physical practice parts of the labs until access to campus is restored.

1.   https://teachremotely.harvard.edu/best-practices

Model 2: Lab Work Virtually Continued…

Investigate virtual labs: online resources and virtual tools might help replicate the experience of some labs (e.g., virtual dissection, night sky apps, video demonstrations of labs, simulations, YouTube videos). Those vary widely by discipline, but check with your textbook publisher, or sites such as Merlot for materials that might help replace parts of your lab during the closure. Science2Go or FLinn360 solutions.

Provide raw data for analysis: in cases where the lab includes both collection of data and its analysis, consider showing how the data can be collected, and then provide some raw sets of data for students to analyze. This approach is not as comprehensive as having students collect and analyze their own data, but it can keep them engaged with parts of the lab experience during the closure.

Increase interaction in other ways: sometimes labs are about providing time for direct student interaction. Consider other ways to replicate that type of interaction or create new online interaction opportunities, including using available collaboration tools like Breakout Rooms, Annotation Tools, and Whiteboards in Zoom, Slack, etc.

1. https://teachremotely.harvard.edu/best-practices

Model 3: Blended Learning / Cohorting / Offset Instruction / Adapted School Day

Blended Learning / Cohorting models that have a reduced number of students such as a Day 1 half-class vs a Day 2 half class on alternating days with students learning at school and doing asynchronous learning when they are not in-school.

There are many hybrid models of this format or a variation on it – and it tends to work better at the elementary level than at the secondary level, but educators are exceptionally creative and they will devise a program that covers the essentials in the curricular framework for each grade and course.

Some districts are looking at secondary school 'quadmesters' where students would attend two double classes daily to keep them isolated from others and would earn credits for a course completion approximately every 10 weeks. There may still be some remote learning in this model based on the current data and protocols in place.
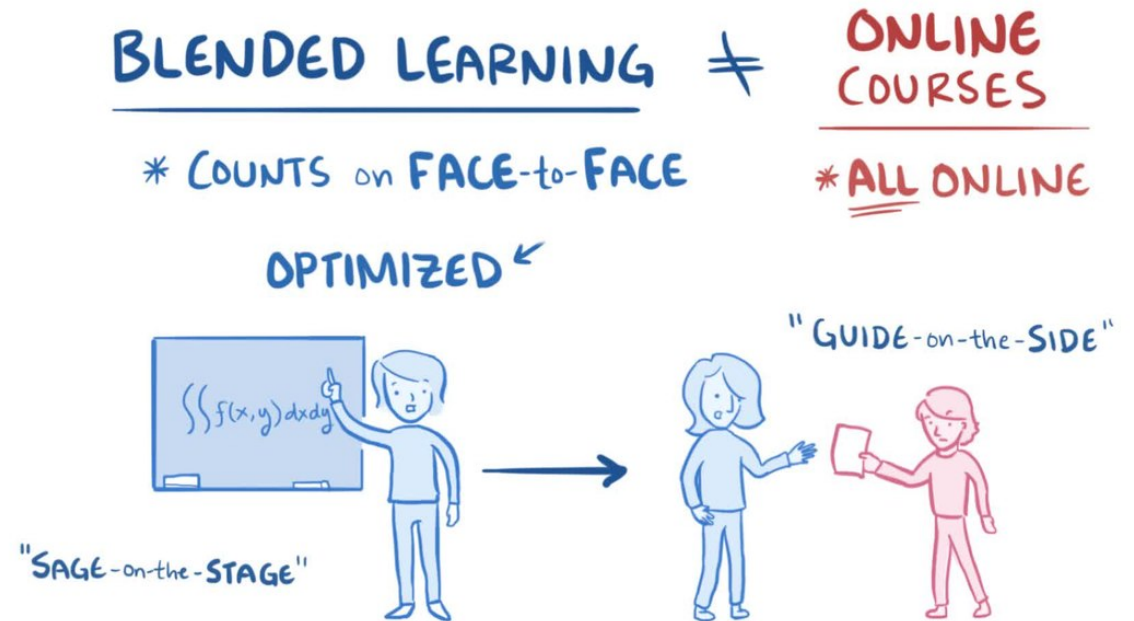
1. http://www.oecd.org/coronavirus/policy-responses/youth-and-covid-19-response-recovery-and-resilience-c40e61c6/
2. https://www.tdsb.on.ca/Leadership/Boardroom/Agenda-Minutes/Type/A?Folder=Agenda%2F20200715&Filename=6.2.pdf

Understanding A 'Blended Approach' To Learning (In-Person And Remote Education)

Some schools are planning to operate with a 'Day 1' and 'Day 2' cohort of students where the class is split into two groups that come to school on alternating days to provide the physical distancing needed resulting from COVID-19 protocols.

This blended approach to school means essentially that while the teacher is in the school daily, the students would arrive every other day for in-person instruction and assessment. The students at home would be doing work assigned or potentially following the class through a remote collaborative portal for learning.

This approach creates scheduling issues for classes, communal use areas such as cafeterias, gymnasiums, libraries, and playgrounds. This also creates child-care concerns for parents of younger children.

BLENDED LEARNING ≠ ONLINE COURSES

* COUNTS on FACE-to-FACE   * ALL ONLINE

OPTIMIZED ↙

∬ f(x,y) dxdy   "GUIDE-on-the-SIDE"

"SAGE-on-the-STAGE"

Blended Learning Summary

Blended learning uses the tools of a learning management system (LMS) to teach and support learning in a face-to-face class. Through blended learning, K-12 students can access high-quality course materials, course calendars, and assignments during and outside school hours. This is not E-learning, but a blended synchronous approach to education.

Students can also take part in face-to-face lessons and communicate with their teacher and classmates using a suite of secure online tools inside the password-protected LMS. These tools help students learn or review key concepts, stay organized, show what they have learned, submit assignments, track their achievement, and communicate with others. This suite of online secure tools includes:

Blogs	Calendar	Checklist	Content
Discussions	Dropbox	Email	ePortfolio
Grades	Journal	Locker	News
Pager	Progress	Quizzes	Survey

1. http://www.edu.gov.on.ca/elearning/blend.html

Considerations for Instructional Model Choices will not be the Same Across the State Or Region.

The fact is that the community spread occurring is localized and is not uniform across large geographies which in turn means that there is difficulty to apply an 'across the board' solution to instructional model use. ==The fact is that that some parts of the school district may have a lower transmission rate than others, which means that each school may need to be treated independently based on the local needs.==

Schools are central pillars of the neighborhoods that they are built in and are essential for community organizations, events, and the social, cultural, and artistic elements that they provide in addition to academics and enrichment opportunities for all students. This makes planning the correct model that much more difficult and more important due to these multifaceted inter-connections.

1. http://www.oecd.org/coronavirus/policy-responses/youth-and-covid-19-response-recovery-and-resilience-c40e61c6/

Digital Considerations - CARES & HEROES Act Funding for School Districts

State education agencies can leverage CARES Act and the pending HEROES Act (and/or state funding) to help ensure device access for all students. Multiple states have grant programs supporting device access to school districts. **These programs are designed to help eliminate the inequity for technology access and to equalize the learning for every student.**

In addition, Pennsylvania and Texas launched emergency responses to COVID-19. States have the opportunity to provide leadership in the selection and deployment of devices by developing guidance and sharing best practices with districts.[1]

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1. State Education Agency Considerations for CARES Act Funding Related to Digital Learning

Uses for Stabilization Funds (HEROES Act)

Districts can use funds for any allowable purpose under the Every Student Succeeds Act, Individuals with Disabilities Education Act, Carl D. Perkins Career and Technical Education Act, McKinney-Vento Education for Homeless Children and Youth Act, Native Hawaiian Education Act, Alaska Native Educational Equity, Support, and Assistance Act, and Adult Education and Family Literacy Act, including:

• Activities to address the needs of low-income students, children with disabilities, English learners, racial and ethnic minorities, students experiencing homelessness, and foster care youth, including learning gaps created or exacerbated due to long-term school closures;

• Purchasing educational technology (including internet connectivity as well as assistive technology or adaptive equipment) and providing professional development related to virtual learning;

• Offering summer learning programs, either online or in-person; and

• Implementing activities to maintain the operation and continuity of services and to employ existing staff (to receive funds, districts must, to the greatest extent practicable, continue to pay employees and contractors).

1. HEROES Act 2020
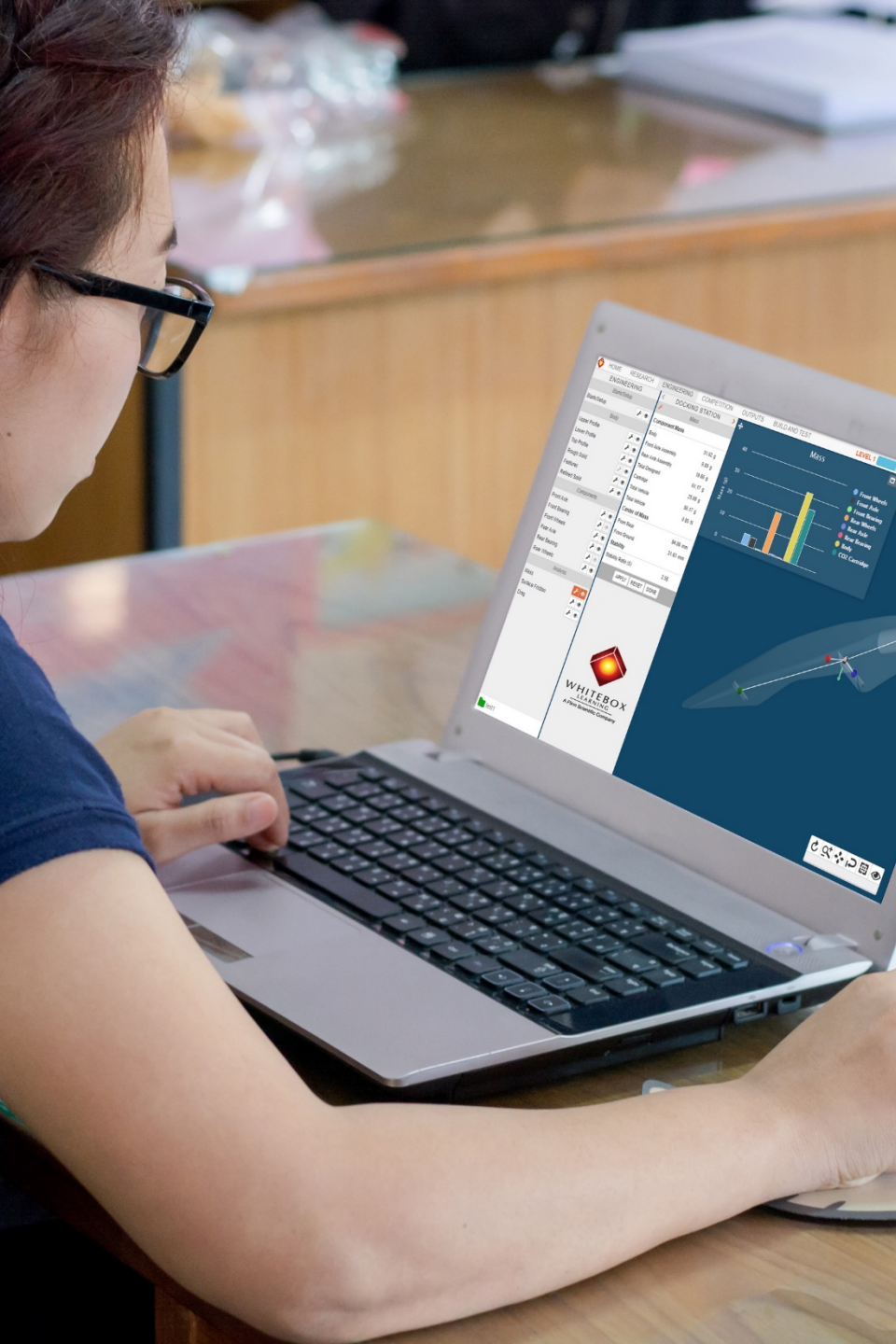
Digital Considerations

When selecting instructional materials, districts, schools and teachers should consider digital tools and resources that focus on **the active use of technology that enables learning through creation, production and problem solving.**

Passive uses of technology such as apps that mimic worksheets or flashcards simply substitute analog tools and do not necessarily enhance learning opportunities because they are digital.

The use of realistic simulations and dynamic software that allows for manipulation of multiple variables that mimic real-world situations are ideal as they will prepare the learners for living and working in the digital age.

Learn more here.[1]

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1. State Education Agency Considerations for CARES Act Funding Related to Digital Learning

What to do When Someone is Unwell at School

The guidance is crystal clear on the protocols in place when someone inevitably becomes sick or tests positive for COVID-19. **The schools and people in close proximity will follow the steps to notify families, deep clean the school, have people tested and self-isolate until they meet the re-entry requirements. This will greatly impact both the student and staff physical and mental well-being and may also result in schools having to close for a short-term in order to minimize community spread of COVID-19.**

Ultimately the school district instructional model will be selected that minimizes the potential spread of the virus and minimizes interactions between large groups of people until we have a vaccine or herd immunity in the community at large.

Basically, you need to be prepared for a school-home-school cycle until the community spread of the virus is controlled and manageable and factor in the continuity of learning of the students regardless of the learning environment.

1. CDC: Public Health Guidance for Community-Related Exposure

Collaboration is Key to Mitigate Concerns

The need to consider such tradeoffs calls for sustained and effective co-ordination between education and public health authorities at different levels of government. Such collaboration should be enhanced with forms of local participation and autonomy that enable the contextualization of responses. **Many survey respondents indicated that school re-openings are planned to be progressive, beginning in areas with the lowest rates of transmission and lowest localized risk.**

However, several steps can be taken to manage the risks and trade-offs. **It is important to develop clear protocols on physical distancing, including banning activities that require large gatherings, staggering the start and close of the school day, staggering meal times, moving classes to temporary spaces or outdoors, and having school in shifts to reduce class size.**

Equally important are protocols and practice on hygiene, including handwashing, respiratory etiquette, use of protective equipment, cleaning procedures for facilities and safe food-preparation practices.[1]

1. https://www.hm.ee/sites/default/files/framework_guide_v1_002_harward.pdf

Managing the Social-Emotional and Traumatic Impact

Students and staff returning to school do so with a varying range of emotions; fear for some, and the weight of uncertainty for most due to the unseen force of a virus so powerful, we were told to "hide in our homes" to avoid it.

However, unlike most other traumatic experiences where we are supporting schools in the aftermath of a single tragedy, COVID-19 is a protracted world-wide traumatic event. An event that in all likelihood, will still be occurring during re-entry to schools. Yet, what makes that fact more manageable is that schools are not "traumatic stimuli".

Meaning, schools were closed to protect students and staff from harm and not because they *were* harmed.

Whereas, reclaiming a school where a terrible tragedy occurred within its walls is more complex then re-entering a school we have been temporarily disconnected from for our own protection.[1]

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1. NACTATR: Guidelines for Re-Entry into the School Setting During the Pandemic

Managing the Social-Emotional and Traumatic Impact – Continued

At the federal and state/provincial level, there will continue to be guidance about how to take action to prevent contagion and to maintain safety of the school/campus and the classroom. But what can we expect when students return to the classroom in regard to their social and emotional well-being?

- **Will they be ready to learn?**

- **What percentage of students will be truant or refuse to return to school?**

- **Are faculty and staff prepared?**

- **Are parents sufficiently reassured to allow their children to return to school buildings?**

- **What can we expect from all the constituents and members of the school family and what are the steps we can take to facilitate the best possible outcomes when schools restart?**

1. NACTATR: Guidelines for Re-Entry into the School Setting During the Pandemic

Balance the Benefits of Opening Schools with the Health and Social / Emotional Risks

Those benefits, however, must be carefully weighed against the health risks and requirements in order to mitigate the toll of the pandemic. Science education (evidence-based research) will be topics for discussion in class.

Evidence from previous epidemics suggests that school closures can prevent up to 15% of infections. While this proportion is modest compared with other public policy measures (e.g. workplace social distancing, which can reduce transmission by up to 73%, case isolation, with an effect around 45% or household quarantine, with an effect of around 40%), it is not negligible, and in some countries there is extensive interaction between the youngest children and the older generation most at risk from the virus.[1]

1. https://www.hm.ee/sites/default/files/framework_guide_v1_002_harward.pdf

Primary School Conversations about COVID-19

Make sure to listen to children's concerns and answer their questions in an age-appropriate manner; don't overwhelm them with too much information. Encourage them to express and communicate their feelings. Discuss the different reactions they may experience and explain that these are normal reactions to an abnormal situation.[1]

Emphasize that children can do a lot to keep themselves and others safe:

- **Introduce the concept of social distancing (standing further away from friends, avoiding large crowds, not touching people if you don't need to, etc.)**

- **Focus on good health behaviors, such as covering coughs and sneezes with the elbow and washing hands**

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1. WHO: Key Messages and Actions for COVID-19

Primary School Conversations about COVID-19

Help children understand the basic concepts of disease prevention and control. Use exercises that demonstrate how germs can spread.

<mark>For example, by putting colored water in a spray bottle and spraying over a piece of white paper. Observe how far the droplets travel.</mark>

Demonstrate why it is important to wash hands for 20 seconds with soap and water:

- <mark>Put a small amount of glitter in students' hands and have them wash them with just water, notice how much glitter remains, then have them wash for 20 seconds with soap and water.[1]</mark>

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1. WHO: Key Messages and Actions for COVID-19

Middle School Conversations about COVID-19

Make sure to listen to students' concerns and answer their questions.

Emphasize that students can do a lot to keep themselves and others safe.

- Introduce the concept of social distancing
- Focus on good health behaviors, such as covering coughs and sneezes with the elbow and washing hands
- Remind students that they can model healthy behaviors for their families

Encourage students to prevent and address stigma

- Discuss the different reactions they may experience and explain these are normal reactions to an abnormal situation. Encourage them to express and communicate their feelings

1. WHO: Key Messages and Actions for COVID-19

Middle School Conversations about COVID-19

Build students' agency and have them promote facts about public health.

- Have students make their own Public Service Announcements through school announcements and posters

Incorporate relevant health education into other subjects

- Science can cover the study of viruses, disease transmission and the importance of vaccinations

- Social studies can focus on the history of pandemics and evolution of policies on public health and safety

- Media literacy lessons can empower students to be critical thinkers and makers, effective communicators and active citizens.[1]

1. WHO: Key Messages and Actions for COVID-19

Secondary School Conversations about COVID-19

Make sure to listen to students' concerns and answer their questions.

Emphasize that students can do a lot to keep themselves and others safe.

- Introduce the concept of social distancing
- Focus on good health behaviors, such as covering coughs and sneezes with the elbow and washing hands

Encourage students to prevent and address stigma

- Discuss the different reactions they may experience and explain these are normal reactions to an abnormal situation. Encourage them to express and communicate their feelings[1]

1. WHO: Key Messages and Actions for COVID-19

Secondary School Conversations about COVID-19

Incorporate relevant health education into other subjects

- **Science courses can cover the study of viruses, disease transmission and the 12 importance of vaccinations**

- **Social studies can focus on the history of pandemics and their secondary effects and investigate how public policies can promote tolerance and social cohesion.**

Have students make their own Public Service Announcements via social media, radio or even local tv broadcasting

- **Media literacy lessons can empower students to be critical thinkers and makers, effective communicators and active citizens.[2]**

1. WHO: Key Messages and Actions for COVID-19
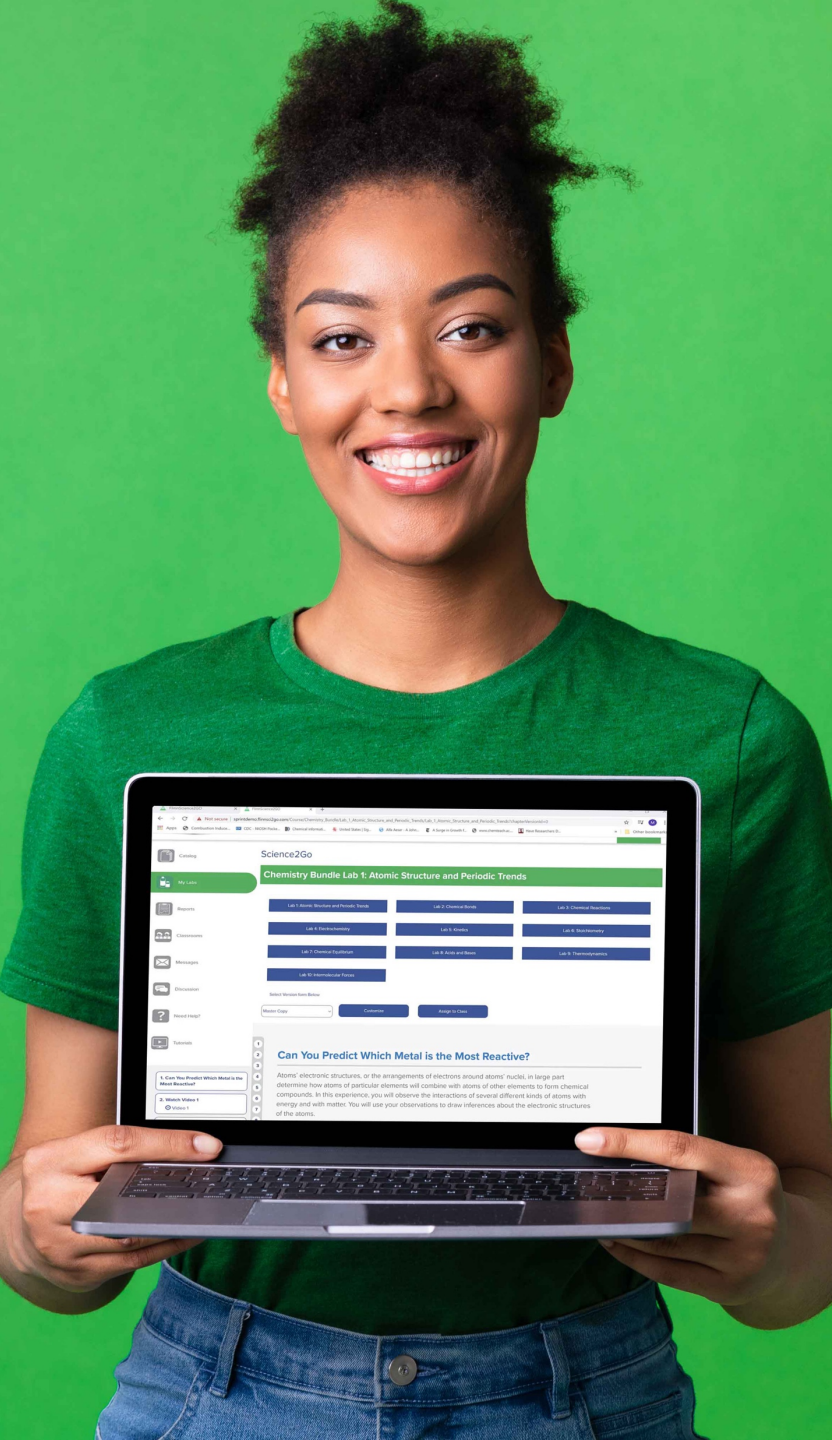
# Science2Go Platform To Maintain The Continuum Of Learning For Students

"Science2 Go is a digital solution that offers a new approach to lab education - allowing middle and high school students to "do science" whatever the learning environment - Remote, Blended, Flipped and In-School.

With Science2Go, students engage in the process of scientific thinking – without traditional labs and supplies.

Each lab begins with a guiding question to focus student thinking. Students watch videos that demonstrate real lab techniques and get access to real lab data so they can engage in scientific practices including observation and analyzing data to make predictions

Students are also encouraged to identify design flaws and refine their experiments.

1. Science2Go
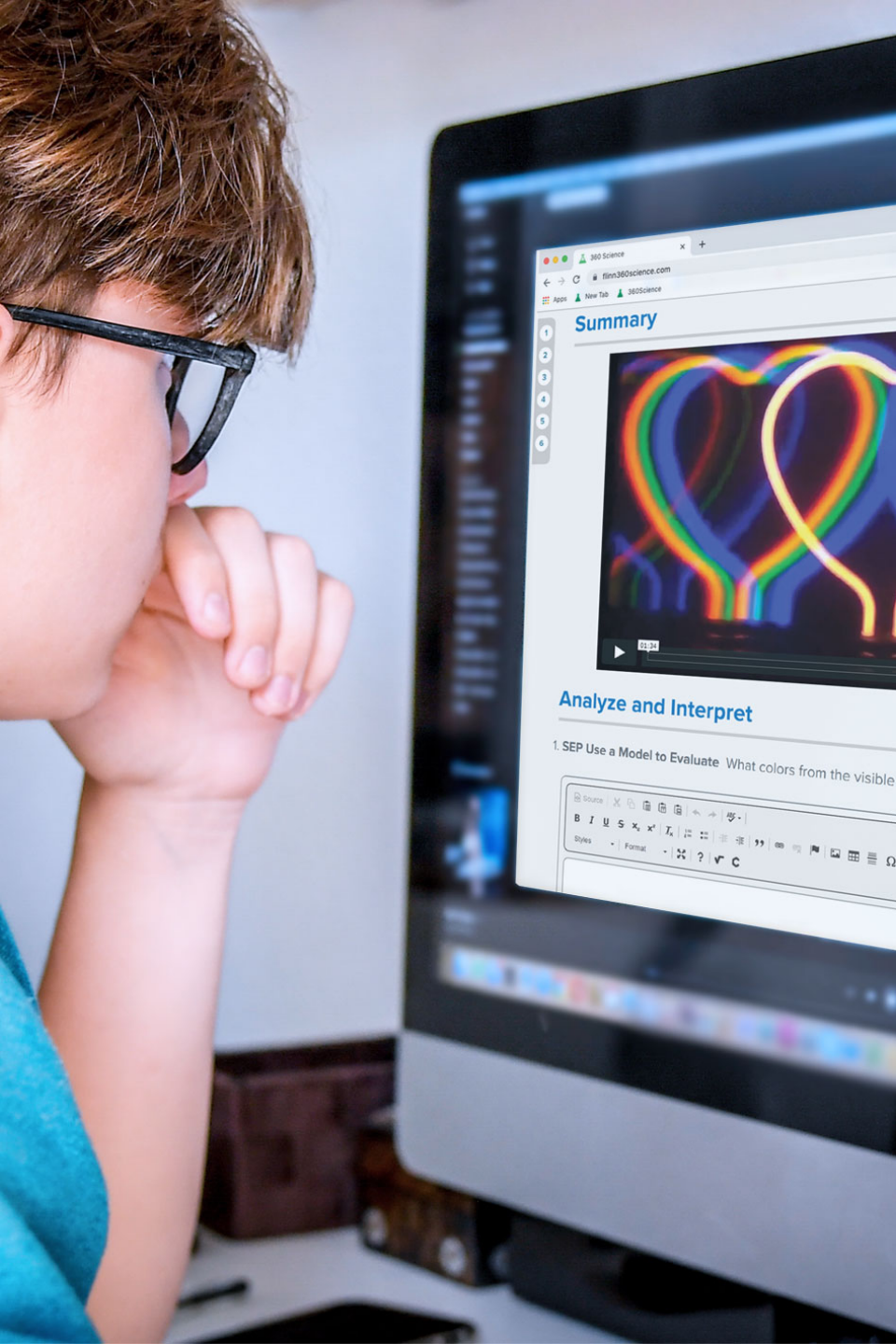
360science Builds On Science2go

What is 360Science?

Flinn's 360Science™ is a customizable lab learning solution that surrounds teachers with all they need to incorporate more hands-on learning into the classroom or lab with a unique combination of easily modified hands-on lab experiences that are complemented by robust digital activities.

360 Science was born out of Flinn's partnership with Pearson in the formation of their high school chemistry curriculum that includes a **unique instructional approach in that it begins each day with an inquiry lab** supported with written research in a traditional textbook format. This approach intensifies the need for hands -on learning in the classroom, supporting NGSS Standards and other state sciences standards. Every lab is aligned to NGSS and other science standards.

360Science consists of 200 individual labs.

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1.   360Science

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