

What does remote learning in science look like for your K-5 students?

How to make the transition from classroom to remote more seamless, engaging and fun for K-5 students in science is important. If you use CreositySpace science units in your classroom then you know our science content is real, relatable, and engages each student individually. What you might not know is that **CreositySpace curriculum is built for both classroom and remote learning.**

CreositySpace units are designed to give teachers sequencing flexibility and access to digital content files enabling:

- Consistency of subject content even as lessons switch between in-person and remote learning scenarios.
- Ease of content integration into existing online platforms—e.g., Google Classrooms and SeeSaw—in a way that works best for their students.

In addition to the multiple online resources that enable teachers to continue lessons uninterrupted, **each unit has an at-home companion kit for each student** with hands-on activities and lessons—many of which do not require online access.

Flexible Lesson Plans



We provide the tools and content designed to leverage your students' creativity and curiosity, with the extra background information and additional resources to support you wherever their inquiries take you. With the *Educator Guide* as your "science playbook," **you decide what sequencing works best for your classroom.**

The *Lesson Planning Tools* and *Pacing Guide Resources* **sections help you determine preparation activities, lesson flow, and assessments.** However, investigation order—and

lesson sequencing—can always be adjusted if the day-to-day of your classroom flow is interrupted by school closure requirements.

Investigations have multiple opportunities for reflection and group discussion resulting in high levels of student engagement during in-class and remote learning periods.

Easy Integration with Online Platforms

Every CreositySpace unit includes teacher access to a digital forum.

- This digital forum includes electronic copies of the *Educator Guide* and all printed student materials (including custom card decks, posters, etc.).
- Content files from the digital forum can be downloaded for **easy integration into a variety of online platforms** such as Google Classroom, SeeSaw, and others.



At-Home Companion Kits

One of the biggest challenges to teaching science remotely that educators share with us is their inability to enable all students to continue with hands-on science investigations at home. Understanding that sending each student home with a complete science kit is both infeasible and impractical, CreositySpace created individual at-home companion kits for each unit.

Each *Companion Kit* contains a smaller version of our popular *Book of Ideas*, a student notebook, and all the materials necessary to complete, or extend, one of the unit's hands-on investigations at home. This enables access and lesson cohesion for all your students regardless of the support they are able to receive at home.

Companion Kit purchase is optional. Kits can be ordered at the beginning of the school year or as a real-time response to a new distance learning requirement.

You Got This!

Integrating Remote Learning in the K-5 Classroom

Widespread and prolonged school closures in March prompted a **lot** of discussion around remote learning: what works, what doesn't or won't work. What are the best technology and lesson delivery strategies? How do we ensure equitable access for all learners?

While these discussions generated considerable good information flow, they also triggered a lot of noise to sift through. We've listened to stories from across the country and three common threads seem to bubble to the surface. This summer we took a closer look at each one of these threads and shared key take-aways in a series of short articles: **Technology; Student Engagement; and Family & Teacher Support.**

Remote Learning Insights: Technology

When evaluating the technology discussion, we found three dominant topics:

- Equity of access;
- Blended learning strategies; and
- Number of online platforms.

We'll address these topics in reverse order.

Simplify: Multiple vs. One Online Platform

One of the biggest complaints from parents and teachers alike, is the need to search for information across multiple platforms. A former teacher, now charged with daily supervision and instruction for her elementary-aged grandchildren, describe it in the following way, "Each teacher used a different format: Google classroom, InClass, Classworks, etc. so it was like an Easter egg hunt to find all the assignments."

This is not a unique complaint. While we acknowledge that each platform has its unique advantages, consolidation of online materials into a single location provides many advantages, especially for parents, guardians, and students trying to keep track of all the required tasks. If consolidation into a single platform is not possible, an easily navigable central location—with direct links to other platforms—can be very helpful.

Blended Learning:

Flipping the Paradigm to Maximize Engagement and Equity

Blended-learning refers to a mixture of online and in-person instruction, as well as student work. While there is much uncertainty around the specific instructional format for the 2020-2021 school year, nearly every school district is planning to implement at least some in-person instructional time. Given that assumption, this next section assumes that the typical instructional format will include in-person sessions, live-online sessions, and “independent” student sessions (these can be online or offline, but do not include real-time interaction with a teacher).

Traditional blended learning approaches suggest that teachers use online time for direct instruction (either live-online or an independent session as described above), and then in-person time for collaborative discussion and group work. However, traditional blended learning approaches also assume the following:

- Reliable access to technology and high-speed Internet either at home or in the classroom;
- A deliberate choice by parents and teachers to adopt some amount of online learning vs. it being a need dictated by external circumstances; and
- Time and opportunity for students and teachers to develop and hone their online skills before they need to rely on them as a method for receiving and delivering direct instruction.

Conversely, the current situation forced everyone to adopt a blended learning strategy where the following is true:

- Online portions must be done at home regardless of technology access or availability;
- Teachers and parents are forced to adopt this protocol and might not have the bandwidth to support young learners; and
- There is little or no opportunity for online training for students, teachers, and parents.

Reports from the spring suggest that teachers not only experienced trouble with student attendance for online direct-instruction, but also with low engagement levels when students did attend online. Not only does this suggest that online-direct instruction presents significant engagement challenges (more on that next week), but the low or variable attendance points to a significant inequity issue.

Given the unique situation we find ourselves in, we suggest flipping the blended learning approach such that:

- In-person class time is used to provide direct instruction and to begin assignments;
- Live-online time is used for collaborative discussion and lesson/assignment related Q&A; and
- Independent student time is used for individual writing, student-directed exploration, and assignment completion.

Why the flip?

Based on the differences in these external constraints, we suggest teachers use in-person class time for direct instruction and to clearly set goals and expectations for live-online and independent at-home activities. While the uncertainty around in-person class time and the overall reduction in time for direct instruction present challenges to this approach, we believe it greatly improves student engagement and equity. We'll discuss both of these in detail below.

The Twin Challenges of Access and Equity

The issues of access and equity have been top of mind for most educators since schools closed their doors in early Spring with questions like, “How can we support our students who don't have reliable online access?” Or, “How do we support our special needs students who count on the daily 1-on-1 interactions?”

Unfortunately, we don't have easy answers to these questions. Much is written on the subject of broader access to technology (devices and internet), and indeed many districts are devoting a large proportion of their CARES Act funding to ensuring all their students have the access to hardware and Internet they need.

While those efforts are 100% necessary, we also suggest implementing a low-tech solution—printed packets. Although printed packets of materials may seem “old school,” elementary students are familiar with them and they can work on them anywhere. In March and April, many districts did not have the time, or bandwidth, to figure out how to get hands-on materials to their students. This is understandable. Looking forward, now is the time to include printed lesson packets in planning and budgeting efforts so school districts are not exacerbating the challenges for families already struggling with access to resources.

Key Take-Aways

1. Use in-person time for direct instruction. Use live-online time for collaborative discussions. Use independent time for writing-based activities and student-directed exploration.
2. Where possible, support online learning with physical materials.
3. If possible, consolidate online information into the fewest number of platforms possible.

Remote Learning Insights: Student Engagement

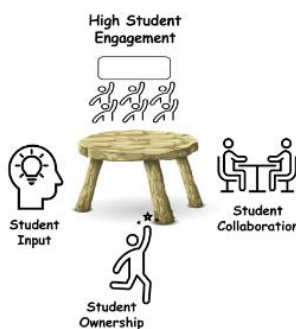
The Seemingly Unattainable Goal of Student Engagement

Perhaps the most common concern and challenge from the school closures in March was student engagement—both in online sessions and in completing assigned work for “no grade.” Most districts, understandably and justifiably, made attendance for online sessions and submission of work optional. The result was not surprising; many found that students unplugged both figuratively and literally.

Buried within the stories on low student engagement, learning slides, and concerns about losing ground on key aspects of social and emotional learning, however, were stories of students flourishing. One teacher sustained over 80 percent attendance in her daily Zoom meetings with participation from every student online. Another parent expressed gratitude for the growth her daughter experienced through the number of independent projects assigned ranging from engineering design to artistic creation.

Student Engagement Needs a 3-Legged Stool

A closer look at the details of what worked well and what didn’t with respect to building and maintaining student engagement revealed three commonalities.



- **Student input:** Students needed to see their ideas and interests reflected in what they are doing.
- **Student collaboration:** Online sessions involved student collaboration or collaborative activities (such as group discussions) instead of direct instruction.
- **Student ownership:** Students needed to take some level of ownership over their classroom experience—both in-person and online. It needed to be ***their*** space for learning and being with their friends, ***in addition*** to the school’s/teacher’s space for instruction.

A Golden Opportunity to Explore Student-Directed Instruction



**Student
Input**

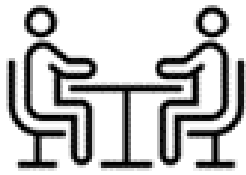
You've likely listened to many a 7-year-old's lengthy description of the intricate workings of a new fairy-land story (ELA), or watched an afternoon fly by with the creation of a new fort and the costumes that go along with it (STEM, art). Most elementary students have an incredible ability to put their all into things that interest them. In fact, this innate capability and creativity is a primary driver in the push to shift classrooms to student-directed, inquiry-based teaching and learning—a strategy many teachers say would help with student motivation and time management if they could harness it.

There is no denying that it takes considerable effort to transition to a more student-directed instructional approach. Moreover, and perhaps somewhat intimidating, is the reality that if we truly want to move to a more student-directed learning classroom, planning among teachers within a grade level, and across a district, will need to change and will be more involved, since no two classrooms are alike. Given the likelihood that schools will need to implement some amount of remote learning in the upcoming school year, this summer just might be the golden opportunity for teachers to work on integrating more student-directed, inquiry-based strategies, and for administrators and parents to support them in their effort.

While this strategy might be a bit harder to implement in middle and high school, where learning very specific content is key, elementary school students are more focused on learning the fundamentals around ELA, math, science, social studies, and art. The cool thing about fundamentals is that they are, well, fundamental, and can be woven into a discussion or an investigation on nearly any topic.

If your students are interested in science—make science topics the subject of writing pieces. Got some sports fans in your class—nothing is more perfectly positioned to be the topic for math instruction. Not sure what your students are interested in—an opened-ended innovation prompt or a simple ME-map are two great ways to get to know what is important to your students.

Make Online Time as Collaborative as Possible



Student Collaboration

Parents and teachers report that they observed the highest levels of student engagement online when the focus of the session was collaborative in nature. Not only were students participating in the given instructional objective, but they also were interacting with their friends and teacher—which reportedly had positive impacts on their social and emotional well-being and development.

Of course, collaborative does not mean a free-for all, nor does it always have to take the form of a large group discussion. Small group discussion sessions, sharing of assignment responses, working on group projects, and practicing the giving and receiving of productive feedback are all collaborative activities that keep students engaged while promoting learning objectives and social-emotional development.

Make it Their Classroom—Both In-Person and Online



Student Ownership

This idea of student ownership is really an extension of the implementation of student-directed instruction. It doesn't mean that students have total control over what they do or how things are run, more that they have some genuine input. During the school closure, one teacher asked her students to decide who they would like to invite to join their online meetings (they often had folks from the community drop by their classroom).

Of course, the teacher still dictated the flow of these meetings, and often there were visitors the students had no say in inviting (the principal or subject specialists), but there were regular visits from special guests the students identified and asked to join them. The result? Students felt an additional responsibility to show up and participate in these sessions because they had extended the invitation.

Another common strategy to transfer some decision-making ownership to students is to let them decide what method they use to demonstrate their knowledge of a given assignment. All too often, students are instructed to prove they understand specific knowledge on a topic, as well as the method in which they must demonstrate it. For example, if students need to demonstrate their understanding on magnetism they could draw a model describing magnets in action, or write a song about magnetism, or describe an application that uses magnetism (e.g., recycling sorting, emergency fire doors, Maglev trains) and clearly discuss how the magnets work, or design and describe a new invention of their own that uses the properties of magnets.

Of course, clear boundaries and expectations that come with ownership (e.g., being respectful of peoples' time and feelings, following through on your commitments, etc.), must be set at the beginning and reinforced throughout the year. However, as was so succinctly discussed in John Hattie's book *Visible Learning for Teachers*, when students are well supported, they have a great ability to rise to the expectations set before them.

Key Take-Aways

1. Where possible, use your students' interests and wonderings to frame your lesson strategy—especially for lessons that will have a significant remote learning portion.
2. As much as possible, use online sessions for collaborative activities instead of direct instruction. If you are in a situation where the bulk of your instruction is remote, try to limit the direct instruction portion of your groups session and use more collaborative strategies to reinforce keep learning objectives.
3. Make sure your students have some sense of ownership of their classroom—both the physical and the virtual space. It is truly amazing the energy learners—even the very young—will pour into things that they feel a deep connection to.

Remote Learning Insights: Family & Teacher Support

Yes, It Does Take A Village

In as much as, “it takes a village to raise a child,” the same also could be said that it takes an entire community to successfully navigate the world of remote learning.

As schools closed this Spring, nutrition and technology support for all students and families were clearly top priorities. We agree these two challenges continue to be priorities and have only increased as communities continue to struggle with high unemployment numbers and a lagging economy.

There are many organizations working with districts to find solutions to these challenges and we don’t we have a ton of additional insight to add to that part of the conversation. Instead, we will focus on the next tier of concern: supporting students, parents, and teachers with the challenges of remote learning once their basic survival needs have been met.

There is no *one size fits all* solution to student and family support. Different communities have different needs, and no one is more aware of that than teachers. We can’t solve all the problems in a simple article, but here are some strategies that seem to be universally helpful.

Supporting Families

Students Benefit Greatly from Regular, Real-Time Interactions with Their Teachers

These interactions could be in small groups or 1 to 1, online or by phone. The important element in this is that the interaction isn’t a lesson delivery or direct instruction, but a time for students and teachers to check in with each other. This check-in can take different forms—e.g., a casual conversation, sharing an interesting story, or asking questions about schoolwork—and serves to strengthen the student-teacher relationship that is important for academic learning and social-emotional development.

Students Need Time to Collaborate (i.e., Hang-Out) with Their Classmates

Peer interactions are important for students of all ages but especially so at the elementary level when social and emotional learning curves are steep. Under a learning paradigm where limited classroom time is best suited for direct instruction (see Part 1 of this series on Technology to further explore this statement), it is important that virtual time be as collaborative as possible. Not only does this foster higher student engagement (See Part 2 of this series on Student Engagement), but it also helps to address the mental well-being of students by reducing feelings of isolation, as well as developing a sense of comradery that naturally develops in an in-person classroom. *The instructional content of these “hang-out” times is less critical than the actual act, and can be as simple as a virtual recess or a 15-minute group dance party, or a bit more structured like a group invention challenge or collaborative story.*

Parents Overwhelmingly Appreciated Consistency and Simplicity

We heard from several parents who indicated that a regular schedule for communication and real-time sessions was extremely helpful for them—even if the scheduled time meant they needed to rearrange part of their day. *Placement of a high value on predictability extended to a preference for the fewest number of online locations for educational assignments, meetings, etc.*

Parents Prefer Regular Communication from Their Child's Teacher

While it is unreasonable to expect teachers to answer parent phone calls or emails immediately, setting, and sticking to, clear expectations for when emails can be expected to be answered can alleviate unnecessary stress on both ends.

Supporting Our Teachers

This past Spring many teachers felt pulled in multiple directions as their days filled up with various planning and re-planning meetings, technology trainings, and, of course, navigating the abrupt change from teaching students in-person to teaching remotely.

There is no way of getting around the fact that this forced switch to blended learning takes considerable planning, training, and effort to master. As teachers strive to do their best with the resources and time available, here are some ways we can help them.

Give Teachers Some Flexibility in Delivering Their Craft

Teachers are trained to teach. Elementary teachers especially are trained to determine the unique academic and emotional skills their students need to develop. The lessons they create and deliver are designed to support their students along that path. This reality isn't changed because learning is moving online. Rather, it becomes even more important. Although the inclination to push out a uniform set of lessons to all teachers is appealing, it ties their hands and undermines their ability to adapt what they are doing to best serve their students. Of course, different teachers will thrive with different levels of lesson support, so we suggest working with your teachers to determine the level of guidance and support that works best for them.

To the Extent Possible, Give Teachers Planning Stability

We understand that suggesting stability in a time of great uncertainty is a bit audacious. Nevertheless, we are suggesting it with good reason. *At some point, responding to ever-changing conditions sees diminishing returns, as well as an inability to conduct longer-term planning. This leaves lessons disjointed and disconnected, and it takes a significant toll on teachers and students.* We suggest taking a more conservative approach to your planning. Assume remote learning will last longer and/or will constitute a larger percentage of teaching time. It is much easier to adjust to more in-person time than to less. This mindset, coupled with the additional

flexibility suggested above, empowers teachers to put lessons and strategies into place that leverage their skills and enable them to best serve their students.

Streamline Administrative and Planning Meetings

There is no denying that the current teaching paradigm requires a higher level of coordination among teaching teams and between teachers and administrators. In fact, with all we are asking of educators they need to lean on and learn from each other. However, administrative and planning meetings can be a significant time and energy drain. *Throughout the spring, many teachers reported that they spent more time in meetings than working with their students or on student lessons.* To help with meeting efficiency make sure meetings have outlined agendas, desired outcomes, and clearly stated time allocations. Ideally, make sure attendees have all this information in advance so they can prepare accordingly and be ready for a productive discussion.

Key Take-Aways

1. Students benefit from real-time interactions with both their teachers and their classmates. This should be collaborative time (versus direct instruction) and is critical to support students' social and emotional development as well as their overall mental well being.
2. Parents need consistency. The demands on parents from all sides is unavoidable. However, we can reduce parents' mental load by establishing regular routines (lesson time, class time, responding to emails/calls, etc.) and simplifying online interactions (e.g., retrieving and submitting assignments).
3. In most cases, the classroom we are all familiar with will extend beyond the physical space. Teachers need some space, flexibility, and support to establish their in-person and remote classrooms. If given the opportunity, they will adapt. Let's make sure we give them that opportunity.