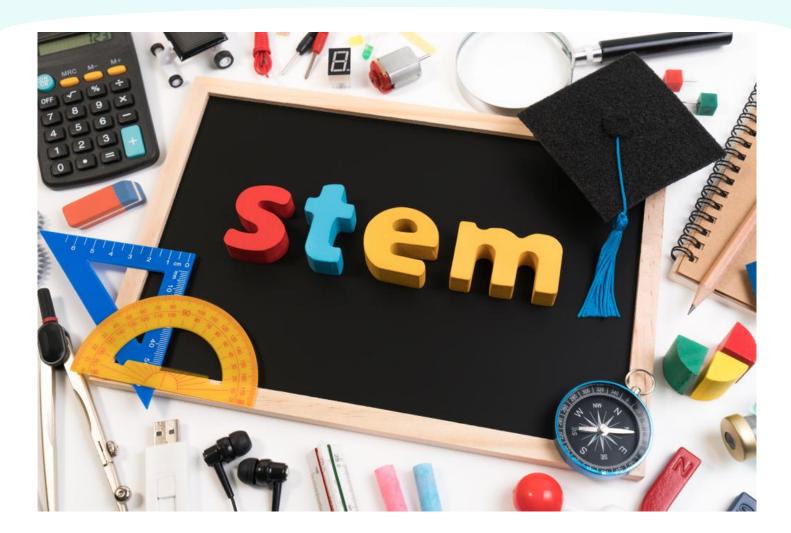# Incorporating STEM Activities into Online and Hybrid Classroom

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Millions of children across the nation began the year learning virtually from their homes. Many of those same children have since transitioned back to the classroom on a full time or hybrid basis, while others are once again going back to remote learning as the coronavirus spreads like wildfire throughout the country once again.

Given these challenges, you might feel worried about how much learning your students have lost in the last year. You might also be worried about the fact that lesson plans this school year have been cut or watered down. Many lessons that used to include collaboration, discovery, and meaningful STEM activities, simply can't be delivered in the same way through online classes. Students who are back in the classroom are faced with restrictive social distancing and cleaning protocols that prevent students from working together or sharing materials.

As an educator, you already know that incorporating STEM learning into your lesson plans is important to their future success and career readiness. So, what's a teacher to do when so many of the best activities from previous years are now off limits? Let's dive into what's needed to create STEM lessons for any subject before focusing in on how develop easy stem lesson plans for both online and hybrid classes.

STEM Lesson Essentials

Starting from scratch to plan STEM activities amidst an already tiresome school year may seem like quite a daunting task for even the most experienced educator. The key here is to focus on what you already know and to go from there.

Consider the following aspect when beginning to plan your STEM lessons:

Start with the subject and curriculum

Believe it or not, STEM activities can be built into many subject areas, including social studies. For instance, challenging children to create a pyramid using toothpicks is a great way to study ancient history while tasking kids with utilizing their engineering skills! No matter the subject, identify the topic of focus, and take into consideration your state or district curriculum and standards to identify the skills that will be taught and practiced.

Apply the 4 areas of a STEM education: science, technology, engineering, and math

Once the subject, topic, and skills are identified, consider the four pillars of STEM. For example, how can a science lesson incorporate math or engineering? Apply the four areas of STEM to the topic and/or skill that you are teaching, and brainstorm which can be incorporated through projects that can be completed individually at home or in the classroom.

STEM Activities for the Hybrid Classroom

If your school has gone back to the classroom, either on a hybrid or full-time basis, it might be equally as tough to plan to incorporate STEM into your lessons considering the extensive restrictions imposed upon schools regarding social distancing and cleanliness. Try the following to plan for STEM while learning in this strange and restrictive classroom environment:

Plan for students to work individually for the time being

Gone are the days where kids could swap supplies and share materials for class! In the face-to-face classroom of 2020, children mustn't touch anything that another peer is

using! Instead of planning grand collaborative projects, be sure to consider only activities that children can complete individually.

Focus on individual projects that can utilize a class set of technology, such as E-Blox

Kids Academy recently partnered with E-Blox to bring teachers an innovative new science course that incorporates STEM principals in a blended learning format! E-Blox sets can be used in hybrid learning because each student can participate individually, limiting the spread of germs between children.

E-Blox, including our new Blended Learning Science Course, can also be great to use in classroom learning centers, and are easy to clean with a simple disinfectant wipe! Check out our Science with E-Blox course overview for more details.

Try Science with E-Blox Now

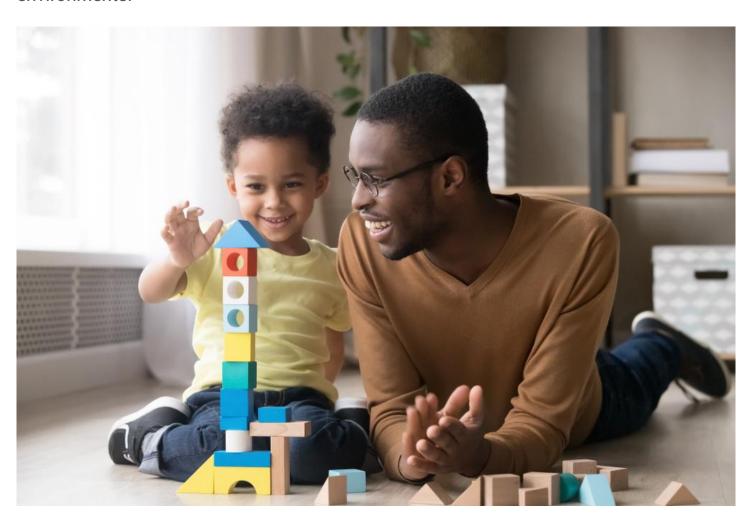## Plan your lesson around allowing students to explore and discover

Students internalize a lesson when they are allowed to explore and discover the concepts for themselves. Whatever type of activity you're planning, be sure that it's one that allows students to work individually to plan, create, and reflect back upon.

Use low-cost materials that can be used once and disposed of afterwards

Luckily supplies like rubber bands, toothpicks, and drinking straws are cheap and disposable! Provide inexpensive supplies that can easily be thrown out after just one use. Using gloves, distribute the supplies to student desks using zip top bags. This ensures that students will not be exposed to any contaminated supplies, while limiting spread by disposing of the materials afterwards.

Now that the groundwork has been laid for STEM-based lessons for any subject, it's time to think about how to create plans for online classes as well as hybrid or face-to-face environments.

STEM Lesson Plans for the Online Classroom

We know what you're thinking: how can a teacher conduct a STEM project without knowing what supplies students have access to at home? How might these lessons look or run when conducted in an online classroom?

Consider the following to make your online STEM lessons pack as much of a punch as they would if done in the classroom:

Create activities children can complete using everyday household supplies

Who knew that so many STEM projects can be built using common household items such as drinking straws, rubber bands, or cotton balls? Think of projects that can be done using household supplies that most families already have around the house. Try to avoid requiring any supplies that most families would have to purchase special for just one project.

Alternatively, another idea is to send a survey to parents before planning a lesson to discover what your students could realistically complete. Establish a positive rapport with parents before suggesting any supplies be purchased or obtained. If it is possible to send home or arrange for a curbside pickup of needed supplies, schedule it with parents according to campus policies.

Send home a checklist of supplies needed before starting each unit

If your students' parents are willing and able to provide supplies needed, send home a checklist of materials needed well before starting a unit. This gives families time to obtain supplies and ensures that all students will be ready to create once the lesson gets underway. Include a checklist in a weekly to-do list or newsletter.

Demonstrate the activity during class

During the lesson itself, be sure to demonstrate the project, if it makes sense to do so. For instance, some projects might constitute a challenge for students who must use problem-solving skills to create or build a solution.

If this is the case, demonstrate for feedback purposes after the lesson is complete. Regardless, clearly explain and display the materials they need to complete the project during your live class.

Remember that some students might not be able to complete the project synchronously

In some instances, it might be possible to allow children time to complete the activity while on the call with the class. This gives students ample opportunity to engage with peers and show off their work. However, don't forget to consider students who might not be able to participate synchronously. Some online students are logging in from grandparent's house, or even from a daycare or another alternative childcare situation. Plan for this and if needed, allow students to take pictures or video their project to submit asynchronously after class.

Break students up into small groups using breakout rooms or channels

During times where students can work during class time, try assigning students to small groups using the channel or breakout room feature of your teleconferencing app. This can allow one student who has the needed supplies to create the project, while teammates coach their groupmate on how to construct or complete it. Drop into each channel or room to see how it's going!

Planning for lessons that incorporate the principals of STEM can seem like an awfully big task in a learning environment that is inherently limited thanks to virtual classes and restrictive protocols that prevent students from collaborating with each other to create

projects. Luckily, there are steps that teachers can take to enhance their lessons with STEM. Utilize the above tips to incorporate STEM into your lesson plans, no matter the subject you teach!

Try Science with E-Blox Now