

SURVIVAL GUIDE FOR NEW STEM TEACHERS

Compiled by Meredith Anderson



TIPS



DOWNLOADS



SHOPPING LIST

Meet

Meredith

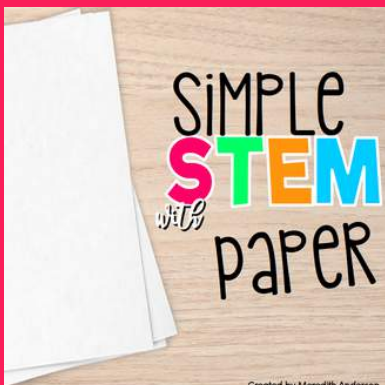
Anderson



“ It can be overwhelming (especially for new STEM teachers) if you attempt to introduce a new challenge every class. Try looping through simpler challenges at first but change the materials each time. For example, a tower challenge can be completed first with cups (simpler), then several weeks later try it with index cards and tape (a bit more challenging), and finally with pipe cleaners (tough). In time, you will build a library of challenges that work for you year after year.

Hello! I'm an engineer and educator whose passions include supporting teachers and creating fun and engaging STEM activities for kids of all ages.

CONNECT WITH MEREDITH



Created by Meredith Anderson

Simple STEM with Paper

Don't break the bank! Use budget-friendly, simple materials like paper or recyclables. Once you've tried these with regular paper, you can do them again with index cards, newspaper, or cereal boxes. The different size and materials will mean a different outcome for students.

Meet

Brittany

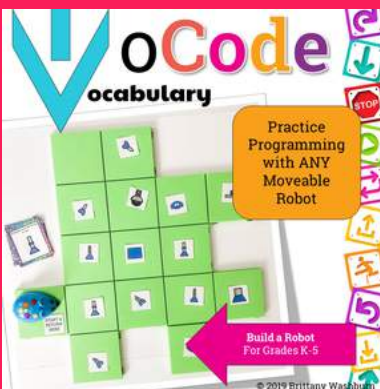
Washburn

“ My teaching life changed for the better when I started using a modified-flipped classroom model in the computer lab. Using this approach means I can do stations without needing to be available to help the students at their computers. Use a tool like Screencast-o-matic to record instructional videos and then share the videos with students on your website or LMS.



I'm Brittany Washburn and the computer lab is my happy place! I love any STEM Challenges that emphasize technology and computer science so I'm sharing my Robot Builder Coding Bot set with you.

CONNECT WITH BRITTANY



Build a Robot

Integrate those robots you have (or turn students into robots) to complete these coding challenges. 3 Options for the activities mean that you can use this with ANY movable Bots and multiple grade levels of students. This makes a great introduction to using movable Bots. Use it to go over procedures and expectations before moving on to other Bot challenges.

Meet

Kerry

Tracy



” Productive failure is a very good thing! If you truly challenge your students, there will be times they will fail. When that happens, be a model of cheerful curiosity and help them analyze what happened rather than mirroring their disappointment and frustration.

My joy in life is bringing brain-busting work disguised as fun to you and your students. I do that through lesson plans, curriculum, and trainings conducted online and in person.

CONNECT WITH KERRY



4 C's Posters and Activity

Collaboration, communication, creativity and critical thinking should be at the foundation of every successful STEM Challenge you facilitate with your students, and what better way to start the school year than by emphasizing the importance of all four?

Meet

Brooke

Brown

” Plan and prep ahead! Pre-prepare simple STEM challenge materials in plastic baggies that can easily be distributed and cleaned up. Students can also use large plastic trays to gather materials to bring to their work stations. If possible, keep an empty bookshelf in your classroom to store projects in progress.



I'm passionate about infusing STEM, hands-on literacy, and purposeful play in the elementary classroom.

CONNECT WITH BROOKE



STEM Bins International Landmark Task Cards

For Grades K-5, use these task cards with any STEM Bin and challenge your students to build models of international landmarks. They make a perfect extension or early finisher activity! Meets NGSS Standards: Engineering K-2, 3-5

Meet

Renee

Heinrich



As a science/STEM teacher, I start with using an effective instructional framework for integrating science and engineering practices into my K-5th grade curriculum. I start with a standard, then I find a way to use my Science curriculum and experiments to also find ways to integrate engineering challenges that fit into what I already have to teach. My students are able to have hands-on opportunities that allow them to use their working knowledge and engineering design skills. This prepares my students for embracing the challenges of the day and allows for future application. Setting that foundation in kindergarten is so important. Each year, you can continue to build on their problem-solving abilities and see real growth and retention!

I am a K-5th grade Science and STEM teacher. I continually find ways to integrate to science and engineering practices in each of her 25 classes per week.

CONNECT WITH RENEE



MAKERSPACE
Old Tracks, New Tricks
Task Cards



**Makerspace Task Cards
Old Tracks, New Tricks**

I use this resource with my force and motion science unit. It ties the book *Old Tracks, New Tricks* by Jessica Petersen in with science and STEM!

Meet

Lisa

Taylor

”

Take STEM at your pace!
After a STEM Challenge,
reflect on it. What worked?
What didn't? What could
you do different next time?
And as always give yourself
GRACE!



Hi, I absolutely love creating lessons that integrate STEM into my classroom and other teachers can use too! STEM can give our students the avenue to think critically and problem solve.

CONNECT WITH LISA



Shoe Design & Tower Challenge

STEM Shoe Design Activity connects to the book *Four Feet, Two Sandals* by Karen Lynn Williams. Shoe Design STEM Challenge gives students the opportunity to design and create a shoe. Shoe Tower Challenge is a fun team building activity that gets students thinking critically as they build the tallest tower possible using their shoes.

Meet

Wendy Goldfein & Cheryl Nelson



” Need volunteers for your Family STEM Night? Contact the science, technology and math departments of local high schools. Many students need community service hours and will be not only enthusiastic helpers but also great role models for STEM for your event!

Wendy, who lives in Washington and Cheryl who lives in Virginia, have been in education for a total of 45 years. We love developing STEM curriculum and supporting teachers in the classroom with STEM integration ideas.

CONNECT WITH WENDY & CHERYL



Nuts and Bolts of a Family STEM Night

Begin planning for a successful Family STEM Night with this packet that includes a timeline check list in addition to ideas, hints, tips and resource ideas.

Meet

Trina

Deboree

”

Label your materials with words and pictures so that students of all ages know where to put things away and where to locate materials. Assign students roles or jobs as part of your procedures and expectations. This helps with management.

TEACHING AND LEARNING



TRINA DEBOREE

I support STEM teachers by helping teachers engage students with the wonder of thinking and learning. I also hope to give teachers back a fraction of their time so they can put first things first.

CONNECT WITH TRINA



Makerspace Start Up Kit with Job Description Posters

MakerSpace Start-Up Kit is a perfect addition to the elementary school classroom or library. If you have been wanting to develop a Makerspace, this beginners packet will be just the thing to help you get your space off the ground!

Meet

Sarah

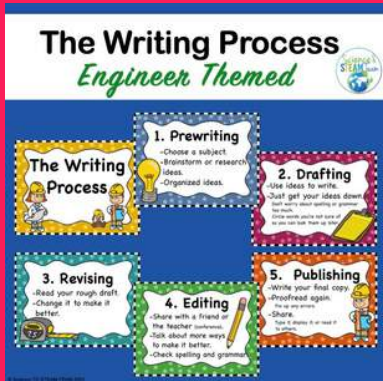
Lalonde



I'm Sarah, creator of educational science and STEM resources for teachers.

”
Start collecting materials for STEM projects (cardboard, empty paper towel rolls, clean meat trays, newspapers, empty plastic containers, fabric scraps, twist ties, etc.). Set up a place where other teachers, students, and families can leave their donations.

CONNECT WITH SARAH



Engineering Themed Writing Process Posters

Writing is an important part of the Engineering and Design Process. Often, students need to research topics before beginning an engineering project. Besides discussing the results of their projects student may need to complete a written report their findings.

Meet

Carol

Davis



” As a STEM Specialist I quickly learned that STEM projects would not work the way I expected. Students found that the materials needed to work a certain way and just wouldn't. Teams would take apart a structure to try something else. They would talk through the design process, try something new, and sometimes it still would not work. After a short time, I realized kids need to fail. How else will they learn what works? When every solution is the perfect one, they never learn what to do on that occasion when something goes awry. Sometimes projects fail and that is okay. This is how we learn.

I'm Carol Davis and I love everything related to STEM and science. I love inventing STEM Challenges-especially when the project about real-life events. I'm sharing my Rules Challenge with you! It's perfect for the beginning of a school year.

CONNECT WITH CAROL



FREE CHALLENGE CLASS RULES



CREATED BY TEACHERS ARE TERRIFIC

Classroom Rules STEM Challenge

What a great way to introduce and then practice your classroom rules! Teams each choose a rule and then choose materials for their design. What are they designing? They are designing a model of the rule. During the team presentations each team will “teach” the rule using their models! This challenge works well with elementary students!

Meet

Anita

Goodwin

” Finding copyright free backgrounds for green screen can be challenging. Let students take a trip outside your school and take photos around the school that can be used in their green screen projects. They could also take a small video of the sky, empty playground, or school.

I'm Anita Goodwin, K-6 Innovation Teacher. I have a makerspace in my classroom and incorporate lots of making and robotics. My favorite STEM project is helping my students create green screen projects.



CONNECT WITH ANITA



13 Digital Backgrounds

Great for Green Screen or Virtual Teaching



Digital Backgrounds

This download includes 13 free colorful, digital clipart backgrounds to use in your green screen projects or virtual teaching. Take a screen shot and send them to your students or share them through google drive and they can add them to their green screen movie. You could also use them as virtual backgrounds to wow your students when teaching virtually.

Meet

Natasha Wilkerson & Claire Meschkat



“ Don't forget to bring the real-world into your classroom! Your students will love hearing about recent scientific discoveries, meeting local STEM professionals, or discovering cool engineering jobs.

We are Vivify STEM, two aerospace engineers turned educators with a passion for all things STEM! Claire is a STEM teacher and Natasha runs a national Space Club program, and we want to share our passion for space with this freebie!

CONNECT WITH NATASHA & CLAIRE



Rover Design Challenge

Go on a space adventure with this rover design challenge! The lesson includes an instructional video and interview with a robotics engineer. This activity is a great way to introduce engineering design with upper elementary and middle school students.

Bonus

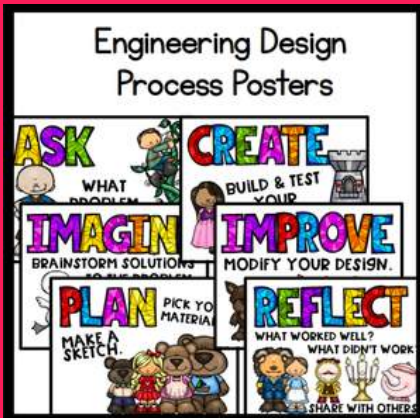
Downloads



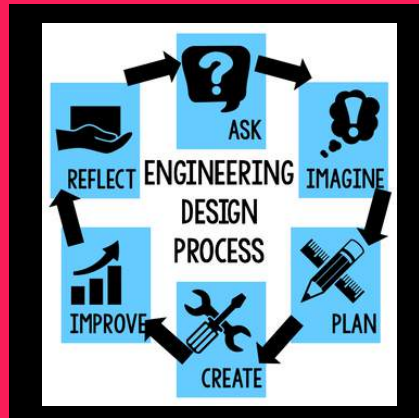
STEM Supplies List (Editable)

Shopping list for STEM teachers and STEM supplies for at home, to encourage students to create on their own time.

Engineering Design Process Posters

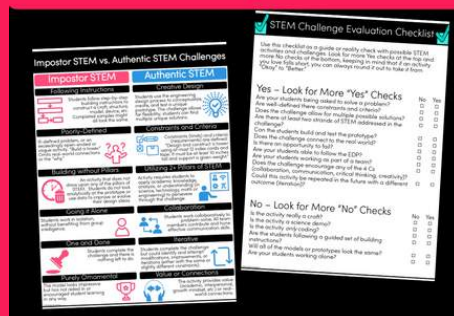


Fairy Tale Theme



Simple Icons

Spot Impostor STEM & STEM Challenge Checklist



Is it STEM?

Vet those resources! The graphic and checklist will help you determine if the STEM activity you found online is authentic STEM or an impostor.

Further

Reading

Essentials

ENGINEERS WEEK

TACKLE THE
ENGINEERING DESIGN
PROCESS



With Kids!

day
5

STEM ACTIVITIES FOR KIDS

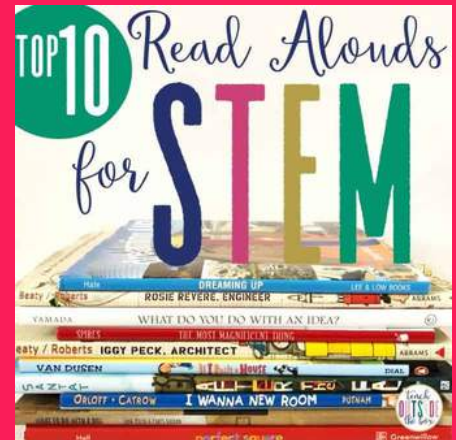
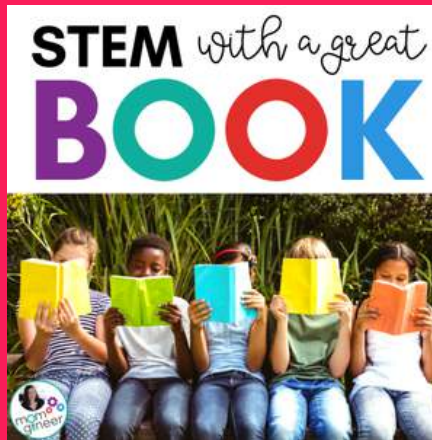
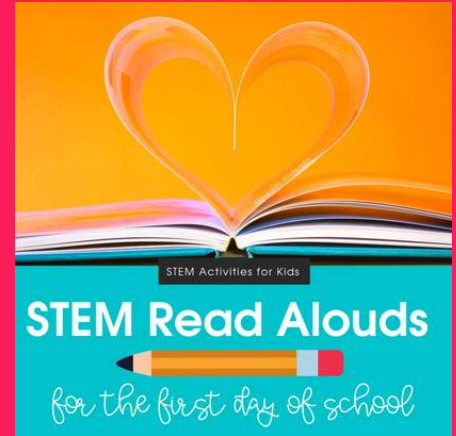
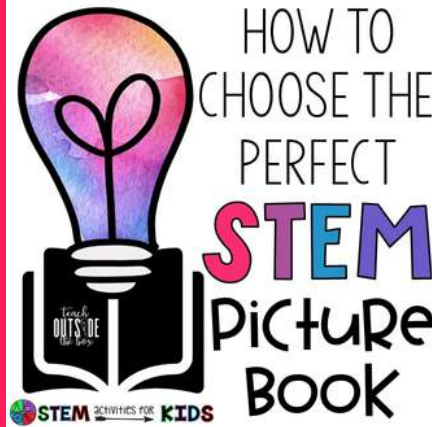
Team Building FOR STEM CLASS!



Students Giving Up on STEM Challenges Too Easily?



STEM & Literacy



Be a MAKER

