TeacherGeek Project List

TeacherGeek Project Lesson Plans and Curriculum are available here: https://teachergeek.com/blogs/projects

Project Name	Description
Air Racer	Propel innovation and create your own electric fan car with this electric motor project straight from the Everglades! First, construct a frame that'll get you rolling. Then power up your motor and experiment with different propeller blade designs to really send your racer flying! The TeacherGeek build system makes it simple to tinker and redesign, allowing students to evolve their racer as they experiment and learn.
Breaking Bridges Activity	Design, build, test, repeat! Forget popsicle sticks, balsa wood, or spaghetti bridges, TeacherGeek bridges allow you to do what was never before possible: redesign and retest your bridge without the hot glue or mess. Using TeacherGeek's proprietary build system, students will have more control over their bridge than ever before; allowing them to learn through experimentation and failure, and evolve designs as their understanding grows. From arch bridges to trusses; with so many design possibilities students are never done making!
Build a Boat	Conquer the high seas — or your swimming pool — by crafting your own DIY boat! The TeacherGeek building system does what others don't, allowing kids to easily swap and manipulate parts as they try out their latest and greatest boat design. That means kids are really engineering; trying out ideas, seeing what works and what doesn't, and learning all the while!
Catch the Bug	Grab a net and a soldering iron — Catch the Bug is a DIY electronics project that'll have your kids buzzing An activity fit for all ages, students will explore and learn electrical concepts on the road to constructing their own electronic bug. Watch their eyes light up as the motors zip to life and their bug really scuttles across the floor, using its "feelers" to detect obstacles and correct its path!
Crazy Contraptions	What kind of contraption will you build? “Crazy Contraptions” is a thought-provoking activity that engages students in the design and construction of exciting and innovative Rube Goldberg style mechanisms. The comprehensive Crazy Contraptions Activity Guide facilitates the conceptualization, understanding and application of simple and complex machines. Utilize the template for a standard frame on chipboard or another surface, or set your contraption on a 12"x12" wood base with drilled slots, perfect for connector strips.

Electric Race Car	Ready? Set... GO! Burn some rubber and engineer your very own battery powered car with the TeacherGeek Electric Car Activity Pack. Our build system makes it simple and fun to experiment with your design, learning as you try out new race car designs. Take away a wheel, construct a slimmer frame, or build something entirely new with your parts! It's real DIY electronics and real engineering, meaning the making and excitement never end.
Electromagnetic Crane*	Searching for an attractive activity? Look no further! The Electromagnet Crane 2.0 Activity Pack has aspiring engineers learning the low-down on magnetism and linkages as they create and operate their very own electromagnet crane! Power up the battery magnet and hoist, grab, sort, then build it all over again to complete new challenges. The TeacherGeek build system makes it easy and fun to construct new crane designs, meaning kids will be more excited than ever to get back to the drawing board!
Flag Waver*	Wave your flag high! The TeacherGeek Flag Waver Activity is an excellent introduction to TeacherGeek construction techniques and components. By combining gears, pulleys and cams, you change rotary motion into linear motion to raise, lower and wave flags by simply turning a crank. Once you have experienced the TeacherGeek building system, you can create anything with TeacherGeek components. You will find the Flag Waver Construction Guide is easy to follow, fun and informative.
Gears Tinker Set	What happens when gears are connected? Do they rotate together, at the same speed, direction or with similar force? Truly experience gears through this activity; growing understanding through tinkering, experimentation and even engineering amusement park rides.
Grab Lab	Have you ever seen a bird catch a worm or a chipmunk stuff their cheeks? How do they do it? Animals have evolved some pretty amazing **grabbers** and **tools** over time. In this activity, construct your own **Simple Grabber** out of TeacherGeek **Connector Strips** and **screws**, then design and build it better to be like our feathered and furry friends.
Hydraulic Arm*	Build yourself a third arm! This is a pretty incredible hydraulic powered remote-controlled arm. Use it to pick up your room, eat snacks, stack blocks, play a game, or battle against other hydraulic arms -some of these tasks may be easier than others to complete! The arm is built totally by you, from scratch! You construct it by measuring, cutting, reaming holes and tapping. This arm is "advanced," because it has 8 cylinders (4 cylinders move the arm, 4 cylinders form

	the control panel), and it has parts to make it into almost anything you can imagine.
Hydraulic Claw	We've all lost more than a few quarters to the arcade claw machines.With the TeacherGeek Hydraulic Claw, you can forget the coins and create your very own remote-controlled fluid-powered grabber. This is way more than just a toy claw. TeacherGeek's build system and the included extra parts allow kids to tinker with their claw, learning through experimentation and applying their findings to change their design to complete new challenges.
Judo Bots*	**Get ready to R-R-RUMBLE!!** Students can use the power of hydraulic cylinders (no syringe!) to design, build and battle their very own Judo-Bot. Using TeacherGeek components and recycling bin innovation, they can engineer new methods to move bots up, down and side-to-side to best tip or push opponents out of the ring. Exploring concepts of force, balance, momentum, mechanical advantage and robotics with end effector designs, bots are a truly comprehensive STEM activity.
Mini Wind Turbine	Design a turbine to harness the power of the wind and convert it into electricity. Start with your example build, testing through inquiry and experimentation. Then, iterate new designs and additions to transform the wind turbine into your own unique design. Create the blades utilizing recycling bin materials. Adjust the angle, pitch and amount of blades to observe the electrical output of your wind turbine. We included plenty of extra components to try different designs.
Mousetrap Vehicle	3... 2... 1... GO! Levers swing forward as cars race down the hall, converting the energy stored in the mousetrap to the motion of the vehicle. Kids design their cars for speed, distance, or to stop on a target – the Mousetrap Vehicle activity pack comes with tons of components (and a reamer tool) to engineer your own unique racer designs.
Pick Up Stick Magnets*	Thwack, Thomp, CRASH – you broke through the crust! The clock is ticking as you race with your electromagnet to gather iron and load it onto the spaceship. This is way more than just a magnet on a stick, your Pick-Up Stick was custom engineered by you with both an electromagnet and a grapple (claw) that grabs soup cans, paper clips, even candy. Made with TeacherGeek's custom aluminum wire, it's never been easier to make your own super-powerful battery magnet
Projectile Launcher	**Hit 'em with your best shot!** Build your own Launcher with TeacherGeek - send ping pong balls flying, marking the trajectory and distance of your shots and targets.

	Redesign your launcher with greater accuracy and precision through the optional labs and graphing sheets, then compete in exciting design challenges. Change one variable at a time, utilizing scientific and engineering methods to successfully hit targets. Use recycling bin materials or extra components to build a kicker, plunger, trebuchet, or slingshot – your imagination is the limit!
Rubber Band Racer	Ready? Set? ZOOM! The excitement mounts as your Rubber Band Racer zips down the hall and past the finish line. This is more than a DIY car toy, the Rubber Band Racer Activity Pack comes with all of the TeacherGeek building components (and more) that you'll need to build your own rubber band powered car. Leave other soapbox and cardboard cars in the dust as TeacherGeek's build system allows you to easily redesign your Rubber Band Racer over and over to meet all sorts of new challenges.
Sail Car	Harness the power of the wind - on land - and there'll be smooth sailing ahead for this incredible STEM | STEAM activity kit! Kids are empowered to quickly experiment with ease, testing and re-adjusting their sail's shape, angle and pitch. Watch as they work through the engineering & design process, designing their sail cars for speed, distance or even to ferry school supplies across the room! Change wind conditions to increase the challenge, or choose from the 10 labs designed to investigate the science behind the sail car.
Toy Design Workshop	Create your own unique pull-toy with animated parts - they move as they roll! Watch as tails wag, heads bob, hands wave or wrestlers 'wrassle'. Follow the engineering design process to brainstorm, construct, iterate and redesign innovative toys. Students will really build their toys, utilizing simple machines, linkages, kinetic and potential energy and mechanical advantage in their plans.
Wind Lift	Design and build a wind lift to capture and experience the power of the wind! Wind lifts make learning about wind power, energy, mechanical advantage, torque, work, and other scientific concepts fun and understandable. In this activity, kids will engineer a wind turbine to life a heavy load or raise a bucket with speed. Kids will learn how the shape, number and angle of turbine blades affects the output of their wind lift. There will be plenty of extra parts to try different designs. A real *pick me up*.
Wind Pump	The whole class is at the edge of their seats – staring – as turbine blades tremble, gain speed, and start to whirl! Gears are spinning faster and faster as the cylinder pulls in water, then pushes it out. It's working – you're pumping water! You try different blade designs, gear ratios, isolate variables, and raid the recycle bin for blade materials. With each new design, your understanding grows. Challenges and optional labs push your designs to new heights. Get pumped for alternative energy with the Wind Pump!

Yeast Mobile*	Yeast Mobiles are - *you guessed it* - powered by yeast. Yeast Mobiles harness the power of pressurized carbon dioxide. They then transfer and develop mechanical advantage through linkages, gears and other mechanisms. Your mobile project is never finished - they can later be turned into Rubber Band Racers or other contraptions. The design possibilities are endless.

*These projects are better suited for grades 9-12.

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