A Life-Saving "Beat"
Hands-only CPR saves lives

Everyone knows that CPR can save a life, but not everyone knows CPR. And not everyone is willing to perform mouth-to-mouth CPR on a stranger. There is another option, however, one with a fast-paced beat that can mean the difference between life and death. **Continuous chest compression CPR** is a **hands-only technique** that can be as effective as mouth-to-mouth CPR. But successful hands-only CPR requires a pace of 100 compressions per minute. *That's fast!* Having the right song in your head can help you keep the beat, and the American Heart Association (AHA) has reported success with classic songs like "Staying Alive," by the Bee Gees. You can find **a list of other CPR-friendly songs** on the Be the Beat website, sponsored by the Medtronic Foundation. With titles listed by artists ranging from the Black Eyed Peas to Bon Jovi and ABBA, *everyone* can find a familiar song to have in mind in case of an emergency.

Spreading the Word
With the point-and-click Scratch programming environment, you can develop a training and awareness-building application

There are over 300,000 cases of cardiac arrest each year, and yet survival rates often bottom out at 1 in 10. Educating the public about hands-only CPR can make a difference. In the **Save a Life! Teach Hands-Only^{TM} CPR** human health and biology project, you can learn more about CPR and then design a software application that can help teach others to *keep the beat*. The application you create might, someday, help save lives! (Difficulty: 5-7)

*(Science Buddies' **human biology & health** Project Ideas
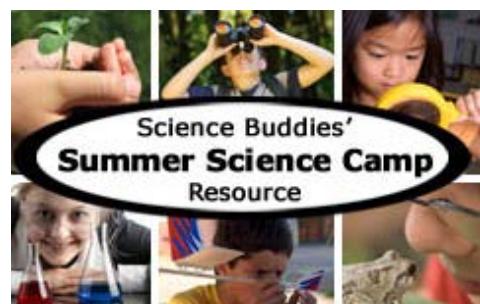are sponsored by the Medtronic Foundation)*

New Year, New Awareness
What kinds of environmental changes will you make this year?

Did you make New Year's resolutions? Did you vow to eat healthier or exercise more?

Self-improvement is always a focus at the start of a new year, but January is also a perfect time to think about our impact on the environment and the choices we can make, day to day, that can help conserve resources.

Understanding the issues and the ways in which small decisions can add up is an

New Summer Science Camp Resource
Find out more about the benefits of science-based summer programs

Science Buddies is excited to announce the launch of a new **Summer Science Camp resource**, sponsored by the Motorola Foundation. Science-based summer programs can be a fun and exciting way to

important first step in being smarter about the environment. The following Science Buddies projects let you see, firsthand, what's going on, especially in our high-tech households.

Printer Smarts
When paper-free isn't an option, there are still "green" choices you can make

It's not always practical to "not" print. We're used to having paper copies of materials, and sometimes you really *need* a printout to carry with you. In the **Printing Power! Save the Environment, One Printer Page at a Time** computer science project, you can investigate how changing printer options can help cut down on paper waste. *Do you really need to double-space that?* (Difficulty: 2)

Hidden Energy Suckers
Even if it's not being used, something that is plugged in may be zapping your power bill

Do you conscientiously flip off lights when you leave a room? What about the Internet radio that goes to standby on its own? Do you shut it down? Is your DVD player on even when you're not home? Our houses are filled with appliances and peripherals that are smart enough to go into a standby state but that still draw on the power if they are not fully shut down. You might be surprised when you add up all the power silently being sucked away. In the **Killing 'Vampires': Saving Money and Power by Turning Off Computer Peripherals** computer science project idea, you will analyze power consumption of various peripherals and come up with a conservation-minded plan for better managing high-tech equipment. *Food for thought: is flipping a surge protector switch off enough?* (Difficulty: 5)

*(Science Buddies' **computer science** Project Ideas are sponsored by the Symantec Foundation. Support for continued project development in areas that explore natural resources, pollution, energy, and the relationship between the environment and technology comes from the Intel Foundation.)*

Puff Goes the Legume
Explore bean rehydration and softening

A range of winter and vegetarian soups get their flavor and substance from dried beans. Rehydrating these beans often involves soaking them for a period of time before beginning the soup. As the beans soak, they plump up, filling with water.

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explore science. Our resources can help you find science-based opportunities in your area!

Science Careers: *Chain of Life*

Are you interested in **saving lives** and **finding ways to prolong and improve the quality of life**? Both **physicians** and **paramedics** are vital *"chain of life"* career tracks. Our in-depth career profiles can help you learn more about what it's really like to work in these challenging fields.

To browse our full listing of career profiles, visit the Careers in Science index page.

Stir the Pot
Making the most of thermal energy transfer

What's the secret to quickly and evenly heating up a pot of soup or a tub of water? The answer may lie in how you stir it. Should you stir with broad circles? Should you stir only in the middle? Should you stir fast or slow? Investigating principles of thermal energy and energy transfer can help uncover the processes at work as the soup heats up.

The thermal energy in a container of liquid is the total of all of its moving particles, and the movement of thermal energy is called heat. According to the second law of thermodynamics, heat will always move to a colder object. In the **Mix It Up: Transferring Heat by Convection in a Tank** mechanical engineering project, you can explore the transfer of heat and the patterns of convection that can influence the rate of transfer. To expand the investigation, add in the variable of viscosity! *How do issues of heating and thermal energy transfer differ between tomato soup and chicken noodle?* (Difficulty: 6-7)

Scientist's Pick

Tackling Global Water Contamination
Clean water is a luxury many of us take for granted

Staff scientist, Michelle Maranowski presented the **From Contaminated to Clean: How Filtering Can Clean Water** environmental engineering project last

In the **Is the Soup Ready?** food science project, you can observe how much liquid dried beans can absorb. *Do some bean varieties hold more liquid than others?* (Difficulty: 2-4)

Softer with Water or with Molasses?
What you soak the beans in matters

The ultimate softness of a cooked bean is related to the type and amount of liquid in which it cooks. Altering the cooking liquid can speed up or slow down the softening process, which might be necessary for a recipe that needs to simmer for hours. In **Tough Beans: Which Cooking Liquids Slow Softening the Most?**, you will put your food science skills to use as you explore the ways that agents like molasses and lemon juice alter the softening rate of beans. (Difficulty: 4-6)

*(Browse other Science Buddies' **cooking and food science** Project Ideas)*

Find the Perfect Project for *You*

Our Topic Selection Wizard can help you locate science projects that fit your areas of interest *and* meet science fair requirements. Give it a try today!

month to Science Buddies staff. With recent outbreaks of cholera around the world, the issue of water purification, and the risks associated with contaminated water, remains a critical concern. As Michelle shows in this project, understanding the process of purifying water through filtration is something you can see and explore firsthand. (Difficulty: 4)

Blogged: Science Gadgets!

We had a great time last month putting together posts on cool, nifty, edgy, science-focused, and techy kits, tools, and gadgets that would be fun to have and could be used in a variety of science projects. Let us know what cool science toys you got (or still want)!

- **Gifts to Give the Grownups--That You can Put to Good "Scientific" Use!**
- **Scientifically Speaking: A Holiday Wish List**

Quick Links

- **Science Project Directory**
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