

TerraKids: An Interactive Web Site Where Kids Learn about Saving the Environment

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“Hey, Mom ..., Mom! Let’s get *this* one!!!” An excited 8-year-old Seth held out a light bulb package he had pulled from the store shelf and continued his pitch, “The bulbs have an Energy Star¹ rating, last a lot longer, and the package is biodegradable—it’ll be gone in 10 weeks!” Mom couldn’t resist the earnest look on Seth’s face as he added, “And they’ll help our score on TerraKids!” She put the package in their basket.

“TerraKids” is the name of a Web site that is, for the present, purely fictional. It is a safe, secure site where 8- to 12-year-old kids become catalysts for a greener Earth by learning about the environment and the role they and their families can play in reducing global warming.

Although users of any age come to the site simply to determine their carbon footprint (CF), TerraKids engages youngsters over time by helping them monitor the things they do and the choices they make, compare their scores (and behavior) to others, participate in green virtual and real communities with awards and recognition, and see immediately and over time how their behavior affects the environment. By incorporating principles from behavior analysis in a playful, interactive social network, TerraKids captures kids’ attention at the first visit and thereafter measures, supports, and reinforces green behavior change.

After creating a parent-approved username and account, kids become “CarbonBusters” and official members of the TerraKids community.

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¹Energy Star is the name of a federal government-supported program to designate the most energy-efficient compact fluorescent bulbs (see www.energystar.gov).

Upon completing the “What’s your CF?” challenge, they immediately see their very own tree icon with a number of gray, light green, or bright green leaves, depending on their family’s CF score in different areas (Figure 1). This tree initially provides the family’s baseline measure of “greenness.” Branches of the tree represent areas related to their CF, including transportation, recycling, home utilities, groceries, and so on. As a family reduces its CF, the leaves on its tree glow greener. One of the tree’s roots (with lines as “knots”) simulates a line graph that shows the family’s initial CF score and later changes over time, growing longer as changes in behavior alter the family’s CF score. Each month (or more often if desired), users reevaluate their greenness, and a new CF data point is plotted while the tree’s leaves change to reflect the new score. Moving the computer cursor over the “root” brings up that score and the date it was earned. Clicking on a “knot” opens a window that shows the tree’s leaves and brightness on that date.

Clicking on any of the tree branches opens a page that provides detailed information about that CF area. For example, clicking on the “transportation” branch reveals a page that lists behaviors that increase transportation CF and activities that reduce it. The page contains stories, pictures and posts from other CarbonBusters describing how they reduced their transportation CF, and includes tools to evaluate changes in a transportation CF. Want to see what effect buying a particular model of hybrid instead of a gas-only car would have?

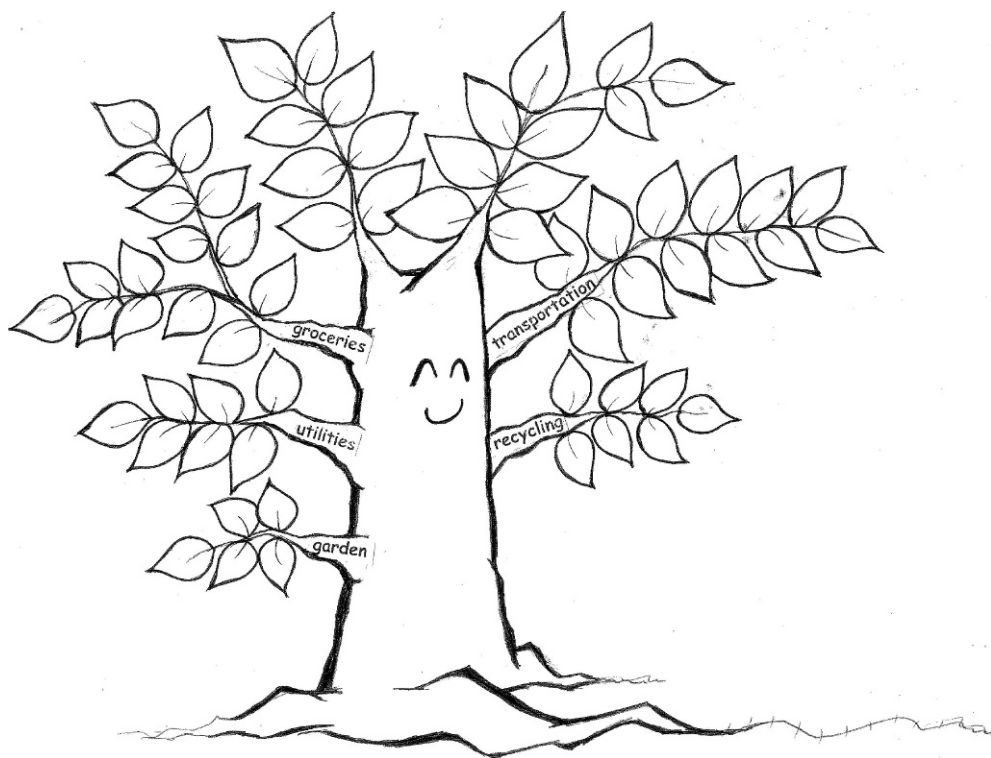


Figure 1. A conceptual example of the TerraKids' tree icon displaying the family's greenness. The branches represent different carbon footprint areas, and the leaves (which change in number and shades of green) represent the general score. An interactive line graph is represented by the longer root.

Click on the matching icon to see the family's potential new CF. Thinking of walking to school or carpooling with neighbors? Drag the slider on the page to see the effect on your CF score. Not only does the transportation (and total) CF score change, but also when a CF measure is reduced, a sample "energy saved" equivalent is immediately displayed (e.g., walking to school 3 days per week has the potential to prolong the life of five neighborhood trees).

Other branches include even more ideas that kids (and their families) can do on a daily basis to reduce their CF. For example, the "utilities" branch suggests unplugging chargers and electrical gadgets when not in use, and using rechargeable batteries in games and toys. Everyone in the family can take shorter showers or turn off the water while brushing

their teeth. The "recycling" branch features art projects made from everyday recycled materials, and how to reuse items for different purposes.

All these activities are incorporated into the TerraKids' world. To support and maintain behavior change, the TerraKids site includes a token economy in which kids and their families earn points² for engaging in the green behaviors suggested above or other things such as composting, purchasing energy efficient products

²Using points to reward behavior (e.g., eating specific foods) has been used successfully by commercial enterprises. For a sustained example, see the Points System used by Weight Watchers (<http://www.weightwatchers.com/plan/eat/plan.aspx>). For an online example of earning points based on increasing behavior and monitoring levels, see "The President's Challenge" for physical fitness (www.presidentschallenge.org).

and appliances, and even participating in Earth Day. For example, Seth can scan the bar code on the package of the energy-efficient bulbs his mom purchased and earn points for the green purchase. CarbonBusters also earn points as they increase their knowledge of their effect on the world's environment by conducting virtual and real experiments, playing online games in the site's "Learning TreeHouse," or posting stories that could inspire others and influence their own behavior. Higher points equate to higher CarbonBuster levels, differing rewards, and more TerraKids prestige.

Because TerraKids is partially supported by manufacturers who meet a set of green criteria, accumulated points are exchanged for coupons, rebates, merchandise, event tickets, and other giveaways from these merchants based on levels and points earned. The merchants have an opportunity to promote their products tactfully and contribute to teaching about the environment. CarbonBusters may select companies they like and add them to their own page (which would also be a form of advertising for the companies, with logos displayed and links to their own Web sites), forming a favorites list somewhat similar to a fantasy sports league.³ TerraKids presents information on the companies' green performance over time (based on indicators of how well they are helping the environment), and kids earn more points when their companies do especially well.

Another feature of the site that helps to maintain interest and participation are the TerraKids communities, both virtual and real. A click on the Earth icon from the home page takes users to the TerraKids virtual community, which represents the

status of all the CarbonBusters combined. The planet itself gets brighter as more and more kids sign on and do their part to reduce their CFs. Moving the cursor over the planet causes it to rotate, and clicking on a part of the world connects to that community's page and provides information about TerraKids users there.

In the TerraKids community, the social network is designed to help support behavior for the good of the Earth. On a safe, secure, parent-approved site, kids text, chat, post messages, and meet virtually other kids in their neighborhood, community, state, country, or across the world. They can encourage peers, who might not initially be interested in helping the Earth, to join and participate in the site. They can compare their CF (now and over time) and TerraKids activities to those of other CarbonBusters across the street or across the globe. Virtual or real-time challenges help to get kids walking, recycling, or helping others in the home, school, or community. Periodic awards go to kids with scores consistently better than their baseline, and for the largest reduction in CF over a given period of time, with their accomplishments posted on the site's home or community page.

TerraKids involves local settings as well, providing templates for school or community events such as a recycling day, an afternoon of board games, or a day in the park. Friendly competition within or between schools can be arranged, with various group activities encouraging more widespread participation, such as an interdependent group contingency that awards the entire class prizes only when each student in the class meets a predetermined CF score. The learning activities built into the site can be incorporated into the school curriculum and provide research and other tools for school assignments pertaining to the environment. Be-

³For an example of a popular virtual community system for setting up fantasy teams and monitoring and ranking performance, see <http://fantasybaseball.com>.

cause it is difficult to assess reliability via a Web site, TerraKids' connection to real-life settings and events also promotes an increased correspondence between what kids report on the site and what they and their families are actually doing. Family involvement should also help to strengthen the connection between "saying" and "doing."

Other sites that focus on green behavior for kids already exist, but TerraKids could be more effective by making use of what is known about behavior change. Many of the strategies and tactics described in this essay are based on empirically evaluated techniques, such as the use of a token economy to increase behavior (Hackenberg, 2009; Phillips, Phillips, Fixsen, & Wolf, 1971). Classwide peer tutoring has been shown to increase targeted and collateral academic and social skills (Kohler & Greenwood, 1990), and research on group contingencies offers a template for improving social behavior in schools (Greenwood & Hops, 1981; Hamad, Cooper, & Semb, 1977). Research has also demonstrated the effectiveness of feedback and public posting for modifying behavior (Van Houten, Hill, & Parsons, 1975; Van Houten, Nau, & Marini, 1980). A central component of TerraKids involves establishing the child as an agent for the behavior change of other family members. Similar programs have been effective in getting students to influence teacher behavior (Alber & Heward, 2000; Craft, Alber, & Heward, 1998).

Today, TerraKids exists only in thought and in this essay, but it could be live on the Web in the very near future. By making use of what we know about a science of behavior

change, we can build a Web site that can help move millions of people to a greener world.

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