

# FUEL OF THE FUTURE

## Dear Educator,

Observed each year on April 22, Earth Day is a celebration of our environment—a time to think about how to better our neighborhoods, our cities and our world. Most of all, Earth Day is a time to act. People around the world take part in activities to improve the environment, such as recycling drives, planting trees and cleaning up parks.

TIME For Kids has teamed up with Chevy to help you bring the excitement and tradition of Earth Day into your classroom. Together, we've created the **Fuel of the Future** program to give you the tools you need to lead classroom discussions, activities and experiments—all dealing with alternative fuel sources and what they can mean to our future.

### Elements of the Fuel of the Future initiative include

- This teacher's guide, filled with background info, an Earth Day party planner and reproducibles for students to complete in class and at home.
- A special edition of *TFK Extra!*, which your class received this week.
- A **"Moving Into the Future"** classroom poster with a transportation timeline and a tracker to record student participation.
- A **Fuel of the Future** teacher site at [timeforkids.com/futurefuel](http://timeforkids.com/futurefuel) where you'll discover
  - Teaching Tools: Lesson planning tips from other teachers.
  - Printables: Downloadable materials, including two bonus activity sheets.
  - Extra in-class experiments, links to resources and more.

We think you'll find the resources in this program to be great fuel for environmental learning on Earth Day—or any day!

Sincerely,

The Editors of TIME For Kids



### QUICK LINKS

Special Fuel of the Future Teacher Site  
[timeforkids.com/futurefuel](http://timeforkids.com/futurefuel)

Detailed explanation of alternative fuel technology  
[chevy.com/fuelsolutions](http://chevy.com/fuelsolutions)

The Nature Conservancy's treasure trove of environmental data  
[nature.org](http://nature.org)



# IN-CLASS ACTIVITIES

For more activities, in-class experiments, worksheets and teacher tips, be sure to visit the special Fuel of the Future teacher site at [timeforkids.com/futurefuel](http://timeforkids.com/futurefuel).

## LANGUAGE ARTS

### Ink It Out

During the week of Earth Day, ask students to keep an *Earth Day Is Every Day* journal. Each day they should write about

- A change they have made in the way they use energy (turning off lights when they leave the room, running a dishwasher only when it's full and so on).
- A change they pledge to make tomorrow.
- A change they imagine they'll make far in the future.

Make sure that students know these journals are **theirs**, and encourage them to keep writing in their journals after Earth Day is over.

## LANGUAGE ARTS

### What If?

Using the alternative fuel sources described in the student guide or on the poster as a basis, ask kids a series of "What if...?" questions and instruct them to let their imaginations run free. For example, one question might be "What if...engines ran on oranges?" Have students choose a "What if...?" question and write a short story about how their day would change because of the alternative energy resource.

## SCIENCE

### How Engine-ous!

Have the class research the technology behind hydrogen fuel cells and other advances listed in the **Fuel of the Future** student guide. (A good place to start gathering information is at [chevy.com/fuelsolutions](http://chevy.com/fuelsolutions).) While doing research, students should focus on how the technology will affect their futures. Ask students to present their findings as oral reports to the class.

## CAREERS/ENVIRONMENT

### Earth Work

Ask students if they're aware that many companies are now hiring "green officers" to help create greener work environments. There are countless careers, such as marine biologist, chemist, automobile engineer and computer designer, in which workers strive to protect the environment and find cleaner ways of doing things. Have students pick a career they might like to pursue. Ask them to write a few paragraphs about how they might work in that job to help make the planet a better place. A good spot to start research is at the Nature Conservancy's site ([nature.org](http://nature.org)).

# IN-CLASS ACTIVITIES

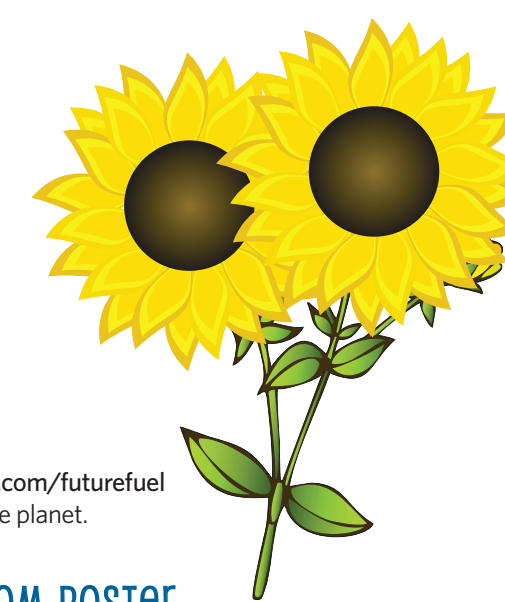
## SCIENCE

### Family Q & A

Ask students to interview an adult family member about the way he or she uses energy. Questions can include:

1. What are the things you use each day that consume the most energy?
2. Are there ways you can cut back on using these things?
3. What fuel is used in the engine of your car?
4. Can you name two different alternative fuel sources for your car?
5. Can you think of any other ways that you could use energy differently?
6. What ways did you use energy as a kid?

Have kids put their interviews into a "Q&A" format.



## MATH

### Show Me The Green Stuff

Looking for a great environmental math activity? Head online to [timeforkids.com/futurefuel](http://timeforkids.com/futurefuel) and click on Earth Talk for math problems dealing with ways kids can help the planet.

## USING THE "MOVING INTO THE FUTURE" CLASSROOM POSTER

There are several ways to integrate the classroom poster into your lesson plans.

1. **Transportation Timeline:** Lead students through the different advances in transportation listed on the poster. Discuss ways they think the world was changed by the events. Ask them to name other kinds of transportation that might have been included. Where would they fit chronologically?
2. **Alternative Fuel Sources:** Ask students about the timeline items in the TODAY and TOMORROW categories. What kinds of fuel do they use? Why are these called "alternative fuels"? How can they help lead us into a cleaner future? What could this technology mean for our country's dependency on foreign oil?
3. **Earth Day Tracker:** Keep track of your classroom's progress in completing one of the activities, such as the "Make a Splash on Earth Day" family experiment or the "Motor Mouth" reproducible. Each time a student completes the selected activity, add him or her to the "thermometer" on the poster. One hundred percent classroom participation should be the goal.

## DID YOU KNOW?

### THE ORIGINS OF EARTH DAY

During the 1960s, people were worried about air pollution, the overuse of pesticides, and large amounts of waste in the Great Lakes. Senator Gaylord Nelson of Wisconsin and Denis Hayes of Stanford University decided to create a national day that would help clean up the world—Earth Day. On April 22, 1970, 20 million Americans participated in the first Earth Day celebration.

## USING THE CHEVY "EARTH DAY LEADER" CERTIFICATES

This reproducible is a terrific incentive to get even the most reluctant kids involved in an environmental activity. As students complete the activity you select from the **Fuel of the Future** program, give them a signed certificate. Have students bring home the certificates for their parents' signatures. They can hang them on their kitchen refrigerators or return them to school where you can post them on a wall for all to see.

## Dear Parent or Guardian,

This week your child's class is taking part in an in-school program called **Fuel of the Future** sponsored by Chevy. Students are exploring the importance of alternative fuel sources—such as hybrid power systems and hydrogen fuel cells—in reaching a cleaner future. You can take a look at this alternative fuel technology for yourself at [chevy.com/fuelsolutions](http://chevy.com/fuelsolutions).

Of course, when it comes to the environment, the word *alternative* shouldn't apply only to fuel. Earth Day is a great opportunity to explore different ways we can use and conserve all of our planet's resources. To illustrate that point with your child and the rest of the family, we encourage you to perform the fun—and wet!—experiment described below.

Happy Earth Day!

Sincerely,

The Editors of TIME For Kids

# Make a Splash This Earth Day

### Goal

Have fun while showing how something as simple as changing a showerhead can really make a difference.

### What You Need

- Family members/Earth Day enthusiasts
- Pen
- Pitcher
- Spot where it's OK for things to get wet
- Bucket
- Measuring cup
- 3 paper cups
- Water
- Notebook for observations

### What You Do

1. Time how long it takes you or your child to take a shower.
2. Using the pen (or scissors, if an adult is present) poke 12 holes in the bottom of one cup, 8 holes in a second cup and 4 in a third.
3. Hold the first cup over the bucket and pour water from the pitcher into the cup, slowly enough so that water doesn't overflow the top of the cup. Do this for 30 seconds.
4. Use the measuring cup to determine the amount of water that passed through the holes. Write your observations in the notebook.
5. Repeat steps 3 and 4 using the second and third cups.
6. With your child, discuss which cup let the most water through and why.
7. Compare the amount of water that passed through a cup in 30 seconds with the shower you timed earlier. For example, if the shower lasted 10 minutes, multiply the amount of water that passed through one cup in 30 seconds by 20 to reach the equivalent amount.
8. Discuss with your child why it's important to use water-saving shower heads.
9. Take action! With the help of your child, install a new eco-friendly showerhead.

You can find more fun environmental activities and experiments at our special Fuel of the Future teacher site at [timeforkids.com/futurefuel](http://timeforkids.com/futurefuel).



This certificate is hereby presented to \_\_\_\_\_ (student's name) \_\_\_\_\_, 2008, \_\_\_\_\_ (month) \_\_\_\_\_ of \_\_\_\_\_ (date) \_\_\_\_\_ for displaying an understanding of alternative fuel sources and for successfully completing the Earth Day Challenge.

The recipient of this certificate pledges not only to spread the word about ways that alternative fuels can lead to a cleaner future but also to have a fun Earth Day!

Teacher's signature



Parent's signature



NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

# MOTOR MOUTH



The planet's oil resources won't last forever. If we're going to keep moving toward a cleaner future, we need to focus more on alternative fuel sources.

You can help by letting people know how important it is to start using new technology. Read the chart below for fun facts you can share with others to get them excited about alternative fuel. Then follow the directions and answer the questions.

ALTERNATIVE ENERGY SOURCE	HOW IT WORKS	FACT TO SHARE
<b>Hybrid</b>		A hybrid vehicle can switch between an electric motor and a gas engine—or use a combination of the two—to save fuel.
<b>Electricity</b>		The Concept Chevy Volt is an electric car that will run on a battery and produce zero emissions on trips under 40 miles.
<b>Ethanol</b>		Vehicles that are powered by E85 Ethanol use a mostly renewable fuel made from corn and other grains.
<b>Hydrogen</b>		The Equinox Fuel Cell will run on renewable hydrogen, needing no gas and producing zero emissions.
<b>Your Big Idea</b>		

1. Fill in the chart with facts and details from this week's *TFK Extra!* Fuel of the Future. (We left blanks next to "Your Big Idea" for you to write in facts for your own alternative source of energy.)
2. Ask a parent or guardian to tell you about the energy sources he or she used as a kid. List them here.
3. How are those energy sources different from the alternative energy sources in the chart? For example, are they renewable?
4. Can you think of other ways to let people know about the importance of alternative fuels?

# HOST A Fuel of the Future Earth Day Celebration

Parties can provide the perfect environment for absorbing and retaining important information. It's often easier to learn when you're having fun or laughing. That's why an **Earth Day Celebration in your classroom** can be so valuable—as both an educational experience and a springboard to future environmental action.

Use this page as a quick guide to planning a Fuel of the Future party.

## STEP ONE

- A. A few days before the party, announce the theme: **Fuel of the Future**. Explain that "alternative fuel sources" is a topic that affects many important environmental issues, such as conserving energy, decreasing our dependency on petroleum, protecting our planet's resources and more.
- B. Discuss ways that this theme could be woven into the party. Students can
  - Research different fuel sources discussed in the student guide and set up "information stations" where party guests can learn more about the fuels.
  - Play Earth Day bingo, in which alternative fuels take the places of numbers.
  - Use "alternative" food coloring for frosting on treats. This will help guests remember that the party is about thinking of new ways of doing things.
  - Reinforce the ideas of the **Fuel of the Future** program by communicating in "alternative" ways, such as writing notes backward on the board.
  - Pick a type of alternative fuel that they will represent at the party. Students can have energy ID badges or wear costumes.

## STEP TWO

Invite another class to your party. Ask each student to make an invitation that explains the theme of the party.

## STEP THREE

Use the chart below to plan out games, snacks and crafts. For activity and crafts ideas, head online to [timeforkids.com/futurefuel](http://timeforkids.com/futurefuel) and click on Teaching Tools, Printables or In-Class Activities.

ITEM	NAME OF ITEM	PARENT VOLUNTEER/STUDENT LEADER	PHONE NUMBER
Treat 1			
Treat 2			
Game 1			
Game 2			
Craft			
Books			
Drinks			
Cups/plates/napkins			

## STEP FOUR

Have fun at the party!

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

# Brain Fuel

Some of the best new ideas come from **having fun**. Without showing this page to a friend, ask him or her to give you an example of the type of word described in each blank. Fill in all of the empty blanks. Now read the story!

**WHAT'S WHAT**

**NOUN:** A word that names a person, a place or a thing

**VERB:** A word that shows action

**PAST-TENSE VERB:** A verb that shows action that has already happened

**ADJECTIVE:** A word that tells more about a noun

**PLURAL:** More than one

**ADVERB:** A word that tells more about a verb, an adjective or another adverb

For Earth Day, my friends and I built vehicles that used alternative fuel. \_\_\_\_\_

put a \_\_\_\_\_ on \_\_\_\_\_ wheels with a(n) \_\_\_\_\_ engine that ran on \_\_\_\_\_

\_\_\_\_\_ every second.

\_\_\_\_\_ decided \_\_\_\_\_ the vehicle should run on \_\_\_\_\_.

\_\_\_\_\_. That \_\_\_\_\_ car held \_\_\_\_\_ passengers.

It could also \_\_\_\_\_ fast, but only when it \_\_\_\_\_.

My car used \_\_\_\_\_ from \_\_\_\_\_ for \_\_\_\_\_.

It \_\_\_\_\_ and \_\_\_\_\_. Plus, it could travel at \_\_\_\_\_

miles per \_\_\_\_\_. I call my car the \_\_\_\_\_

Want a ride?