



## Family Activities

### ELEMENTARY (K—2)

#### ACTIVITY #1

#### Living Room Racecar Rallies

Kids learn more than you think about the laws of physics during routine play. The following activity is fairly free-form, but offers valuable lessons about motion, force, and friction.

Have kids hunt around the house for the following items:

- ramps (kitchen cutting boards, cookie sheets, large atlases or coffee table books, scrap wood or sturdy sheets of cardboard)
- wooden blocks or other objects to hold ramps in place
- small cars
- Toy building pieces with wheels (for making their own cars)
- weights for cars (coins, washers, fishing leads, etc)

Meanwhile, parents can hunt for the following:

- sandpaper, waxed paper, towels and other items (to add friction to ramps)
  - yardstick
  - stopwatch
  - masking tape
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- Help kids set up racing stations around the living room.
  - Begin by testing one car on a smooth ramp. Place it at the starting point at the top and let it go as far as it can go. Measure the distance. Do the same thing two more times. Together with your child, find the average of the three measurements by adding the three numbers, then dividing by three.
  - Do the same thing, except now use a stopwatch and record the time, not the distance.

- Find the average time the car takes to reach the end of its run.
- Now ask your child what would happen if you put something like sandpaper on the ramp. Would the car go just as far? Not as far? Farther?
- Now make your car heavier by taping some weights (like coins) to the top of it. Do you predict the car will go faster or slower? Do the results match your prediction?
- Next, remove and weights and experiment with different materials on the ramp. This time you'll be judging the effects of friction. Let you child decide which materials to use and whether to use a yardstick to measure distance or a stopwatch to track time. Compare the results with the first test run on the bare ramp.
- Based on the results of multiple runs down the ramp, what does your child conclude? How does friction affect motion?
- To make the exercise more real and relevant, bring in some natural materials from outdoors. What might the wheels of your car encounter on the road? Lay plenty of newspaper on the ground, and send your kids out hunting for some dirt, mud, sand, tiny pebbles, leaves, ice or snow.
- Now test your toy cars in real road conditions!
- For more excitement, and to demonstrate a fun lesson on motion and force, set up a demolition derby. Set up two or more ramps across from one another. Start your cars at the top, aim directly for another car, and see if they collide at the bottom of their runs. Try to measure how far one bumps another one off its course. Do this several times.
- Next, start your cars halfway down the ramp. Are the results different? Is the force of the impact greater or smaller? Do this several times. What do you conclude?
- Now walk away and let your kids play. Resist the urge to clean up right away, and you'll have some built-in entertainment for as long as you like.

## **ACTIVITY #2**

### **What's your alt-fuel IQ?**

Challenge kids to spot different kinds of vehicles, based on the type of fuel they use. Think of the license plate game you played as a kid during family car trips. Instead of shouting out "Alaska!" or "Indiana!", in this game you'll shout out "diesel!" or "hybrid!" There are now more than 25 different 2009 models of hybrids hitting the road.

Brush up on some facts about different fuels and which vehicles take which types. As a general rule, most light and heavyweight trucks take diesel. And many new car models are coming out in diesel versions, as the fuel has become increasingly cleaner for the environment. Depending on where you live, you may not see many electric cars, and it's not always easy to spot which ones are running on alternate fuels such as biodiesel or ethanol, but before long you'll be seeing more and more green vehicles on the roads.

Car buffs might prefer to name cars rather than fuel types. Below you'll find a number of lists that name the most green and least green cars. Use these as a guide, and count how many of the top named green cars (or, alternatively, the worst polluters) you see. It may be more fun for kids to shout "smart<sup>®</sup> car!" and "MINI<sup>®</sup>!"

Every now and then, you might even spot a sticker in a car window or on buses indicating an alternative fuel source. For instance, you might see a small blue sticker with the white letters "CNG" for "compressed natural gas." We should be seeing more and more of these in the future.

For more information, check out these links:

EPA Rankings – 2009 most and least fuel-efficient cars

<http://www.fueleconomy.gov/FEG/bestworst.shtml>

GreenerCars.org

Lists "Greenest Vehicles" and "Meanest Vehicles" for the environment

<http://www.greenercars.org/index.htm>

Best mileage for alt-fuel cars (Cars.com)

<http://www.cars.com/go/crp/buyingGuides/green/article.jsp?channel=high-mileage&id=mpgAltClass>

Green Buying Guide (Cars.com)

Lists information on hybrid cars, trucks and SUVs; E85 cars and trucks; diesel cars and more.

<http://www.cars.com/go/crp/buyingGuides/green/article.jsp?channel=high-mileage&id=topUsedMileage>

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MINI is a registered trademark of BMW of North America, LLC.

## **ACTIVITY #3**

### **Make a seasonal food calendar**

Different fruits and vegetables are in season at different times of the year in different regions of the country. It can be easy to forget this when presented with a bounty of beautiful produce year-round in the supermarket.

But it takes huge amounts of fuel to transport produce from all over the country and all over the world to your local supermarket. If you stick to produce that's in season, you'll cut your carbon footprint, trim your family shopping bill, and support local growers, all at the same time.

Kids can make a simple seasonal food calendar to hang in the kitchen as a guide. More than just a creative art project, this is an educational exercise for the entire family and a great way to get all onboard and in the rhythm of eating locally. When kids wait in anticipation for the first sweet strawberries of summer, food takes on a whole new meaning.

- Find a farmer's almanac or gardening book at the library to research what crops are in season each month in your part of the country. You'll find useful charts on the Internet as well, like this one from Sustainable Table:  
<http://www.sustainabletable.org/shop/eatseasonal/>
- Next, make a template for a calendar by either photocopying blank pages of a current calendar at your home, or else print out calendar pages easily found on the Internet.
- Mark the information you find on your calendar and make colorful illustrations to match. For instance, you might have blueberries in July, tomatoes in August, apples in September.
- Next time you're hungry for fresh fruits and vegetables, select produce in season according to the food calendar. You can pick up locally farmed items from the supermarket or a nearby farmers' market. By purchasing items that don't require high amounts of fuel for transportation, you'll be cutting down on your food carbon footprint!

Related activity ideas:

- Grow food indoors
- Can seasonal foods and eat them throughout the year
- Make dried fruit
- Make jam
- Make pickles!

For more information, check out these links:

Growing food indoors

<http://planetgreen.discovery.com/food-health/grow-food-indoors.html?campaign=daylife-article>

Make your own dried fruit

<http://planetgreen.discovery.com/food-health/homemade-dried-fruit.html>

Make your own solar fruit dryer

<http://planetgreen.discovery.com/home-garden/build-a-solar-food-dehydrator.html>



For more resources, visit [www.FuelOurFutureNow.com](http://www.FuelOurFutureNow.com).

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