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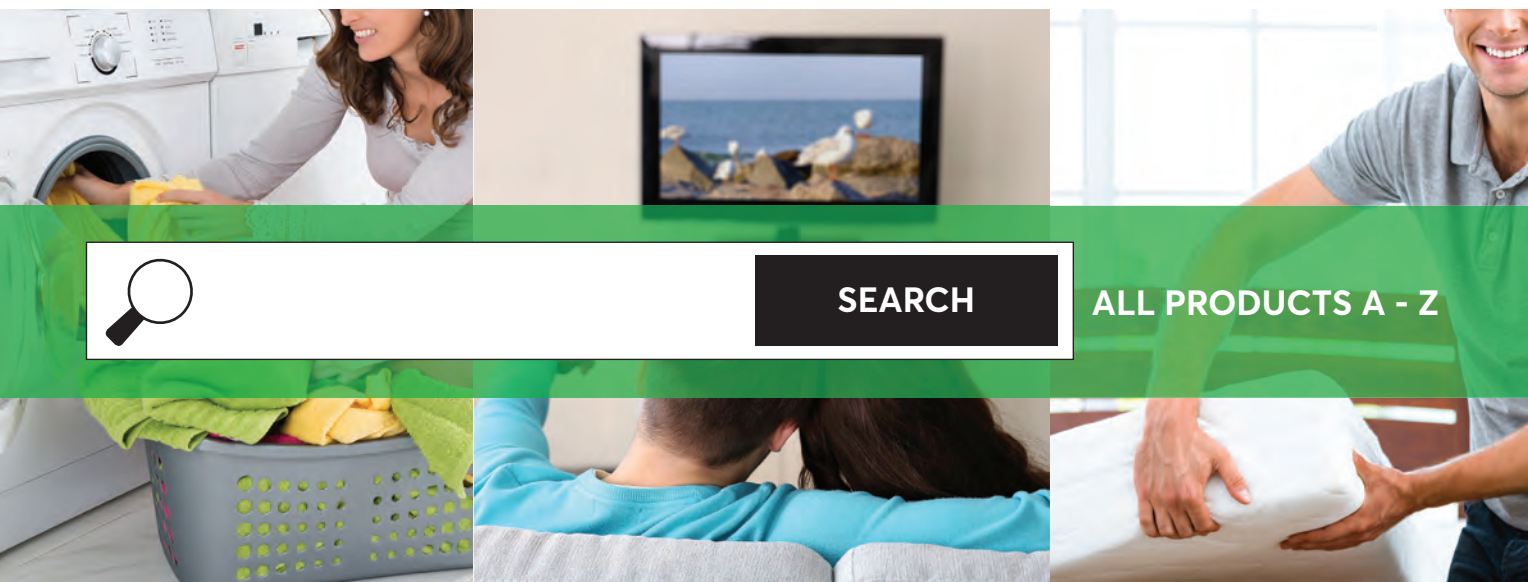
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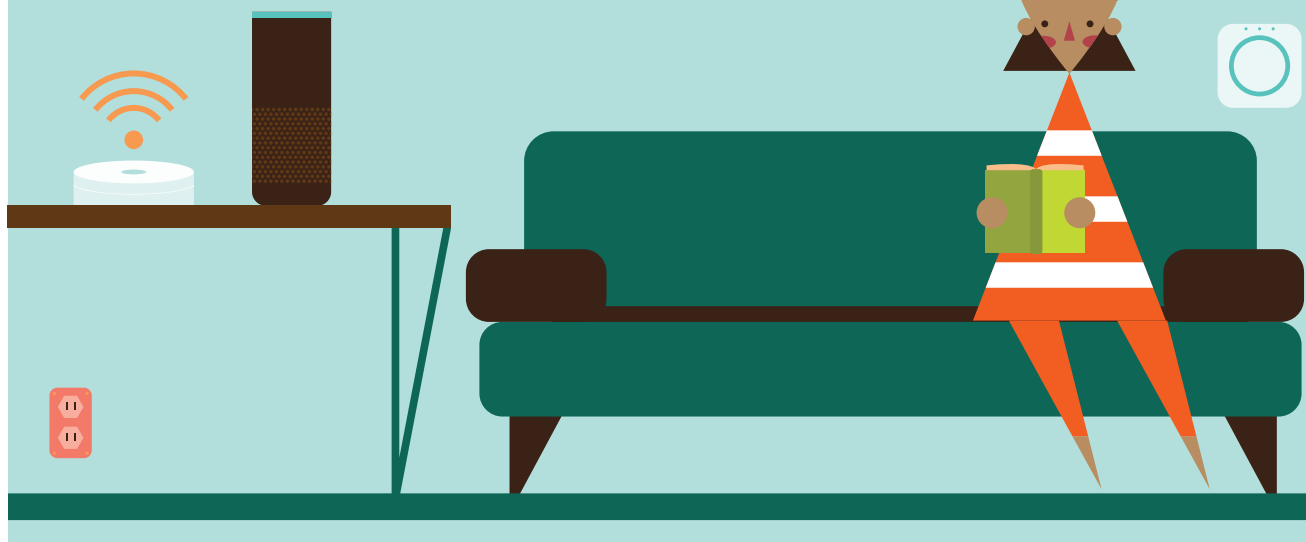
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Boost Your Health & Happiness at Home

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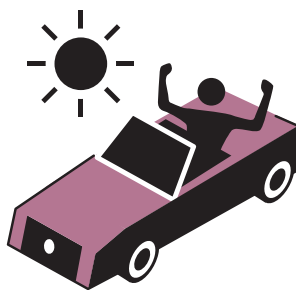
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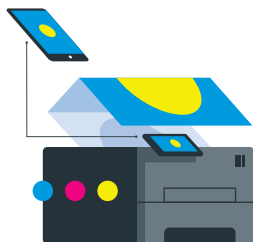
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ABOUT CONSUMER REPORTS

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RATINGS Overall scores are based on a scale of 0 to 100. We rate products using these symbols:

🔴 POOR 🟡 FAIR 🟢 GOOD
🟢 VERY GOOD 🟢 EXCELLENT

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From the President

There's No Place Like Home

IT HAS OFTEN been said—by poets, singers, and greeting card writers alike—that what makes a house a home are the people, the memories, and the love that is shared within it. The sentiment is an accurate one, to be sure, but it doesn't speak to the practical, everyday steps you can take to make the place you live feel a little homier.

Consumer Reports can't help you make a house a home, of course, but we can help you transform your home into one that promotes health and happiness. This month we're offering guidance on how to do just that, with advice on maximizing convenience, minimizing maintenance, and improving safety throughout your home. And whether you dwell in a condo, a colonial, or anywhere else, our experts have something to offer you, from strengthening your wireless signal in every room to stocking the kitchen with health-promoting small appliances, from installing connected water leak sensors that could keep a trickle from becoming a flood to buying countertop materials that can take a beating.



Turning your abode into a space that reflects your lifestyle is one of the biggest joys of homeownership, and we're here to equip you to navigate the complex choices that will allow you to customize your house to meet your needs. It might be a landscape you can love without laboring over, lower utility bills for a healthier wallet, or energy-efficient devices for a cleaner future—whatever it is you care about most, we want to help you find it. Because while your home will always be “where the heart is,” it should be where your values are, too.

Marta Tellado

Marta L. Tellado,
President and CEO
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The Pros and Cons of High-Deductible Plans

In our January 2017 issue, "How to Survive a High-Deductible Health Plan" delved into these increasingly common insurance plans, which offer low monthly costs but require a large cash outlay before the benefits kick in. It resonated with a striking number of our readers. You can join the ongoing conversation at CR.org/highdeductible0317.

I'VE ALWAYS COMMENDED Consumer Reports for tackling challenging, timely, and critical issues. Your most recent article on high-deductible health plans is no exception. However, your article concludes that HDHPs are not the most viable solution to rein in healthcare costs, citing as a reason that employees do not understand how to leverage their use, do not read the literature, do not use the modeling tools, do not research best options. There are many tools employers make available at considerable costs. Employees and employers alike

need to share in this paradigm shift; it is about taking the time to educate oneself on the options. Consumerism is about encouraging Americans to take control of what should be their two most precious assets. —Tom Trautwein, New Milford, CT

YOUR STORY SAYS, "In 2016, two-thirds of people on the exchanges were enrolled in Silver Plans, which have relatively low premiums." Are you kidding? Where do you live? The lowest Silver Plan available to my two-person family is \$1,211.42 per month. That's over \$14,000 a year, and that comes with a \$10,660 max out of pocket. That \$14,000 cost is *before* we have to pay the \$4,000 deductible per person. What kind of world is this when insurance premiums exceed mortgage payments and you call that "relatively low"?

Sounds like somebody at CR has drunk the Kool-Aid. Sooner or later this industrial medical/pharmacy/insurance madness is going to completely collapse. I can't wait. —Terry A. Lee, Shepherdsville, KY

EDITOR'S NOTE *We feel your pain. The average premium for Silver Plans is 17 percent higher this year than in 2016. But Silver Plan premiums are low relative to the other tiers offered on the exchanges. In 2017, the average premium for a 40-year-old in a Silver Plan is \$411 per month vs. \$522 per month for a Gold Plan and \$623 per month for a Platinum Plan. But what you actually pay depends on a number of factors, including your age and where you live. The Silver Plan premium for a 40-year-old individual ranges from \$229 per month in*

Louisville to \$904 per month in Anchorage. But note that about 85 percent of people on Affordable Care Act plans qualify for tax credits that can be paid directly to your insurance carrier to cover premiums; people in Silver Plans might also be able to get cost-sharing subsidies.

ONE THING THAT struck me on page 20, where you list available plans and overall scores: Unless the Anthem-Cigna and Aetna-Humana mergers are blocked, the list would be reduced to just four national plans. I'm unconvinced mergers would in any way improve healthcare or reduce costs. The problem with healthcare in the U.S. is that it's focused solely on making a profit and not on providing affordable, quality healthcare. —Walt Smith, South Windsor, CT

YOUR ENTIRE ARTICLE speaks to the need for a single-payer health system. All the problems you discuss would become obsolete. People would no longer avoid preventive and other necessary care due to anticipated expense. They would not need to invest time in comparison shopping, waste valuable time at doctor appointments discussing costs, schedule needed care around paying off deductibles, nor worry about in-network care (which can be difficult due to narrow, changing, or misleading networks). Other developed nations have some form of a single-payer system, which provides universal access, lower cost, better outcomes, and more choice than ours. Improving and expanding Medicare would mean that we could actually get healthcare instead of investing our personal (and collective) energy in strategizing about how to receive care. —Jessica Schorr Saxe, M.D., Chair, Health Care Justice, Charlotte, NC

IN YOUR ARTICLE on high-deductible health plans, you state that they saddle consumers with "enormous



WRITE

Go to CR.org/lettertoeditor to share your comments for publication.

out-of-pocket” costs. But in the Guide to Health Plans for Federal Employees put out by Consumers’ Checkbook [a nonprofit not affiliated with CR], in which the plans are similar to private plans though available only to federal employees, the high-deductible plans consistently show the lowest annual cost for a variety of family sizes and a variety of medical conditions. Your proposed solution, that everybody should work together to make medical care less expensive, sounds like wishful thinking to me. In the meantime, in the real world, the Consumers’ Checkbook analysis shows that high-deductible plans are a good way for almost all medical consumers to save money.

—Michael Morse, Kensington, MD

OUR HEALTHCARE COMPANY provides a benefit in the form of a reduced deductible amount if we complete a health profile: waist measurement, cholesterol figures, blood pressure, etc., regardless of the data submitted. When will healthcare companies start to offer benefits for practicing healthy lifestyles? My husband and I are in our mid-60s and exercise daily, eat right, and do not smoke or require any medication. People should be rewarded with reduced premiums for good choices and keeping healthcare costs down. Those who make poor choices within their control should be charged more.

—Debbie Weckerly, Melbourne, FL

INSURANCE COSTS REFLECT the real issue: cost of care. Until something is done to lower what it costs to seek medical services, insurance costs will continue to rise. It doesn’t matter what type of insurance plan we have and what our co-pays/deductibles are if what insurance companies are charged by providers and other service entities continues to climb. Insurance isn’t the problem; cost of care is.

—Bret Kinghorn, Sandy, UT

WE ARE STILL paying for private insurance. The only difference is that now the government is saying what has to be covered and then penalizing anybody who doesn’t pay. Meaning that insurance companies can make premiums as high as they want to keep up a profit margin, and every one of us is *forced* to buy their product. The costs will never go down. The only way to control costs is to have doctors paid salaries by the government through taxpayers like in the U.K. and Canada. Essential healthcare is covered. It isn’t socialism. What do you think our military doctors do? Medicaid and original Medicare are similar, although most doctors will take Medicare patients while very few will take patients who are on Medicaid.

—Marge B. Scott, via CR.org

HAVING A HIGH-DEDUCTIBLE health plan myself, I can say that the \$9,500 I save per year will easily pay for my healthcare expenses and will cover my deductible if something unexpected happens. Your article seemed to focus on the reasons why a high-deductible health plan is a bad thing. I understand that premiums aren’t technically “out-of-pocket” expenses, but the money you spend on them never makes it into your pocket. I have more control, and I like it that way.

—Matt Eslinger, Ellensburg, WA

IF YOU WANT to help us “survive a high-deductible health plan” as the title of this article said, you should have emphasized the importance of using a health savings account and selecting a good plan. These important points were only briefly mentioned in the article. For healthy, financially disciplined individuals like me, a high-deductible insurance plan should save money while protecting the purchaser from the devastation of suffering

an extremely expensive medical problem. We need more detail on how to make that happen! Tell us which plans do it best.

—Roger Deemer, Interlochen, MI

In Safe Hands

REGARDING YOUR ARTICLE about hospital infection, “Zero Tolerance,” and its tip No. 4, “Insist on Clean Hands”: If I

told a patient that I washed my hands and he followed your recommendation and asked me to do it again because he didn’t see me do it, I would tell him to find another doctor. If you can’t trust your doctor when he tells you he cleaned his hands, then how can you trust him with your life?

—Joseph Wiesel, M.D., West Hempstead, NY



Protecting the Planet

I AM WRITING as a 20-plus-year subscriber about something troubling that I just realized. Nowhere in the past 10 years have I read anything in CR about climate change and the effects that the products reviewed by CR, namely automobiles, among others, have on the environment. This bothers me even more because while mileage ratings have gone up in some classes of vehicles, they are still very poor for SUVs and pickups, which the majority of consumers are buying. If CR cares about our global climate future, it’s imperative that CR hold manufacturers accountable for improving mileage standards and offering more hybrid-electric vehicles.

—Charles Dunn, Fairfield, CT

EDITOR’S NOTE We’re glad you asked. Your concerns represent a key pillar of our automotive coverage. Through buying and testing

about 70 vehicles per year, CR has played a very active role in holding automakers accountable for fuel economy over the past decade. We have often identified discrepancies between the official fuel economy rating on window stickers and what consumers would experience in the real world, and reported them to the Environmental Protection Agency. Further, CR has been a champion for increased fuel-economy standards. Our Washington, D.C., office provides federal agencies and legislators with guidance, survey data, and testimony to support and shape rules. As a result of stronger standards, fuel economy is up across all passenger-vehicle categories, with larger models improving at the fastest rate. But we agree that there’s more work to be done: We’ve advocated for the rules to ratchet up to a 54.5 mpg regulatory (40 mpg real-world) target by 2025. Learn more at [CR.org/fuel](https://www.consumerscheckbook.org/fuel).



A Victory for Free Speech

IN OUR NOVEMBER column, we highlighted the Consumer Review Fairness Act, then a bill in Congress that aimed at protecting consumers' voices within the marketplace. Since then, both Republicans and Democrats on Capitol Hill came together to send the bill to President Obama, who signed it into law before he left office.

The Act puts an end to one of the more disgraceful practices we've seen in online commerce. The lowdown: Companies that sold products and/or services were trying to stop consumers from posting negative online reviews about what they'd bought by burying "gag orders" or "non-disparagement clauses" deep within the fine print of their purchase contracts or terms of service. Those clauses said that all consumers who bought the product or service "agreed" never to say anything negative about the experience and "agreed" to be subject to penalties if they did complain.

And companies tried to enforce the clauses, too. A couple in Utah, for example, was hit with

a \$3,500 penalty for posting a negative review. When they refused to pay, the debt was reported to the credit bureaus. And consumers in Texas were sued for a bad review of a pet-sitting service, which asked for a million dollars in damages.

Consumer Reports had long been pushing Congress to stop this underhanded attempt to prevent consumers from exercising their rights. Our policy experts in Washington worked with the lawmakers who wrote the bill and pressed politicians to promote it at every stage, helping generate bipartisan support in the House and Senate.

We believe there should be no room in the marketplace for bullies, and thankfully, this form of silencing is now against the law, can't be enforced against consumers, and is subject to action by the Federal Trade Commission and the state attorneys general.

This protection ensures that you have the ability to share your honest reviews of the companies you do business with, while also protecting the rights of organizations like Consumer Reports to publish firsthand accounts from our readers. We are proud to have played a part in making this law a reality.

Wanted: Justice for Bank Fraud Victims

IN THE WAKE of Wells Fargo's fake-account scandal, bank representatives promised to make things right. But that apparently doesn't include allowing legal redress for its millions of defrauded consumers. The mega-bank is evading lawsuits, thanks to boilerplate fine print tucked inside its customer contracts. Those clauses prohibit lawsuits, instead forcing patrons through a private arbitration process.

In response, Sen. Sherrod Brown, D-Ohio, and Rep. Brad Sherman, D-Calif., have introduced the Justice for Victims of Fraud Act of 2016, aimed at preserving the legal rights of consumers like the Wells Fargo fraud victims. CR strongly endorses this bill and has opposed forced arbitration clauses for years.

"It's outrageous that Wells Fargo is still trying to give the brush-off to millions of customers it defrauded with bogus accounts by now forcing

them into the black box of arbitration," says George Slover, our senior policy counsel. This legislation would ensure that Wells Fargo (and any other bad actor who attempts this kind of fraud) "has to answer to its defrauded customers in a real court of law," Slover explains.

To learn more about mandatory arbitration clauses, go to CR.org/hiddenclauses.

Raising Red Flags About a Media Merger

AFTER ITS ACQUISITION of DirecTV in 2015, AT&T became the largest pay-TV company in the world. That's on top of its 100 million-plus wireless phone customers. Now it wants to grow even bigger—by buying corporate giant Time Warner, the media powerhouse that's home to CNN, HBO, TNT, and the Hollywood studio Warner Bros., for \$85 billion.

The companies' CEOs have promised that the merger would be a boon for consumers, but CR has serious concerns about how AT&T might seek to maximize the value of premium content like HBO. What if it restricted content from its competitors? What if the content got "zero-rated"—was data-free—only for AT&T cellular customers?

Fortunately, this latest mega-merger must win approval from regulators in Washington. To represent consumers' interests, we submitted testimony pointing out that market competition benefits consumers far more than monopolies do.



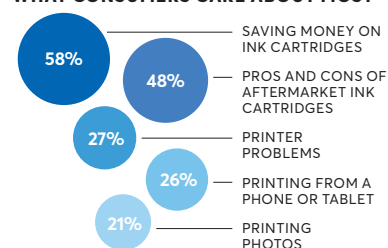
LEARN

As a new administration assumes control in Washington, we surveyed Americans about what consumer issues weigh most on their minds. For results, go to CR.org/pulse0317.

Product Updates

The latest ratings from our labs

PRINTER PRIORITIES: WHAT CONSUMERS CARE ABOUT MOST*



Black & White
Laser
SAMSUNG
XPRESS
M2835DW
\$140

82

OVERALL
SCORE



All-in-One
Black &
White Laser
CANON
IMAGE
CLASS
MF229DW
\$300

81

OVERALL
SCORE



All-in-One
Inkjet
EPSON
EXPRESSION
PREMIUM
XP-830
\$160

74

OVERALL
SCORE



Inkjet
HP
OFFICEJET
200
MOBILE
\$230

70

OVERALL
SCORE

You Can Find Just Your Type!

Our ratings and advice will guide you to the home printer that's right for you—and tell you how to save money using the one you already own.

* Source: Consumer Reports 2016 Summer Product Reliability Survey.

Product Updates

PRINTERS THESE DAYS can be surprisingly inexpensive. In fact, you can often find one on sale for less than \$50. But buyer beware: If you pick a printer just because it looks like a steal, there's a good chance you'll end up feeling robbed.

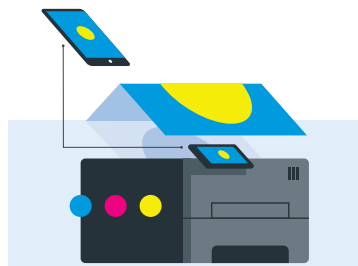
That's because the cost of owning a printer doesn't end with that first trip to the cash register—not by a long shot. You're going to have to buy replacement ink, which, at up to \$87 per ounce, can add up quicker than a bar tab at a bachelor party. Our lab tests show that with some ink-guzzling models, you could spend more than three times the cost of the printer on ink over two years. No wonder more than half of the 53,000 subscribers we surveyed about product reliability last summer said they wanted to know how to save money on ink.

The good news is that Consumer Reports never stops putting printers through their paces. Our ratings (which indicate both the cost of ownership and how much ink a model uses) will help you find one with the features you need that won't cost a fortune to operate. We'll even tell you how you can save money using the printer you already own.

Ink Outside the Box

You might think you don't need to worry about the cost of ink if you print only occasionally. But you'd be wrong. With some printers, the less frequently you use them, the more ink they drink. Inkjets, the most popular kind of home printer, use ink for a maintenance cycle—mostly to keep printheads clean after the printer has been sitting idle. Some of them can really guzzle it.

The ink used for maintenance never makes it onto a page but is deposited into an internal reservoir known in the industry as a “spittoon” or “diaper.” With intermittent use, plenty of models we tested used half or less of the ink in a cartridge for printing; some used as little as 20 to 30 percent, meaning that people who print



Beyond the Basics

These features are available on regular and all-in-one models, and can add value and versatility to your next printer purchase.

➤ **Autoduplexing:** Allows you to save paper by easily printing on both sides of a page. Or you can print the odd-numbered pages first, flip them over, place them back in the paper feed, and then print the even-numbered pages.

➤ **LCD screen:** A built-in screen lets you easily navigate a printer's functions and, on some printers, view and edit images from a memory card.

➤ **Separate cartridges:** In addition to black, most color inkjet printers use cyan, magenta, and yellow ink (some use even more colors), which, depending on the model, can be supplied in individual cartridges or combined into a single cartridge. Separate cartridges can save you money; you replace just the color that's running low. When a single cartridge runs out of color, you need to replace the whole thing.

➤ **Connectivity:** Wireless printers allow you to print directly from the internet or a mobile device (such as printing photos directly from your phone) and eliminate the need for cords or placing the printer next to the computer.

➤ **Photo quality:** If you'll be using the printer to produce photographs, choose one that rates highly in photo quality in our tests. Also look for models capable of printing larger formats.

infrequently could end up spending more on ink than those who print a steady stream of pages.

Printers from Brother were generally thrifty with ink when used intermittently. Other brands varied. For example, Epson's Expression Premium and Expression Home series printers used relatively little ink for maintenance, but Epson's other series we tested used much more.

We found no correlation between ink guzzling and print quality in our tests, but we did find that printers that use the most maintenance ink could add \$100 (and up to \$200) to the cost of operating them each year. So look for ones that sip ink rather than chug it. You can find them by referring to the Maintenance Ink Use column in our ratings.

Fill 'Er Up!

To satisfy ink misers everywhere, Epson rolled out its game-changing EcoTank line of printers in 2015. Instead of using cartridges, EcoTank printers come with ink tanks that are less expensive to refill than traditional cartridges are to buy. (Canon introduced its own line of ink-tank models to the U.S. market, the Pixma G-series MegaTank printers, at the end of 2016. We'll be testing them later this year.)



MAKE IT BETTER

Our ask for product improvements

Our testing of hundreds of **INKJET PRINTERS** has us seeing red over how much ink they waste. With some models, less than half of what's in an ink cartridge makes it onto a page. The rest is used to clean printheads and then dumped into what the industry calls a “spittoon” or “diaper.” This long-standing design flaw needs to be addressed. Our experts hereby challenge manufacturers to design printers that make better use of every drop of ink. Consumers will get more of their money's worth and cartridges will stay in use longer, which is better for the planet.

EcoTank printers come with what the company claims is enough ink to last up to two years (based on a generous print volume of black-and-white and color pages). When the ink runs out, you can replace all four colors for about \$50, which should last about another two years. Buying the same amount of ink for a regular inkjet would cost about \$800.

The more expensive EcoTank printers rated Very Good in terms of text quality; the less expensive models rated Fair. But there's no question that they're crowd-pleasers: 58 percent of the EcoTank owners we surveyed said they were completely satisfied with their printer vs. 37 percent of those who owned other Epson inkjet printers purchased since 2015. EcoTank printers

are also comparatively trouble-free. Only 8 percent of EcoTank owners reported problems with their printer vs. 17 percent of those who owned other Epson inkjet printers. EcoTank printers are pricey (they start at about \$300) compared with regular inkjets. But Rich Sulin, who tests printers for CR, says that an EcoTank will save you money in the long run, paying for itself after about three years of use. Still, if you're only printing documents in black and white, a black-and-white laser printer will deliver more options and better quality at a lower price.

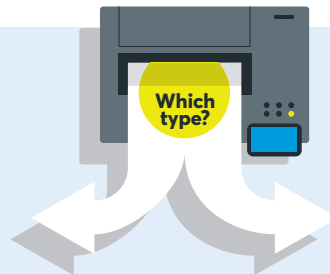
How to Pick the Perfect Printer for You

The variety of printers can be overwhelming. Answering these two questions will help guide you to one that will best meet your needs and match your budget.

1. Do you want a dedicated model or an all-in-one?

A dedicated or "regular" printer does nothing but print. All-in-one models offer additional functions such as scanning, photocopying, and faxing, and they come in inkjet and laser versions. The advantage of an all-in-one is that it can save space and is less

expensive than buying a separate scanner, fax, and photocopier. The downside is that an all-in-one printer doesn't generally offer the range of features of a dedicated scanner, fax, and photocopier. And if one of the functions of an all-in-one printer stops working, you'll have to repair or replace the entire unit.



2. Should you go with an inkjet or a laser printer?

Each type has distinct benefits and drawbacks. Here's a comparison of the two:

LASER

These printers create text and graphics by transferring toner (powdered ink) to paper passing over an electrically charged drum.

Price: \$100 to \$550

Pros: Black-and-white lasers are able to quickly print extremely sharp black text and charts (12 to 25 pages per minute) for 1 to 5 cents per page. They generally have low ownership costs. (Color laser printers are usually slower and more expensive.)

Cons: They're not good at printing photos (though color laser printers do a fine job with color graphics).

Best for: Novelists, students, and anyone else who prints text and graphics exclusively and is looking for high-quality copies and a low cost of ownership.

INKJET

More popular than laser printers for home use, inkjet printers spray fine droplets of ink onto paper to form letters, graphics, and photographs.

Price: \$30 to \$400

Pros: Inkjets print text and color graphics and are by far the best choice for printing color photographs. They accept several sizes of paper and have become much faster at printing text, with many models now just as fast as laser printers.

Cons: On average, they cost about 33 percent more to operate than black-and-white laser printers, mostly because of ink costs.

Best for: Photographers, hobbyists, and anyone else who wants to print in color.

Other Ways to Save

You don't need to buy a new printer to trim your ink expenses. These tips will help you save money with the inkjet printer you already own:

Consider capacity. Remember to think about not just the price of ink cartridges but also their capacity. For example, HP's 950 cartridge costs \$29 and yields 1 ounce of black ink for \$29 per ounce. The 950XL cartridge yields 2.8 ounces of ink and costs \$40, or \$14 per ounce.

Leave it on. Leaving your printer on may reduce ink-guzzling maintenance cycles. (Inkjets that are Energy Star compliant consume very little power when left on but not in use.)

Try aftermarket cartridges. Ink cartridges manufactured by third parties usually cost less than name-brand cartridges and are widely available online. Just over one-third of our survey respondents reported having used third-party cartridges. Of those, 63 percent said that they worked just as well as name-brand cartridges; 36 percent said they performed worse.

Print with less ink. If it's for your personal use and you're more concerned about saving money than about print quality, consider using "draft" mode, which uses less ink. And avoid using heavy fonts like Arial, which will empty your cartridges faster than other fonts.

Ratings ➤ **Printers: Black & White and Beyond** Use the advice on the previous pages to help you decide which type of printer you want, then consult these curated ratings to find the one that best fits your needs and budget.

		Brand & Model	Price	Overall Score	Test Results								Features							
Recommended	Rank				Text Quality	Text Speed	Graphics Quality	Photo Quality	Maintenance Ink Use	Scan Quality	Copy Quality	Cost of Ownership (\$)	Height (In.)	Width (In.)	Depth (In.)	Built-In Fax	Autoduplexing	Individual Color Tanks	Can Print If Color Empty	Networking*
		ALL-IN-ONE BLACK-AND-WHITE LASER PRINTERS																		
✓	1	Canon ImageClass MF229DW	\$300	81	⬆	⬆	⬆	NA	⬆	⬆	⬆	400	14.1	15.4	18.9	•	•			E, W
✓	2	Samsung Xpress M2885FW	\$270	77	⬆	⬆	⬆	NA	⬆	⬆	⬆	350	14.1	15.8	16.1	•				W
✓	3	Samsung Xpress M2070FW	\$210	76	⬆	⬆	⬇	NA	⬆	⬆	⬆	330	12.0	15.9	17.8	•				E, W
✓	4	Dell S2815dn	\$260	76	⬆	⬆	⬇	NA	⬆	⬆	⬆	320	19.3	17.0	21.3	•	•			E
✓	5	Dell H815dw	\$280	76	⬆	⬆	⬇	NA	⬆	⬆	⬆	340	19.3	17.0	21.3	•	•			E, W
	6	Canon ImageClass MF212w	\$150	75	⬆	⬆	⬇	NA	⬆	⬆	⬆	270	12.2	15.2	18.0					E, W
	7	Brother MFC-L5700DW	\$350	75	⬆	⬆	⬇	NA	⬆	⬆	⬆	410	19.1	16.9	18.3	•	•			E, W
	8	Brother DCP-L5500DN	\$300	74	⬆	⬆	⬇	NA	⬆	⬆	⬆	360	19.1	16.9	18.3		•			E
	9	Ricoh SP 213SFNW	\$250	74	⬆	⬆	⬆	NA	⬆	⬆	⬆	360	11.5	15.7	17.0	•				E, W
	10	Brother MFC-L2740DW	\$200	74	⬆	⬆	⬇	NA	⬆	⬆	⬆	310	12.4	16.2	17.6	•	•			E, W
	11	Brother MFC-L2700DW	\$150	74	⬆	⬆	⬇	NA	⬆	⬆	⬆	260	14.6	16.2	17.2	•	•			E, W
	12	Dell E514dw	\$160	71	⬆	⬆	⬇	NA	⬆	⬆	⬆	260	14.2	16.0	17.5		•			E, W
	ALL-IN-ONE INKJET PRINTERS																			
💰	1	Epson Expression Premium XP-640	\$90	74	⬇	⬆	⬆	⬇	⬆	⬆	⬆	330	5.5	15.3	20.5		•	•	•	W
💰	2	Epson Expression Premium XP-830	\$160	74	⬆	⬆	⬆	⬆	⬇	⬆	⬆	380	8.1	15.4	19.6	•	•	•	•	E, W
✓	3	HP Envy 7640	\$150	71	⬆	⬆	⬆	⬇	⬆	⬆	⬆	410	7.6	17.8	23.9	•	•		•	E, W
✓	4	Epson Workforce Pro WF-5690	\$460	71	⬆	⬆	⬆	⬆	⬇	⬆	⬆	600	16.6	18.0	23.7	•	•	•	•	E, W
💰	5	Brother MFC-J680DW	\$120	70	⬇	⬆	⬇	⬆	⬇	⬆	⬆	320	9.0	16.5	19.0	•	•	•		W
💰	6	Canon Pixma MX532	\$150	70	⬆	⬆	⬆	⬆	⬇	⬆	⬆	370	7.9	18.0	25.7	•	•		•	W
💰	7	Epson Workforce Pro WF-4630	\$200	70	⬆	⬆	⬆	⬇	⬇	⬆	⬆	360	14.8	17.8	23.5	•	•	•	•	E, W
✓	8	Epson Workforce Pro WF-6530	\$500	69	⬆	⬆	⬆	⬇	⬇	⬆	⬆	720	21.1	19.9	29.1	•	•	•	•	E, W
✓	9	Epson Expression Photo XP-960	\$230	68	⬇	⬆	⬇	⬇	⬆	⬆	⬆	470	5.7	18.8	20.7		•	•	•	E, W
✓	10	HP Envy 5540	\$100	68	⬆	⬆	⬆	⬇	⬆	⬆	⬆	360	6.1	17.8	20.3		•		•	W

		Brand & Model	Price	Overall Score	Test Results								Features							
Recommended	Rank				Text Quality	Text Speed	Graphics Quality	Photo Quality	Maintenance Ink Use	Scan Quality	Copy Quality	Cost of Ownership (\$)	Height (in.)	Width (in.)	Depth (in.)	Built-In Fax	Autoduplexing	Individual Color Tanks	Can Print If Color Empty	Networking*
ALL-IN-ONE INKJET PRINTERS (Continued)																				
✔	11	Brother MFC-J6520DW	\$240	68	↓	↑	↓	↑	↓	↑	↑	350	9.6	21.7	23.1	•	•	•	•	E, W
✔	12	Brother MFC-J985DW	\$200	68	↓	↑	↓	↑	↓	↑	↑	350	6.8	18.9	18.9	•	•	•		E, W
	13	Canon Pixma MG3620	\$60	67	↓	↑	↓	↑	↓	↑	↑	280	6.1	17.6	22.7		•		•	W
	14	Brother MFC-J5920DW	\$280	67	↓	↑	↓	↑	↓	↑	↑	380	14.3	21.2	24.0	•	•	•		E, W
	15	HP Envy 4520	\$80	67	↓	↑	↓	↑	↓	↑	↑	420	4.8	17.6	23.3		•		•	W
	16	Canon Pixma MX492	\$70	66	↑	↑	↑	↑	↑	↑	↑	330	8.9	16.9	20.7	•			•	W
	17	HP OfficeJet 3830	\$80	66	↓	↑	↑	↑	↑	↑	↑	390	11.3	17.6	22.9	•			•	W
	18	Brother MFC-J6720DW	\$230	66	↓	↑	↓	↑	↓	↑	↑	350	12.2	21.9	23.1	•	•	•	•	E, W
	19	Brother MFC-J6925DW	\$300	65	↓	↑	↓	↑	↓	↑	↑	400	15.9	23.1	23.3	•	•	•		E, W
	20	Brother MFC-J4620DW	\$160	65	↓	↑	↓	↓	↓	↑	↓	340	7.4	18.9	17.6	•	•	•		E, W
	21	Brother MFC-J6920DW	\$150	64	↓	↑	↓	↓	↓	↑	↑	260	12.3	22.1	23.1	•	•	•	•	E, W
	22	Brother MFC-J5720DW	\$200	63	↓	↑	↓	↑	↓	↑	↓	350	14.3	21.0	24.1	•	•	•		E, W
	23	Brother MFC-J4420DW	\$100	62	↑	↑	↑	↓	↑	↑	↓	280	7.2	19.0	17.6	•	•	•		W
	24	Canon Pixma MG3520	\$40	62	↓	↑	↑	↑	↓	↑	↑	260	6.0	17.6	17.2		•		•	W
	25	Canon Maxify MB5020	\$150	62	↑	↑	↓	↑	↓	↑	↑	310	11.4	18.4	24.6	•	•	•	•	E, W
	26	Epson Expression Home XP-430	\$70	61	↓	↑	↑	↓	↑	↓	↑	310	11.7	15.2	21.0			•	•	W
	27	Canon Maxify MB5320	\$200	61	↑	↑	↓	↑	↓	↑	↑	370	13.9	18.2	24.8	•	•	•	•	E, W
	28	HP OfficeJet Pro 8720	\$250	61	↑	↑	↑	↑	↓	↑	↑	430	13.2	20.0	21.1	•	•	•		E, W
	29	Epson WorkForce WF-2760	\$130	61	↑	↑	↑	↓	↓	↑	↑	420	9.0	16.7	21.9	•	•	•	•	E, W

Printer ratings continued on next page.

		Brand & Model	Price	Overall Score	Test Results						Features						
Recommended	Rank				Text Quality	Text Speed	Graphics Quality	Photo Quality	Maintenance Ink Use	Cost of Ownership (\$)	Height (In.)	Width (In.)	Depth (In.)	Autoduplexing	Individual Color Tanks	Can Print If Color Empty	Networking*
		BLACK-AND-WHITE LASER PRINTERS															
💰	1	Samsung Xpress M2835DW	\$140	82	⬆️	⬆️	⬆️	NA	⬆️	210	9.2	14.4	15.9	•			E, W
✓	2	Canon ImageClass LBP6230DW	\$150	77	⬆️	⬆️	⬇️	NA	⬆️	300	9.6	15.0	17.0	•			E, W
✓	3	HP LaserJet Pro M501dn	\$550	76	⬆️	⬆️	⬇️	NA	⬆️	590	11.4	16.5	14.8	•			E
💰	4	Samsung Xpress M2020W	\$120	76	⬆️	⬆️	⬇️	NA	⬆️	230	9.8	13.1	14.6				W
✓	5	HP LaserJet Pro M402dn	\$200	73	⬆️	⬆️	⬇️	NA	⬆️	260	8.7	15.2	15.4	•			E
✓	6	Brother HL-L2360DW	\$150	73	⬆️	⬆️	⬇️	NA	⬆️	260	7.2	14.4	15.4	•			E, W
	7	Brother HL-L5200DW	\$220	72	⬆️	⬆️	⬇️	NA	⬆️	280	11.3	14.6	17.4	•			E, W
	8	Brother HL-L6250DW	\$300	72	⬆️	⬆️	⬇️	NA	⬆️	340	12.5	14.4	17.6	•			E, W
	9	Brother HL-L6200DW	\$250	72	⬆️	⬆️	⬇️	NA	⬆️	290	12.5	14.4	17.6	•			E, W
	10	Dell S2810dn	\$160	71	⬆️	⬆️	⬇️	NA	⬆️	230	13.8	16.1	19.4	•			E
	11	Dell E310dw	\$110	71	⬆️	⬆️	⬇️	NA	⬆️	210	8.0	14.1	16.2	•			E, W
	12	Brother HL-L2340DW	\$100	70	⬆️	⬆️	⬇️	NA	⬆️	210	7.9	13.8	16.2	•			W
	13	Brother HL-L5100DN	\$190	70	⬆️	⬆️	⬇️	NA	⬆️	250	11.3	14.6	17.4	•			E
	14	HP LaserJet Pro P1102w	\$160	70	⬆️	⬆️	⬇️	NA	⬆️	320	8.8	13.7	15.5				W
		INKJET PRINTERS															
✓	1	HP OfficeJet 200 Mobile	\$230	70	⬆️	⬆️	⬆️	⬆️	⬆️	470	10.9	14.1	19.6			•	W
✓	2	Epson Workforce Pro WF-5190	\$300	67	⬆️	⬆️	⬆️	⬆️	⬇️	440	16.6	18.0	23.7	•	•	•	E, W
	3	Epson Workforce WF-100	\$200	63	⬇️	⬆️	⬇️	⬆️	⬆️	560	10.4	12.7	21.8			•	W
	4	Canon Pixma iP110	\$180	62	⬆️	⬆️	⬆️	⬆️	⬇️	470	10.9	15.1	22.2				W
	>	CRO subscribers can go to CR.org for complete up-to-date ratings.															

HOW WE TEST: Score is based on speed and quality of print, scan, and copy functions, plus ease of use. The

displayed score is out of a total of 100 points. Maintenance Ink Use is the amount of extra ink used by the

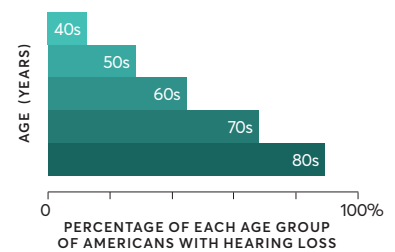
printer to maintain its printheads. Cost of Ownership includes the purchase price of the printer and

the ink it will consume with regular use over a two-year period.

Insights

Notable news and smart solutions

HEARING-LOSS INCIDENCE IN ONE OR BOTH EARS INCREASES AS WE AGE*



No More Suffering in Silence?

Hearing loss is a widespread problem associated with depression and perhaps even dementia. We report on affordable solutions and what's being done to give everyone access to treatment.

by **Julia Calderone**



AGE-RELATED HEARING loss has long been thought of as an inevitable part of getting older, more a nuisance than a life-altering medical condition—at least by those not experiencing it. But that’s all changing. In the past two years, the President’s Council of Advisors on Science and Technology (PCAST) and the National Academy of Sciences (NAS) have published reports calling untreated hearing loss a significant national health concern, one that’s associated with other serious health problems, including depression and a decline in memory and concentration. Several studies even suggest a link between hearing loss and dementia.

The estimated 48 million Americans affected by hearing impairment didn’t need that memo. More than 100 years ago, Helen Keller, who was deaf and blind, described the isolation caused by hearing loss aptly when she said: “Blindness

separates people from things. Deafness separates people from people.”

Lise Hamlin, director of public policy for the nonprofit Hearing Loss Association of America (HLAA) echoes that sentiment: “We’re social creatures. When you shut down the ability to talk and interact with people, that isolation affects your health and your ability to participate in society.”

Recent research shows that the number of Americans of working age with hearing loss has declined slightly, but it continues to be a problem for seniors, affecting 28.6 million Americans ages 60 and older.

Despite the prevalence of hearing loss and the negative impact it can have on health and quality of life, relatively few people seek treatment. Almost half of the 131,686 Consumer Reports subscribers surveyed for our 2015 Annual Fall Questionnaire reported having trouble hearing in

Some advocacy groups say that hearing aids are more expensive than they should be and that cost is an obstacle to treatment.

noisy environments, yet only 25 percent had their hearing checked in the previous year. And according to research published in the Archives of Internal Medicine, just 14 percent of those who could benefit from hearing aids actually use them.

People don’t seek help for several reasons. A common one, according to NAS, PCAST, and others, is that they can’t afford it. NAS reports that hearing aids cost an average of \$4,700 per pair in 2013 and can climb to almost twice that price. And they’re usually not covered by health insurance or Medicare.

No wonder the market for less expensive, over-the-counter hearing helpers known as PSAPs (personal sound amplification products) is growing.

We dug deep to find out why hearing aids and treatment for hearing loss can be so costly, and what’s being done to bring solutions within reach. We also tried several PSAPs

Now Hear This

Where do you fall on the hearing-loss spectrum?

THERE ARE two main types of hearing loss. **Sensorineural**, the most common, is usually caused by the destruction of hair cells in the inner ear due to aging, certain drugs, heredity, loud noises, and nerve damage from illnesses

like mumps. It’s the type that most affects people over 60 and is treated with hearing aids or cochlear implants, devices that send sound signals directly to the auditory nerve, which carries them to the brain. **Conductive** hearing loss occurs when a

physical block such as earwax or a malformation stops sound from traveling through the ear canal. Removing the blockage or corrective surgery usually restores hearing. Hearing loss is measured by degrees ranging from mild to profound.

Although the best way to know whether you have a hearing impairment—and to what degree—is to see an audiologist or other hearing professional, this graphic can give you an idea of where you may fall on the scale.



Mild

Difficulty hearing soft speech or quiet conversations, or sounds such as a babbling brook.



Moderate

Trouble hearing conversations amid background noise; inability to hear the hum of a refrigerator motor.



Moderate/Severe

Difficulty understanding group conversations or hearing sounds such as a running shower or an air conditioner.



Severe

Inability to hear speech at normal volumes and sounds such as a toilet flushing or a garbage disposer.



Profound

Difficulty hearing or total inability to hear even the loudest of noises, such as a revving motorcycle engine.

to determine whether they're an affordable alternative to hearing aids for some people. Here's what we uncovered.

Great Strides in Treating Hearing Loss

Though most of us take our hearing for granted until we begin to lose it, the ability to perceive and make sense of sound is a marvel. In simple terms, sound waves travel through the air to the inner ear. There, microscopic hair cells convert them into electrical signals that are shuttled to the brain, which interprets them as meaningful sounds, language, music, and more.

But a constellation of abnormalities in the auditory system can cause this process to malfunction. For those who have mild to severe hearing problems (see "Now Hear This," on the facing page), hearing aids have traditionally been the solution.

These prescription devices contain a microphone that picks up and converts sound waves into electrical signals and an amplifier that makes the signals louder. The amplified sounds are directed by a speaker to the inner ear, where hair cells detect them and send them to the brain.

Worn in or behind the ear, hearing aids have come a long way since the handheld ear trumpets of the 19th century, particularly in the past 20 to 30 years. Today's aids are smaller and, thanks to digitization, better at amplifying sound specifically in the frequencies where it's needed. Most aids can now be adjusted by wearers for a variety of environments, from quiet rooms to loud parties.

Modern hearing aids are also better at reducing unpleasant feedback and background noise. They often have telecoils, small copper wires that improve sound clarity by picking it up directly from phones and public-address systems. At the higher end, hearing aids may have features such as Bluetooth connectivity, allowing users to

stream music and take phone calls through them.

A result of this progress is that 46 percent of our survey respondents reported that they were very or completely satisfied with their aids. Just 3 percent of those who reported trouble hearing but don't use hearing aids noted that they had tried the devices and found they didn't work.

Despite the advances, experts say that even the most sophisticated devices can't fully normalize impaired hearing. As Marvin M. Lipman, M.D., Consumer Reports' chief medical adviser, notes: "No hearing aid can match the efficiency and function of the human ear. There's nothing like the real thing."

Some people benefit more from hearing aids than others. "You can have two people with identical audiograms who have very different functionality," says Debara Tucci, M.D., a professor of otolaryngology at the Duke University Medical Center, referring to a commonly used hearing test.

In many cases, people don't think their hearing loss is severe enough to warrant treatment or they simply don't want to wear aids. Then there's the image problem: Hearing aids are still sometimes viewed as a sign of faltering health. "There's much more of a stigma about wearing a hearing aid than there is for wearing glasses," says James C. Denneny III, M.D., CEO of the American Academy of Otolaryngology-Head and Neck Surgery.

Priced Out of Treatment Options

You can buy the newest smartphone, a far more complex device than any hearing aid, for less than \$1,000. But hearing aids typically cost \$3,300 to \$8,000 per pair—and prices continue to rise.

Groups such as NAS and PCAST say that hearing aids

5 Ways to Save Money on Prescription Hearing Aids

If you're considering hearing aids but worry about the cost, these steps can guide you to some affordable solutions.

1. Investigate your coverage. Veterans Affairs offers hearing aids for veterans, and some children, federal workers, and residents of Arkansas, New Hampshire, and Rhode Island can get them covered by insurance. Some plans, including almost half of those from Medicare Advantage, offer at least partial coverage or discounts. If you have a health savings or flexible spending account, you can use it to pay for hearing aids and batteries with pretax dollars.

2. Shop around. Costco, which was highly rated for customer satisfaction in our survey (see below), offers no-cost screenings at some stores and hearing aids for about \$500 to \$1,500 each. Buying aids online can save you as much as \$2,000 per pair, but

you may also need to mail them back for adjustments or pay a local specialist to adjust them. It's always wise to see a doctor or audiologist first to determine your hearing needs and rule out other medical concerns.

3. Don't buy more hearing aid than you need. Skipping extras you won't use—such as Bluetooth capability—can slash your bill by hundreds of dollars.

4. Ask for a price break. Almost half of the survey respondents who tried to negotiate received a lower price.

5. Check out groups that can help. Some government, state, and independent organizations, such as Lions clubs, may help you pay for hearing aids or offer discounts. (Go to asha.org and search for "funding.")

READERS WEIGH IN ON RETAILERS

Criteria include hearing evaluations, product options, staff courtesy, and follow-up adjustments.

Retailer	Overall Score
Connect Hearing	85
Costco	84
Sam's Club	81
HearUSA	80
HearingPlanet	79
Audibel	77
Miracle-Ear	77
Beltone	76
Zounds Store	76
Starkey Store	76

HOW WE SURVEY: Scores are based on purchases of 6,278 individual hearing aids or matched hearing-aid pairs by 6,053 Consumer Reports subscribers. A score of 100 would mean that all respondents are completely satisfied; 80, that respondents are very satisfied, on average. Differences of fewer than 4 points aren't meaningful.

Continued on page 18

are more expensive than they should be. The PCAST report cites a 2010 study that found that the cost of hearing-aid components could be purchased for less than \$100.

But many of the professionals who sell hearing aids, most of whom are audiologists with doctoral degrees, note that the price also covers many services. Todd Ricketts, Ph.D., director of graduate studies in hearing and speech sciences at the Vanderbilt University Medical Center, explains that evaluating people and then selecting, fitting, and adjusting hearing aids to ensure that they work as well as possible is exacting and time-consuming.

But “bundling” the price of the product and services together makes it more difficult for people to know exactly what they’re paying for. According to the NAS report, this lack of transparency also forces consumers to pay for services they may not need.

What’s more, neither Medicare nor a majority of commercial insurance plans—which often follow Medicare’s lead—cover the cost. Nor do they offer coverage for an additional fee, as many plans do with dental and vision care.

Given the established link between hearing loss and other serious health problems, why don’t private insurers or Medicare pay for hearing aids?

“I don’t know why we don’t cover the cost of hearing aids,” said a spokesman for Aetna, Matthew Clyburn, when we asked. “Medicare doesn’t cover them either, so it doesn’t seem to be highly out of the ordinary,” he added.

None of the representatives of the six large health insurers we spoke with could pinpoint reasons for this lack of coverage. (A few states require such coverage, and some insurers offer discounts on hearing aids.) The National Association of Insurance Commissioners said it’s a business decision.

In response to our questions,

a Medicare spokeswoman sent an email explaining that she couldn’t address why hearing aids are excluded from its coverage, and suggested that we refer to the Congressional Record of 1965—the year Medicare was signed into law—for an answer.

From the outset, Medicare specifically excluded hearing aids from coverage. They were far more affordable when the program was created, and hearing loss wasn’t viewed as a significant health concern. As Kim Cavitt, Au.D., an audiologist and adjunct lecturer at Northwestern University, says, “You don’t die from hearing loss.”

But the continued lack of coverage has not gone unnoticed by certain members of Congress. They, like lawmakers who tried before them, are pushing to make hearing aids more affordable and easily available.

“We know now that 70 percent of all seniors between 65 and 84 who need a hearing aid simply do not get one, many times because they can’t afford it,” says Rep. Debbie Dingell, a Democrat from Michigan, who introduced a bill in 2015 that would require Medicare to pay for the devices. “People with untreated hearing loss are cut off from their communities,” she says. “They feel isolated and depressed. We must get agreement in Congress that people need to hear.”

Dingell’s bill failed to get traction, but she says she plans to reintroduce it this year. In December, Sens. Elizabeth Warren, D-Mass., and Chuck Grassley, R-Iowa, introduced legislation that would make simple, more affordable hearing aids easier for consumers with mild to moderate hearing loss to obtain by allowing them to be sold over-the-counter and eliminating the requirement that consumers have a medical exam or sign a waiver before purchasing them. The Food and Drug Administration

Continued on page 20 ➤

Are OTC Hearing Helpers Any Good?

Personal sound amplification products are much cheaper than hearing aids. But do they work? We tested a handful to find out.

PERSONAL SOUND amplification products, or PSAPs, cost a fraction of the price of the average hearing aid. The more expensive ones are about \$500 each; prescription aids generally start at about \$1,650 each, including fees for the services of an audiologist or hearing-aid specialist. (Some less expensive prescription aids are available online and through retailers such as Costco.)

The Food and Drug Administration doesn’t allow PSAPs to be marketed as devices to improve impaired hearing. But the National Academy of Sciences and the President’s Council of Advisors on Science and Technology have recently said that PSAPs can help some people with mild to moderate hearing impairment. Both groups are calling for the FDA to allow PSAPs to be marketed as a way to address hearing loss.

To find out whether these hearing-aid look-alikes can help people, we asked three CR employees who were diagnosed with mild to moderate hearing impairment to try four devices priced from \$20 to \$350. They wore them for three to seven days at the office, at home, in restaurants, and in our audio labs, where we tested how well the devices could help them pick out words in a noisy environment.

For an expert’s opinion, we had a hearing-aid researcher assess each

PSAP in such areas as amplification, battery and microphone function, and sound distortion.

We found that some PSAPs, if properly fit and adjusted, can help some people with mild to moderate hearing loss. (See “Now Hear This,” on page 16.) As with a hearing aid, the effectiveness of a PSAP can vary depending on the product. So it’s best to have a professional hearing test first, and consider asking an audiologist or hearing-aid specialist for guidance in determining which device is right for you.

When Pinching Pennies Can Hurt You

Our PSAP evaluations included two very inexpensive models—the Bell & Howell Silver Sonic XL and the MSA 30X—priced at \$20 and \$30, respectively. They showed very little benefit in any of our tests and sometimes actually blocked incoming sounds the way earplugs do.

Even more of a concern is that our hearing expert says these devices have the potential to cause additional hearing damage by overamplifying sharp noises, such as the wail of a fire engine.

Our expert recommends avoiding very inexpensive models, which generally cost less than \$50. They don’t seem to help much—if at all—and could actually further diminish your ability to hear.

Conversation Piece



SoundWorld Solutions CS50+
\$350

This rechargeable device offers some background noise reduction; settings for entertainment, everyday, and restaurant environments; and Bluetooth capability. It can be customized with a smartphone app to amplify the frequencies a user needs amplified most.

WHAT WE LIKED

Panelists found it comfortable and easy to use; two out of three felt it improved their ability to hear a TV and conversations. Our expert noted that it's the only PSAP we tested that allows users to tweak settings to amplify sounds in the frequencies where they have the most trouble hearing, a feature similar to what you'd find in a basic hearing aid. The directional microphone can pick up sounds in front of the user, making it easier to hear conversations in noisy places like a crowded restaurant. Panelists also found it useful to be able to pair this PSAP with smart devices via Bluetooth, which allowed them to take phone calls and stream music while wearing it.

WHAT WE DIDN'T LIKE

The CS50+ didn't significantly help wearers decipher conversations in the noisy environment we created in our lab. One panelist thought it minimally improved hearing but found it useful for streaming music. Our expert noted that none of the three panelists were able to adjust the customizable settings to optimally compensate for their hearing loss.

OUR DEVICE ADVICE

The CS50+ could be of use to people with early or mild to moderate hearing loss. The customizable settings and smartphone connectivity mean the device can potentially work as well as a simple hearing aid for some people, though only if fit and settings are adjusted correctly. The device protects your ears by limiting overamplification of sharp, hearing-damaging sounds, such as a wailing fire engine, though not as much as the Bean (below).

Tuned Into TV



Etymotic Bean
\$214 (\$399 if purchased as a pair)

An in-ear device that runs on disposable batteries that can last about one to two weeks, the Etymotic Bean has an omnidirectional microphone that picks up sounds around the wearer. A toggle switch controls volume levels.

WHAT WE LIKED

Panelists found the Etymotic Bean easy to use and inconspicuous; most reported that it improved their ability to hear a TV. Our expert liked the fact that it requires no initial adjustments, is ready to use right out of the box, and—unlike less expensive devices—protects against overamplification of loud sounds, which could damage hearing.

WHAT WE DIDN'T LIKE

It didn't significantly help wearers decipher conversations in the noisy environment we created in our lab. Panelists reported that the device squealed unpleasantly until it was placed firmly in the ear, and that it can turn on when stored in the case, draining the battery. Our expert said the shallow tip could lead to a blocked or stuffy feeling in the ear. He also noted that the small parts may be challenging to manipulate and that the device doesn't amplify sounds in the lower pitches, such as vowel sounds like the letter "o" in the word "pot."

OUR DEVICE ADVICE

The Etymotic Bean can be helpful for those with early or mild to moderate hearing loss in the higher frequencies. But it probably won't amplify sound enough if your hearing loss is in the low frequencies (think bass drum) or extremely high frequencies (the whine of a mosquito). Although it doesn't reduce background noise, placing the device in an ear properly may block out some unwanted sounds.

recently announced that it would no longer enforce the medical exam or waiver requirement.

Affordable Over-the-Counter Solutions

Given the high cost of hearing aids, it's no surprise that we're seeing a growing array of less expensive OTC products, such as wireless headphones for TV watching and phone apps that amplify sound. But PSAPs, which range from about \$10 to \$500 each, are the most common OTC option.

They sit in or behind the ear and have some of the same components as hearing aids: a microphone, an amplifier, and a receiver. In theory, they should boost the volume of the sounds you have trouble hearing. Some may reduce background noise, as many prescription aids do.

Most PSAPs are fairly basic, offering few or no adjustments for varied environments—say, outdoor spaces or movie theaters. And unlike a majority of hearing aids, PSAPs are generally analog, not digital, so they're usually less able to reduce annoying feedback and

to consistently target only the frequencies in which users really need amplification. "That's a big difference," says Cavitt, who co-authored a 2016 study comparing PSAPs with hearing aids. "When the sound comes in, does it merely amplify it, or can it also suppress feedback or extraneous noise?"

These differences may be challenging for consumers to discern. PSAPs aren't regulated by the FDA as hearing aids are, and manufacturers aren't permitted to call them hearing aids or claim that they improve impaired hearing. (In fact, according to the FDA, the devices aren't meant to compensate for hearing loss but are "intended for non-hearing-impaired consumers to amplify sounds in certain environments.")

And because PSAPs are so loosely regulated, their manufacturers aren't held to the same safety or efficacy standards as hearing-aid manufacturers. "Consumers have no way of knowing whether one PSAP is better manufactured than another," says Neil DiSarno, Ph.D., chief staff officer for audiology at the American

'We must get agreement in Congress that people need to hear,' says Rep. Debbie Dingell, D-Mich.

Speech-Language-Hearing Association (ASHA).

Experts agree that people who already have moderate to severe hearing loss won't benefit from PSAPs. To see how well they work for those with mild to moderate hearing loss, Consumer Reports had three volunteers who fit that definition test four devices. (See "Are OTC Hearing Helpers Any Good?", on page 18.) We found that the higher-end PSAPs helped some of our volunteers hear better, especially while watching TV.

Ricketts urges consumers to see a hearing professional to determine their level of hearing loss and which frequency ranges need amplification most. (A hearing specialist can also diagnose more easily remedied conditions such as earwax buildup or more serious problems such as ear-canal tumors.) A majority of audiologists don't sell PSAPs or adjust those that consumers buy on their own, although this might soon be changing. "Even if PSAPs are not perfect," Denny says, "they may give people a relatively simple entry point into the healthcare system at a markedly reduced cost."



RECALLS



FOOD PROCESSORS

The main processing blade—used for cutting, chopping, and dicing—on about 8 million Cuisinart food processors has been recalled because

it can crack and break over time. There have been 69 reports from consumers who found small metal pieces from a cracked blade in their food; in 30 cases, they suffered cuts to the mouth or tooth injuries. The processors were sold online and at stores from July 1996 through December 2015.

What to do Stop using the blade immediately and contact Cuisinart at 877-339-2534 or go to cuisinart.com to get a free replacement blade. You can still use the processor with its other attachments.



SMOKE/CO ALARMS

Kidde is recalling about 3.6 million NightHawk combination smoke/CO alarms. Once the backup

batteries are replaced, the units can fail to chirp when they reach their seven-year end of life, which may lead users to think they're still working. That means that consumers may have no alert during a fire or CO incident. The alarms were sold online and at electrical distributors and home centers nationwide from June 2004 through December 2010.

What to do Replace the alarm. Contact Kidde at 855-239-0490 or go to kidde.com for a free replacement alarm or a discount on a new one.



DEHUMIDIFIERS

The manufacturers Gree and Midea are recalling about 5.9 million dehumidifiers because they can

overheat, smoke, and catch fire, posing serious fire and burn hazards. Midea is recalling 51 brands sold at stores nationwide from January 2003 through December 2013. Gree is recalling 13 brands sold online and at stores from January 2005 through August 2013.

What to do Stop using the appliance. Go to midea.com/us/ or greedehumidifierrecall.com for details on affected brands and model names. Call Gree at 866-853-2802 for a full refund or Midea at 800-600-3055 for a replacement or partial refund.



Should I be wary of buying a secondhand car seat for my child?

There are several reasons we at CR don't recommend that consumers buy used car seats, and responsible parents should be aware of them: As a buyer, you usually can't be 100 percent sure of the seat's history, including whether it has been involved in a crash, its expiration date as set by the manufacturer, and its recall status.

It's most crucial to know whether the child seat has ever been involved in a crash. Even if the seat looks undamaged, crash forces could have stressed the components

in ways that aren't visible, thereby reducing its ability to protect a child in the future. As a buyer, you'd have to rely just on the seller's word to know.

Expiration dates are also key: Obeying them helps ensure that the seat components are still strong and that the seat has the latest safety features. So any would-be buyer would need the labels and owner's manual to know how much longer the seat could be used.

Also, a buyer would need to research whether there have been recalls, though that fact alone is not always a deal breaker. "If you find that a recall has been issued, contact the manufacturer," says Jennifer Stockburger, who leads the child seat team at our auto test track. "Some fixes can be easily remedied."

Given the high bar for assessing a secondhand seat, unless you can get one from someone you know and trust—who can help you determine that it really checks out—it's generally best to buy a new one: See [CR.org/carseats](https://www.consumerreports.org/carseats).

Down the road, when you're ready to dispose of it, make sure it doesn't tempt anyone dumpster diving: Carefully remove all fabrics, harnesses, and buckles. Then mark the

remaining shell "Do Not Use" and check with your local authorities to see whether any components can be recycled.

Now that the season's over, do I really have to drain the gas from my snow blower before I store it?

That depends. If you've added fuel stabilizer—an additive sold by power-equipment dealers and home centers—to the gas in your snow blower, all you need to do is top off the fuel. That leaves no room in the tank for water to condense and collect over the warm weather months and helps keep the fuel from degrading over time, which can lead to clogs.

But if you've used gas straight from the pump at the station, which is generally blended with up to 10 percent ethanol, you do want to drain the fuel before storing your snow blower. "When ethanol mixes with condensed water inside your snow blower's gas tank, it forms a corrosive acid that can clog a carburetor, causing starting problems," explains Peter Sawchuk, Consumer Reports' test program leader for outdoor power equipment. Sawchuk suggests using a store-bought gas siphon or a turkey baster to

remove most of the gas, then running the snow blower until the tank is dry and the machine stalls out. The gas that you've removed from the machine can be funneled right into your car.

If you're not comfortable siphoning, another option is to top off the tank with gas, but this time add stabilizer in the proper proportion, which you'll find specified on the product bottle, prior to storage.

Is it an urban myth that there's more caffeine in a shot of espresso than a regular cup of joe?

Though the amount of caffeine in coffee beans varies by type, even if you use the same beans for a shot of espresso and a cup of coffee, the espresso—ounce for ounce—has more caffeine, says CR's Amy Keating, R.D. Espresso usually contains 65 mg of caffeine per fluid ounce compared with coffee's 12 mg. That higher caffeine count is due to variables involved in preparing espresso: You use more beans per fluid ounce and grind them more finely than for regular coffee, and espresso machines force the water through the grounds at high pressure and keep the water at the right temperature to extract coffee's components.

In practice you're likely to gulp down more caffeine in your morning coffee mug. That's because espresso is served in shots of about an ounce (65 mg of caffeine) and a cup of coffee can be 8 ounces (96 mg) or more.



We have more than 140 in-house experts who research, test, and compare! Send your questions to: [CR.org/askourexperts](https://www.consumerreports.org/askourexperts) ... and watch for the answers.

Boost Your Health & Happiness at Home

Here's a to-do list everyone will love. We created a menu of easy projects, smart advice, top product picks, and options for connected devices. These will add comfort and convenience to your home, help you get healthier and stay safer, and save time and money on everyday maintenance.

by **Daniel DiClerico**





Save Time and Add Convenience

Choose gadgets and appliances that do more for you.

Get a Dishwasher That Makes a Difference

A creaky old dishwasher that doesn't work well is almost as bad as no dishwasher at all. If cereal bowls and dinner plates keep coming out flecked with bits of food, plastic containers never quite get dry, and you have to shout to make yourself heard when the machine kicks into high gear, it might be time to consider an upgrade.

Our tests turn up plenty of high-performing dishwashers, including well-priced models. Larry Ciufu, CR's project leader in charge of testing these workhorse appliances, bought the **BOSCH ASCENTA SHE3AR7** dishwasher, a \$540 CR Best Buy, for his mom, and she continues to thank him. "It changed her life," he says.

In the labs, Larry and his crew are interested first and foremost in cleaning performance, which they test by slathering dishes with a mix of peanut butter, egg yolk, and other sticky foods. Drying ability is measured by inspecting those stubborn plastic items for droplets. Then there's noise. With the quietest models, you hardly know they're running. That's a pretty good problem to have, we think. To check out ratings on our 10 top dishwashers, see page 33.



Pump Up Your WiFi

Is your house bigger than your WiFi network? It's a common technology challenge: The signal doesn't reach your home's far recesses—say, the basement or one of the kids' rooms. To solve it, consider one of a new generation of routers from Eero, Luma, Google, and others, all of which employ mesh networking. Simply place multiple routers around the house and the system will create a single network that extends WiFi coverage without clipping bandwidth. A set of three Eeros is claimed to cover up to 4,000 square feet, well over the size of the average American house. You can buy the units individually, but of course if you want the benefits of a mesh network, you'll need more than one, which can get expensive: A **GOOGLE WIFI** three-pack costs \$300, and a set of three **EERO** units costs \$500.

EXPERT
TIP



Set Up a Virtual Assistant

With voice-activated assistants such as the **Amazon Echo**, \$180, and **Google Home**, \$130, you can look up movie times, ask for the latest news headlines, check the weather—even turn off the lights in certain cases—all by speaking your command out loud. They work just fine as stand-alone devices, but their capabilities expand dramatically when you pair them with smart-home devices, from lighting to thermostats. It's faster and easier than pulling out your phone to accomplish a task. —**Tercius Bufete**, *CR electronics editor*

Create the Perfect Laundry Room

If your washer and dryer are still parked in your basement, it's time to bring them out of the shadows and into your main living space. Position the laundry area near a kitchen or bathroom and you should be able to share plumbing lines. For electric dryers, you'll need to put in an outlet with a dedicated 30-amp, three- or four-wire circuit. Gas dryers will need to be supplied with a gas connection and vented outdoors.

The project might set you back a few hundred dollars, but in addition to making life much more convenient, the investment could pay for itself if and when you sell your home. In a 2016 survey of homebuyers by the National Association of Home Builders, a dedicated laundry room was No. 1 on the list of most desired home features, considered essential or desirable by 92 percent of respondents.

Of course, a laundry room is only as good as the appliances you put into it. Our experts use fabric swatches stained with wine, body oil, and the like to test a washing machine's cleaning performance. Our ratings also take into account factors such as water efficiency, gentleness, noise, and vibration. (Those last two are important if the washer is going on an upper floor.) The mark of a top dryer is its ability to dry items without overcooking them, plus convenience features such as easy loading and unloading.

Because most consumers purchase these appliances in pairs, we've arranged the ratings chart on page 34 to show off the top 10 matched laundry pairs. The **SAMSUNG WF56H9110CW** and

DV56H9100EG, \$2,900 for the pair, are our current top picks among matching pairs for front-loaders, which are the most efficient type of machine. And don't forget the main ingredient for clean and fresh clothes: laundry detergent. **TIDE PLUS ULTRA STAIN RELEASE** and **PERSIL PROCLEAN POWER-LIQUID 2IN1**, both 25 cents per load, earn top marks in our current ratings, thanks to their ability to vanquish mud, blood, and other tough stains.

Banish Dust Bunnies

There's something cool about coming home to a spotless floor. A robotic vacuum will help create that sense of well-being by scooting throughout your home sucking up dirt and other surface debris while you're out living your life. You'll still need a full-sized vacuum for deep carpet cleaning, but today's top robotic vacuums are more powerful than ever and better at navigating your home than in the past. In our latest tests the **SAMSUNG POWERBOT SR20H9051** series sucked up embedded pet hair and sand from carpets better than all other robots. Its unique squared-off front will help it get into tight corners, where rounded models leave dirt behind. The Samsung costs a whopping \$1,000, but you can spend less than half that and still get a model we rated Excellent, the **ICLEBO ARTE YCR-M05**.

EXPERT TIP

Choose Low-Maintenance Materials

I have four kids at home, so I know how countertops can take a beating. CR's tough tests include smearing the surfaces with food coloring and grape juice and dropping weights on them. Quartz countertops come through these tests better than natural stones like granite and marble. Best of all, you never have to seal them.

—Christopher Regan, CR test engineer



Three Ways to ... Cultivate a Hassle-Free Yard

1 Shrink the lawn. Lose the wall-to-wall carpet look and replace a section of grass with a low-maintenance alternative, such as ornamental grass or a pebble patio.

2 Embrace a natural look. If you cut your lawn too short, the roots of the grass will become weak and shallow. So let your grass grow to about 4½ inches before mowing it to about 3 inches. You might also want to learn to live with certain weeds: Clover, for example, takes nitrogen from the air and feeds it to the soil.

3 Plant a garden. Mowing the lawn is a chore, but tending to a garden can be therapeutic. A small study from the Netherlands found that the stress hormone cortisol had significantly decreased in subjects after 30 minutes of outdoor gardening. It's also a good form of exercise. Devoting the space to vegetables will provide a handy source of healthy food, and you'll save money you'd otherwise spend at the grocery store; growing native flowers and plants will attract birds and other wildlife.

Get Healthier

From kitchen to bath, find your way to more wellness.

Splurge on a Premium Blender

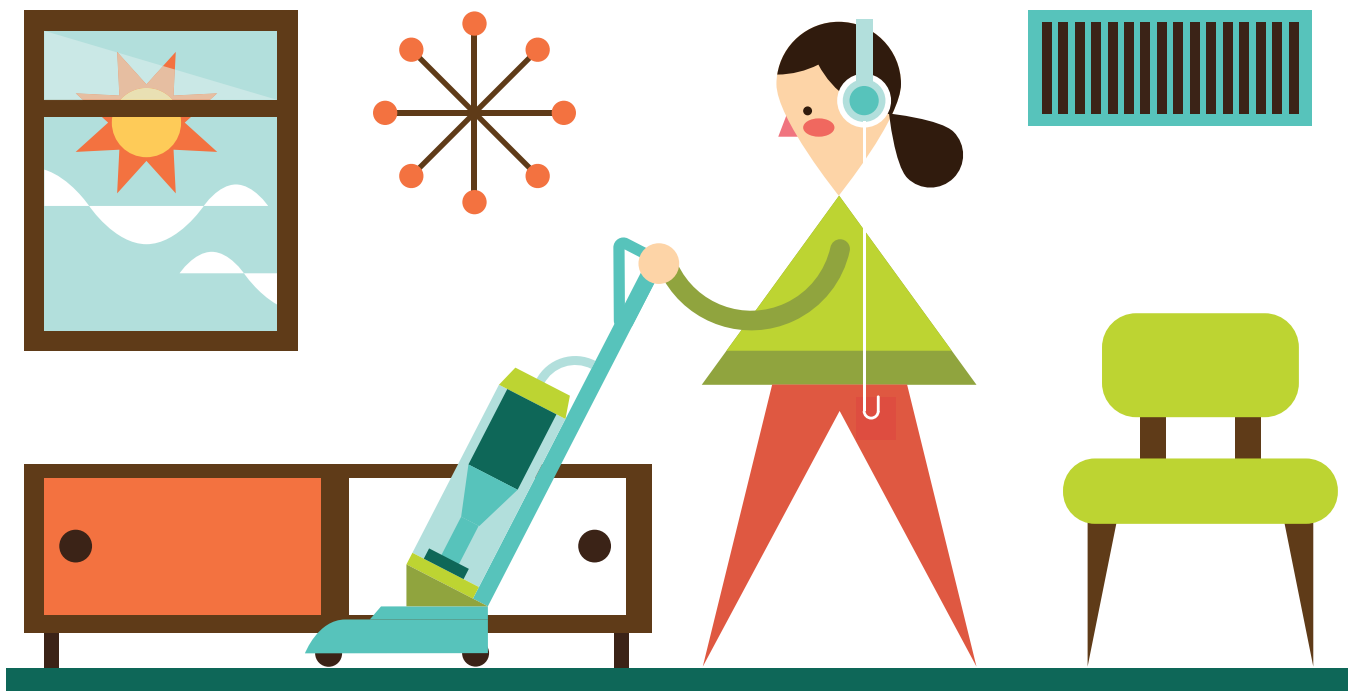
A blender can be a great way to infuse your diet with healthful recipes, including vitamin-rich smoothies, fiber-packed whole-fruit juices, and nutritious soups. Our tests confirm that high-performance models excel at the widest array of blending tasks, and that might pay off if it encourages you to use it more to make nutritious concoctions. The **VITAMIX PROFESSIONAL SERIES 750**, \$650, along with two similar models, the **VITAMIX PROFESSIONAL SERIES 300** and the **VITAMIX 7500**, both \$530, share the highest score in our ratings. Top-performing blenders aren't cheap, but their generous warranties are a sign that they'll probably hold up longer than cheaper models. See our ratings of the most versatile full-sized blenders on page 34.

Go Hands-Free

You don't have to be a germaphobe to appreciate a toilet you can flush without touching the handle. American Standard and Kohler have introduced "touchless toilets" that flush when you wave your hand over a sensor; the feature tends to be on pricier models, though Kohler offers a conversion kit for \$50 that brings battery-powered no-touch flushing to any toilet. And the **TOTO WASHLET**, \$600, is a remote-controlled toilet-seat bidet with a wand that sprays a warm flow of cleansing water. You'll need a ground-fault 120-volt outlet rated for bathroom appliances, and it will need to be within 3 feet of the Washlet for the cord to reach.

Make Your Bedroom an Allergen-Proof Zone

Encase box springs, mattresses, and pillows in covers made from woven microfiber fabrics (with a pore size no greater than 6 micrometers) designed to keep them free of dust mites and animal dander. Wash your bedsheets weekly in hot water and dry on high heat. If you have a high-efficiency top-loader, choose a low spin speed when washing woven fabrics to prevent them from trapping water and causing the drum to become unbalanced. —Julia Calderone



Five Ways to ... Clear the Air

Animal dander, dust mites, mold, pollen—it's all right there in the air, not to mention your bath towels, bedding, and furniture. These particles can exacerbate respiratory symptoms, bronchitis, and asthma for people with such conditions. It's no wonder that of respondents to a 2016 survey by Harvard's Joint Center for Housing Studies who reported having healthy-home concerns, almost 70 percent cited indoor air quality as their top worry. There's no silver-bullet solution, but these DIY measures will go a long way toward better breathing:

1 Control moisture. Use an air conditioner (with a clean filter) or a dehumidifier to help keep things dry in the basement and other damp spaces, where mites and mold tend to thrive.

2 Air it out. Open windows when weather permits and turn on exhaust fans at other times to remove indoor pollutants. You can also use portable or whole-house air purifiers that have a clean-air delivery rate of more than 350 or a minimum efficiency reporting value of more than 10.

3 Cut down on toxins. Instead of ammonia and bleach, try milder cleaning substances; a 50-50 solution of water and vinegar can be used to clean windows. The solution can even cut through grease and mildew. And

purchase items such as paint, paint strippers, and adhesive removers in small quantities so that you're not storing partially used containers. Even closed, these products can emit gaseous volatile organic compounds, according to the Environmental Protection Agency.

4 Test your home. Houses built before the late 1970s may have been constructed with toxic materials such as asbestos, and homes in certain parts of the U.S. are more likely to contain radon, a colorless, odorless gas that increases the risk of lung cancer. Testing is the only way to detect radon; check the map at epa.gov/radon to see whether you're in a high-radon area. A radon level of 4 picocuries per liter of air (pCi/L) indicates that you'll need to fix the problem through a qualified radon-mitigation contractor, according to the EPA, though even lower levels carry some risk.

5 Vacuum regularly. It's a simple way to help control airborne particulates: Vacuums suck up dust that settles on carpets, furniture, and other surfaces. Choose a top-rated one that cleans while minimizing emissions back into the air. The **KENMORE ELITE PET FRIENDLY 31150**, \$350, adds HEPA filtration, an extra layer of protection for allergy sufferers. See page 35 for ratings of upright models, which tend to score the best at cleaning carpets.

EXPERT TIP



Supercharge Your Showerhead

If you're living with a wimpy showerhead, replacing it with one of our top picks will mean a more stress-free start to the day. Consider the **Speakman Reaction** showerhead, which we installed in the gym at Consumer Reports, where 20 staffers evaluated it over the course of several weeks. They described the spray as relaxing and soothing yet strong enough to rinse the thickest locks. And at \$25, the Speakman is an invigorating home improvement that costs less than a bottle of designer shampoo.

—Bernie Deitrick,
CR test engineer

Five Ways to ... Promote Healthy Eating

1 Make healthy foods visible.

One study from Cornell Food and Brand Lab found that people increased their fruit and vegetable consumption almost threefold by moving produce from the fridge's crisper drawer to the top shelf; food storage containers can maintain optimal humidity levels. For example, the **OXO GOOD GRIPS GREENSAVER PRODUCE KEEPER**, \$20, did a fine job of preserving greens in our tests, or you can keep them in their original clamshell container if that's how you purchase salad. Another tip: Have precut veggies ready for hungry children to munch on when they get home from school and sit down to do their homework.

2 **Get a kitchen scale.** You don't have to use it every day, but occasionally measuring your food is a good way to control portion size.

3 **Cook with steam.** Our tests find that it's a speedy way to cook certain foods. And it can be healthier because the steam keeps meat and fish moist and juicy without the use of butter, oil, or other added fat. Although full-sized steam ovens cost thousands of dollars, the countertop **CUISINART CONVECTION STEAM CSO-300N** costs just \$300. In our tests, it roasted a 4-pound chicken in around 40 minutes—half the time needed for a conventional electric wall oven set to 350° F.

4 Use nonstick cookware.

It allows you to sauté or panfry foods with less butter and oil. The **PIONEER WOMAN VINTAGE SPECKLE NONSTICK 10-PIECE SET** delivers superb evenness and durability for just \$99.

5 **Buy a slow cooker.** Home-cooked meals on a hectic schedule can be a tall order. Starting around \$30, these cheap, convenient countertop appliances make cooking easy. Just add the ingredients for soups and stews in the morning, and the meal is ready by the time dinner rolls around. Most basic models perform similarly, but some higher-end models deliver more versatility, including the ability to cook rice, quinoa, and even yogurt. The **T-FAL 10-IN-1 RICE AND MULTICOOKER RK705851**, \$60, was a favorite in our tests.

Stay Safer

*Add easy protections from injury
and hazards to your haven.*



Install Lifesaving Alarms

A working smoke alarm should be on each level of your home, including the attic and basement. Why? Between 2009 and 2013, fires in homes with no smoke alarms caused an average of 940 deaths per year, and an additional 510 people per year were killed in fires in which smoke alarms were present but failed to operate, according to the National Fire Protection Association. For most locations, choose an alarm with both a photoelectric sensor (for smoldering fires) and an ionization sensor (for fast-flaming fires). Keep the latter away from the kitchen and baths. It's also wise to choose interconnected alarms so that if a fire breaks out in the basement, you'll be alerted even if you're asleep on an upper floor.

If your house has a gas dryer, range, other fuel-burning equipment, or an attached garage, you should also have a carbon monoxide (CO) alarm on each living level, as well as in the basement and near the garage. Follow the manufacturer's instructions on placement.

We recommend testing smoke and CO alarms at least monthly. And it's not a bad idea to vacuum them

occasionally to prevent dust from interfering with their sensors. See the user's manual to find out how often to replace batteries and the devices themselves, based on the life expectancy of their sensors.

Eliminate Trip Hazards

Your own house may seem like the safest space in which to walk around, but more than 10,000 people die each year after falls at home. Many more than that are injured. To prevent these types of accidents, start by arranging furniture so that it's not in the way on your typical routes around the house; no obstructions should be between your bed and the door to your room, for example. Position pet bowls and electrical cords along walls rather than across pathways. And get piles of paper off the ground.

Also, remove throw rugs, which can skid, or keep them in place with carpet tacks or double-sided carpet tape. (Wall-to-wall carpeting is really your safest bet.) Put a rubber mat or nonslip strips in your bathtub, and install grab bars there as well. And if you're remodeling, consider going with anti-slip flooring materials wherever possible. —Catherine Roberts

Install DIY Home Security

Who better to keep an eye on your place than you? Set up a WiFi-connected camera—it's not difficult—and you can tap into its feed from your smartphone or laptop for a lot less than subscribing to a security monitoring service such as ADT or Vivint. For instance, Alphabet-owned **NEST** sells indoor and outdoor models for \$200 apiece, and for the same price you may like the **CANARY ALL-IN-ONE** device, which in addition to the camera has a built-in siren and sensors for temperature and humidity. You could easily spend that on a year of professional monitoring, only to have to then re-up the contract for another year. Just make sure to change the default username and password during setup to keep hackers out.

Don't Get Burned

In 2011, an estimated 486,000 people in the U.S. were treated for burn injuries, and many of them were children, according to the National Safety Council. Lowering the

maximum temperature of your water heater to 120° F can help prevent scalds but might invite opportunistic bacteria—including *Legionella*, associated with Legionnaires' disease—to proliferate. (Check the heater's manual to find the temperature ranges for each setting.)

To balance both risks, the Occupational Safety and Health Administration advocates setting domestic water heaters to a temperature of 140° F and using anti-scald devices such as thermostatic mixing valves at each faucet. The devices, which mix hot and cold water to a safe temperature before letting it flow from the faucet, are increasingly common in the plumbing systems of newer homes and are often built into newer fixtures. And certain shower fixtures allow you to set a temperature limit. A licensed plumber can inspect your system and install them where needed. "Most point-of-use valves are under \$50 and can be installed in less than a half hour," says Henry James, technical training manager at water-heater manufacturer A.O. Smith. You can save money by installing a single anti-scald valve for your entire house.

—*Lauren Cooper and Paul Hope*

Safeguard Your Water

The right water filter can remove a range of contaminants, lead from old pipes in your home or the municipal water supply, chemicals such as atrazine and benzene, and chlorine from the treatment plant that gives your tap water a funny taste. Here's how to identify what's lurking in your water—and how to filter it out:

➤ **Check your supply ...** Water quality can vary depending on where you live. "It's important to know where your drinking water supply comes from and if it contains any impurities that could pose a health risk," says Mindy Costello, consumer information specialist at NSF International, a public-health standards and certification organization. If you pay a water bill, you should have access to an annual Consumer Confidence Report listing contaminants in your water. Go to epa.gov/ccr for more information.

➤ **... Or have it tested.** If you live in an old house that may still have lead pipes, or if you have a private well, you'll need to get your water tested. Some state and local health departments offer free test kits. Check the EPA's website for local testing labs or call its Safe Drinking Water Hotline at 800-426-4791. "Some typical testing results may include coliform bacteria, *E. coli*, nitrate/nitrite, arsenic, hardness, volatile organic chemicals, metals, lead/copper, and inorganic chemicals," Costello says. Fees range from about \$50 for a single lead test to several hundred dollars to test for multiple contaminants.

➤ **Choose a filter.** If your results raise concerns about contaminants in your drinking water, a point-of-use filter is the best remedy. Options range from simple carafe-style filters that you fill by hand (the \$30 **CLEAR2O CWS100** is CR's top-rated model) to undersink systems that often require professional installation (we recommend the **MULTIPURE MP750SB**, \$430). To be assured that a filter will remove a certain contaminant, the package should specify that the filter meets NSF certification for that substance.

Another option is a whole-house filter, also known as a point-of-entry filter. These systems are generally designed to remove sediment, rust, and sometimes chlorine, though not harmful contaminants such as lead.

Head Off Disasters

Do these high-priority projects early and you'll thank us later.

Get a Generator

You need to endure only one extended power outage to appreciate the value of a backup generator. Stationary generators run on propane or natural gas and automatically kick on as soon as the power goes out. The largest models cost upward of \$4,000 and crank out 14,000 watts or more. That's overkill for most homes; you can save by going with a smaller stationary unit, such as the top-rated **GENERAC 6237**, \$2,250, with an output of 7,000 to 8,000 watts. It will power a typical home's appliances, heating system, lights, and more. But you'll need to be judicious about running more power-hungry systems, such as central air conditioning (up to

5,000 watts, on average) or an electric clothes dryer (3,400 watts).

Portable generators can deliver comparable power, though you have to keep them fueled. The **DEWALT DXGNR7000**, \$1,000, features an electronic fuel sensor that calculates remaining run time.

Whether you opt for a stationary or portable generator, we strongly recommend that you install a transfer switch between the unit and your electrical panel. This will protect the generator as well as your home's appliances and electronics from damaging surges, plus it will allow you to select the critical circuits you want to power during an outage.



Catch Leaks Early

If you have a basement that's prone to leaking, install a networked water sensor that will ping your smartphone if it detects water—long before it reaches flood levels. The hockey-puck-shaped sensors are available from manufacturers including big names such as GE and Samsung and smaller tech players like D-Link and Fibaro. They're either battery-powered or plug-in. Some work independently through your home's WiFi network; others are part of a hub-based smart-home system. Stand-alone sensors start around \$30, and packages with a hub and multiple sensors might set you back a few hundred dollars—considerably cheaper than the aftermath of a flooded basement.

Tackle These Minor Headaches Before They Become Major Migraines

1 Runaway Rainwater

Telltale signs: Rain pouring over gutters and puddling along foundation walls.

Why you need to act: Water can deteriorate siding and foundation walls, eventually finding its way to interior spaces and damaging them.

What to do: Inspect the entire gutter system for clogs and corrosion; you can clear clogs yourself, but if your gutters are corroded, you'll want to talk to a pro about having them replaced. Check that the soil around your home's foundation slopes away from the house at least 1 inch per foot for 6 feet or more. Regrade the soil if the slope is insufficient.

2 Leaky Roofs

Telltale signs: Cracked, curled, or missing shingles, which signal that the roof is near its end of life; also cracks in the flashing around chimneys, skylights, roof valleys, and the rubber boots around vents.

Why you need to act:

If your roof doesn't provide a proper barrier to rain and snow, water can find its way to your home's drywall and insulation, leading to rot and interior water damage.

What to do: You might be able to replace a shingle here or there or patch leaky flashing. But if your roof is more than 20 years old, it's probably time for a new one. If it's an asphalt shingle roof with only one layer, you might be able to add a second layer over it, lowering the project costs significantly. But check the manufacturer's warranty to make sure it covers that type of usage, and talk to an experienced contractor or engineer about whether your roof can support the considerable extra weight.

3 Insect Infestations

Telltale signs: Rotted wood in the sill plate that sits on top of the foundation and cast-off

wings along windowsills and walls are evidence of termites. Piles of sawdust along baseboards are a sign of carpenter ants.

Why you need to act:

Tiny as they are, these insects can cause major structural problems if left to nosh on your home's wooden framework.

What to do: Call an exterminator. Check for accreditation on the database of the National Pest Management Association (pestworld.org).

4 Foundation Cracks

Telltale signs: Cracks in the concrete, especially those that are wider than $\frac{3}{16}$ inch, as well as signs of the walls bulging and buckling.

Why you need to act: An unstable foundation can compromise the entire structure of your house.

What to do: Hairline cracks can usually be filled with an epoxy injection system such as Polygem's Liquid Concrete Repair Kit. If the

cracks seem to be getting bigger, you'll want to get an opinion and next steps from a structural engineer.

5 Mold and Mildew

Telltale signs: Musty odors, dank air, and black mold spores growing on surfaces such as bathroom ceilings.

Why you need to act:

Any surfaces that harbor extensive mold, including drywall, carpet, and ceiling tiles, will need to be removed. Otherwise mold spores will be released into the air, causing allergic reactions and asthma attacks.

What to do: If you catch it early, patches of mold less than 10 square feet can be treated with a homemade solution of 1 cup chlorine bleach per gallon of water. Wear an N-95 disposable respirator, goggles, and heavy-duty gloves. For larger outbreaks, or if the ventilation system is contaminated, call in a mold-remediation pro.

Save Money

Don't let your cash go down the drain or out the window.

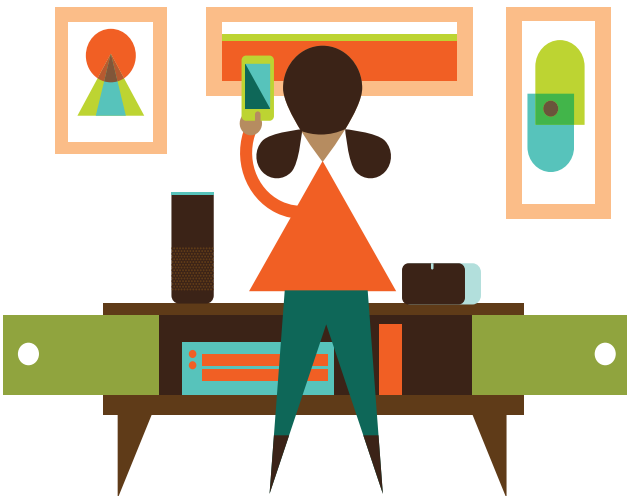
Think Seriously About Solar

There has never been a better time to consider solar power. Over the past five years prices have dropped 63 percent, based on a broad survey of manufacturers and installers by the Solar Energy Industries Association, the industry's leading trade group. And plenty of generous incentives are still available to homeowners.

Tesla Motors, best known for its high-performance electric vehicle, also makes storage batteries for residential solar systems, and the company is developing solar shingles designed to mimic the look of a standard asphalt, slate, or tile roof.

Installing rooftop solar panels will defray electricity costs while shrinking your home's carbon footprint. A federal tax credit will cover 30 percent of the installation (a savings of about \$5,000 for most homeowners), but the incentive will start to be phased out at the end of 2019, and other state and local rebates are also drying up. Check the Database of State Incentives for Renewables & Efficiency website (dsireusa.org) for a list of programs in your state. Go to CR.org/solar for more information.

Another option: solar water heaters, which can slash your water heating bills by 50 to 80 percent, according to the Energy Department. The systems include a rooftop cell, called a collector, which absorbs radiation from the sun and typically transfers the heat to an antifreezefluid that heats water in a storage tank. Given the steep up-front costs, the payback period for a solar water heater could be 10 years or longer, based on our past tests.



Make a Video to Protect Your Valuables

If you ever have to replace all your stuff after a household disaster such as a fire or flood, you'll need to provide a detailed inventory of your belongings. But if the prospect of writing it all down as a precaution seems too daunting, grab your smartphone and make a video instead. Capture your furnishings, and don't forget to open cabinets, drawers, closets, and boxes, describing aloud what you see as you record. Include contents of bookcases, walls with art, and major appliances. And try to capture serial numbers and brand names so that your insurer can replace what you had with exact or similar items. If your time is limited, focus on the big and the valuable, and skip, say, cleaning supplies inside the utility closet. An insurance adjuster is likely to create a "bulk estimate" for those things. Then store the video on the cloud or put it on a thumb drive and stash it in a safe deposit box or fireproof safe. Several insurers offer customers free web-based inventory storage tools.

—Tobie Stanger

Eliminate Drafts

Here's an easy way to pinpoint air leaks in your home that make for drafty rooms in the winter and can drive up annual heating costs by \$100 or more. First, turn on every exhaust fan in the home, including a whole-house fan and kitchen range hood, and hold an incense stick up to suspected leaks around windows, doors, and even electrical outlets. If the smoke blows sideways, you have a leak large enough to undermine your home's comfort and efficiency. For around \$30 worth of caulk, weather stripping, and expandable foam sealant, you can plug the leaks for good.

Three Ways to ... Get the Most Value From Your Homeowners Insurance

1 Don't be afraid to make a small claim. If you absorb the cost of a small loss because you're afraid that filing a claim will increase your premium, know that that's not what happened to many CR subscribers. We surveyed 7,418 homeowners who had filed claims in the previous 3½ years, and 57 percent suffered no subsequent price hike if their claim was less than \$5,000. Of those who saw an increase, on average premiums rose less than \$150 per year.

2 Shop around. Do a price check every couple of years to see whether you can get a better premium from a different insurer. Fifty-two percent of survey respondents who changed companies in the previous 3½ years did so because switching saved money.

3 Don't forget extra coverage. The standard policy doesn't cover everything. So you don't wind up paying out of pocket for damage, you'll need additional policies for flooding and earthquakes. Also, you may need separate policies for hurricanes, wind, and hail if you live in a high-risk zone. If you have unusually valuable furs, jewelry, silverware, or artwork, consider getting a special endorsement or "floater" that will replace these items' full value in the event of loss, theft, or damage. And if you live in an older home, consider an ordinance or a law endorsement, which will help pay for the cost of bringing plumbing, wiring, or other key systems up to current building codes when rebuilding or repairing damage. —Jeff Blyskal

Maintain the Perfect Climate

Make sure the temperature in your home is always just right by putting in a programmable thermostat. Our top-rated model is the **HONEYWELL RTH9590WF**, \$300, the industry's first voice-activated programmable thermostat. You can issue commands, such as "make it warmer," which will turn the heat up 1° F, or "make it much warmer," which will raise the temperature by 4° F. Our testers also found it easy to set up and control remotely via a smartphone.

Lower Your Water Heating Costs

Is your water heater costing you more than it should? Upgrading a unit that's more than a dozen years old to a high-efficiency model could pay off in a few years, especially if you're switching from a standard electric water heater to a heat-pump type. Energy Star, the consumer product labeling program run by the EPA, puts the annual savings for a family of four at \$330, for a payback period of 2.5 years.

EXPERT TIP



Host a Smart Yard Sale

Clear out old stuff and make some quick, tax-free cash while you're at it. You'll have to invest some effort to move your merchandise: Several weeks before the sale, start posting photos on social media teasing the most enticing items. Then, on the day of the sale, save time and maximize profits: Rather than setting prices, let buyers make an offer. Think like a retailer and boost your average transaction value with promos like buy three, get one free. If you're truly enterprising, take credit card payments through Square or cash transfers through Venmo. That may help move big-ticket items. —*Lauren Lyons Cole, CR money editor and a certified financial planner*

Wise Up About Washing Dishes

Do your dishes a favor and don't prerinse them before loading the dishwasher. Most dishwashers have a sensor to detect how dirty the dishes are and adjust the cycle time accordingly. Prerinsing removes most of the loose food debris, so the machine might run a shortened cycle, which isn't as effective at removing greasy lipstick or baked-on foods. The lazy approach will also cut your water usage: The 5 gallons wasted by rinsing with the faucet on full blast for 2 minutes is about what most of our top-rated dishwashers use in an entire cycle.

Do an Energy Audit

Certified auditors will charge \$300 to \$800 to do a comprehensive assessment of your home's heating, cooling, ductwork, and insulation. They'll also review your energy bills to find savings, for example, from unusually high air-conditioning costs. Some utilities offer free audits—just call to ask. If not, you can find a certified auditor at the website of the Building Performance

Institute (bpihomeowner.org) or the Residential Energy Services Network (resnet.us). Don't want to hire a professional? The Department of Energy's website, at energysavers.gov, has details on how to perform an energy audit yourself. —*Anthony Giorgianni*

Clamp Down on Vampire Power

For \$20 you can pick up the **KILL A WATT**, a device that measures how much juice your gadgets are consuming when you're not actively using them. The Lawrence Berkeley National Laboratory estimates that vampire power accounts for 5 to 10 percent of electricity consumption in a typical household. It can add up in terms of your electric bill and environmental impact. Focus on devices such as laptops that are finished charging, printers, and game consoles. The Xbox One draws a little over 100 watts in standby mode, for instance. The fix is to unplug them when not in use or group devices onto a power strip with a switch. Doing so can save you several hundred dollars per year. —*Tercius Bufete*

Bring on the Joy

Music, media, and mood lighting will add more happiness to your home.

Get Your Groove On

There are two ways to make your music move around the house as you do. First, you can get a great, portable Bluetooth speaker system such as the **SONY SRS-X77**, \$300. Pair your phone or tablet to it, then carry it to wherever you want to listen to your tunes. Or you could get a WiFi speaker such as the **SONOS PLAY:5**, which tops our ratings and costs around \$500. If you can afford it, get more than one. You can pair them for stereo sound or group them to play the same song in multiple rooms throughout the house. If you want to add WiFi capability to speakers you already own, **GOOGLE'S CHROMECAST AUDIO** is a great, low-budget alternative. Priced at \$35,

Chromecast is an add-on that can turn any speaker with a 3.5-mm audio jack or an optical port into a wireless device. —*Tercius Bufete*

Play With Fido While You're at Work

Want to know what your pet does when you're not home? WiFi-connected pet cameras, such as the **FURBO**, \$225, and **PETCUBE CAMERA**, \$150, have two-way audio, so you can talk and listen to your little fur ball through a smartphone app. The Furbo can even toss treats; the Petcube has a built-in laser toy. —*Tercius Bufete*



EXPERT TIP



Supersize Your TV

If you think there's no such thing as a too-big TV, you're right. At least that's the case with many new 4K Ultra High Definition sets. And the old screen-size-to-seating-distance calculations that we used to recommend for regular HD sets aren't really relevant in the UHD era. Why? Because UHD screens have four times the number of tiny pixels that make up the TV's image as regular HD sets. That means you can go for a jumbo-sized set, provided it's not so humongous that you have to pan your head to follow the action, as if you were courtside at Wimbledon.

—James Willcox, CR television editor

Five Ways to ... Light Up Your Life

1 Let the sunshine in. Whether from a window, glass door, or skylight, natural light helps interior spaces feel larger, and it's a known antidote to depression. In a 2016 survey of 18,000 homeowners by HomeAdvisor, an online marketplace of service professionals, roughly 75 percent of self-described happy homeowners cited the abundance of natural light in their home as an important contributor to their positive mood. "When renovating, look for opportunities to include windows on multiple walls of a room," says Marianne Cusato, an associate professor at the University of Notre Dame's School of Architecture and a HomeAdvisor consultant. "That will capture natural light throughout the day as the sun moves around the house." And daylight helps cut down on energy costs because you're less reliant on electric lighting.

2 Make the most of mirrors. Hang an oversized mirror in the living room to reflect natural light, making the space feel larger.

3 Create layers of light. Proper lighting improves the feel and function of a home, especially as you get older. A 60-year-old needs twice as much light as

his 30-year-old counterpart, according to the American Lighting Association. It recommends three layers of light. The first is ambient light for overall illumination, from a chandelier or recessed canister light. The second is task lighting, such as undercabinet LED strips in the kitchen to make food prep easier. The third is accent lighting that introduces drama—think picture lights over a framed painting.

4 Install dimmers. A simple swap of a wall switch can let you vary the light to suit the activity—from bright light during meal prep to low light for entertaining.

5 Pick the proper bulb. Use the information on the Lighting Facts Label, covering features such as color temperature and lumens. LED bulbs around 2700K (the K is for Kelvin temperature) on the color-temperature scale cast a warm yellow light similar to outmoded incandescent bulbs, making them a good general-purpose choice. Bulbs with a temperature around 3000K have a whiter light that's better suited to bathrooms and laundry rooms. As for brightness, look for bulbs with 800 lumens to get the equivalent of a 60-watt incandescent.

Cultivate Peace and Quiet

Your home should be a quiet escape from the outside world. But a combination of loud appliances, hard surfaces, and open floor plans can ratchet up the racket pretty quickly. And that can take a toll on your body, as well as your mind. About 48 million Americans live with some hearing loss. "Noise-induced hearing loss is cumulative over time," says Nancy Nadler, deputy executive director of the Center for Hearing and Communication. "Whenever it's possible, turn down the volume in the home." For example, a quiet dishwasher will help reduce the noise level. A quiet home can also help with homework time because a child's cognitive and learning development can be disrupted in a noisy home. If you have a multifunctional kitchen, complete with homework stations, it's important to choose an ultraquiet refrigerator (see our ratings of top-rated French-door models on page 35) along with a dishwasher that scores very good or better for noise in our tests (see page 33). Elsewhere in the home, install carpets and drapes to help absorb loud noises. As a general rule, keep the TV and music speakers at a volume where it's still easy to have a normal conversation—a 45-decibel level is recommended by the Environmental Protection Agency.

Ratings



Best All-Around Dishwashers

Rec.	Rank	Brand & Model	Price	Overall Score	Test Results					Features			
					Washing	Drying	Energy Use	Noise	Ease of Use	Cycle Time (Min.)	Stainless/SS-Look Option	Hidden Controls	Adjustable Upper Rack

To earn a top spot in our dishwasher ratings, models need to leave dishes sparkling while creating

minimal noise and water waste. The 10 models below deliver the best

all-around performance. Go to [CR.org](https://www.consumerreports.org), where subscribers can see dozens of other tested

machines, including models that are similar to those listed here.

CONVENTIONAL DISHWASHERS													
✓	1	KitchenAid KDTM354DSS	\$860	85	↑	↑	↑	↑	↑	125	•	Some	•
✓	2	Kenmore Elite 12793	\$1,250	85	↑	↓	↑	↑	↑	145	•	Some	•
✓	3	KitchenAid KDTM704ESS	\$1,620	83	↑	↓	↑	↑	↑	110	•	Some	•
✓	4	Kenmore Elite 14833	\$1,200	82	↑	↓	↑	↑	↑	115	•	Some	•
\$	5	Bosch Ascenta SHX3AR7[5]UC	\$630	81	↑	↑	↑	↑	↑	95	•	All	•
✓	6	KitchenAid KDFE454CSS	\$1,350	81	↑	↓	↑	↑	↓	140	•	No	•
	7	GE Profile PDF820SSJSS	\$900	80	↑	↓	↑	↑	↑	150	•	No	•
	8	Thermador Topaz Series DWHD640JFM	\$1,500	80	↑	↑	↑	↑	↑	125	•	All	•
	9	Bosch 800 Plus Series SHX7PT55UC	\$1,300	80	↑	↑	↑	↑	↑	125	•	All	•
	10	Kenmore Elite 14793	\$900	80	↑	↓	↑	↑	↑	145	•	Some	•

Making Water More Wonderful

Rec.	Rank	Brand & Model	Price	Overall Score	Test Results				Features			
					Lead Removal	Chloroform Removal	Flow Rate	Clogging	Filter Cost	Filter-Life Indicator	NSF-Certified for Lead Removal	NSF-Certified for Organic-Contaminants Removal

Our water-filter tests range from inexpensive carafe-style models that filter just a couple of gallons per

day to reverse-osmosis systems that might cost thousands to

install but capture a wide range of contaminants. Here are the winners from all five categories. For the

complete ratings, online subscribers can go to [CR.org](https://www.consumerreports.org).

		CARAFE WATER FILTER											
\$	1	Clear ₂ O CWS100	\$30	93	⬆️	⬆️	⬆️	⬆️	\$60	•			
		FAUCET-MOUNTED WATER FILTERS											
\$	1	Culligan FM-15A	\$20	80	⬆️	⬆️	⬇️	⬆️	\$84		•		
✓	2	Pur FM-3700B	\$30	77	⬆️	⬆️	⬇️	⬆️	\$40	•	•	•	
\$	3	Brita Base On Tap OPFF-100	\$19	75	⬆️	⬆️	⬇️	⬆️	\$45	•			
		COUNTERTOP WATER FILTERS											
✓	1	Amway eSpring 10-0188	\$1,000	94	⬆️	⬆️	⬆️	⬆️	\$217	•	•	•	
\$	2	Shaklee BestWater MTS2000 #82300	\$260	87	⬆️	⬆️	⬇️	⬆️	\$107		•	•	
		UNDERSINK WATER FILTERS											
✓	1	Multipure MP750SB	\$430	90	⬆️	⬆️	⬆️	⬆️	\$70		•	•	
✓	2	Aqua-Pure by Cuno AP-DWS1000	\$300	88	⬆️	⬆️	⬇️	⬆️	\$116		•	•	
✓	3	American Plumber WLCS-1000	\$200	82	⬆️	⬆️	⬇️	⬆️	\$40	•	•	•	
		REVERSE OSMOSIS WATER FILTERS											
✓	1	Kinetico K5 Drinking Water Station	\$1,800	95	⬆️	⬆️	⬆️	⬆️	PS*	•			
✓	2	Ecowater ERO-375	\$675	91	⬆️	⬆️	⬇️	⬆️	\$192		•		
✓	3	Culligan Aqua-Clear	\$1,000	86	⬆️	⬆️	⬇️	⬆️	PS*	•	•	•	

*Professional service recommended for filter replacement.

Ratings

Power Blenders for Healthy Eaters

		Brand & Model	Price	Overall Score	Test Results						Features						
Rec.	Rank				Icy Drinks (Smoothies)	Convenience	Purée	Ice Crush	Noise	Durability	Weight (Lb.)	Glass Jar	Plastic Jar	Stainless-Steel Jar	Removable Blade	Pulse	
		If you plan to use your blender for a variety of blending tasks, it's worth paying top dollar for one of		these top-rated models (similar models are not listed). Just looking		to whip up the occasional fruit smoothie? Online subscribers can check our full ratings on CR.org						for low-priced models that score at least Very Good in our icy-drinks test.					
		FULL-SIZED BLENDERS															
✓	1	Vitamix Professional Series 750	\$650	86	✓	✓	✓	✓	⚠	✓	13		•			•	
✓	2	Cuisinart Hurricane Pro CBT-2000	\$400	81	✓	✓	✓	✓	⚠	✓	11		•			•	
	3	Blendtec Designer 725	\$650	81	✓	✓	✓	✓	⚠	✓	11		•			•	
	4	Electrolux Expressionist ELJB56B8PS	\$170	80	✓	✓	✓	✓	⚠	✓	9	•			•	•	

Top-Rated Washer-Dryer Pairs

	Brand & Models	Pair Price	Overall Score		Washer Test Results								Dryer Test Results				
Rec.				Dimensions (In.)	Washing Performance	Energy Efficiency	Water Efficiency	Gentleness	Noise	Vibration	Cycle Time (Min.)	Claimed Capacity (Cu. Ft.)	Drying Performance	Convenience	Noise	Claimed Capacity (Cu. Ft.)	
In an open-plan laundry room, you'll want a washer and dryer with coordinated looks, including		matching finishes and dimensions, in addition to peak performance. Here are the top washer-dryer pairs		from our tests; Overall Score is a weighted combination of each model's individual score.								To see how the washers and dryers rank on their own, online subscribers can go to CR.org .					
	FRONT-LOAD WASHER-DRYER PAIRS*																
✓	Samsung WF56H9110CW	\$2,900	84	43x30x33	✓	✓	✓	✓	✓	✓	90	5.6	—	—	—	—	
✓	Samsung DV56H9100EG			43x30x32	—	—	—	—	—	—	—	—	—	✓	✓	✓	9.5
✓	Maytag Maxima MHW8200FW	\$2,300	83	39x27x34	✓	✓	✓	✓	✓	✓	70	4.5	—	—	—	—	
	Maytag MED8200FW			39x27x31	—	—	—	—	—	—	—	—	—	✓	✓	✓	7.4
✓	LG WM8500HVA	\$2,900	83	41x29x33	✓	✓	✓	✓	✓	✓	90	5.2	—	—	—	—	
✓	LG DLEX8500V			41x29x32	—	—	—	—	—	—	—	—	—	✓	✓	✓	9
✓	Maytag Maxima MHW8100DC	\$2,800	82	39x27x33	✓	✓	✓	✓	✓	✓	75	4.5	—	—	—	—	
	Maytag Maxima MED8100DC			40x27x31	—	—	—	—	—	—	—	—	—	✓	✓	✓	7.4
💰	LG WM3170CW	\$1,440	82	40x27x31	✓	✓	✓	✓	✓	✓	110	4.3	—	—	—	—	
	LG DLE3170W			39x27x30	—	—	—	—	—	—	—	—	—	✓	✓	✓	7.4
	HIGH-EFFICIENCY TOP-LOAD WASHER-DRYER PAIRS*																
✓	LG WT1701CV	\$1,600	75	41x27x29	✓	✓	✓	⚠	✓	✓	75	5.0	—	—	—	—	
💰	LG DLEY1701V			39x27x29	—	—	—	—	—	—	—	—	—	✓	✓	✓	7.3
✓	LG WT5680HVA	\$1,900	74	46x27x29	✓	✓	✓	⚠	✓	✓	75	5.0	—	—	—	—	
	LG DLEX5680V			38x27x45	—	—	—	—	—	—	—	—	—	✓	✓	✓	7.3
	LG WT7600HWA	\$1,600	73	45x27x29	✓	✓	✓	⚠	✓	✓	75	5.2	—	—	—	—	
✓	LG DLEX7600WE			45x27x30	—	—	—	—	—	—	—	—	—	✓	✓	✓	7.3
	Kenmore Elite 31552	\$1,800	73	45x27x29	✓	✓	✓	⚠	✓	✓	75	5.2	—	—	—	—	
	Kenmore Elite 61552			45x27x30	—	—	—	—	—	—	—	—	—	✓	✓	✓	7.3
	Maytag Bravos MVWB855DW	\$2,000	72	43x27x28	✓	✓	✓	⚠	✓	✓	80	5.3	—	—	—	—	
	Maytag Bravos MEDB855DW			43x29x33	—	—	—	—	—	—	—	—	—	✓	✓	✓	7.3

* All dryers are electric. Gas versions should perform similarly based on our tests.

Upright Vacuums for Max Cleaning

		Brand & Model	Price	Overall Score	Test Results							Features								
Rec.	Rank				Carpet	Bare Floors	Tool Airflow	Noise	Emissions	Handling	Pet Hair	Weight (Lb.)	Cord Length (Ft.)	Brush On/Off	Easy On/Off	Manual-Pile Adjust	Suction Control	Accepts Tools	High Efficiency Particulate Air (HEPA) Filter	Full-Bag/Bin Indicator

Uprights are the most widely sold type of vacuum because they're competitively priced and

deliver superior cleaning power, especially over carpets. Here are the top five picks among recently

tested bagged and bagless models. Online subscribers can check out the complete ratings, including

for canister, robotic, and stick vacuums, at [CR.org](https://www.consumerreports.org).

BAGGED UPRIGHT VACUUMS																				
	1	Kenmore Elite Pet Friendly 31150	\$350	74								21	35	•	•	•	•	•	•	•
	2	Miele Dynamic U1 Twist	\$450	72								22	40	•	•		•	•		•
	3	Miele Dynamic U1 Cat & Dog	\$650	72								22	40	•	•		•	•		•
	4	Kenmore Pet Friendly 31140	\$200	71								20	29	•	•	•	•	•	•	•
	5	Kenmore Progressive 31069	\$200	71								19	33	•	•	•	•	•	•	•
BAGLESS UPRIGHT VACUUMS																				
	1	Shark Navigator Powered Lift-Away NV586(Target)	\$300	70								16	26	•			•	•	•	•
	2	Hoover WindTunnel T-Series Rewind Bagless UH70120	\$130	69								18	27		•	•		•	•	•
	3	Dyson Ball Animal	\$500	69								18	35	•				•	•	•
	4	Shark Rotator Powered Lift-Away XL Capacity NV755	\$400	67								18	30	•	•		•	•	•	•
	5	Dyson Ball Multi Floor	\$400	65								17	35	•				•	•	•

Quietest Refrigerators

Rec.		Brand & Model	Price	Overall Score	Test Results				Features							
Rank					Temperature Performance	Temperature Uniformity	Energy Efficiency	Noise	Ease of Use	Claimed Capacity (Cu. Ft.)	Exterior Height (in.)	Exterior Width (in.)	Exterior Depth (in.)	Total Usable Capacity (Cu. Ft.)	Fridge Usable Capacity (Cu. Ft.)	Freezer Usable Capacity (Cu. Ft.)

With kitchens opening up to the rest of the home, refrigerators have had to become quieter while still

maintaining food freshness. Below are 10 peacekeepers from the widely sold French-door category. (Because

noise is prioritized, their rank does not follow sequential order.) Winners among conventional bottom-freezers,

built-ins, side-by-sides, and top-freezers are at [CR.org](https://www.consumerreports.org) for online subscribers.


	THREE-DOOR FRENCH-DOOR REFRIGERATORS																	
✓	1	LG LFXS32766S	\$3,510	90	↑	↑	↑	↑	↑	31.5	69	36	34	20.9	14.2	6.7	95	•
✓	2	Samsung RF28HDEDPPW	\$1,800	89	↑	↑	↑	↑	↑	27.8	69	36	34	20.0	13.3	6.7	85	•
✓	3	Kenmore Elite 74093	\$2,400	87	↑	↑	↑	↑	↑	31.7	69	36	36	21.5	15.4	6.1	95	•
✓	6	LG LFC24770ST	\$1,400	85	↑	↑	↑	↑	↑	23.8	69	33	33	17.4	12.6	4.8	58	
\$	8	Kenmore Elite 73153	\$1,900	84	↑	↑	↑	↑	↑	28.7	69	36	34	19.5	13.0	6.5	92	•
✓	9	LG LFC22770ST	\$1,100	84	↑	↑	↑	↑	⚠	21.8	68	30	33	15.4	11.1	4.3	73	
✓	15	Whirlpool WRF995FIFZ	\$3,420	82	↑	↑	↑	↑	↑	31.5	70	36	37	21.6	15.9	6.7	94	•
✓	21	Kenmore Elite 73163	\$2,100	81	↑	↑	↑	↑	↑	28.5	69	36	34	19.2	12.7	6.5	91	•
✓	22	GE Profile PFE28RSHSS	\$3,000	80	↑	↑	↑	↑	↑	27.7	69	36	35	20.1	13.3	6.8	90	•
✓	24	Kenmore Elite 71313	\$1,400	80	↑	↑	↑	↑	⚠	23.9	69	33	33	17.4	12.6	4.8	75	

Step Away From the Sticky Bun!

You're at the mall, you're hungry, and you're face to face with all manner of sweet confections and gooey goodies. Do you have to starve—or else face dietary disaster? We show you a third path by steering you to healthier, but still tasty, choices.

by **Trisha Calvo**

SHOPPING WHILE HUNGRY has its hazards. First of all, if you're at the mall, you'll come home with more stuff. Researchers from the Carlson School of Management at the University of Minnesota analyzed the purchases of 81 department store shoppers and found that those who were hungry bought more items and spent about 64 percent more money than those who weren't famished. But you'll also likely end up picking up extra calories. That's because the scent of cinnamon rolls or char-broiled burgers can lead you by the nose directly to the mall food court, where you can easily pack half a day's worth—not to mention loads of fat, sodium, and sugars—into a single meal or snack. Your best defense against shopping on an empty stomach is to have something healthy and satisfying before you leave the house (or stuff a snack into your backpack). But if you're stranded and starving, there are ways to avoid dietary disaster at the food court. While even we can't take the sin out of cinnamon rolls (*sorry!*), you're not doomed to salads sans dressing either. To help you make smarter choices when hunger strikes, Consumer Reports' dietitians scanned the menus at several popular mall food-court chain restaurants and found better alternatives to some dietary don'ts on the menus.



SKIP
Cinnabon
Classic Roll



Cinnabon

THE SIREN SONG of the Cinnabon scent makes it nearly impossible to walk by without stopping, and we could swear that the aroma alone must be fattening. So if you find yourself tempted, choose the Churro over the Classic Roll, or the CinnaSweeties instead of the Stix. But say no thanks to the frosting cup: It adds 210 calories, 13 grams of fat, 6 grams of saturated fat, 21 grams of sugars, and 120 mg of sodium.

SKIP THIS ...

Cinnabon Classic Roll

880 CALORIES
37 g FAT
17 g SATURATED FAT
58 g SUGARS
820 mg SODIUM

PICK INSTEAD

Churro

280 CALORIES
11 g FAT
2 g SATURATED FAT
8 g SUGARS
375 mg SODIUM

SKIP THIS ...

Cinnabon Stix (5)

400 CALORIES
21 g FAT
9 g SATURATED FAT
16 g SUGARS
440 mg SODIUM

PICK INSTEAD

CinnaSweeties (5)

260 CALORIES
13 g FAT
7 g SATURATED FAT
13 g SUGARS
220 mg SODIUM

Auntie Anne's

PRETZELS HAVE A REPUTATION for being a low-fat snack, but that's only if you're talking about the ones that come in bags. At Auntie Anne's, these chewy temptations are slathered in butter and rolled in salt, a doubleheader of nutritional no-no's. Fortunately, the chain gives you the option of holding the butter and salt, which cuts calories, fat, and sodium. If only a dip'll do ya, go for the marinara. The other dips cram extra calories, fat, sodium, or sugars into these twisters.

SKIP THIS ...

Original Pretzel
With Cheese Dip

440 CALORIES
13 g FAT
5.5 g SATURATED FAT
10 g SUGARS
1,460 mg SODIUM

PICK INSTEAD

Original Pretzel
(no butter, no salt,
with Marinara Dip)

355 CALORIES
2 g FAT
0 g SATURATED FAT
14 g SUGARS
640 mg SODIUM

SKIP THIS ...

Cinnamon Sugar
Pretzel

470 CALORIES
12 g FAT
7 g SATURATED FAT
29 g SUGARS
400 mg SODIUM

PICK INSTEAD

Sweet Almond
Pretzel (no butter)

350 CALORIES
2 g FAT
1 g SATURATED FAT
17 g SUGARS
400 mg SODIUM



PICK
Sweet Almond
Pretzel

PICK

Fresco Soft Taco,
Shredded Chicken



Taco Bell

THE FRESCO SOFT TACOS are on the small side, but you can eat two and still be way better off nutritionally than if you picked—surprisingly—the Fiesta Taco Salad. And the sodium count of the Grilled Stuft Burrito—just about 100 mg shy of your maximum daily allotment—is a good example of why it's best to stay away from any food with “XXL” in its name. We found a hearty alternative—the Beefy Nacho Loaded Griller—that has less sodium, far fewer calories, and much less saturated fat.

SKIP THIS ...

Fiesta Taco Salad,
Chicken

710 CALORIES
33 g FAT
7 g SATURATED FAT
6 g SUGARS
1,280 mg SODIUM

PICK INSTEAD

Fresco Soft Taco,
Shredded Chicken (2)

270 CALORIES
7 g FAT
2 g SATURATED FAT
4 g SUGARS
950 mg SODIUM

SKIP THIS ...

XXL Grilled Stuft
Burrito, Beef

860 CALORIES
41 g FAT
14 g SATURATED FAT
6 g SUGARS
2,170 mg SODIUM

PICK INSTEAD

Beefy Nacho
Loaded Griller

370 CALORIES
15 g FAT
4 g SATURATED FAT
3 g SUGARS
810 mg SODIUM

PICK
Little
Cheeseburger



Five Guys

PORTION CONTROL is the secret to having the burger you crave without going overboard. The “Little” options are a satisfying 6 to 7 ounces, compared with 9 to 11 ounces for the regular-sized burgers.

Forgo the fries, though: A regular order here will set you back 953 calories, 41 grams of fat, and 962 mg of sodium.

SKIP THIS ...

Hamburger

700 CALORIES
43 g FAT
19.5 g SATURATED FAT
8 g SUGARS
430 mg SODIUM

PICK INSTEAD

Little Hamburger

480 CALORIES
26 g FAT
11.5 g SATURATED FAT
8 g SUGARS
380 mg SODIUM

SKIP THIS ...

Cheeseburger

840 CALORIES
55 g FAT
26.5 g SATURATED FAT
9 g SUGARS
1,050 mg SODIUM

PICK INSTEAD

Little Cheeseburger

550 CALORIES
32 g FAT
15 g SATURATED FAT
8.5 g SUGARS
690 mg SODIUM



PICK
Double
Chocolate
Cupcake

Au Bon Pain

SMALL SWAPS AT this eatery can make a big dietary difference. A simple change in salad dressing on the Chicken Caesar Asiago Salad results in a savings of 140 calories and 16 grams of fat. Craving something sweet? Don't be tricked into thinking muffins are healthy options; most of the time they're essentially cake. In fact, you can have a Double Chocolate Cupcake in place of the Double Chocolate Chunk Muffin for 260 fewer calories and 15 fewer grams (about 4 teaspoons) of sugars.

SKIP THIS ...

Chicken Caesar
Asiago Salad With
Caesar Dressing

520 CALORIES
35 g FAT
8.5 g SATURATED FAT
6 g SUGARS
1,350 mg SODIUM

PICK INSTEAD

Chicken Caesar
Asiago Salad With
Balsamic Vinaigrette

380 CALORIES
19 g FAT
5.5 g SATURATED FAT
9 g SUGARS
1,010 mg SODIUM

SKIP THIS ...

Double Chocolate
Chunk Muffin

580 CALORIES
24 g FAT
7 g SATURATED FAT
49 g SUGARS
500 mg SODIUM

PICK INSTEAD

Double Chocolate
Cupcake

320 CALORIES
13 g FAT
6 g SATURATED FAT
34 g SUGARS
250 mg SODIUM



LEARN

For more mall food court picks and skips,
go to [CR.org/mallfood](https://www.cro.org/mallfood).

Panda Express

YOU WOULDN'T EXPECT a beef dish to have the equivalent of 6 teaspoons of sugars (24 grams). Some of the sugars in the Beijing Beef at this food-court Chinese restaurant come from the onions and red bell peppers, but it's likely that a fair amount is found in the "sweet-tangy" sauce everything is tossed in. Avoid this beef bomber and choose the Broccoli Beef instead.

The Veggie Spring Rolls are a respectable choice, but the Chicken Potstickers actually edge them out as a better nutritional pick, proving that just because "veggie" is in the name, it doesn't always win the game.

SKIP THIS ...

Beijing Beef*

470 CALORIES
26 g FAT
5 g SATURATED FAT
24 g SUGARS
660 mg SODIUM

PICK INSTEAD

Broccoli Beef*

150 CALORIES
7 g FAT
1.5 g SATURATED FAT
7 g SUGARS
520 mg SODIUM

SKIP THIS ...

Veggie Spring Roll (2)

190 CALORIES
8 g FAT
1.5 g SATURATED FAT
3 g SUGARS
520 mg SODIUM

PICK INSTEAD

Chicken Potsticker (3)

160 CALORIES
6 g FAT
1.5 g SATURATED FAT
2 g SUGARS
250 mg SODIUM



PICK
Broccoli
Beef

PHOTO, TOP LEFT: BRENDAN WIXTED



PICK
California Veggie
Original
Hand-Tossed Pizza
(half pie)

California Pizza Kitchen

THE MOROCCAN-SPICED Chicken Salad sounds healthy, especially when you consider that it's packed with nutritious foods such as avocado, butternut squash, and beets. But even the half order has too many calories for a single meal and is too high in sugars. Choose the Roasted Veggie Salad With Chicken (half order) and you'll still get a hefty dose of vegetables—artichoke hearts, asparagus, and eggplant, to name a few—with substantially fewer calories and less fat and sugars, along with a little less sodium. To cut calories, fat, and sodium even more, get the dressing on the side and use just a little bit on your salad.

It's likely, though, that when you go to a restaurant with “pizza” in its name, you want pizza. Unfortunately, not one Original Hand-Tossed Pizza has less than 1,000 calories, and some have more sodium and almost all the saturated fat you should have in a day. Changing the crust won't help. The thin crust saves only 10 calories per pie, and the whole-wheat crust actually adds 140 calories, 10 grams of fat, and 14 grams of sugars to any pizza. Our advice: Split a pie with a friend (or two) and choose the California Veggie. It's one of the options lowest in calories and sodium and highest in fiber, so having a smaller portion will satisfy your appetite.

SKIP THIS ...

Moroccan-Spiced
Chicken Salad
(half order)

750 CALORIES
50 g FAT
5 g SATURATED FAT
40 g SUGARS
690 mg SODIUM

PICK INSTEAD

Roasted Veggie Salad
With Grilled Chicken
Breast (half order)

550 CALORIES
31 g FAT
3.5 g SATURATED FAT
13 g SUGARS
620 mg SODIUM

SKIP THIS ...

Margherita Thin
Crust Pizza
(half pie)

665 CALORIES
31 g FAT
14 g SATURATED FAT
4 g SUGARS
1,325 mg SODIUM

PICK INSTEAD

California Veggie
Original Hand-Tossed
Pizza (half pie)

535 CALORIES
15.5 g FAT
7.5 g SATURATED FAT
8.5 g SUGARS
1,145 mg SODIUM

How to Save on Car Insurance

Our exclusive analysis of billions of annual premiums reveals surprising factors that can drive your premium up or down. Learn how to shop smart for the best deal and still get coverage you can count on.

by **Tobie Stanger**

WHEN YOU SHOP for car insurance, you're driving blind. Give your details to a dozen carriers and you could end up with a dozen different quotes, some twice as high as others.

Insurers base their premiums on many factors, including age, driving record, and car type. But when Consumer Reports analyzed more than 2.7 billion premiums—the bulk of the U.S. auto insurance market—we also identified some factors that you might not even be aware of, including credit history and education, that have nothing to do with your driving. We also learned that because each insurer has its own pricing formula—penalizing or rewarding factors differently—consumers can save by shopping around.

It worked for Donna Greene of Greenburgh, N.Y., a Geico customer for more than 20 years. She saved \$793 on auto coverage and \$390 on homeowners by moving to Amica, an insurer based in Rhode Island. “Don’t assume that because you’ve been a good customer for years, you’re getting a break,” she says. “Insurers take advantage of your inertia.”

On the following pages we explain how events over your life can affect rates—and how to use that information to save.

What Makes Your Car Insurance Go Up—or Down

Here are the factors and life events that tend to have that biggest effect on what you pay for car insurance. For this example, we looked at the national average for a married couple with two new Toyota Camry LEs.

Poor Credit Makes Rates Skyrocket

A two-car couple with poor credit will pay an extra \$2,090, on average, compared to a family with excellent credit. That's more than what it usually costs to add a teen driver or even the penalty for having two DWIs.

CR'S ADVICE Shop around.

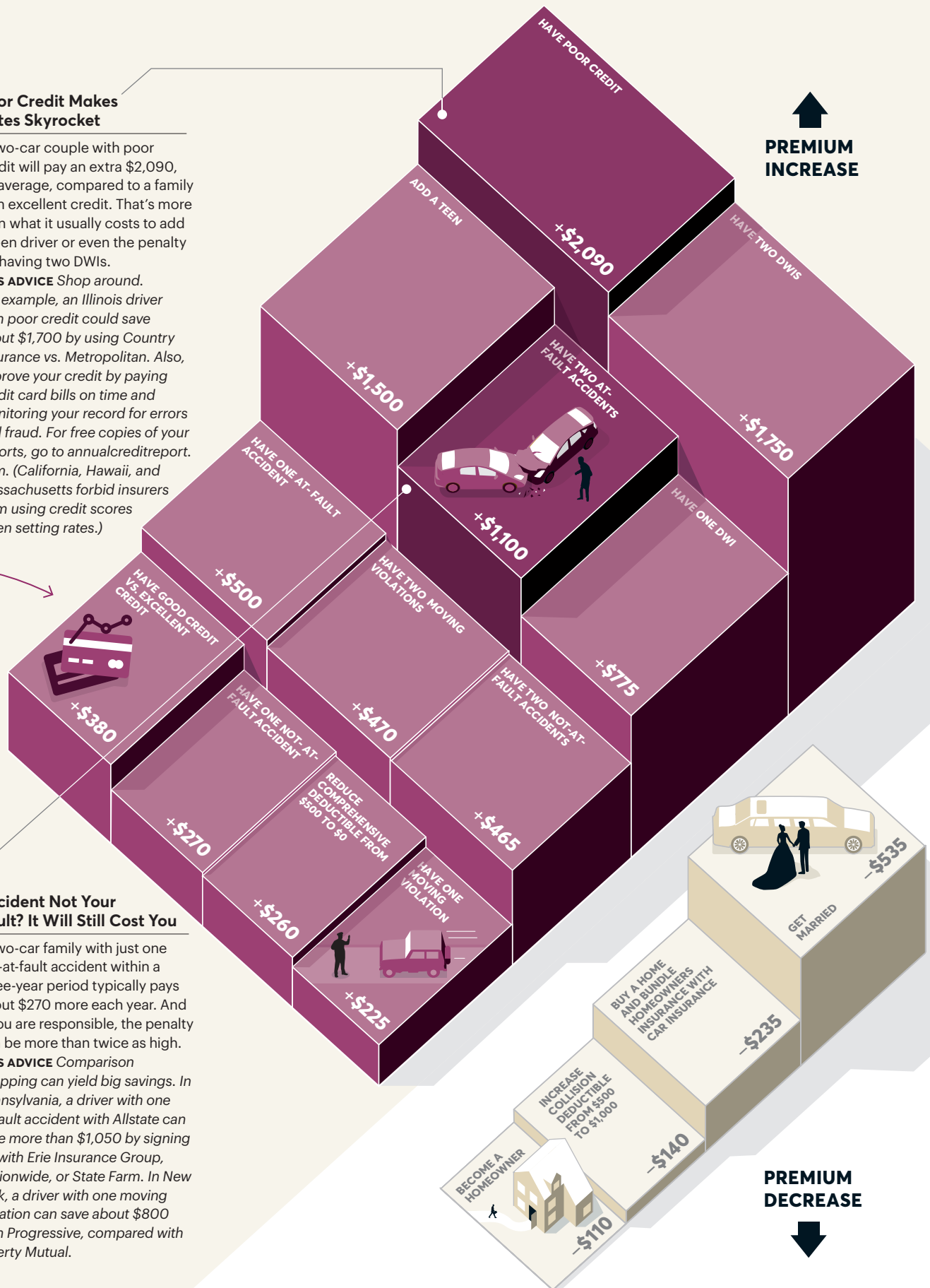
For example, an Illinois driver with poor credit could save about \$1,700 by using Country Insurance vs. Metropolitan. Also, improve your credit by paying credit card bills on time and monitoring your record for errors and fraud. For free copies of your reports, go to annualcreditreport.com. (California, Hawaii, and Massachusetts forbid insurers from using credit scores when setting rates.)

Accident Not Your Fault? It Will Still Cost You

A two-car family with just one not-at-fault accident within a three-year period typically pays about \$270 more each year. And if you are responsible, the penalty can be more than twice as high.

CR'S ADVICE Comparison shopping can yield big savings.

In Pennsylvania, a driver with one at-fault accident with Allstate can save more than \$1,050 by signing up with Erie Insurance Group, Nationwide, or State Farm. In New York, a driver with one moving violation can save about \$800 with Progressive, compared with Liberty Mutual.



Milestones That Can Change Your Auto Insurance Rates, for Better or Worse

\$2,200

AGE 20
\$2,205

\$2,000

\$1,800

\$1,600

\$1,400

\$1,200



25 years Get That Diploma

Drivers in their 20s are penalized for their lack of driving experience.

CR'S ADVICE Telling your insurer about your education can help a little. College grads, on average, save about \$90 per year compared with those who never finished high school. Not a lot, maybe, but over time, it can add up. Advanced degrees help even less: about \$20 for a Ph.D. and \$15 for a Master's.

AGE 25
\$1,377



30 years Tie the Knot

Insurers now consider you experienced, so premiums start to flatten, making it a good time to shop around. And getting married can help, too. Two people in their 30s who marry and combine policies can save an average of about \$525 per year compared with what they would pay as singles.

CR'S ADVICE This benefit is greater in some states and with some insurers. In Texas, for example, getting married is worth about \$780, on average, with Geico but only \$360 with State Farm.

AGE 30
\$1,262



35 years Have a Baby On Board

Trading up from a Honda Civic EX to a Honda Odyssey EX minivan can actually help you save: an average of about \$240 per year for a couple with two cars and no teens. In some states, the differences can be even bigger: In Florida, that family would save about \$375, on average.

CR'S ADVICE Look for additional savings by calling other carriers. A Florida driver upgrading from that Civic to the Odyssey could save, on average, about \$600 by signing up with Progressive instead of Allstate, for example.

AGE 35
\$1,251

NATIONAL AVERAGE ANNUAL
PREMIUMS FOR A SINGLE DRIVER

How much will it cost to insure your new car?

We compared each of the cars shown to a **Camry LE**. (The Camry was the most popular car in the country in 2016.) Some will cost you less to insure—some more.



Honda Odyssey
Save \$145



Ford Escape
Save \$140



Dodge Grand Caravan
Save \$130



Subaru Forester 251P
Save \$80

LESS EXPENSIVE

This chart shows the average annual insurance rates over the course of a lifetime for a single driver in the U.S. In general, 20-somethings pay extra because of their inexperience, while those 60 and older pay more for their increased risk of fender-benders. But different events over your life can translate into savings or penalties. Here's what you can do to take advantage of the former and the sting out of the latter.



40 years
Buy a House

Simply owning your own home can save a two-car couple about \$110.
CR'S ADVICE Bundling your auto coverage with homeowners can save you even more: about \$240, on average, for a two-car couple. Shopping around pays, too. In California, a driver combining homeowners and auto policies could save about \$1,900, on average, by signing up with Geico vs. Nationwide.



50 years
Hand Your Teen the Keys

Adding a teenage boy will cost a married couple about \$1,740; a girl, about \$1,455.
CR'S ADVICE Comparison shopping can help. In Pennsylvania, signing up with Erie Insurance Group instead of Progressive can save you, on average, about \$2,300. But don't intentionally keep your teen off the policy to save money. Lying to your insurer is fraud, and grounds for getting dropped. Instead, take advantage of good-student discounts if you can. That saves a two-car family with a teen driver an average of about \$350. Good-student discounts in some states can be even bigger: over \$700 in Delaware, Louisiana, and Rhode Island.



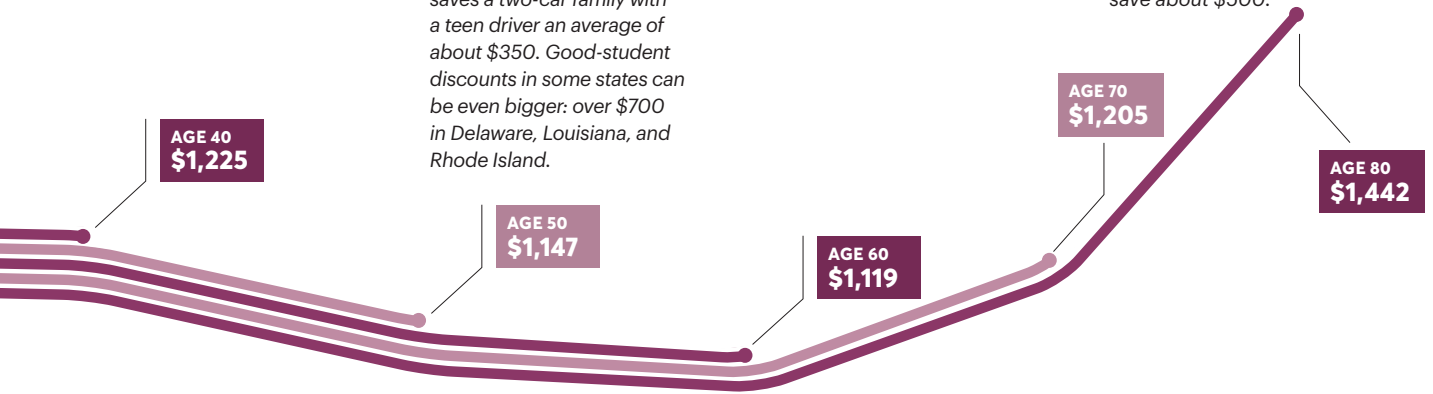
60 years
Get a Midlife Crisis Benz

Moving from a family car to a sports car or luxury vehicle may make you feel young—but also cost you: \$450 for a Mercedes-Benz E350, \$440 for a Chevrolet Corvette, and \$250 for a Porsche Boxster, on average.
CR'S ADVICE Once you've chosen those fancy wheels, compare coverages. An Ohio resident insuring a Mercedes E350, for instance, can save an average of about \$900 with Farmers instead of Allstate.



70 years
At Long Last, Retire

Insurers start raising rates after 60, in some places especially. In Texas, rates for a single driver increased far more after age 60 with Geico than with State Farm.
CR'S ADVICE Signing up for a mature driver's ed class can save single drivers about \$50, offsetting some of the costs that come with age. In most places, joining AARP won't help much. One notable exception: In California, if you sign up with The Hartford and belong to AARP, you could save about \$500.



AVERAGE ANNUAL PREMIUM



Toyota Camry LE
About \$1,200



Porsche Boxster
Spend \$250



Lexus ES300H
Spend \$290



Chevrolet Corvette
Spend \$440



Mercedes-Benz E350
Spend \$450

BASE CAR

MORE EXPENSIVE

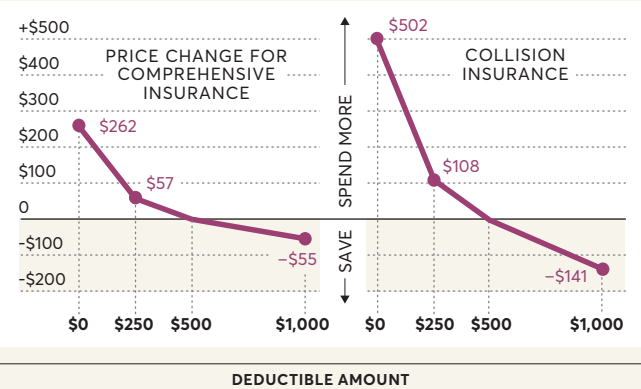
5 Tips for Getting the Best Value on Car Insurance

If you're already insured, check your policy to see what you're now paying. Then follow these steps:

- 1. Shop often.** Check out several different insurance companies every two to three years. Maybe your situation has changed—say you're driving fewer miles, which can lower your premium a little. Or maybe the carrier has adjusted its underwriting or rating in ways that help, or hurt, your bottom line. You get little benefit from sticking with the same insurer year in and year out; our research in the past has found that the “long-term customer discount” is mostly a myth.
- 2. Cast a wide net.** Try shopping on TheZebra.com, which uses data from Quadrant, a private company that collects and analyzes rate filings supplied directly by insurers. (Quadrant is also the company we engaged for our price analyses.) The Zebra offers estimates from 18 to 35 insurers, depending on the state. That compares with just 3 to 10 quotes provided by other

- sites, including Insurance.com, NetQuote, and NerdWallet.
- 3. Consider raising collision and comprehensive deductibles.** Collision insurance covers damage to your vehicle caused by impact with another car or object, regardless of who's at fault. Comprehensive covers theft of your vehicle and damage from fire, flood, a falling branch, and the like. The average driver files a comprehensive or collision claim only once every 5 to 10 years, according to the Insurance Information Institute. The higher your deductible—the amount you pay before insurance kicks in—the lower your premium, especially for collision, as shown at right.
- 4. Protect yourself.** Make sure you get enough liability coverage. We recommend 100/300/100 coverage, which pays for bodily injury up to \$100,000 per person and \$300,000 per accident, and property damage up to

DO THE MATH Raise a deductible from \$500 to \$1,000 to save, lower it and spend more



\$100,000. And buy uninsured/underinsured coverage at the same limits, in case you're hit by a hit-and-run driver or someone without enough insurance. Finally, for added liability protection, consider an umbrella policy. A \$1 million policy typically costs about \$200 to \$400 per year.

- 5. Check our ratings, at right.** They show CR subscribers' overall satisfaction with auto insurance companies over the past two decades. An affordable policy won't help much if the carrier provides subpar service or gives you a hard time about paying a claim.

What Companies Have the Best Deals in Your State

In most states, a few insurers tend to be cheaper than others. Here are the ones to start with in 25 states.* But the best deal also depends on your age, car, and other factors—so shop around.

STATE	SINGLES AND COUPLES	FAMILIES WITH TEENS
Alabama	Geico	Nationwide
Arizona	Liberty Mutual	Liberty Mutual
California	Mercury/CSAA, singles; Allstate, couples	Liberty Mutual
Colorado	Geico	Geico
Connecticut	Geico	Geico or Nationwide
Florida	Geico	Geico
Georgia	Geico	Geico
Illinois	The Hartford, singles; Geico, couples	The Hartford
Indiana	Geico	Nationwide
Maryland	Erie or Progressive	Geico or Liberty Mutual
Massachusetts	Geico	Arabella or State Farm
Michigan	Liberty Mutual	Liberty Mutual
Minnesota	The Hartford	The Hartford

STATE	SINGLES AND COUPLES	FAMILIES WITH TEENS
New Jersey	Farmers	Farmers or Geico
New York	Progressive	Geico or Travelers
North Carolina	Progressive	Progressive
Ohio	The Hartford	The Hartford
Oregon	Geico	Nationwide or State Farm
Pennsylvania	The Hartford	The Hartford
South Carolina	The Hartford	The Hartford
Tennessee	The Hartford	The Hartford
Texas	Farmers	State Farm
Virginia	The Hartford	The Hartford
Washington	Pemco, singles; The Hartford, couples	Pemco
Wisconsin	The Hartford	The Hartford

*Note that Amica Mutual Insurance Company and USAA Group were not included in this analysis. For all states, go to [CR.org/carinsurance0317](https://www.carinsurance0317.org).

Ratings > Two Decades of Car Insurance Survey Results

Our findings show that the same companies consistently rank high on customer satisfaction.

CONSUMER REPORTS has published six car insurance ratings since 1992, based on national surveys of our readers. The results reflect their overall satisfaction with auto insurers, as well as factors such as service and claims handling. Over those years, we've learned several important things.

For one, car insurance companies tend to perform consistently over time, with their scores usually varying by only a few points from survey to survey. And while the companies generally tend to perform well—typically earning scores of 80 or higher on our 100-point scale—some regularly appear near the top.

That's important, because many people stay with their insurance companies for years.

Knowing where an insurer typically appears in our ratings can help you decide whether to stick with your company. And when you do shop around for price, as we recommend doing every few years, a company's long-term record on customer satisfaction can help you make a wise choice.

To give you a sense of an insurer's performance over time, we looked at all the insurance company groups in our most recent ratings, in 2014. We then averaged their reader satisfaction scores from that year's survey with their scores from all other surveys in which they appeared since 1992. (Companies are ranked by their unrounded scores.)

In some cases, the averages include scores of subsidiaries that we rated separately in

the past. For example, the average score for The Hanover Insurance Group includes scores for Citizens Insurance Company, a subsidiary we rated three times in the 1990s.

Notably, we found that the long-term scores typically varied by only a point or two from our 2014 results.

In that year's survey, we asked 64,872 readers about their experiences with car insurers, giving greater weight to responses from the nearly 19,000 people who had filed claims. In previous years, we only surveyed people who had filed claims.

To see our most recent complete ratings, including satisfaction with customer service, claims handling, and price, go to [CR.org/car-insurance-ratings](https://www.consumerreports.org/car-insurance-ratings).

How We Did Our Price Analysis

FOR OUR ANALYSIS of car insurance premiums that appears on pages 42 to 46, we first created profiles of 44 hypothetical policyholders ages 20 to 80. They included men and women, singles and married couples, and families with and without teens. They all had perfect driving records, excellent credit histories, and 2016 Toyota Camry LEs. They also had identical liability, collision, comprehensive, and other insurance coverages.

We then used data from Quadrant Information Services, a company that collects insurers' pricing formulas, to get annual quotes for our policyholders from the largest company in each state and Washington, D.C.—specifically, each insurer's largest subsidiary, where available.

Finally, we changed the driver's characteristics to see how premiums changed. For example, we looked at what the average premium would be if the driver had an at-fault accident or bought a home.

When a company did not change its rate due to a particular characteristic, its premium was not included in our analysis. When appropriate, we used a subset of our drivers. For instance, we looked only at drivers ages 60 to 80 when evaluating the impact of mature driver education discounts.

Our analysis did not include two insurers in our car insurance ratings: USAA Group, because it's only open to active and honorably discharged military and their eligible family members; and Amica Mutual Insurance, because it did not provide its data to Quadrant.

Rank	Company	Average Overall Satisfaction
1	Amica Mutual Insurance Company	94
2	USAA Group	92
3	NJM Insurance Group (New Jersey Manufacturers Insurance Company)	91
4	Auto-Owners Insurance Group of Companies	90
5	Erie Insurance Group	88
6	Auto Club Enterprises Insurance Group ①	88
7	State Auto Insurance Companies	87
8	State Farm Mutual Automobile Insurance Company	87
9	The Hartford	87
10	Auto Club Group	86
11	American Family Insurance Group	85
12	Nationwide Mutual Insurance Company	85

Rank	Company	Average Overall Satisfaction
13	Ameriprise Financial (IDS) ②	85
14	Berkshire Hathaway (Geico)	84
15	CSAA Insurance Group	84
16	The Hanover Insurance Group	83
17	Liberty Mutual Insurance	83
18	The Progressive Group of Insurance Companies ①	83
19	Mercury General Corporation	82
20	Farmers Insurance Group of Companies	82
21	Allstate Insurance Company	82
22	Travelers	82
23	MetLife	81
24	Mapfre USA ②	79

① Data only for 2014 and 2010. ② Data only for 2014.

by Mike Gikas





Today's smartphones are not only smarter—they're wizards at helping you in daily life.

They'll warn you to leave early because of heavy traffic or automatically organize your vacation photos into albums and short movie montages. They're your wallet, your camera, your GPS, your translator, and your entertainment center.

Many of these innovations started with the iPhone, which showed the world 10 years ago that powerful and fun were not mutually exclusive. Today's iPhones continue that trend, but they are now joined by some equally (and sometimes more) impressive Android phones from Samsung and other makers. With all of these choices, you'll need some help finding the right phone for you. Check out our ratings of the latest models, starting on page 56.

Some flagship models can approach—and even exceed—\$900, especially when you go for maximum storage and throw in accessories. But our tests uncovered a number of great phones that cost a fraction of that.

Your biggest smartphone expense, however, is the cellular plan. Service for just one phone from any of the big four carriers can easily cost \$80 per month, or about \$2,000 over two years. But there are better alternatives. Our survey of more than 100,000 subscribers helps you find much better deals, and even better service, at some smaller providers. See the ratings on page 55.

Whatever choices you make, remember: Only settle for a smartphone—or service—that makes you happy.

Five Game Changers to Consider



These standout smartphones offer outstanding value or cutting-edge features and functionality. Even if you're content with the phone you have, these are worth a closer look.



\$630

80

OVERALL
SCORE

OUR CHAMP

Samsung Galaxy S7

The Galaxy S7 is simply one of the best phones on the market, combining a top-notch camera, dazzling 5.1-inch display, and excellent battery life with water resistance, wireless charging, rapid charging, and a number of other conveniences. It also lets you easily and inexpensively increase its storage capacity via a microSD card slot. Its equally impressive sibling, the curve-screened S7 Edge, has the same features as the Galaxy S7 but with a larger 5.5-inch screen that shows frequently used apps, tasks, contacts, news, and other useful items when you swipe its edge.



Susan Bennett,
the voice of Siri.

The Real Voice Behind Siri

That's no robot you're talking to. The voice of iPhone's digital assistant comes from an old-fashioned human being.

PICK UP YOUR IPHONE and ask Apple's digital assistant "Who's Siri?" and a perky digital voice will reply "That's me!"

But a better answer to that question is "Susan Bennett."

Siri, it turns out, was voiced by an actual person, a now 67-year-old professional voice-over artist who had no idea what she was signing up for. Literally.

In 2005, six years before

Siri was introduced on the iPhone 4s, Bennett did some grueling but lucrative voice work for a company called Nuance Communications. She assumed the results would end up being used in a corporate voicemail system.

Bennett's job involved recording every possible sound in the English language. She did this by reading nonsense

phrases such as "Militia Oy Hallucinate Buckram Okra Ooze" with militarylike precision.

Then, in a process known as concatenation, the sounds were digitally stitched together to form actual words.

Bennett, a Brown University graduate, spent about a month laboring over this voice work for 4 hours a day, five days a week. It was far from easy.



\$770

74

OVERALL
SCORE

APPLE'S MODEST UPGRADE

iPhone 7 Plus

This model is better than the 6s Plus, though only slightly. It's noteworthy for the convenient features it adds, such as water resistance, as well as for the ones it lost, such as the popular 3.5mm headphone jack. The 2x optical zoom offered by one of the cameras is a step up from the digital zoom on the old model's 1x (nonzoom) camera, though, overall, still and video images are not significantly better than those produced by its predecessor on the 6s Plus. So, if you really want a water-resistant iPhone, you might want to spring for the upgrade. Otherwise, there's little reason to abandon your iPhone 6s or 6s Plus.



\$400

73

OVERALL
SCORE

ONE PHONE, TWO NUMBERS

OnePlus 3

The inexpensive OnePlus 3 should please anyone who needs a second smartphone for travel or business but has the budget—or pockets—for only one. This phone can handle two numbers—even from different providers—thanks to its Dual SIM-card slot. We also like the phone's clever gesture controls for quickly launching apps. The long-lasting battery can be recharged rapidly, and the 5.5-inch HD display is among the best. This model has been followed by the OnePlus 3T, which adds a bigger battery and a higher-resolution selfie camera.



\$720

74

OVERALL
SCORE

COOL ATTACHMENTS

Moto Z Force Droid

Motorola's Moto Z Force Droid has one of the hottest innovations in smartphone design: add-on hardware to perform different functions. These so-called Moto Mods attach easily to the back of the phone using magnets. Currently there are add-ons to turn your phone into a miniature movie projector or a boom box, or extend battery life by several hours. None of these detract from the phone's sleek look. Other highlights include a grade A camera and ultrafast charging.



\$650

74

OVERALL
SCORE

FOR ANDROID LOVERS

Google Pixel

If you're looking for a smartphone that can combine Google's artificial intelligence with great hardware, meet Pixel, the first Google-branded phone. Its Google Assistant—the built-in Siri-like voice-activated search tool—responds according to your location, apps you have open or use frequently, and even messages you have sent and received. The 12.3-megapixel rear-facing camera produced some of the best still and video images we've seen. Pixel is also first in line for security patches, home automation, and other futuristic updates.



"It's very tough on the vocal cords," she recalls. "Everything had to be read with the same pitch, the same tone, the same pacing." The repetitive work was so taxing that she barely spoke when she got home at night.

When Nuance asked her later to do more work for them, she declined, preferring instead to do more creative voice work.

Then, on Oct. 4, 2011, a fellow voice-over artist emailed Bennett: "I'm playing around with the new iPhone," the message said. "Is this you?"

To Bennett's utter surprise, it was. She was proud of the result, even if she hadn't known

about it ahead of time.

"Siri was the first concatenated voice that sounded human," she says. "She had a personality."

Bennett was somewhat disappointed that Apple had bought her work from Nuance without anyone telling her—much less offering to pay her a little extra for using her now-famous voice.

A lawyer she contacted confirmed that her contract didn't give her any rights to additional payment. But he also pointed out something else: Bennett never signed a nondisclosure agreement with either Nuance or Apple, which

would usually be required for voice-over artists. That left Bennett free to talk publicly about her experience.

It took the usually private Bennett two years, but eventually she did "come out" as Siri. She started a side career as a public speaker, talking about Siri and the story behind the voice.

Her appearances ranged from speaking at a cannabis conference to going on David Letterman's TV show to read "Top 10 Things You Don't Want to Hear From Your iPhone."

Her only contact with Apple was by chance. She spoke at a technology conference in

Dallas a few years ago and was later introduced to Apple's co-founder, Steve Wozniak, who was also speaking at the event. "He was the only person from Apple that acknowledged me," she says with a laugh.

Bennett, meanwhile, has gotten plenty of comments from iPhone users. Many of them treat her as if she actually were Siri, not just the voice behind the digital assistant.

"Everyone I meet says to me, 'I'm so sorry. I curse at you all the time,'" Bennett notes cheerfully. "And I say, 'I know. And I know where you live.'"

—Allen St. John

Can You Believe the TV Ads?

Verizon and Sprint joust in several TV commercials, each claiming it provides better performance and value. We analyzed two of the better-known ads to find out what's true—and what's not.



THE CLAIM Actor Jamie Foxx stands before a map of the U.S. that's covered in red, claiming "Verizon has more than three times the 4G LTE coverage as Sprint." Another actor appears, saying he's "Jamie Foxx from Sprint" and shows a similar map in yellow but with huge bare spots. His claim: Sprint offers "pretty much the same coverage—if you squint." The real Jamie Foxx dances triumphantly for Verizon.

TRUE OR FALSE True, but somewhat misleading. Verizon does cover a bigger geographic area, but that doesn't take into account where people actually live. OpenSignal, which tests coverage based on how often users have network access, says Verizon customers have 4G (LTE) service about 86 percent of the time, and Sprint customers have service about 70 percent of the time. So the difference between the two carriers is much smaller than Verizon suggests.



THE CLAIM Actor Paul Marcarelli, who popularized the catchphrase "Can you hear me now?" for Verizon, is now in a barbershop singing Sprint's praises. "All the networks are great now," he says. "We're talking within a 1 percent difference in reliability. And Sprint saves you 50 percent on most current national carrier rates." He turns to a customer getting a haircut and asks: "If you got 1 percent more hair cut today, would you really pay twice as much?"

TRUE OR FALSE True, but somewhat misleading. The first claim of a 1 percent difference in voice/data reliability is backed by a 2015 Nielsen study. And Sprint does offer a 50 percent discount, but only if you're switching from Verizon, AT&T, or T-Mobile—and the promotion lasts only until January 2018. Otherwise, Sprint's rates aren't much different from what you pay at Verizon or AT&T.

Faster, Smarter, Better?

Innovations in cellular technology will give consumers more options.



FASTER NETWORK

Cell-phone networks are straining to keep up as phones gulp down more data with videos and music.

So carriers are moving quickly to offer 5G, or fifth-generation, cellular service to replace the current 4G. (5G is actually an umbrella term for several innovations.)

Trial 5G networks—and the smartphones to handle them—could become available in some areas of the U.S. as early as this year.

Connections with 5G will be up to 50 times as fast as 4G, with more bandwidth to carry all of the increased data. So consumers should experience fewer slowdowns.

MORE WIFI CALLING

More smartphones are allowing you to make calls over WiFi networks instead of using your cell service.

That's a big advantage because most cell carriers—though not all—don't count WiFi calls against your monthly allotment of voice minutes.

All of the big carriers, and some smaller ones, now support WiFi calling. You may need to turn on WiFi calling in your phone settings to take advantage of this technology.

Apple started including WiFi calling with the iPhone 5C. Many Android smartphones have been offering it over the past two years.

MORE DATA STREAMING

Cell carriers such as T-Mobile are allowing customers to stream Netflix, HBO Go, and other entertainment channels without it counting against their monthly data allowance.

The practice, known as zero-rating, can make a big difference to consumers. A single movie streamed from Netflix, for example, can use up 3 gigabytes—which for many users is their entire monthly total.

Though zero-rating saves consumers money, Consumer Reports and other organizations think it could let providers favor their own content partners, which might reduce competition.

Best Phones for Photography

The cameras of smartphones listed below were simply the best as judged by our engineers. They might not match the image quality of an SLR, but the images they produce are still quite impressive.

Rank	Brand & Model	Test Results		Features	
		Still Image Quality	Video Quality	Optical Image Stabilizer	Memory Card Slot**
1	Motorola Moto Z Force Droid	⬆	⬆	•	•
2	Samsung Galaxy S7, S7 Edge	⬆	⬆	•	•
3	Sony Xperia XA Ultra	⬆	⬆	•	•
4	Apple iPhone 7, 7 Plus*	⬆	⬆	•	
5	Google Pixel, Pixel XL	⬆	⬆		
6	OnePlus 3	⬆	⬆	•	
7	LG V20	⬆	⬆	•	•

*The iPhone 7 Plus has a second rear camera for zoom shots, which some people may prefer.

**Today's smartphone cameras can quickly eat up phone storage, but you can easily add more with microSD memory cards.

Best Phones for Battery Life

The best smartphone in the world isn't worth much if the battery needs charging every few hours. The phones below manage to stand out for their ability to function the longest under the steady strain of a WiFi or cellular connection.

Rank	Brand & Model	Test Results			Features		
		Talk Time (Hr.)	WiFi (Hr.)	LTE Data (Hr.)	Owner-Replaceable Battery	Rapid Charging	Wireless Charging
1	Samsung Galaxy S7 Edge	24.04	12.79	18.46		•	•
2	Google Pixel XL	23.34	12.09	17.23		•	
3	LG V20	21.93	10.70	15.34	•	•	
4	Samsung Galaxy S7	20.75	11.10	14.65		•	•
5	HTC 10	19.73	10.23	16.00		•	



LEARN

Happy birthday, iPhone! Ten years ago, Apple's iPhone was born, launching a smartphone transformation that changed forever the way consumers use and depend on their devices. Check out the historic milestones on our timeline, at CR.org/iphonehistory.

How to Protect Your Privacy on Your Phone

Smart steps to shield your valuable data

MOBILE APPS CAN make your life a lot easier.

They tap into the information stored on your smartphone to remind you about appointments, find stores and restaurants near you, or tell you whether there's heavy traffic on your commute.

But that convenience comes with a price: the loss of some of your privacy.

Information about your location, activities, and accounts is being shared with the app maker's computers. It can then be used for marketing purposes, be sold to other companies, or even be stolen if the app—or the app maker's servers—are hacked.

"Apps may request administrative privileges to your data, and those privileges could be used by the app later on, or by some malware, to steal your personal information," says Ed Cabrera, chief cybersecurity officer at TrendMicro, a digital security company.

For instance, a game may have access to your phone app so that it knows when to pause for incoming calls. But that access may also allow the app's maker to listen in.

Fortunately, there are easy ways to limit the intrusion while still getting the benefit of the app itself.

The first step is to delete any apps you no longer use, because data is still being shared with the app's maker. Then go through the remaining apps and adjust the privacy settings on each one.

As a broad rule, give the app access only to information you know it really needs.

Does your calorie-counting app ask to know your location? Try shutting that off to test whether it can still function the

way you want it to.

For Facebook, we suggest turning off access to your phone's calendar, contacts, microphone, and location data. But we'd leave on access to the camera if you want to post your photos.

Like other social media services, Facebook also has its own unique settings for privacy and security, which can be accessed online or from inside the app.

Facebook's settings include topics such as "Who can see my stuff?" and "Who can contact me?"

(For more strategies, see our November 2016 cover story or go to Consumer Reports online, at CR.org/66privacy.)

Here's how to check—and change—the app settings on your phone:

ANDROID PHONES

1. Go to Manage applications or Applications under Settings.
2. Make sure the All Apps tab is selected.
3. Scroll down to and click on the app you wish to change. (This menu also contains the Uninstall button, which will delete the app.)
4. Click on Permissions.
5. Switch off permissions that seem unnecessary.

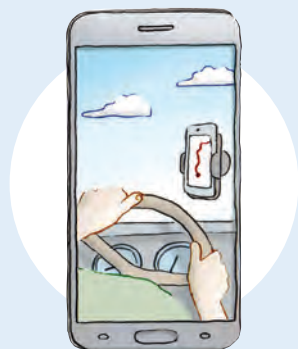
IPHONES

1. Open Settings.
2. Scroll down to your app.
3. Click on it to open its permissions menu.
4. Switch off permissions that seem unnecessary.



Match Your Cellular Plan to Your Lifestyle

The best cell-phone plan is the one that fits the life you lead. Here are four classic cases and our best advice.



Commuting Couple

WHO YOU ARE You and your spouse stream music on your long commute to work, download movies between flights, and generally consume a firehose of content over cell networks.

WHAT YOU NEED A plan that provides unlimited—or at least copious—amounts of data at affordable rates.

OUR PICK T-Mobile's 6-gigabyte Simple Choice plan. For \$110 per month, two people get cell access and can stream content from Netflix, Pandora, and dozens of other sources without having it count against the monthly data limit of 6GB per phone. These plans, which the industry calls “zero-rating,” are also offered by AT&T and Verizon, but their content choices and subscriptions terms are significantly less generous.

CAVEAT T-Mobile limits the speed of all your streaming video, so you get less-than-HD quality. That may be annoying to anyone whose phone has a large, HD-quality display.



Savvy Globetrotter

WHO YOU ARE You spend a lot of time in foreign lands, where costs for using your smartphone can be quite high.

WHAT YOU NEED A plan with internationally friendly rates.

OUR PICK Google Project Fi. Most cell providers allow you to pay a small monthly fee for roaming while abroad, but it's hard to beat the offer from this Google upstart.

It relies heavily on WiFi networks to deliver service and keep costs low, and its rates are cheap even when WiFi isn't an option. Service for the first phone, which includes unlimited domestic calls and unlimited domestic and international texts, costs just \$20 per month, plus \$10 for each gigabyte of data your phone uses in 135 countries.

CAVEAT Project Fi has relatively few users for now. And it's available for just three models, all running Android: Google's new Pixel smartphone, and the aging Nexus 6P and 5X smartphones.



Fun Family of Four or More

WHO YOU ARE You and your kids want your own smartphone, but your needs differ—and you don't want to waste money on services you don't use.

WHAT YOU NEED A plan with good rates, highly customizable service plans, and top-notch customer service.

OUR PICK Consumer Cellular. This is one of Consumer Reports' top-rated cell services, offering low-cost plans and smartphones ranging from cheap (\$70 and up) to premium (Apple's iPhone 7 and the Samsung Galaxy S7). Best of all, families can choose the services that match their needs, whether it's voice calls, texts, or data. For instance, a plan that includes 250 voice minutes, unlimited texts, and 1.5 gigabytes of data costs \$35 per phone line. Plus, it offers top-notch customer service.

CAVEAT The selection of phones that can use this service isn't as robust as at some of the larger carriers.



College Student

WHO YOU ARE You already have big tuition bills, so you don't want your college kid adding to that with an expensive cell-phone plan.

WHAT YOU NEED A cell provider that keeps rates low by relying heavily on public and private WiFi networks—like those that blanket college campuses—for making phone calls and sending text messages.

OUR PICK Ting Wireless. This provider offers one of the cheapest deals you can find and is compatible with more than 80 percent of phone models. For \$6 per month, you can make calls and texts as long as they are conducted over WiFi. If you need to tap into the cellular network, the price rises only modestly. For instance, using 100 voice minutes, 1,000 text messages, and 1 gigabyte of data will cost \$30 per month. Best of all, you pay only for the service actually used.

CAVEAT The savings quickly disappear if your kids spend a lot of their time off the WiFi grid.

Ratings > Most Popular Providers

Surprising findings from our latest reader survey of two-dozen-plus carriers.

POOR
 FAIR
 GOOD
 VERY GOOD
 EXCELLENT

MORE THAN 80 PERCENT of U.S. cell-phone subscribers get their service from one of the big four carriers: AT&T, Sprint, T-Mobile, or Verizon.

But according to Consumer Reports' 2016 reader survey of cell services, that's not where you'll find the happiest customers.

Whether it's a prepaid or standard cell plan, smaller providers came out on top, including Consumer Cellular, Ting Wireless, and Project Fi, a service launched by Google just last year.

These smaller players scored especially high in value, offering low prices and responsive, knowledgeable customer support.

Project Fi, like Republic and Ting, keeps rates low by relying heavily on public and private WiFi networks, even for making phone calls and sending text messages.

And all three charge only for the amount of data you actually use during the month.

Among the big four, T-Mobile performed notably better in our survey than its competitors in customer support and value.

This year's survey also assessed providers on their efforts to reduce telemarketing calls, aka robocalls. (Consumer Reports has been among the leaders in efforts to curtail the practice.)

In this area, too, the customers of smaller providers—particularly Great Call, Ting, TracFone, and Virgin Mobile—were happier.

They reported receiving far fewer telemarketer calls than people using the big four reported.

Despite the survey's unflattering portrait of the major carriers, most of our subscribers say they aren't planning to switch right now.

	Provider Name	Reader Score	Test Results						
Rank			Value	Voice	Text	Web Problems	Data	Customer Support	Telemarketing Call Frequency
PREPAID SERVICE Billed in advance, without a contract.									
1	Project Fi (Google)	<div><div></div></div> 90	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
2	Page Plus Cellular	<div><div></div></div> 85	<div><div></div></div>	<div><div></div></div>	<div><div></div></div> —	<div><div></div></div>	<div><div></div></div>	<div><div></div></div> —	<div><div></div></div>
3	Republic Wireless	<div><div></div></div> 85	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
4	Cricket	<div><div></div></div> 83	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
5	MetroPCS	<div><div></div></div> 82	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
6	Straight Talk	<div><div></div></div> 81	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
7	TracFone	<div><div></div></div> 80	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
8	Boost Mobile	<div><div></div></div> 79	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
9	Net10	<div><div></div></div> 76	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
10	T-Mobile	<div><div></div></div> 76	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
11	Virgin Mobile	<div><div></div></div> 75	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
12	Verizon Wireless	<div><div></div></div> 73	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
13	AT&T	<div><div></div></div> 72	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
14	Sprint	<div><div></div></div> 68	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div> —	<div><div></div></div>
TRADITIONAL SERVICE Billed at month’s end, often under a contract.									
1	Consumer Cellular	<div><div></div></div> 89	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
2	Ting	<div><div></div></div> 89	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
3	GreatCall/Jitterbug	<div><div></div></div> 80	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
4	Cellcom	<div><div></div></div> 79	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div> —	<div><div></div></div>
5	Virgin Mobile	<div><div></div></div> 77	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
6	T-Mobile	<div><div></div></div> 76	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
7	Credo Mobile	<div><div></div></div> 76	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
8	U.S. Cellular	<div><div></div></div> 75	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
9	Verizon Wireless	<div><div></div></div> 72	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
10	Sprint	<div><div></div></div> 70	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>
11	AT&T	<div><div></div></div> 70	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>

HOW WE SURVEY: The Consumer Reports National Research Center (CRNRC) sent out a detailed questionnaire last summer to more than 100,000 subscribers to get their opinions on cell-service providers. They answered more than two dozen questions about their experiences with customer service, network reliability, texting, internet access, and the number of telemarketing calls they received. Their answers

were tabulated and analyzed by our staff of Ph.D.s, who have extensive experience evaluating the feedback that Consumer Reports gathers on the purchasing decisions, experiences, and shopping habits of our subscribers.

How to interpret the scores: A reader score of 100 would mean all respondents are completely satisfied; 80, that respondents are very satisfied, on average; and 60,

that respondents are fairly well-satisfied, on average. Differences of fewer than 4 points are not meaningful. Each rating category under Test Results reflects average scores on a scale from "very poor" to "excellent." Support indicates the overall experience with customer service, and Value pertains to the quality and extent of the cell service received for the money. Voice refers to the quality and availability of the

network for calls. Text refers to the reliability of sending and receiving text messages. Web Problems is a rating of the availability, speed, and reliability of the provider's cell-phone internet access. Data service indicates overall experience (e.g., cost, speed, reliability) with the data service. Telemarketing Call Frequency refers to the likelihood of avoiding telemarketing calls during a single week.

Ratings ➤ **The Best Smartphones for You** The field of phones on the market today represents some great values and functionality; hence our generous list of recommendations. You don't need the latest model to get the greatest phone.

		Brand & Model	Price	Overall Score	Test Results										Features												
Recommended	Rank				Ease of Use	Messaging	Web Browsing	Display Quality	Phoning	Battery Life	Voice Quality	Camera: Image Quality	Camera: Video Quality	Portability	Available At				Available Unlocked	Display Diagonal Size (in.)	Height (in.)	Weight (Oz.)	Depth (in.)	Width (in.)	Front Camera (Megapixels)	Camera (Megapixels)	Memory Card Slot
															AT&T	Sprint	T-Mobile	Verizon									
✔	1	Samsung Galaxy S7	\$630	<div><div>80</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬆	⬆	•	•	•	•	•	5.1	5.6	5.4	0.3	2.7	5	12.2	•
✔	2	Samsung Galaxy S7 Edge	\$730	<div><div>80</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬆	⬆	•	•	•	•	•	5.5	5.9	5.5	0.3	2.9	5	12.2	•
✔	3	Samsung Galaxy S5	\$550	<div><div>79</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬆	⬆				•		5.1	5.6	5.1	0.3	2.9	2.1	15.9	•
✔	4	LG G5	\$500	<div><div>78</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	•	•	•	•		5.3	5.9	5.6	0.3	2.9	8	15.9	•
✔	5	LG G4	\$300	<div><div>78</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	•					5.5	5.9	5.6	0.4	3	8	15.9	•
✔	6	Apple iPhone 7	\$650	<div><div>78</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	•	•	•	•	•	4.7	5.4	4.9	0.3	2.6	7.2	12.2	
✔	7	Apple iPhone 6s	\$530	<div><div>77</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	•	•	•	•	•	4.7	5.4	5.0	0.3	2.6	5	12.2	
✔	8	Apple iPhone 6	\$450	<div><div>77</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬆	⬆						4.7	5.4	4.5	0.3	2.6	1.2	8	
✔	9	Samsung Galaxy S6	\$575	<div><div>77</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬇	⬆	⬆	•			•		5.1	5.6	4.9	0.3	2.8	5	15.9	
✔	10	Samsung Galaxy S6 Edge	\$500	<div><div>77</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬇	⬆	⬆	•					5.1	5.6	4.6	0.3	2.8	5	15.9	
✔	11	HTC 10	\$500	<div><div>77</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬆	⬆				•	•	5.2	5.8	5.6	0.4	2.8	5	12	•
✔	12	Nexus 5X	\$280	<div><div>77</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬆	⬆				•		5.2	5.8	4.8	0.3	2.9	5	12.2	
✔	13	HTC One A9	\$410	<div><div>76</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆		•			•	5.0	5.7	5.0	0.3	2.8	4.1	13.1	•
✔	14	LG V10	\$600	<div><div>75</div></div>	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	⬆	⬇	•			•		5.7	6.3	6.9	0.4	3.1	4.9	15.9	•
✔	15	LG V20	\$670	<div><div>75</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬇	•	•	•	•		5.7	6.3	6.2	0.3	3.1	5	16.3	•
✔	16	Google Pixel XL	\$770	<div><div>75</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬇				•	•	5.5	6.1	5.9	0.3	3	8	12.3	
✔	17	Motorola Moto Z Force Droid	\$720	<div><div>74</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬇				•	•	5.5	6.1	5.8	0.3	3	5	21.4	•
✔	18	Apple iPhone 7 Plus	\$770	<div><div>74</div></div>	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	⬇	⬇	•	•	•	•	•	5.5	6.2	6.6	0.3	3.1	7.2	12.2	
✔	19	Google Pixel	\$650	<div><div>74</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬇				•	•	5.0	5.6	5.0	0.3	2.7	8	12.3	
✔	20	Apple iPhone 6 Plus	\$550	<div><div>74</div></div>	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	⬆	⬇						5.5	6.2	6.1	0.3	3.1	1.2	8	
✔	21	Apple iPhone 6s Plus	\$630	<div><div>73</div></div>	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	⬇	⬇	•	•	•	•	•	5.5	6.2	6.7	0.3	3.1	5	12.2	
✔	22	OnePlus 3	\$400	<div><div>73</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆				•		5.5	6.0	5.7	0.3	2.9	8	16.1	
✔	23	Nexus 6P	\$450	<div><div>73</div></div>	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	⬇	⬇				•		5.7	6.3	6.4	0.3	3.1	8	12.2	
✔	24	Motorola Moto X Pure Edition	\$300	<div><div>73</div></div>	⬆	⬆	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬇				•		5.7	6.1	6.3	0.4	3	5	21.4	•
✔	25	BlackBerry Priv	\$340	<div><div>73</div></div>	⬆	⬆	⬆	⬆	⬇	⬆	⬇	⬆	⬇	⬇				•	•	5.4	5.8	6.7	0.4	3	1.9	18	•

		Brand & Model	Price	Overall Score	Test Results										Features													
Recommended	Rank					Ease of Use	Messaging	Web Browsing	Display Quality	Phoning	Battery Life	Voice Quality	Camera: Image Quality	Camera: Video Quality	Portability	Available At				Available Unlocked	Display/Diagonal Size (In.)	Height (In.)	Weight (Oz.)	Depth (In.)	Width (In.)	Front Camera (Megapixels)	Camera (Megapixels)	Memory Card Slot
																AT&T	Sprint	T-Mobile	Verizon									
✔	26	Apple iPhone SE	\$400	<div>72</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	•	•	•	•	•	4.0	4.9	4.0	0.3	2.3	1.2	12.2	
✔	27	Motorola Droid Maxx 2	\$385	<div>72</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				•		5.5	5.8	6.0	0.4	3	4.9	21.4	•
✔	28	Motorola Droid Turbo 2	\$530	<div>72</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				•		5.4	5.9	6.1	0.4	3.1	5	21.4	•
✔	29	Sony Xperia X Performance	\$450	<div>72</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				•		5.0	5.7	5.8	0.3	2.8	13	22.9	•
✔	30	Microsoft Lumia 950	\$300	<div>71</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	•				•	5.2	5.7	5.3	0.3	2.9	5	18.7	•
✔	31	Motorola G4 Plus	\$300	<div>71</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					•	5.5	6.0	5.3	0.3	3	5	15.9	•
✔	32	Sony Xperia XA Ultra	\$330	<div>71</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				•		6.0	6.5	7.1	0.3	3.1	15.9	21.2	•
	33	Samsung Galaxy S7 Active	\$800	<div>70</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	•					5.1	5.9	6.5	0.4	3	5	12.2	•
	34	LG G Vista 2	\$300	<div>70</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	•					5.7	6.1	6.0	0.4	3.1	4.9	13	•
	35	OnePlus X	\$200	<div>70</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					•	5.0	5.5	4.9	0.3	2.7	8	13	•
	36	Asus ZenFone 2	\$300	<div>69</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					•	5.5	6.0	6.2	0.4	3	4.9	12.6	•
	37	Blu Vivo 5	\$200	<div>69</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					•	5.5	6.0	4.9	0.3	2.9	4.9	13	•
	38	Huawei P8 Lite	\$200	<div>69</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					•	5.0	5.6	4.7	0.3	2.8	5	13.1	•
	39	BlackBerry Passport	\$220	<div>67</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					•	4.5	5.2	6.9	0.4	3.6	1.9	13	•
	40	Microsoft Lumia 735	\$120	<div>67</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				•		4.7	5.3	4.7	0.4	2.7	5	6.1	•
	41	Kyocera Brigadier	\$400	<div>66</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				•		4.5	5.4	6.6	0.5	2.7	1.9	8	•
	42	Samsung Galaxy Core Prime	*	<div>65</div>	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔						4.5	5.2	4.6	0.4	2.7	1.9	5	•

HOW WE TEST: Our testers use precise instruments to assess smartphone performance. To test Voice Quality, we employ a sophisticated piece of equipment called a Head-And-Torso Simulator (HATS), which looks like the top half of a crash-test dummy. It has a speaker for a mouth and microphones for ears, and is hooked up to a computer so that it can “talk” to itself through the phone mounted near its “head.” Because Battery Life is a big part of a phone’s appeal, we measure how long it takes to discharge the battery while using the phone’s cellular, LTE data,

and WiFi networks. During that time, we make voice calls, upload and download content, browse websites, and perform other tasks. Phoning is our assessment of how easy it is to make and receive calls, including hands-free capabilities, voice commands, and speed dialing. Our Messaging rating refers to such things as keyboard ergonomics, email readability, and text-messaging features. Camera performance is measured through a grueling battery of tests to check the accuracy of color and clarity under various lighting conditions.

Portability is our judgement of the best combination of size and weight for a smartphone. And because a large part of what people do with their smartphones involves screen display, we scrutinize such things as pixel resolution, contrast in normal and bright lighting, as well as color accuracy. Of course, if a smartphone maker claims its model is extra tough or water-resistant, we’ll test those claims, too. We use things like pressurized water tanks and devices that bend or drop smartphones to see how tough they really are.



Road Report

Ratings from our test track plus expert car advice

Coming to a Dashboard Near You

Dash cams are catching on as a potential way to protect your car and help make a stronger insurance claim. But there's a lot more to choosing the right one than meets the electronic eye.

by **Michelle Naranjo**



YOU'RE DRIVING CALMLY along when, suddenly, a small truck sideswipes your passenger door, taking your sideview mirror with it. Your heart is pounding and you both stop, whereupon the other driver starts shouting that you swerved into his lane—when you know for a fact that you did no such thing. Now it's just your word against his. Anticipating the headache of filing a police report and arguing over the insurance claim, you think, "If only I had a video!"

Well, now you can. Dash cams are small video cameras (priced from \$50 to more than \$200) that can be mounted to your car's dashboard or windshield to record what happens in front of the vehicle. More advanced models can also record interior audio and video, and rear-facing video, and even display on your rearview mirror or stream to the internet.

U.S. wholesale shipments of these digital sentinels are steadily climbing, due largely to falling prices and growing consumer awareness. According to the Consumer Technology Association, they were up 10 percent in 2016, and are projected to rise an additional 15 percent in 2017 and generate \$68 million in revenue for the year. "I would describe dash-cam sales growth as brisk, but it is a niche category," says Steve Koenig, senior director of market research at CTA.

"For now, dash cams that you stick on the windshield are still the most popular," says Carl Mathews, senior director of mobile merchandising at Crutchfield, one of the electronics retailers rated most highly by Consumer Reports readers. (Some states prohibit devices attached to the windshield. Be sure to check local laws before committing to a purchase.) "But we're also seeing growth in sales of products that integrate dash cameras into portable navigation units and rearview mirrors that can also serve as displays for rear cameras." Crutchfield customers pay an average of \$150 for a dash cam, Mathews says.

Recording pictures or video in public is a right protected by the First Amendment, so it's generally legal to use a dash cam to record whatever is outside the

car on public roads, as long as you don't violate any laws or interfere with a traffic, police, or rescue operation. Recording inside the car is another matter: Drivers with dash cams that have the ability to record audio inside the car need to know that in many states it's illegal to record conversations without informing all parties first. In other words, it's up to the driver to notify all passengers that they're being recorded. (Alternatively, you could simply disable the microphone.)

To help you decide whether a dash cam is worth the investment, here are five of the top reasons people buy one, along with our review of a handful of popular models and features we think you should look for:

1. Evidence for Insurance Claims

"At first, I thought dash cams looked like cool toys," says Utah college student Rob Sanders. But Sanders says he stopped thinking of dash cams as toys after he witnessed a serious hit-and-run accident on the freeway. "I realized that if I'd been the one who was hit, I'd have had no evidence to give to my insurance or to the police. Having a dash cam gives me peace of mind. I know that if someone hits me, I can prove it to an insurance company."

Insurers don't currently offer discounts on premiums for dash-cam

owners, but they will review dash-cam footage of an accident, just as they accept photos snapped on the scene with a cell phone. Dash-cam footage is more reliable than witness accounts and can be extremely useful to the insurance company in determining liability.

"Insurers always welcome additional information about how one of their policyholders incurred a loss. As such, insurers generally like when an individual produces dash-cam footage to assist with a claim," said Michael Barry, a spokesman at the Insurance Information Institute, in a statement. Similarly, East Haven, Conn., Police Lieutenant Joseph Murgo says that the proliferation of dash cams is making it easier for the police to investigate traffic incidents of all kinds by allowing them to document witness statements and produce evidence for the court.

Sanders, the college student, pointed out that, because his dash cam records audio inside the car, he can dictate the license plate number and description of another vehicle, even if it isn't visible on the footage—information that could be used to file a police report or to help with interactions with insurance companies. But, again, those who have a dash cam that records audio inside the car need to know whether their state requires them to inform passengers that they're being recorded.

2. Silent Guardian

Urbanites who park their cars on the street are turning to dash cams for a measure of protection against robbery and vandalism. Some pricier models that can record a 360-degree perspective, have an impact sensor, and are able to notify the owner if there is any impingement to the car are best suited to this task. Once the gyro-enabled impact sensor is triggered, the camera creates a separate "incident" file that saves video from just prior to the impact and for an additional 1 to 5 minutes after—footage that could be essential to a police investigation if a car is broken into or struck while it's parked.

'Having a dash cam gives me peace of mind.

I know that if someone hits me, I can prove it to an insurance company.'

3. Video Corroboration

Dash cams can also provide solid evidence that you're not guilty.

A few weeks after driving through Pennsylvania, reader Adam Osmond received a ticket in the mail for failing to pay a toll. Osmond successfully disputed the charge because he not only had footage of himself paying the toll but also of his conversation with the toll booth operator.

Remember, though, that your own footage can potentially be used against you. For example, in some states if your dash camera documents that you are exceeding the speed limit, you could be held partly liable for an accident—even if the other driver was primarily at fault.

4. A Reliable Witness

Interest in dash cams has also been fed by videos of motorists having

altercations with police and reported incidents of minority drivers being stopped without cause. Studies like the Connecticut Racial Profiling Prohibition Project's 2016 Traffic Stop Analysis and Findings suggest that some drivers do have a reason to be concerned: In some towns in the study, the rate of traffic stops among minorities was significantly higher during the day than during evening or nighttime hours, when it could be harder to identify a driver's skin tone. Cameras can provide an impartial witness in disputes about racial profiling because, as Lieutenant Murgo tells us, "Emotions are captured. Cameras don't see the color of one's skin."

It's legal to use a dash cam to document interactions with police during a traffic stop, but we recommend that you notify any members of law

enforcement that they are being recorded, just as you should notify occupants of your car. "Everyone tends to conduct themselves better when they know they're on camera," Lieutenant Murgo says.

5. Personal Security

Some cams can provide an extra measure of security if a stranger approaches you when you're parked and alone in a lot or stopped at an intersection.

Surround-view dash-cam models can get a shot of creepy interlopers no matter what direction they approach from. Models that are hardwired to the vehicle's battery or that have an internal battery can document any encounter even if the car is not running.

Learn more about car insurance on page 42.

Dash-Cam Features: Which You Need—and Which You Don't

Must Have

➤ High-definition video.

You want your dash cam to provide as detailed an image as possible: The higher the image quality, the easier it is to see important details, such as the license plate on a moving car that sideswiped you. Look for a dash cam with a resolution of at least 1080p.

➤ **Low-light capability.** You don't want to lose important visual information because the light was too dim for the camera to record it. A dash cam with low-light capability increases the chances that you'll get the video you need.

➤ **Ample storage.** Most models have the capability to create a separate "event" file with the push of a button; you can later download the footage to a phone or computer via the removable SD card or through the onboard wireless connection. But it can be difficult to keep your wits

about you and remember to save a video after an accident. Having a large storage card will increase the chances that your dash cam will preserve the footage you need, even if you don't think to save it until hours after an incident. Look for a 32GB storage card or larger for the device.

➤ **Longer loop time.** Because the memory card in the dash cam doesn't have infinite space, it records in sections called loops, which are basically small video clips that are part of the larger continuous recording. When a memory card reaches capacity—which varies based on the resolution and settings—the camera will begin recording over the oldest loops first. You need at least a 3-minute-long loop file; a 5-minute file is even better.

Nice to Have

➤ Professional installation.

Though most dash cams can be powered by the 12-volt outlet in the car, having a professional install the camera ensures that it's always powered by the car's battery. Professional installation is essential for dash cams equipped with a rear-facing camera. Installation costs can run \$99 to \$150, on average; many electronics retailers offer package deals when you buy a dash cam from them.

➤ **LCD screen.** Though screens may be distracting to some drivers, they make it very easy to see whether an event has been recorded or whether the camera has stopped working.

➤ **Motion detector.** Many models have a motion detector that can activate recording or create a separate event file when there is movement or the car is impacted while it is parked. That's a useful feature if your car spends a lot of time on the street or in public

parking. These cams require an internal or external battery pack or other source of power, such as a hardwired installation.

➤ **GPS.** Dash cams with a GPS receiver will establish the time, date, and location of any incident captured by the camera. But remember: Drivers who tend to speed are at risk of proving they misbehaved.

Don't Bother

➤ **Safety features.** Some full-featured dash cams offer integrated forward-collision and lane-departure warnings, which might appeal to owners of cars that lack them. But in our experience, there's not an easy way to tell what exactly the dash cam is warning about when it beeps an alert, as there is with a built-in system. Plus, the warnings aren't consistent—sometimes they work, sometimes they don't—so they often feel like false alarms.

Candid Cameras

To get some firsthand experience with the different types of dash cams, we purchased and installed five different models in our vehicle test fleet so that the team at the CR Auto Test Center could try them for several weeks. The automotive staff recorded their thoughts and impressions about each device in a logbook to help you decide which one best suits your needs.

Auto-Vox M2 \$130



FEATURES

- Front and rear cameras
- Color display screen
- Full high-definition recording
- Impact sensor

CR'S TAKE This dash cam, which automatically saves video when it detects an impact, attaches over the car's rearview mirror and displays what the camera is recording on the left-hand side of the mirror. At night, the image in the mirror is very bright, which can be distracting. Conversely, in bright sunlight the display can wash out. In heavy rain, the external camera's view was sometimes obscured. We had FM radio interference when the system was plugged into the 12-volt outlet; this went away when using the cam's internal battery.

INSTALLATION Advanced user or professional installation

BlackVue DR450-1CH \$120 with 16GB memory card



FEATURES

- Swiveling front camera
- No display screen
- Full high-definition recording
- GPS speed and location logging
- Low-light functionality

CR'S TAKE A staff favorite because it is simple and not distracting. This small dash cam can be mounted discreetly behind the rearview mirror and doesn't have an interior-facing screen. Loop recording means that it automatically writes over the oldest files when the memory is full. An optional external GPS antenna plugs into the unit in order to provide details on location and speed.

INSTALLATION Professional installation recommended

Cobra CDR 895 D Dual Camera \$200



FEATURES

- Front and rear camera
- 2-inch color display screen
- Full high-definition recording front camera
- Lane-departure warning
- Forward-collision warning
- Parking mode

CR'S TAKE The front-facing camera records in high definition; the rear camera can be positioned to record what happens inside the car or set up as an external camera. Though the rear camera's lower-quality video may not be clear enough to read license plates, it's better than not having a rear camera at all. The video display screen is distracting, but the split screen showing both the front and rear cameras is a nice feature. The system clearly marks the time and date of the recording, making it easy to find an event.

INSTALLATION Advanced user or professional installation

Ragu 2.7 \$70



FEATURES

- Front camera
- 2.7-inch display screen
- Full high-definition recording
- Night vision
- Customizable loop recording
- Crash detection

CR'S TAKE We found that this affordable camera had a very clear screen image in daylight and at nighttime. Plus, the mounting brackets allow you to easily adjust recording preferences. Still, there are some obvious drawbacks to such a low-cost camera. The buttons on the side may rattle and interfere with sound recording; the menu is difficult to read; and the camera mount feels flimsy, as though it will wear out quite quickly.

INSTALLATION Do-it-yourself

Thinkware Dash Cam X500 \$230



FEATURES

- Front camera
- 2.7-inch color display screen
- Lane-departure warning
- Forward-collision warning
- Parking recording mode

CR'S TAKE Despite being the priciest camera we tried out, the X500's display screen isn't very clear. It features lane-departure and forward-collision warning alerts, but they were not consistent. Sometimes the cam would correctly notify the driver, but other times it would falsely beep. All evaluators found this to be more annoying than useful. The voice commands to start and stop recording worked well.

INSTALLATION Do-it-yourself

Road Test

We conduct more than 50 tests on each vehicle at our 327-acre Auto Test Center. For complete road tests, go to CR.org/cars.



The Un-Pickup

The **Honda Ridgeline's** comfortable ride and smart details should make it a hit with suburbanites.

SERIOUS PICKUP enthusiasts who tow big trailers, plow snow, or need a full-sized bed, be forewarned: The Ridgeline is the wrong vehicle for the job. Towing capacity is just 5,000 pounds, the bed is small and shallow, and off-road ability is limited.

But with its manageable size, rustproof and scratch-resistant composite bed, weather-tight and lockable underbed storage, and tailgate that can swing open or flip down, the Ridgeline is a pickup for the rest of us. Best of all, it has a comfortable ride that

bests what you'll find in some luxury SUVs. Handling isn't particularly agile, but it pilots around corners better than any truck.

Honda's familiar 3.5-liter V6 gallops to 60 mph in just 7.3 seconds and comes paired with a smooth and responsive six-speed automatic. At 20 mpg overall, the Honda is the most fuel-efficient nondiesel pickup.

The interior is quiet and nicely finished, with pleasant seats and plenty of handy bins. Step-in height is natural, although narrow rear-door openings make entry a squeeze, and knee room in the backseat is modest. Lower trim levels have an easy-to-use radio; higher trims have a temperamental touch screen. Forward-collision warning and automatic emergency braking are standard on top versions.

The Ridgeline won't satisfy hard-core truck lovers, but for a light-duty truck with carlike civility, it's hard to beat.

COMPACT PICKUP TRUCKS

Honda Ridgeline

OVERALL SCORE **76**

ROAD-TEST SCORE 80

HIGHS

Ride, quietness, clever in-bed storage, dual-mode tailgate, fuel economy

LOWS

Complex optional radio, low towing capacity for the class, shallow bed, rear access

POWERTRAIN

280-hp, 3.5-liter V6 engine; 6-speed automatic transmission; all-wheel drive

FUEL

20 mpg

PRICE AS TESTED

\$36,480



Ready for Adventure

The **Volkswagen Golf Alltrack** is a great-driving wagon for all roads, but its poor predicted reliability takes a toll on the Overall Score.

DON'T BE MISLED by the styling cues and elevated ride height. The Alltrack is based on the Golf SportWagen and is more of a street machine than a rugged off-roader. This Subaru Outback rival shines on paved roads, feeling taut and nimble thanks to sharp steering and minimal body roll.

Standard all-wheel drive puts the power down precisely, and firm suspension keeps the car calm and composed as it effectively absorbs bumps.

A 1.8-liter turbo four-cylinder delivers 170 hp in a linear fashion. Not only does this engine feel eager in everyday

driving, its 8.5-second 0-60 mph time makes it considerably quicker than a four-cylinder Outback. The six-speed dual-clutch automatic transmission delivers quick and timely shifts.

The commendably quiet interior is a bit more intimate than most small SUVs, but there's a reasonable amount of room up front and the seats are firm and satisfying. Controls are simple and well-designed, the infotainment system is intuitive, and Android Auto and Apple CarPlay compatibility come standard.

Forward-collision warning, automatic emergency braking, and adaptive cruise control are in the Driver Assistance package. It's odd that blind-spot monitoring isn't offered.

Even though the Alltrack's driving experience and finely crafted cabin help to justify its \$27,770 base price, the much-worse-than-average predicted reliability severely hurts its Overall Score.

WAGONS

Volkswagen Golf Alltrack

OVERALL SCORE **66**

ROAD-TEST SCORE 89

HIGHS

Handling, ride, braking, visibility, fuel economy, controls, solid and substantial feel

LOWS

Reliability, need top-line SEL to get desirable features, blind-spot monitoring not available

POWERTRAIN

170-hp, 1.8-liter 4-cylinder turbocharged engine; 6-speed automated manual transmission; all-wheel drive

FUEL

25 mpg

PRICE AS TESTED

\$32,515



Overpromises, Underdelivers

With a mixed pedigree, the **Infiniti QX30** flounders in balancing luxury and sportiness.

INFINITI TOOK a shortcut to the compact SUV market by forming an alliance with Mercedes-Benz, resulting in the QX30. The hitch? This Mercedes-Benz GLA-based SUV isn't very good, and it fails to deliver despite its lofty sticker.

On paper, the QX30 appears to have some good things going for it: striking styling and a German driving experience.

But in reality, the QX30 falls short. The growly Mercedes engine delivers uneven power, hesitating at first, then surging forward. Still, our all-wheel-drive QX30 returned a commendable 25 mpg overall.

Handling is nimble and capable, but saying that it's spirited would be a stretch. Steering falls short on feedback and is overly heavy. The QX30 also flusters the anticipated calm with a stiff and choppy ride. Road noise is excessive.

The nicely finished cabin has supportive front seats, but tight headroom and a narrow cockpit make it feel cramped. Visibility all around is difficult because of the high belt line, small windows, and thick roof pillars. A backup camera is standard and a handy surround-view camera is optional.

The infotainment system is cumbersome. Some upscale features are conspicuously absent, such as a heated steering wheel and power liftgate, adding to the QX30's false economy of expected luxury.

As to reliability, our latest survey shows that some Infiniti SUVs have a below-average record, though the GLA's has at least been average.

LUXURY ENTRY-LEVEL SUVs

Infiniti QX30

OVERALL SCORE **70**

ROAD-TEST SCORE **71**

HIGHS

Fuel economy, fit and finish, handling, braking

LOWS

Stiff ride, road noise, cramped interior, visibility, uneven power delivery, some controls, overpriced

POWERTRAIN

208-hp, 2.0-liter 4-cylinder turbocharged engine; 7-speed automated manual transmission; all-wheel drive

FUEL

25 mpg

PRICE AS TESTED

\$43,745



Light on Its Feet

The trimmer all-new **GMC Acadia** remains a practical and pleasant family hauler.

INSTEAD OF "go big or go home," GMC focused on "light makes right" with the second-generation three-row Acadia. It's an SUV that's shorter, narrower, and about 500 pounds lighter than its previous incarnation. Despite the smaller size, it has generous interior space, is more fuel-efficient, and handles better than the old Acadia.

Though it's not as airy inside as the Honda Pilot or Toyota Highlander, the Acadia offers ample room and agreeable seats. The second-row captain's chairs have plenty of knee clearance, the passenger-side

seat slides forward for easy third-row entry, and two adults can fit in the way back with surprisingly good headroom.

Handling is responsive and secure. The steady ride and quiet cabin give this SUV a solid feel, and the easy controls and comprehensive infotainment system are a boon. But the interior finish and feature set aren't worthy of the price. Forward-collision warning and automatic emergency braking are offered only on high-trim versions.

The 310-hp V6 scoots the Acadia to 60 mph in a rapid 6.8 seconds. Power delivery is smooth, but the transmission makes an occasional jolty shift. At 19 mpg overall, fuel economy trails most rivals. (You'll get one more mpg on the highway if you turn off AWD.) Base front-wheel-drive models have a 193-hp four-cylinder.

Yes, the Acadia is an upscale version of vanilla, but it's functional and easy to live with.

MID-SIZED SUVs

GMC Acadia

OVERALL SCORE **76**

ROAD-TEST SCORE **83**

HIGHS

Quietness, ride, rear-seat room, controls, easy-to-use infotainment system

LOWS

Lackluster fuel economy, missing some common features, no more luxurious than mainstream competitors

POWERTRAIN

310-hp, 3.6-liter V6 engine; 6-speed automatic transmission; all-wheel drive

FUEL

19 mpg

PRICE AS TESTED

\$51,585

Ratings ➤ **Haulers Big and Small** These vehicles can fit your cargo and passenger needs to a T, from an active family of eight to empty nesters.



		Make & Model	Price	Overall Score	Survey Results		Safety	Road-Test Results									
Recommended	Rank		As Tested		Predicted Reliability	Owner Satisfaction	Front-Crash Prevention	Road-Test Score	Overall MPG	Acceleration, 0-60 MPH, Sec.	Dry Braking, 60-0 MPH, Ft.	Avoidance Maneuver Speed, MPH	Routine Handling	Ride/Noise	Seat Comfort, Front/Rear	Controls	Cargo Volume, Cu. Ft.
		MIDSIZE 3-ROW SUVs															
✓	1	Toyota Highlander XLE (V6)**	\$38,941	85	⬆	⬆	Std./⬆	84	20	7.5	134	50.5	⬆	⬆/⬆	⬆/⬆	⬆	40.5
✓	2	Kia Sorento EX (V6)	\$37,915	82	⬆	⬆	Opt.	84	21	7.4	131	49.5	⬆	⬆/⬆	⬆/⬆	⬆	37.5
✓	3	Hyundai Santa Fe SE (V6)	\$36,290	78	⬆	⬆	Opt.	81	20	7.6	133	51.0	⬆	⬆/⬆	⬆/⬆	⬆	40.5
✓	4	GMC Acadia Denali	\$51,585	76	⬆*	⬆*	Opt.	83	19	6.8	130	53.5	⬆	⬆/⬆	⬆/⬆	⬆	40.5
✓	5	Honda Pilot EX-L	\$39,585	75	⬆	⬆	Opt.	80	20	7.5	136	49.5	⬆	⬆/⬆	⬆/⬆	⬆	48.0
✓	6	Mazda CX-9 Touring	\$40,470	74	⬆*	⬆*	Opt.	80	22	7.9	139	50.0	⬆	⬆/⬆	⬆/⬆	⬆	34.0
✓	7	Acura MDX Tech	\$51,410	74	⬆	⬆	Std./⬆	79	21	6.8	135	52.0	⬆	⬆/⬆	⬆/⬆	⬆	34.0
	8	Infiniti QX60 (3.5L)	\$51,920	65	⬆	⬆	Opt.	79	19	8.3	137	47.0	⬆	⬆/⬆	⬆/⬆	⬆	39.0
		LUXURY ENTRY-LEVEL SUVs															
✓	1	Audi Q3 Premium Plus	\$40,125	80	⬆	⬆	NA	77	22	8.4	132	51.5	⬆	⬆/⬆	⬆/⬆	⬆	24.5
	2	BMW X1 xDrive28i	\$44,745	72	⬆	⬆	Opt.	74	26	7.9	134	53.0	⬆	⬆/⬆	⬆/⬆	⬆	27.0
	3	Buick Encore Leather	\$30,555	71	⬆	⬆	Opt.	69	23	11.0	127	55.0	⬆	⬆/⬆	⬆/⬆	⬆	26.0
	4	Mercedes-Benz GLA250	\$42,210	70	⬆	⬆	Std./⬆	70	26	6.9	128	54.5	⬆	⬆/⬆	⬆/⬆	⬆	23.0
	5	Infiniti QX30 Premium	\$43,745	70	⬆*	⬆*	Opt.	71	25	7.1	122	57.0	⬆	⬆/⬆	⬆/⬆	⬆	21.5
		WAGONS (ALL-WHEEL DRIVE)															
✓	1	Subaru Outback 3.6R Limited	\$36,835	75	⬆	⬆	Opt.	85	22	7.4	134	55.0	⬆	⬆/⬆	⬆/⬆	⬆	34.0
✓	2	Subaru Outback 2.5i Premium	\$28,852	73	⬆	⬆	Opt.	82	24	10.5	133	53.5	⬆	⬆/⬆	⬆/⬆	⬆	34.0
	3	Volvo V60 Cross Country**	\$46,475	68	⬆	⬆	Std./⬆	73	21	8.1	127	49.5	⬆	⬆/⬆	⬆/⬆	⬆	26.0
	4	Volkswagen Golf Alltrack SE	\$32,515	66	⬆	⬆	Opt.	89	25	8.5	124	56.0	⬆	⬆/⬆	⬆/⬆	⬆	30.5

		Make & Model	Price	Overall Score	Survey Results		Safety	Road-Test Results									
Recommended	Rank		As Tested		Predicted Reliability	Owner Satisfaction	Front-Crash Prevention	Road-Test Score	Overall MPG	Acceleration, 0-60 MPH, Sec.	Dry Braking, 60-0 MPH, Ft.	Avoidance Maneuver Speed, MPH	Routine Handling	Ride/Noise	Seat Comfort, Front/Rear	Towing Capacity, Lb.	Payload, Lb.
	COMPACT PICKUP TRUCKS																
✓	1	Honda Ridgeline RTL	\$36,480	<div><div></div></div> 76	<div><div></div></div> ↑*	<div><div></div></div> ↑*	Opt.	80	20	7.3	134	53.5	<div><div></div></div> ↑	<div><div></div></div> ↑/↑	<div><div></div></div> ↑/↓	5,000	1,325
	2	Chevrolet Colorado LT (V6)**	\$34,300	<div><div></div></div> 57	<div><div></div></div> ↓	<div><div></div></div> ↓	Opt.	69	18	7.5	132	48.5	<div><div></div></div> ↓	<div><div></div></div> ↓/↓	<div><div></div></div> ↓/↓	7,000	1,555
	3	Chevrolet Colorado LT (diesel)	\$39,295	<div><div></div></div> 56	<div><div></div></div> ↓	<div><div></div></div> ↓	Opt.	67	24	10.3	134	49.0	<div><div></div></div> ↓	<div><div></div></div> ↓/↓	<div><div></div></div> ↓/↓	7,700	1,410
	4	Toyota Tacoma SR5 (V6)	\$34,364	<div><div></div></div> 41	<div><div></div></div> ↓↓	<div><div></div></div> ↓	NA	46	19	8.2	146	46.0	<div><div></div></div> ↓	<div><div></div></div> ↓/↓	<div><div></div></div> ↓/↓	6,400	1,000

SCORES IN CONTEXT: Recommended models did well in our Overall Score, which factors in Road-Test results, Predicted Reliability, Owner Satisfaction, and Safety performance,

which includes crash-test results and the availability of front-crash prevention features, such as forward-collision warning and automatic

emergency braking at city or highway speeds. For these systems, NA means no such system is offered; Opt. means it's available on some versions but not necessarily the one we tested; and

models with standard systems are rated from ✓ to ✓ based on how many of these features are standard. For full ratings, go to [CR.org/cars](https://www.cars.com).



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March Madness

Our final four of fantastic flubs

Upwardly Mobile

Must be some white-glove service to justify a markup that steep. Submitted by Robert Beatty of Fort Wayne, Ind.



Jackrabbit Qwik-Fold Scooter:

- 11 mph top speed
- Up to 30-mile range per charge
- 33" turning radius
- Supports 350 lbs.

B. Jackrabbit Qwik-Fold Scooter

Fast, lightweight and compact, this mobility scooter will help you get around with comfort. Whether out running errands, traveling on vacation or even at home, you'll enjoy the freedom of personal mobility. Convenient folding design lets you easily tote it in the car or store it out of the way when not in use. 7" front wheel and 10" rear wheels let you easily traverse a variety of surfaces. Handlebars are height-adjustable. Weighs 65 lbs.

PJT-J1T187 \$2499.99 (\$250) now 18999.99

Includes "white glove" delivery and set up. This item is not eligible for discounts or special promotions.

...able, weighs 65 lbs.
PJT-J1T187 \$2499.99 (\$250) now 18999.99
 Includes "white glove" delivery and set up. This item is not eligible for discounts or special promotions.

Mystery Meat

Gives new meaning to "guess who's coming to dinner." Submitted by Bill Joseph via email



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Club Chefman

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Ideal for 2 People or a 2lb Roast

Stairing You in the Face

A tip for hidden-drawer manufacturers: You may want to rethink the pull knob—it's a dead giveaway. Submitted by Ron Koenig of Cambridge, Wis.

Hidden drawer inside!




Hidden drawer inside!

Steps With Hidden Drawer NEW!

Keep this handy step stool nearby for reaching high shelves or climbing up on a tall bed. The sturdy wooden stool features an 11" x 3"

Pack Runner

Nothing says commitment to fitness like a dedicated spot in your running belt for a pack of smokes. Submitted by Kersten Herold of Chanhassen, Minn.



Harm's Running Belt

Reflective Fanny pack

Headphones Compac

Travel Money Belt

by FlyHawk

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Canada Extra

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How to Use the Canada Extra Section

EVERY MONTH, Canada Extra provides Canadian pricing and availability information about products tested for that issue. The ratings in this section are based on this month's reports, but they narrow your choices to the products that are sold in Canada.

You can use this section in either of two ways: Start with the main report, read about the products that interest you, and turn to this section to find whether they're sold—and for what price—in Canada. Or start here, find products sold

in Canada whose price and overall score appear promising, and read more about them in the main report and full ratings chart; page numbers appear with each Canadian report. (For some products, the Canadian model designation differs slightly from the one used in the U.S.)

In most cases, the prices we list here are the approximate retail in Canadian dollars; manufacturers' list prices are indicated by an asterisk (*). Check marks identify CR Best Buy or recommended

products in the U.S. ratings. "NA" in a chart means that information wasn't available from the manufacturer. We include, in the Contact Info list on page 34d, the manufacturer's phone number and web address in Canada so that you can call or go online to get information on a model you can't find in the stores. (Many products that aren't available in Canadian stores can be bought online.)

We appreciate your support, but we don't take it for granted. Please write to

CanadaExtra@cu.consumer.org and tell us what you think. We can't reply to every email or implement every suggestion, but with your help we'll try to keep growing to serve your needs.

\$ CR Best Buy Products with this icon offer the best combination of performance and price. All are recommended.

✓ Recommended Models with this designation perform well and stand out for reasons we note.

Regular Printers

Eleven of the tested regular printers are available, including five of the recommended models. **Report and Ratings, pages 9-14**

		Brand & Model	Price	Overall Score
Rec.	Rank			
BLACK-AND-WHITE LASER PRINTERS				
✓	3	HP LaserJet Pro M501dn	\$700	76
✓	5	HP LaserJet Pro M402dn	\$250	73
✓	6	Brother HL-L2360DW	\$200	73
	7	Brother HL-L5200DW	\$300	72
	11	Dell E310dw	\$160	71
	12	Brother HL-L2340DW	\$200	70
	14	HP LaserJet Pro P1102w	\$170	70
INKJET PRINTERS				
✓	1	HP OfficeJet 200 Mobile	\$300	70
✓	2	Epson Workforce Pro WF-5190	\$280	67
	3	Epson Workforce WF-100	\$300	63
	4	Canon Pixma iP110	\$330	62

HP LASERJET PRO M501DN
 PRICE
 \$700 (U.S.)

76
 OVERALL SCORE



HP OFFICEJET 200 MOBILE
 PRICE
 \$300 (U.S.)

70
 OVERALL SCORE



All-In-One Printers

Thirty-six of the tested all-in-one printers are available, including 16 of the recommended models. **Report and Ratings, pages 9-14**

		Brand & Model	Price	Overall Score
Rec.	Rank			
ALL-IN-ONE BLACK-AND-WHITE LASER PRINTERS				
✓	1	Canon ImageClass MF229DW	\$130	81
✓	2	Samsung Xpress M2885FW	\$380	77
✓	3	Samsung Xpress M2070FW	\$250	76
✓	4	Dell S2815dn	\$480	76
✓	5	Dell H815dw	\$500	76
	7	Brother MFC-L5700DW	\$430	75
	8	Brother DCP-L5500DN	\$150	74
	9	Ricoh SP 213SFW	\$200	74
	10	Brother MFC-L2740DW	\$380	74
	11	Brother MFC-L2700DW	\$270	74
	12	Dell E514dw	\$230	71
ALL-IN-ONE INKJET PRINTERS				
\$	1	Epson Expression Premium XP-640	\$150	74
\$	2	Epson Expression Premium XP-830	\$200	74
✓	3	HP Envy 7640	\$120	71
\$	5	Brother MFC-J680DW	\$160	70
\$	6	Canon Pixma MX532	\$130	70
\$	7	Epson WorkForce Pro WF-4630	\$300	70

		Brand & Model	Price	Overall Score
Rec.	Rank			
ALL-IN-ONE INKJET PRINTERS (Continued)				
✓	8	Epson WorkForce Pro WF-6530	\$500	69
✓	9	Epson Expression Photo XP-960	\$300	68
✓	10	HP Envy 5540	\$150	68
✓	11	Brother MFC-J6520DW	\$300	68
✓	12	Brother MFC-J985DW	\$270	68
	13	Canon Pixma MG3620	\$90	67
	14	Brother MFC-J5920DW	\$330	67
	15	HP Envy 4520	\$100	67
	16	Canon Pixma MX492	\$70	66
	18	Brother MFC-J6720DW	\$330	66
	20	Brother MFC-J4620DW	\$220	65
	21	Brother MFC-J6920DW	\$380	64
	23	Brother MFC-J4420DW	\$200	62
	24	Canon Pixma MG3520	\$50	62
	25	Canon Maxify MB5020	\$320	62
	26	Epson Expression Home XP-430	\$100	61
	27	Canon Maxify MB5320	\$290	61
	28	HP Officejet Pro 8720	\$330	61
	29	Epson WorkForce WF-2760	\$130	61

Autos

All of the tested vehicles are available in Canada. **Report and Ratings, pages 62-64**

Make & Model	Price Range	Acceleration (Sec.)				Fuel Economy (Liters per 100 km)		
		0-50 km/h	0-100 km/h	80-100 km/h	500 Meters	City Driving	Highway Driving	Overall
MIDSIZED 3-ROW SUV								
GMC Acadia	\$34,995–\$54,695	2.7	7.2	3.6	17.7	18.8	8.5	12.3
LUXURY ENTRY-LEVEL SUV								
Infiniti QX30	\$35,990–\$46,490	2.9	7.5	3.3	17.8	13.5	7.2	9.6
WAGON (ALL-WHEEL DRIVE)								
Volkswagen Golf Alltrack	\$35,295	3.4	9.0	3.8	19.0	14.7	6.5	9.6
COMPACT PICKUP TRUCK								
Honda Ridgeline	\$36,590–\$48,590	3.1	7.8	3.8	18.2	18.3	8.2	12.0



RECALLS

2004-2008 Mazda RX-8 models

On certain vehicles, the fuel pump sealing rings may deteriorate from being exposed to heat from the engine and exhaust pipe. That could cause the fuel pump rings to crack, resulting in a fuel leak and possibly a fire.

MODELS 6,788 vehicles.

WHAT TO DO Have the dealer replace the fuel pump rings with new parts and add additional insulation to the fuel tank.

2006 Nissan X-Trail models

On certain vehicles, the fuel filler pipe could corrode and become perforated, allowing fuel to leak onto the ground while or after refueling, possibly resulting in a fire.

MODELS 9,721 vehicles.

WHAT TO DO Have the dealer replace the fuel filler pipe.

NOTE This is an expansion of recall 2014-030.

2006-2010 Audi and Volkswagen models

On certain vehicles, a fault within the antilock brake system (ABS) may cause the module to fail during ABS and/or electronic stability control (ESC) activation, illuminating the warning lights. If that happens, the vehicle-stabilizing functions related to the brake system (ABS/ESC) may not be available.

MODELS 12,206 2006-2009 Volkswagen Jetta; 2009 Audi A3 and Volkswagen Eos, Golf Wagon, GTI, and Rabbit; and 2010 Volkswagen Golf vehicles.

WHAT TO DO Have the dealer update the ABS control module with improved diagnostic capability to detect insufficient PCU ground connection. ABS modules with insufficient ground connections will be replaced.

2007-2010 Hyundai Entourage models

On certain vehicles, the secondary hood latch could corrode and result in the mechanical binding of the latch, causing

the secondary hood latch to remain in the open position when the hood is closed. There is a potential that the secondary hood latch may not hold the hood closed while the vehicle is in motion.

MODELS 6,102 vehicles.

WHAT TO DO Have the dealer replace the hood latch mechanisms.

2011-2012 and 2016 Mitsubishi RVR models

On certain vehicles, the outer tubes of the rear liftgate support struts may have had insufficient anti-corrosion treatment applied during manufacturing. Resulting corrosion due to salt and water penetration could cause the liftgate support strut to rapidly lose pressure and drop suddenly.

MODELS 16,224 vehicles.

WHAT TO DO Have the dealer replace the rear liftgate support struts with updated ones.

2011-2016 Toyota Sienna models

On certain vehicles equipped with power sliding doors, if the opening of the door is impeded (such as when the door becomes frozen with ice), the sliding door motor could stall when the door is operated and high current in the door motor circuit could be generated, operating the circuit protection for the door motor. If that occurs with the sliding door latch mechanism in an unlatched position, the door could open while driving.

MODELS 60,190 vehicles.

WHAT TO DO To be determined.

2013 Mercedes-Benz B-Class models

On certain vehicles equipped with the M270 gasoline engine, the connection piece from the vacuum line to the brake booster may break, which could increase pedal effort and extend stopping distances.

MODELS 2,505 vehicles.

WHAT TO DO Have the dealer replace the vacuum line from the brake booster.

2013-2016 Lincoln and Ford models

On certain vehicles, deployment of the driver or front-passenger seat-belt pretensioner in a crash may generate internal pretensioner temperatures that can degrade the tensile strength of the outboard seat-belt anchor cable, causing the seat belt to not adequately restrain an occupant in a crash.

MODELS 35,614 2013-2015 Lincoln MKZ and 2013-2016 Ford Fusion vehicles.

WHAT TO DO Have the dealer apply a coating to protect the pretensioner's cables.

2016 Dodge and Jeep models

Certain vehicles may experience intermittent operation of the crankshaft or camshaft sensor that may result in illumination of a malfunction indicator lamp (MIL), the vehicle not starting, or the engine stalling while driving.

MODELS 3,385 2016 Dodge Journey and 2016 Jeep Compass and Patriot vehicles.

WHAT TO DO Have the dealer replace the crankshaft and camshaft connector.

2016 Mercedes-Benz models

On certain vehicles, the calibration of the front-passenger seat occupant classification system (OCS) may not detect a small statured seat occupant if the occupant is sitting on the edge of the seat and remains stationary for a long period of time. As a result, the front-passenger airbag may not deploy in a crash.

MODELS 5,346 2016 GL Class, GLE Class, and GLE Coupe vehicles.

WHAT TO DO Dealers will update the software of the occupant classification system.

2016 Nissan Titan XD models

On certain vehicles equipped with diesel engines, a temporary fuel tank breather tube cap may not have been removed and the tube may have been incorrectly affixed to the bed rail. This condition could result in the fuel gauge and the separate "distance to empty" meter to display inaccurately, allowing the vehicle to run out of fuel and stall without warning to the driver.

MODELS 1,896 vehicles.

WHAT TO DO Have the dealer inspect the fuel tank breather tube for proper routing and inspect for the absence of the temporary fuel tank breather tube cap to determine whether a vehicle is affected. The temporary fuel tank breather tube cap will be removed and the fuel tank, fuel sending unit, and/or fuel tank breather tube will be replaced as necessary.

2017 Honda Ridgeline models

On certain vehicles, moisture could enter the rear wiring harness through a connection located underneath a drain hole in the truck bed, resulting in corrosion of some connection terminals. Corrosion of the rear wheel speed sensor terminals could cause unexpected and unnecessary application of brake assist while driving.

MODELS 1,589 vehicles.

WHAT TO DO The dealer will inspect the rear wiring harness and corresponding rear drivetrain components for moisture and/or corrosion. If present, the dealer will replace the rear wiring harness and corresponding components as necessary. If there is no moisture or corrosion, the dealer will repair the rear wiring harness to eliminate the potential for moisture intrusion.

Smartphones

Thirty-four of the tested smartphones are available, including 29 of the recommended models. **Report and Ratings, pages 48-57**

		Brand & Model	Price	Overall Score			Brand & Model	Price	Overall Score
Rec.	Rank				Rec.	Rank			
✓	1	Samsung Galaxy S7	\$700	80	✓	19	Google Pixel	\$650	74
✓	2	Samsung Galaxy S7 Edge	\$800	80	✓	20	Apple iPhone 6 Plus	\$730	74
✓	3	Samsung Galaxy S5	\$500	79	✓	21	Apple iPhone 6s Plus	\$750	73
✓	4	LG G5	\$550	78	✓	22	OnePlus 3	\$700	73
✓	5	LG G4	\$400	78	✓	23	Nexus 6P	\$650	73
✓	6	Apple iPhone 7	\$900	78	✓	24	Motorola Moto X Pure Edition	\$500	73
✓	7	Apple iPhone 6s	\$770	77	✓	25	BlackBerry Priv	\$600	73
✓	8	Apple iPhone 6	\$600	77	✓	26	Apple iPhone SE	\$580	72
✓	9	Samsung Galaxy S6	\$500	77	✓	29	Sony Xperia X Performance	\$750	72
✓	10	Samsung Galaxy S6 Edge	\$500	77	✓	30	Microsoft Lumia 950	\$550	71
✓	11	HTC 10	\$800	77	✓	31	Motorola G4 Plus	\$400	71
✓	12	Nexus 5X	\$430	77	✓	32	Sony Xperia XA Ultra	\$740	71
✓	13	HTC One A9	\$500	76		33	Samsung Galaxy S7 Active	\$565	70
✓	14	LG V10	\$600	75		36	Asus ZenFone 2	\$400	69
✓	15	LG V20	\$960	75		37	Blu Vivo 5	\$270	69
✓	16	Google Pixel XL	\$670	75		38	Huawei P8 Lite	\$300	69
✓	18	Apple iPhone 7 Plus	\$1,200	74		39	BlackBerry Passport	\$430	67

Contact Info

How to reach manufacturers in Canada.

Apple
800-692-7753
apple.com/ca

Asus
888-678-3688
asus.com/ca-en

BlackBerry
ca.blackberry.com

Blu
877-602-8762
bluproducts.com

Brother
877-276-8437
brother.ca

Canon
800-652-2666
canon.ca

Dell
800-999-3355
dell.ca

Epson
800-463-7766
epson.ca

Google
support.google.com/pixel

HP
877-231-4351
hp.ca

HTC
866-449-8358
htc.com/ca

Huawei
888-548-2934
huawei.com/ca-en

LG
888-542-2623
lg.com/ca_en

Microsoft
800-642-7676
microsoft.com/en-ca

Motorola
800-461-4575
motorola.ca/home

Nexus
888-548-2934
huawei.com/ca-en

OnePlus
587-600-1882
oneplus.net/ca_en

Ricoh
888-742-6417
ricoh.ca

Samsung
800-726-7864
samsung.ca

Sony
866-766-9374
sonymobile.com/ca-en