THE CORONAVIRUS HANDBOOK

HOW TO SURVIVE & THRIVE AT HOME

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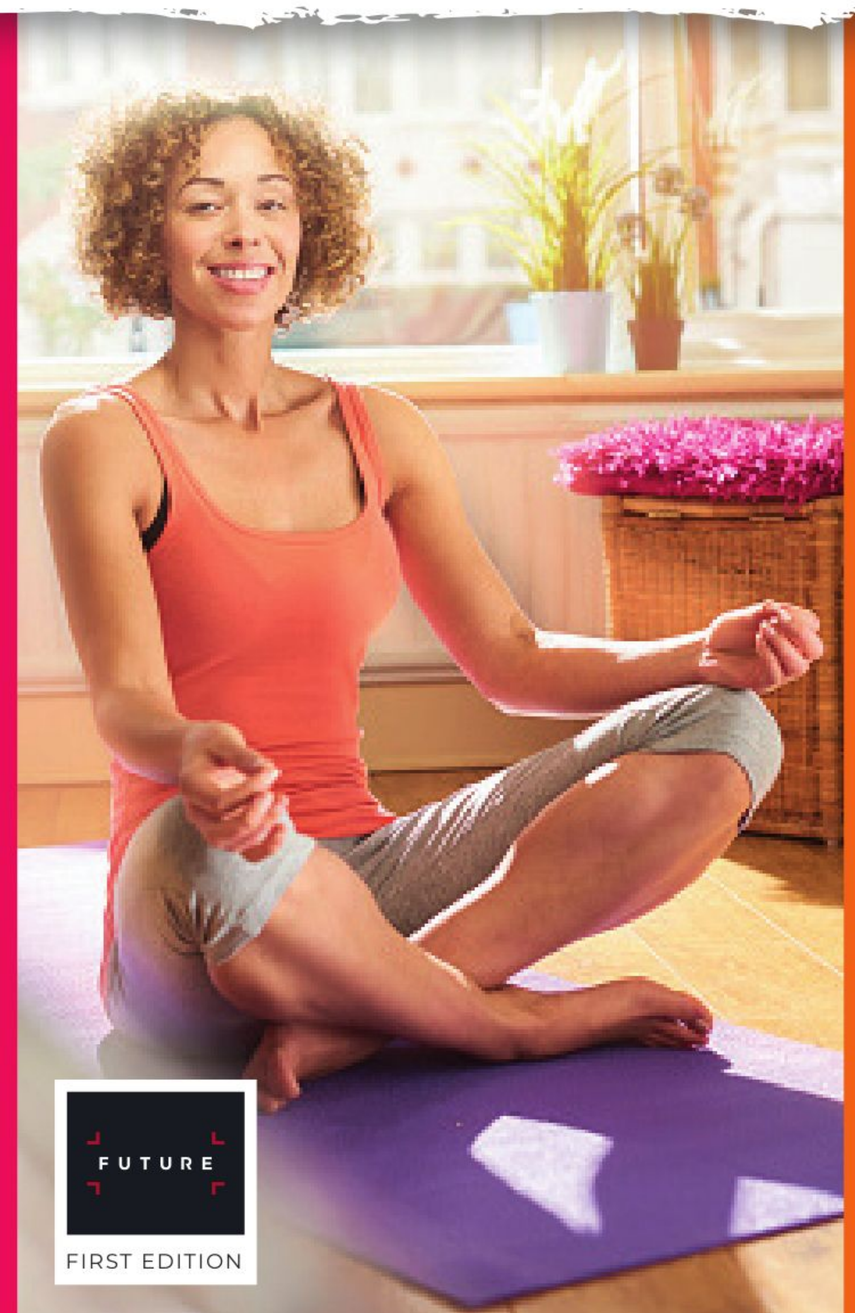

FUTURE
FIRST EDITION

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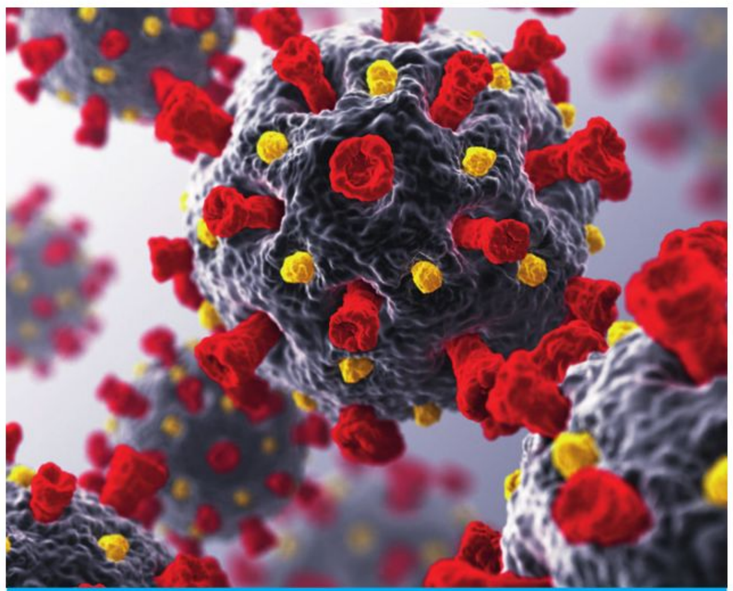

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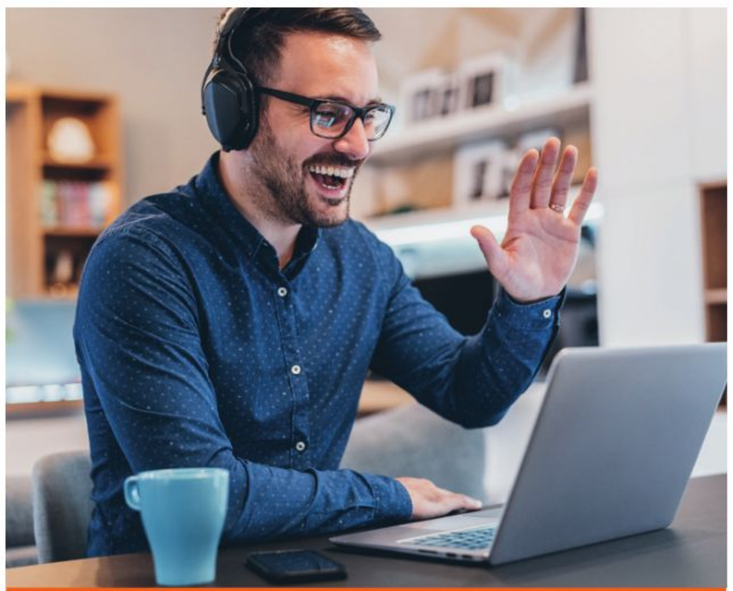

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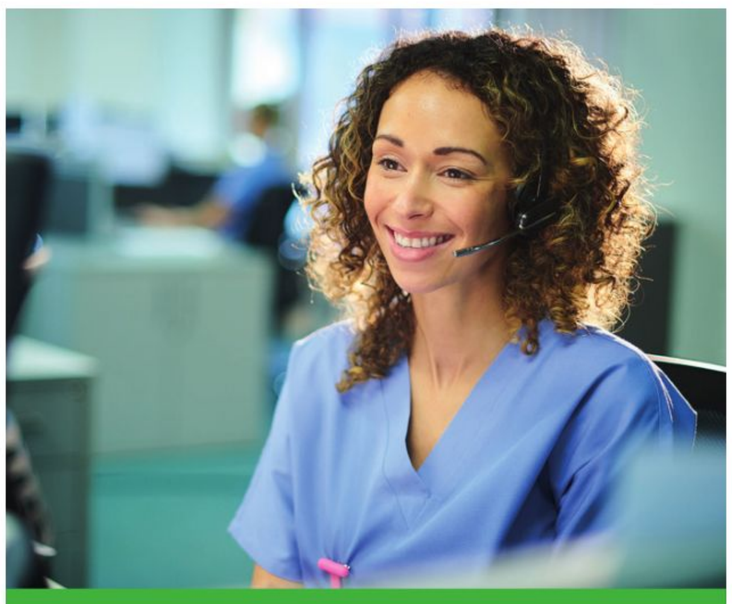

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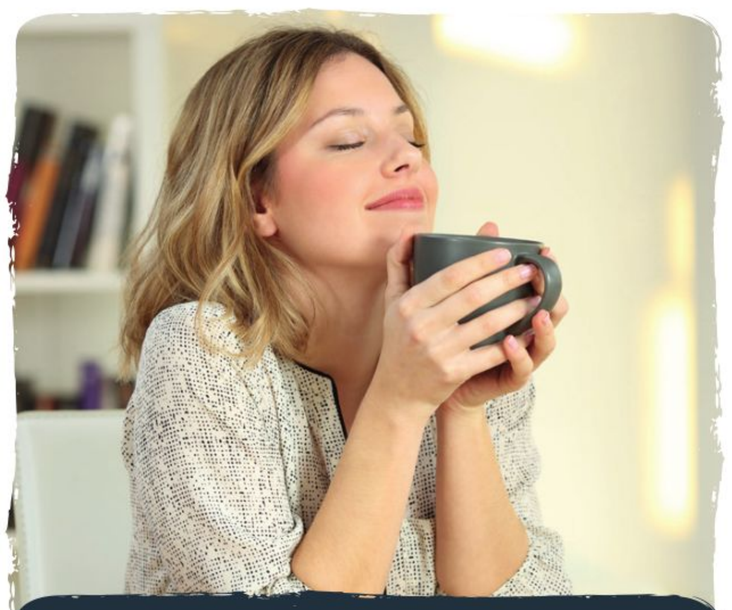

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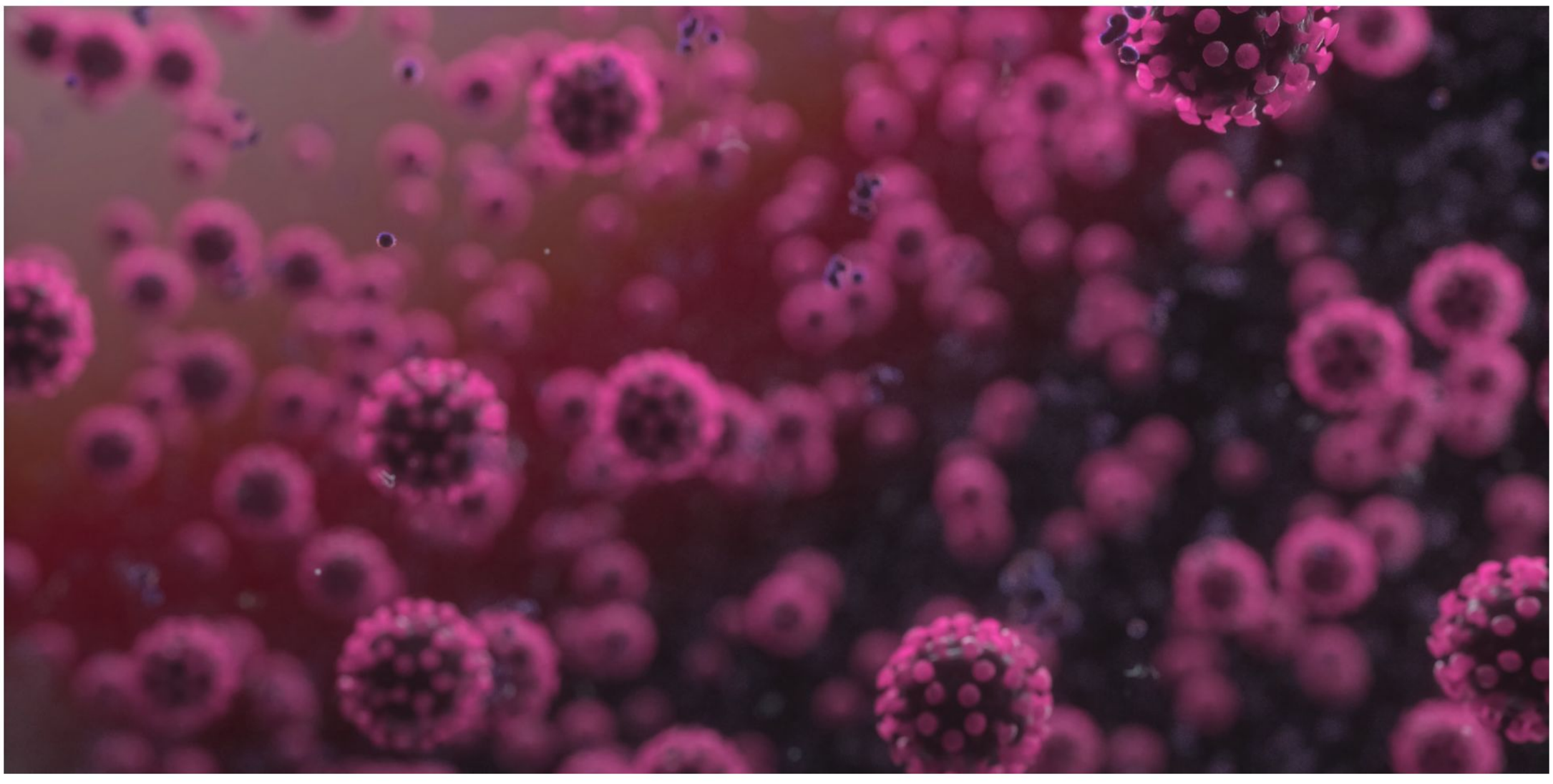

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WHAT IS THE CORONAVIRUS?

Coronaviruses make up a large family of viruses that can infect not only human beings, but other mammals and birds too, according to the World Health Organization (WHO). These viruses have been responsible for several outbreaks around the world, including the severe acute respiratory syndrome (SARS) pandemic of 2002-2003 and the Middle East respiratory syndrome (MERS) outbreak in South Korea in 2015. Some coronaviruses cause more serious symptoms than others, with some causing devastating epidemics of pneumonia-like illnesses, while others result in mild to moderate respiratory infections, like the common cold.

Most recently, a novel (meaning a new strain not seen before) coronavirus, called SARS-CoV-2, which causes a disease known as COVID-19, triggered an outbreak in China in December 2019, and has since led to a global pandemic. To date, over a million of people have been infected by the virus worldwide, and there have been over 100,000 deaths. ■

The World Health Organization (WHO)

■ SITUATED IN GENEVA, Switzerland, the World Health Organization, also known as WHO, is a specialized agency of the United Nations responsible for international public health.

Find out more: www.who.int

COVID-19

Membrane protein

The coronavirus' M protein plays an essential role in the assembly of a virus. It turns cellular membranes into 'germ' factories — it's here where new virus particles are made.

Envelope protein

Involved in several aspects of the virus' life cycle including budding and assembly, this small membrane protein is capable of altering the permeability of host cells as well as the interaction with its target cell.

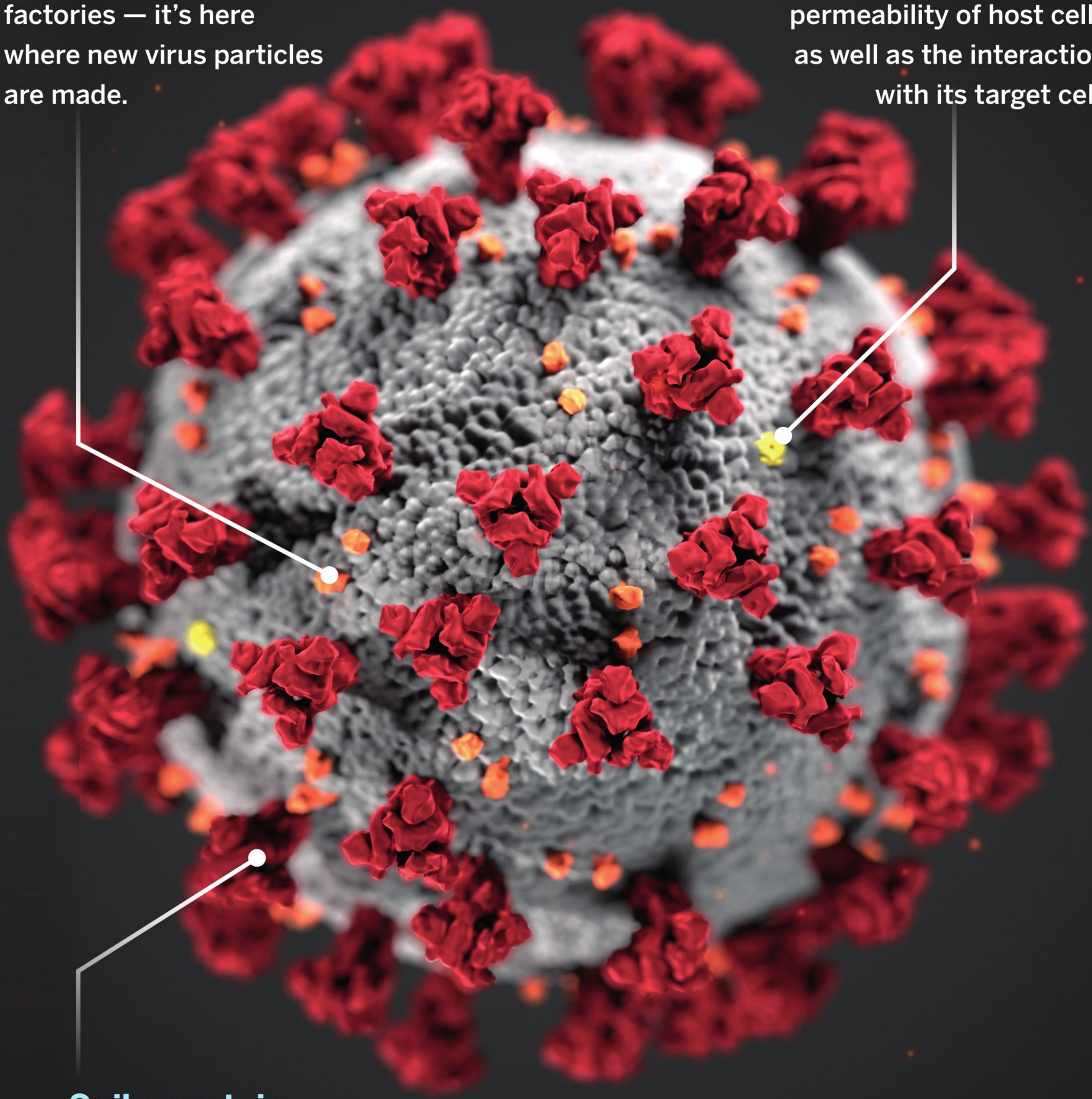


Image credit: Alissa Eckert, MS; Dan Higgins, MAMS

Spike protein

Coronaviruses invade cells through so-called "spike" proteins. It's a major surface protein that's used to bind to a receptor — another protein that acts like a doorway into a human cell. After the spike protein binds to the human cell receptor, the viral membrane fuses with the human cell to begin infection.

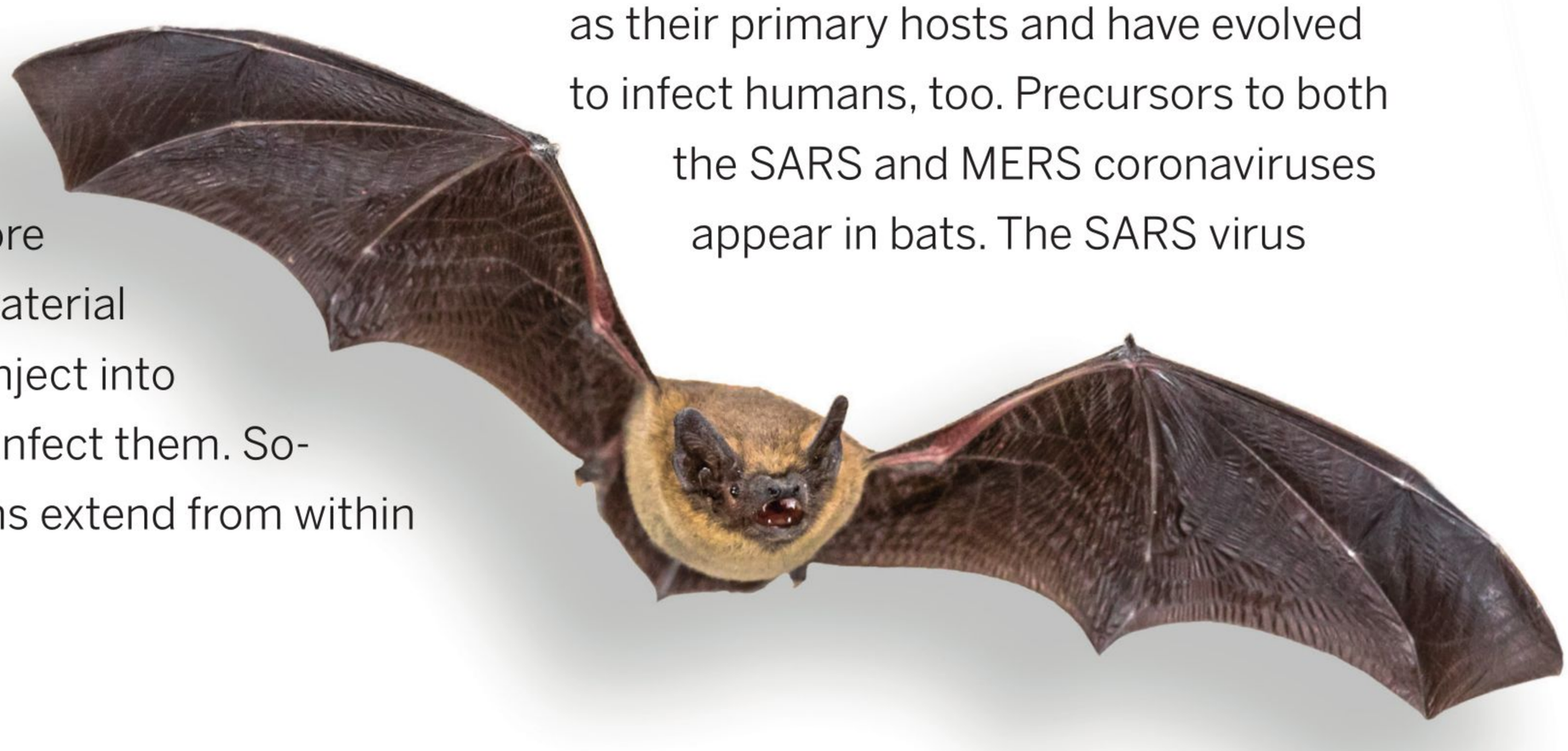
HOW DOES COVID-19 MAKE US ILL?

When viewed through a microscope, all coronaviruses sport spiky projections on their outer surfaces that resemble the points of a crown, or "corona" in Latin, according to the Centers for Disease Control and Prevention (CDC). Seven known coronaviruses can infect humans, including the novel coronavirus identified in 2019.

Beneath a coronavirus's pronged exterior lies a round core shrouded in proteins and a "greasy" membrane, says Jan Carette, an associate professor of microbiology and immunology at the Stanford University School of Medicine. The core contains genetic material that the virus can inject into vulnerable cells to infect them. So-called spike proteins extend from within the core to the viral surface and allow the virus to "recognize and latch onto" specific cells in the body, according to Carette.

"When the spike engages its receptor [on a host cell], a cascade is triggered, resulting in the merger of the virus with the cell," he added. This merger allows the virus to release its genetic material and hijack the cell's internal machinery. "Once this happens, the virus sheds its coat and turns the cell into a factory that starts churning out new viruses."

Several coronaviruses utilize animals as their primary hosts and have evolved to infect humans, too. Precursors to both the SARS and MERS coronaviruses appear in bats. The SARS virus



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Centers for Disease Control and Prevention (CDC)

■ THE CENTERS FOR Disease Control and Prevention is the leading national public health institute of the United States.

Find out more: www.cdc.gov

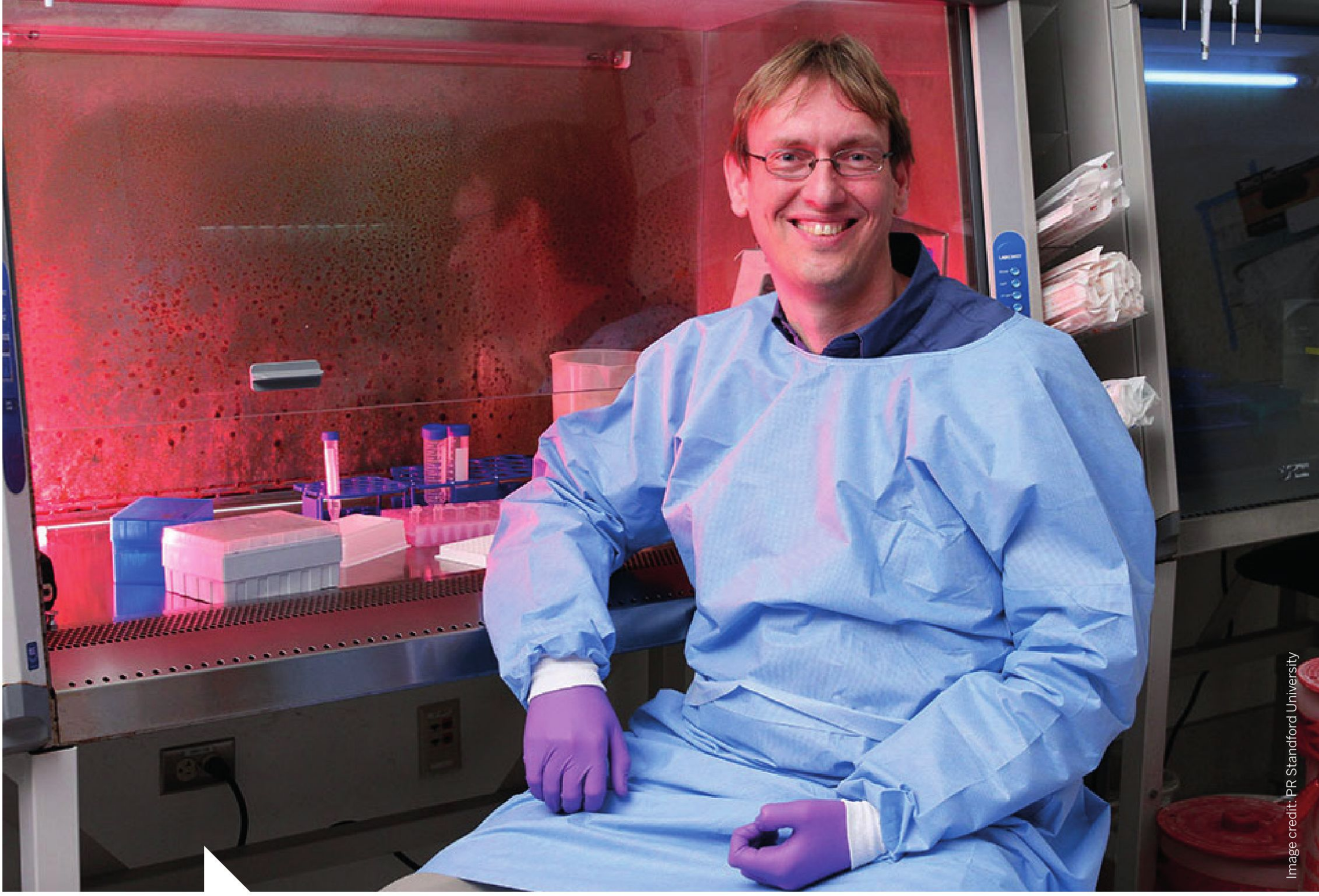

Image credit: PR Standford University

“The virus sheds its coat and turns the [human] cell into a factory that starts churning out new viruses”

Jan Carette, associate professor of microbiology and immunology at the Stanford University School of Medicine

jumped from bats to civets (small, nocturnal mammals) on its way into people, while MERS infected camels before spreading to humans. Evidence suggests that the novel coronavirus also jumped from bats to humans after passing through an intermediate carrier, although scientists have not yet identified the infectious middleman creature.

Prior to the novel coronavirus, the four most common human coronaviruses — named 229E, NL63, OC43 and HKU1 — did not jump from animals to humans, but rather utilize humans as their natural hosts, according to the CDC. These human-borne coronaviruses “have presumably evolved to maximize spread amongst the population rather than pathogenicity,” meaning the viruses may opt to maximize their spread rather than harm their human host, said Carette. This may explain why coronaviruses that are transmitted from animals seem to cause more-severe diseases in humans, but the idea remains speculative. ■

HOW CORONAVIRUS IS TRANSMITTED

Coronaviruses can be transmitted between humans through respiratory droplets that infected people expel when they breathe, cough or sneeze, and transmission is exacerbated by close contact between people. A typical surgical mask cannot block out the viral particles contained in these droplets, but simple measures, such as washing your hands, disinfecting frequently touched surfaces and objects, and avoiding touching your face, eyes and mouth, can greatly lower your risk of infection.

The viruses generally cannot survive for more than a few hours on surfaces outside a human host, but people can pick up a coronavirus from a contaminated surface for a short window of time. Nobody knows exactly how long this novel coronavirus can linger on surfaces, but a new analysis, published in March 2020 in The New England Journal of Medicine, found that the virus can remain viable in the air for up to 3 hours, on copper for up to 4 hours, on cardboard for up to 24 hours and on plastic and stainless steel up to 72 hours. ■

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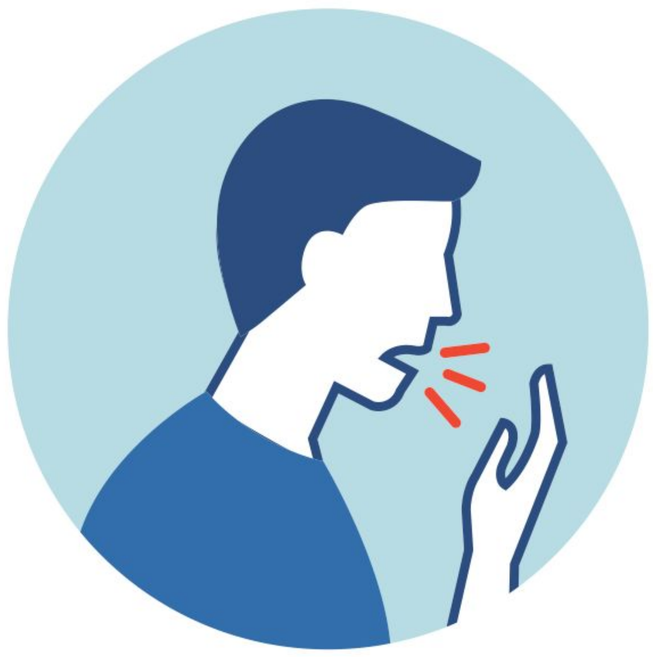
WHAT SYMPTOMS SHOULD I LOOK OUT FOR?

Most cases will be mild, and some people might show no symptoms at all. According to the CDC, the symptoms, which usually appear between two days and two weeks of exposure to the virus, to look out for are:

FEVER

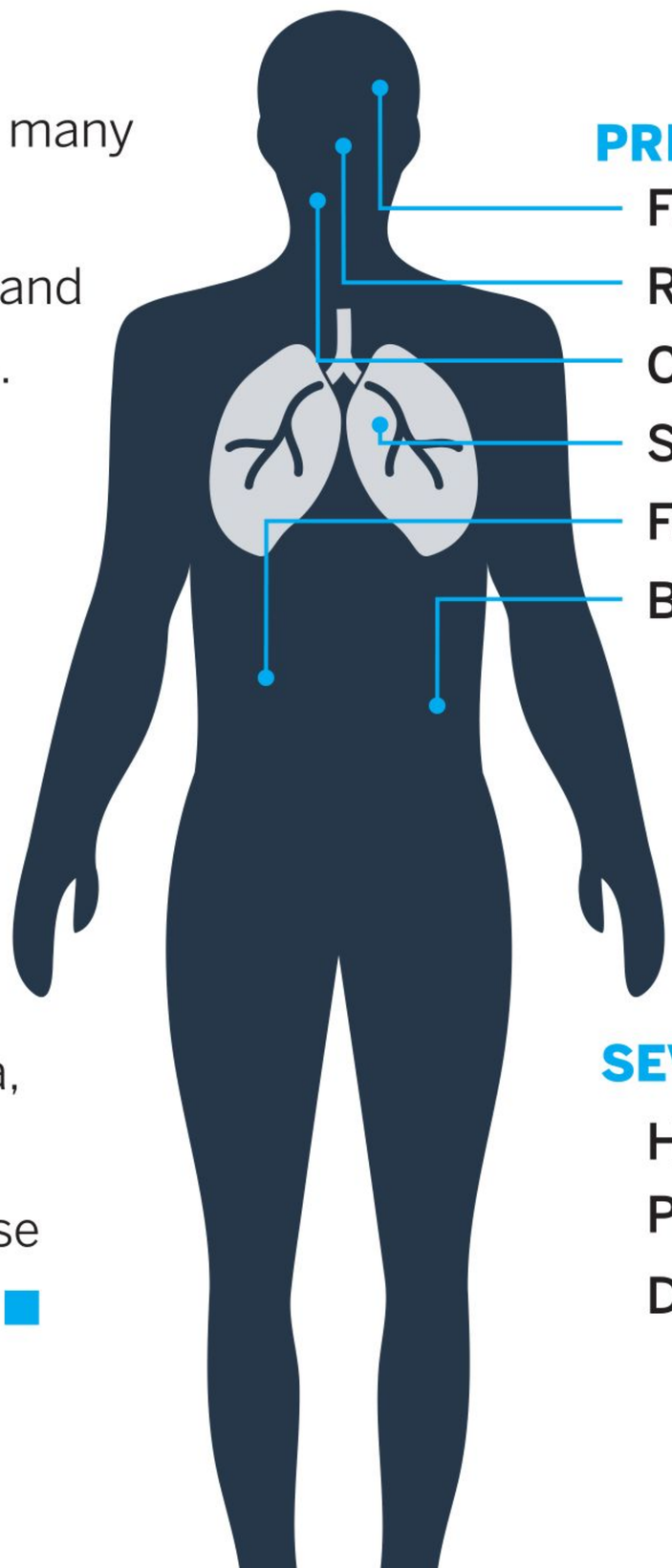


COUGH

SHORTNESS OF BREATH

According to a report in the Journal of the American Medical Association (JAMA), as many as 98% of COVID-19 patients have a fever, between 76% and 82% have a dry cough, and 11% to 44% report exhaustion and fatigue.

The disease appears to become more severe with age, with the 30- to 79-year-old age range predominating the detected cases in Wuhan Province in China, where the outbreak began. Children seem to be less at risk of suffering noticeable symptoms of the disease. In more serious cases of COVID-19, patients experience pneumonia, which means their lungs begin to fill with pockets of pus or fluid. This leads to intense shortness of breath and painful coughing. ■



PRIMARY SYMPTOMS

- Fever
- Runny nose
- Cough
- Shortness of breath
- Fatigue
- Body aches

SEVERE SYMPTOMS

- High fever
- Pneumonia
- Difficulty breathing

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ISN'T CORONAVIRUS JUST LIKE THE FLU?

As of April, the new coronavirus has led to more than 1 million illnesses and over 100,000 deaths worldwide. On the face of it, regular flu, also called influenza, is more widespread. In the U.S. alone, the flu has caused an estimated 34 million illnesses, 350,000 hospitalizations and 20,000 deaths this season, according to the CDC. However, the flu season is beginning to end, whereas no one knows whether COVID-19 will see a drop in cases during the summer. The total number of infected and deaths could ultimately become much higher than flu.

Scientists have studied seasonal flu for decades. So, despite the danger of it, we know a lot about flu viruses and what to expect each season. In contrast, very little is known about the novel coronvirus because it's so new. This means COVID-19 is something of a wild card in terms of how we're able to beat it and how many deaths it will cause at the end of the pandemic.

"Despite the morbidity and mortality with influenza, there's a certainty ... of seasonal flu," Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, said in a White House press conference in January. "You could predict pretty accurately what the range of the mortality is and the hospitalizations [will be]," Fauci said. "The issue now with [COVID-19] is that there's a lot of unknowns that we need to discover."

Scientists are racing to find out more about COVID-19, and the threat it poses may change as new information becomes available. Based on what we know so far, here's how it compares with the flu.

Typical flu symptoms include fever, cough, sore throat, muscle aches, headaches, runny or stuffy nose, fatigue and, sometimes, vomiting and diarrhoea, according to the CDC. Flu symptoms often come on suddenly. Most people who get the flu will recover in less than two weeks. But in some people, the flu causes complications, including pneumonia. So far this flu season, about 1% of people in the United States have developed symptoms severe enough to be hospitalized, which is similar to the rate last season. That is according to data from the CDC.

With COVID-19, doctors are still trying to understand the full picture of disease symptoms and severity. Reported symptoms in patients have varied from mild to severe, and can include fever, cough and shortness of breath, according to the CDC. The death rate from seasonal flu is typically

around 0.1% in the U.S., according to The New York Times.

The death rate for COVID-19 appears to be higher than that of the flu. In the study published in February in the China CDC Weekly, researchers found a death rate from COVID-19 to be around 2.3% in mainland China. Another study of about 1,100 hospitalized patients in the country, published in the New England Journal of Medicine, found that the overall death rate was slightly lower, around 1.4%.

Still, the death rate for COVID-19 appears to vary by location and an individual's age, among other factors. For instance, in Hubei Province — the epicenter of the outbreak — the death rate reached 2.9%; in other provinces of China, that rate was just 0.4%, according to the China CDC Weekly study. In addition, older adults have been hit the hardest. The death rate soars to 14.8% in those 80 and older; among those ages 70 to 79, the COVID-19 death rate in China seems to be about 8%; it's 3.6% for those ages 60 to 69; 1.3% for 50 to 59; 0.4% for the age group 40 to 49; and just 0.2% for people aged 10 to 39. Some deaths in children under 9 have been reported.

The death rate for COVID-19 continues to increase globally, but it is unclear when it's likely to end. At present, most research suggests that the mortality statitics could end up being higher than that of the more common seasonal flu. ■

Influenza vs Coronavirus

Influenza virus

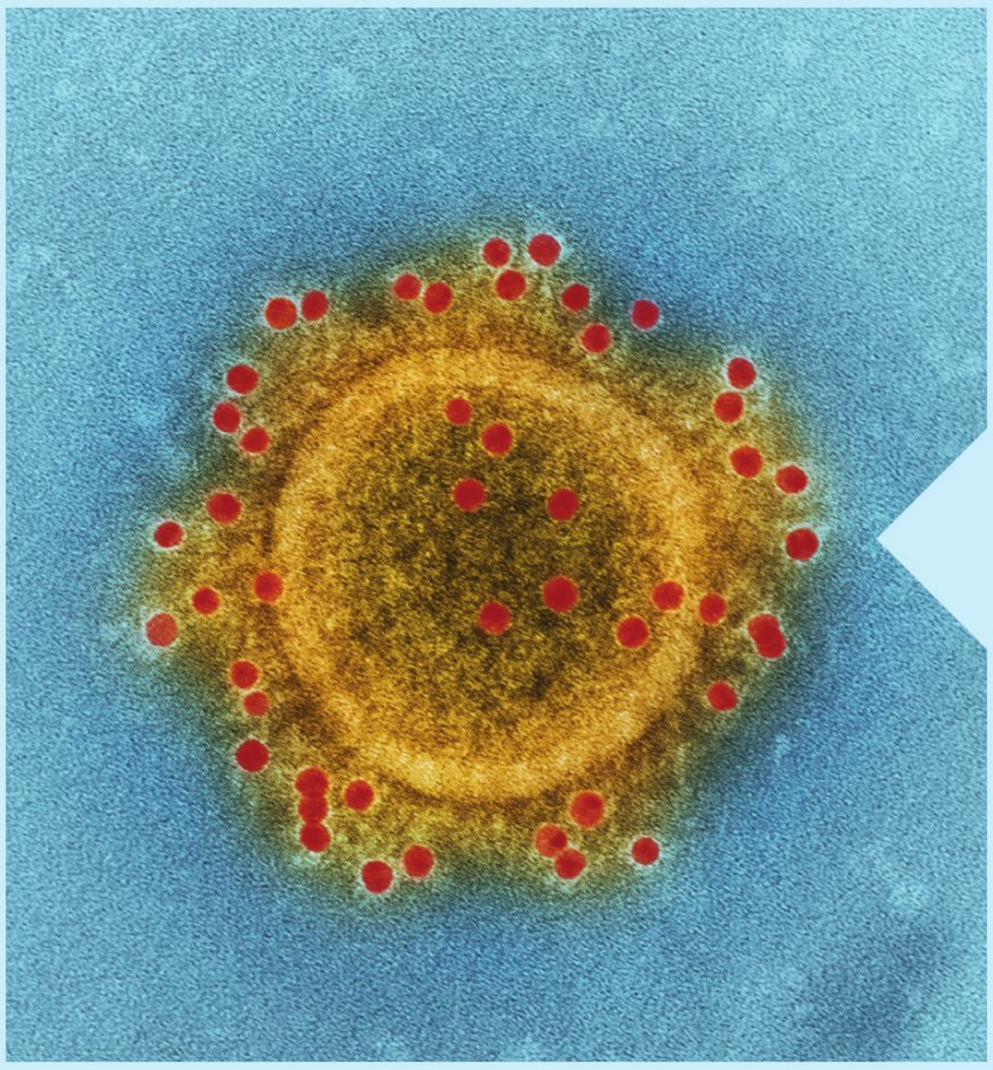

Image credit: Centers for Disease Control and Prevention (CDC)

Coronavirus

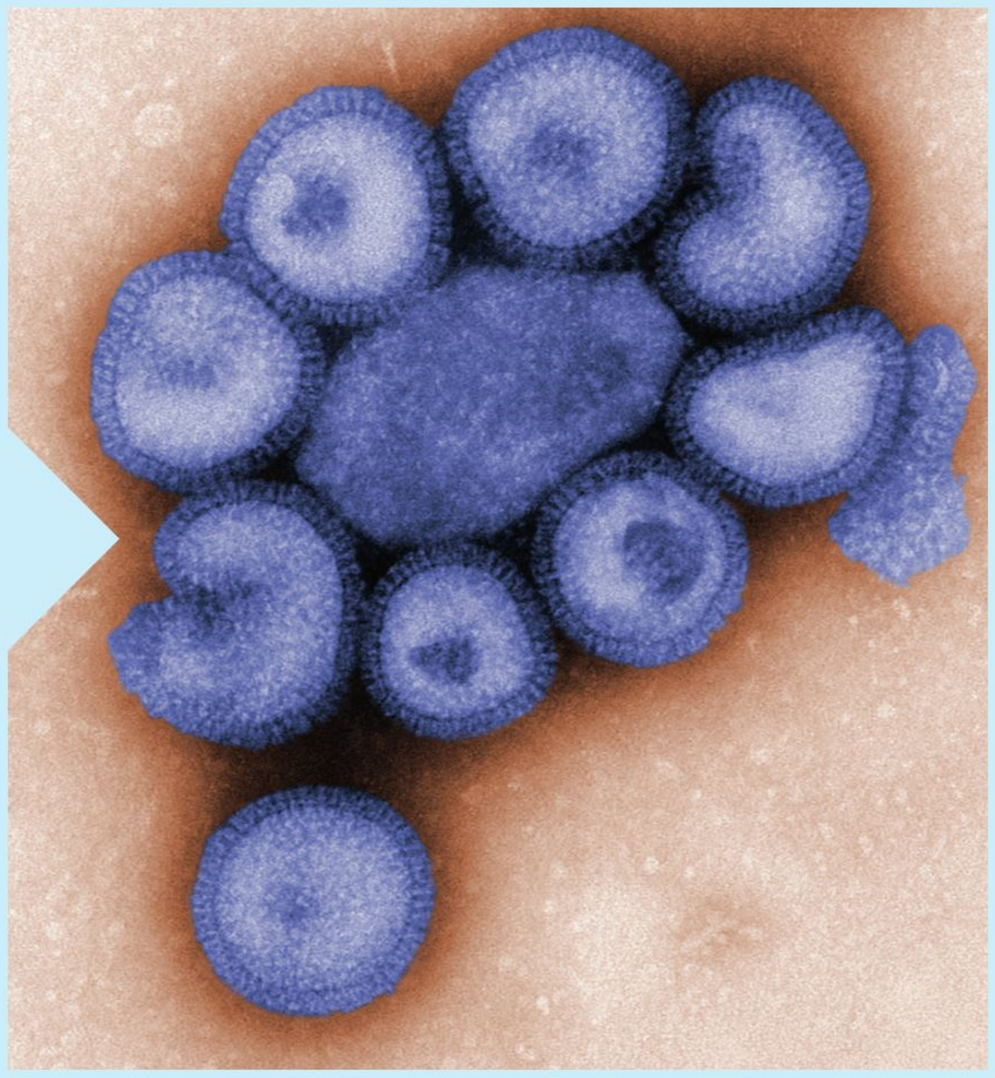

Image credit: Centers for Disease Control and Prevention (CDC)

I FEEL MISINFORMED! Can I trust all sources of information on COVID-19?

As the novel coronavirus continues to infect people around the world, news articles and social media posts about the outbreak continue to spread online. Unfortunately, this relentless flood of information can make it difficult to separate fact from fiction — and during a viral outbreak, rumors and misinformation can be dangerous.

We've compiled a list of the most pervasive myths about the novel coronavirus SARS-CoV-2 and COVID-19, the disease it causes, and explained why these rumors are misleading, or completely incorrect.

MYTH 1: Face masks can protect you from the virus

Standard surgical masks cannot protect you from the novel coronavirus, because they are not designed to block out viral particles and do not lay flush to the face. That said, surgical masks can help prevent infected people from spreading the virus further by blocking any respiratory droplets that could be expelled from their mouths.

Within health care facilities, special respirators called "N95 respirators" have been shown to greatly reduce the spread of the virus among medical staff. People require training to properly fit N95 respirators around their noses, cheeks and chins to ensure that no air can sneak around the edges of the mask; and wearers must also learn to check the equipment for damage after each use. ■

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Myth 2: You're way less likely to get this than the flu

Not necessarily. To estimate how easily a virus spreads, scientists calculate its "basic reproduction number," or R0 (pronounced R-nought). R0 predicts the number of people who can catch a given bug from a single infected person. Currently, the R0 for the novel coronavirus is estimated at about 2.2, meaning a single infected person will infect about 2.2 others, on average. By comparison, the flu has an R0 of 1.3.

Perhaps, most importantly, while no vaccine currently exists to prevent COVID-19, the seasonal flu vaccine prevents influenza relatively well, even when its formulation doesn't perfectly match the circulating viral strains.

So far, it appears the coronavirus is more deadly than the flu. However, there's still a lot of uncertainty around the mortality rate of the virus. The annual flu typically has a mortality rate of around 0.1% in the U.S. So far, there's a 0.05% mortality rate among those who caught the flu virus in the U.S. this year, according to the CDC.

In comparison, recent data suggests that COVID-19 has a mortality rate that's more than 20 times higher, of around 2.3%, according to a study published in February by China CDC Weekly. But these numbers are continuously evolving and may not represent the actual mortality rate. It's not clear if the case counts in China are accurately documented, especially since they shifted the way they defined cases midway through, according to STAT News. There could be many mild or asymptomatic cases that weren't counted in the total sample size, they wrote. ■

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MYTH 3: The virus is just a mutated form of the common cold

No, it's not. Coronavirus is a large family of viruses that includes many different diseases. SARS-CoV-2 does share similarities with other coronaviruses, four of which can cause the common cold. All five viruses have spiky projections on their surfaces and utilize so-called spike proteins to infect host cells. However, the four cold coronaviruses — named 229E, NL63, OC43 and HKU1 — all utilize humans as their primary hosts. SARS-CoV-2 shares about 90% of its genetic material with coronaviruses that infect bats, which suggests that the virus originated in bats and later hopped to humans. ■

MYTH 4: The virus was probably made in a lab

No evidence suggests that the virus is human-made. SARS-CoV-2 closely resembles two other coronaviruses that have triggered outbreaks in recent decades, SARS-CoV and MERS-CoV, and all three viruses seem to have originated in bats. In short, the characteristics of SARS-CoV-2 fall in line with what we know about other naturally occurring coronaviruses that made the jump from animals to people. ■

MYTH 5: Getting COVID-19 is a death sentence

That's not true. About 81% of people who are infected with the coronavirus have mild cases of COVID-19, according to a study published in February by the Chinese Center for Disease Control and Prevention. About 13.8% report severe illness, meaning they have shortness of breath, or require supplemental oxygen, and about 4.7% are critical, meaning they face respiratory failure, multi-organ failure or septic shock. The data thus far suggests that only around 2.3% of people infected with COVID-19 die from the virus. People who are older or have underlying health conditions seem to be most at risk of having severe disease or complications. While there's no need to panic, people should take steps to prepare and protect themselves and others from the new coronavirus. ■

MYTH 6: If you have coronavirus, "you'll know"

No, you won't. COVID-19 causes a wide range of symptoms, many of which appear in other respiratory illnesses such as the flu and the common cold. Specifically, common symptoms of COVID-19 include fever, cough and difficulty breathing, and rarer symptoms include dizziness, nausea, vomiting and a runny nose. In severe cases, the disease can progress into a serious pneumonia-like illness – but early on, infected people may show no symptoms at all. ■

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MYTH 7: Kids can't catch the coronavirus

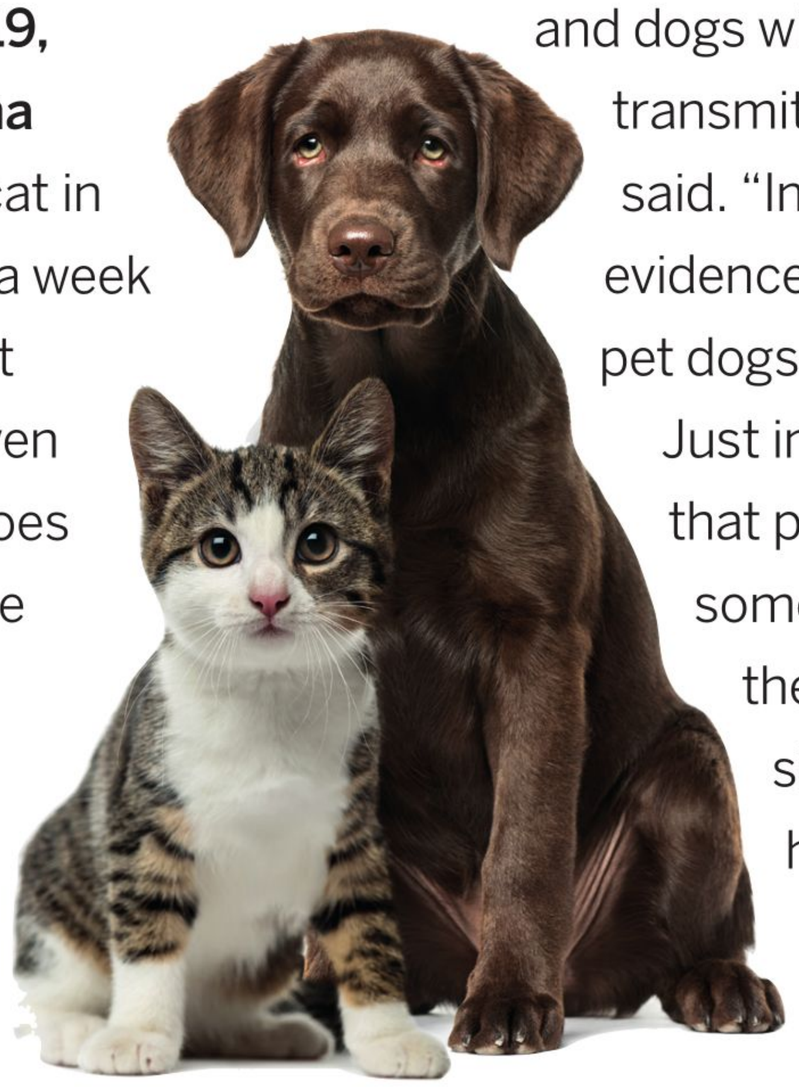
Children can definitely catch COVID-19, although initial reports suggested fewer cases in children compared with adults. For example, a Chinese study from Hubei province released in February found that of more than 44,000 cases of COVID-19, about only 2.2% involved children under age 19.

However, more recent studies suggest children are just as likely as adults to become infected. In a study reported in March, researchers analyzed data from more than 1,500 people in Shenzhen, and found that children potentially exposed to the virus were just as likely to become infected as adults were, according to Nature News. Regardless of age, about 7% to 8% of people who came into contact with COVID-19 cases later tested positive for the virus. ■

MYTH 6: We're certain pets can spread the new coronavirus

There have been no reports of pets passing the virus to their human owners. One dog in China contracted a "low-level infection" from its owner, who has a confirmed case of COVID-19, according to The South China Morning Post. Meanwhile, a cat in Belgium contracted the virus a week after its owner fell ill. Virologist Steven Van Gucht said that even human-to-pet transmission does not play a significant role in the spread of coronavirus.

Several dogs and cats tested positive for a similar virus, SARS-CoV, during an outbreak in 2003, animal health expert Vanessa Barrs of City University told the Post. "Previous experience with SARS suggests that cats and dogs will not become sick or transmit the virus to humans," she said. "Importantly, there was no evidence of viral transmission from pet dogs or cats to humans."



Just in case, the CDC recommends that people with COVID-19 have someone else walk and care for their companion while they are sick and be sure to wash their hands thoroughly. ■

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MYTH 9: Vitamin C supplements will stop you from catching COVID-19

Researchers have yet to find any evidence that vitamin C supplements can render people immune to COVID-19 infection. In fact, for most people, taking extra vitamin C does not even ward off the common cold, although it may shorten the duration of a cold if you catch one.

That said, vitamin C serves essential roles in the human body and supports normal immune function. As an antioxidant, the vitamin neutralizes charged particles called free radicals that can damage tissues in the body. It also helps the body synthesize hormones, build collagen and seal off vulnerable connective tissue against some nasty pathogens.

So yes, vitamin C should absolutely be included in your daily diet if you want to maintain a healthy immune system. But mega-dosing on supplements is unlikely to lower your risk of catching COVID-19, and may at most give you a "modest" advantage against the virus, should you become infected. No evidence suggests that other so-called immune-boosting supplements — such as zinc, green tea or echinacea — help to prevent COVID-19, either.

Be wary of products being advertised as treatments or cures for the new coronavirus. Since the COVID-19 outbreak began in the United States, the U.S. Food and Drug Administration (FDA) and the Federal Trade Commission (FTC) have already issued warning letters to seven companies for selling fraudulent products that promise to cure, treat or prevent the viral infection. ■

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MYTH 10: It's not safe to receive a package from China

It is safe to receive letters or packages from China, according to the World Health Organization. Previous research has found that coronaviruses don't survive long on objects such as letters and packages. Based on what we know about similar coronaviruses such as MERS-CoV and SARS-CoV, experts think this new coronavirus likely survives poorly on surfaces.

A study published in March in The New England Journal of Medicine concludes that the novel coronavirus can linger for up to 3 hours in the air, for up to 24 hours on cardboard, and for up to 3 days on stainless steel. A previous study published on 6 February in The Journal of Hospital Infection suggested that it could remain on surfaces such as metal, glass or plastic for as long as nine days.

However, the surfaces present in packaging are not ideal for the virus to survive. For the novel coronavirus to remain viable, it needs a combination of specific environmental conditions such as temperature, lack of UV exposure and humidity – a combination that you won't get in shipping packages, according to Amesh A. Adalja, Senior Scholar, Johns Hopkins Center for Health Security.

And so "there is likely very low risk of spread from products or packaging that are shipped over a period of days or weeks at ambient temperatures," according to the CDC. "Currently, there is no evidence to support transmission of COVID-19 associated with imported goods, and there have not been any cases of COVID-19 in the United States associated with imported goods." Rather, the coronavirus is thought to be most commonly spread through respiratory droplets. ■

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MYTH 11: You can get the coronavirus if you eat at Chinese restaurants in the US

No, you can't. By that logic, you'd also have to avoid Italian, Korean, Japanese and Iranian restaurants, given that those countries have also been facing an outbreak. The new coronavirus doesn't just affect people of Chinese descent. ■

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HOW DO WE TEST FOR THE VIRUS?

If you develop symptoms of the new coronavirus, you'll likely wonder how you can get tested for it and what that entails. In the United States, chances are a health care worker will use a long Q-tip to swab the back of your throat and then send that sample off for testing. If you're in a country that has developed an antibody test, such as China, you may get blood drawn.

What happens to these samples next is very different. The throat swab is well suited for polymerase chain reaction testing, also known as PCR, while the blood sample will be mined for antibodies specific to the new disease, known as COVID-19.

Both tests take just hours to run, meaning results could be ready within a day, said Amesh Adalja, an infectious-diseases specialist and a senior scholar at the Johns Hopkins Center for Health Security in Baltimore. However, once the rapid form of these PCR and antibody tests are created, results could be ready in under an hour.

COVID-19 has nearly 30,000 nucleotides, which are the building blocks that make up DNA. Alex Greninger, an assistant professor in the Department of Laboratory Medicine and an assistant director of the Clinical Virology Laboratory at UW Medicine. The PCR test developed by the University of Washington School of Medicine (UW Medicine) targets just 100 nucleotides that are specific to COVID-19.

These 100 nucleotides include two genes in the genome of the virus. A sample is considered positive if the test finds both genes, inconclusive if just one gene is found, and negative if neither gene is detected. Tests from UW Medicine that are either inconclusive or positive are sent to Washington's Public Health Laboratories

PCR: How does the test work?

■ A SEROLOGICAL TEST is advantageous because it can detect antibodies even if a patient has recovered, whereas a PCR test can detect the virus only if the person is currently sick. However, both tests might miss cases if samples are taken too early, when the viral load is too low or if the person's body hasn't produced antibodies against the virus yet, Adalja said.

For the serologic test, it can take about a week before the body produces ample antibodies, although "as we get more serologic tests, there will be guidance on what timeframes are needed to do a serologic test on [COVID-19]," Adalja said.

and the CDC for further testing, The Seattle Times reported.

In contrast, serological tests look for specific antibodies that the body has produced to fight the virus. "If they detect those antibodies, [the test] gives a positive result," Adalja said. These antibodies tests are now being developed in multiple countries, including China, Singapore and the UK.

A serological test is advantageous because it can detect antibodies even if a patient has recovered, whereas a PCR test can detect the virus only if the person is currently sick. However, both tests might miss cases if samples are taken too early, when the viral load is too low or if the person's body hasn't produced antibodies against the virus yet, Adalja said.

For the serologic test, it can take about a week before the body produces ample antibodies, although "as we get more serologic tests, there will be guidance on what timeframes are needed to do a serologic test on [COVID-19]," Adalja said. ■

Image Credit: Johns Hopkins Center for Health Security in Baltimore

"It can take about a week before the body produces ample antibodies"

Amesh Adalja, infectious-diseases specialist and senior scholar at the Johns Hopkins Center for Health Security in Baltimore

IS THERE TREATMENT FOR SYMPTOMS OF THE VIRUS?

Not too long after the virus was first discovered at the end of December 2019, labs turned their sights toward treatment. This is based on the kind of care given for influenza (seasonal flu) and other severe respiratory illnesses, known as "supportive care," according to the Centers for Disease Control and Prevention (CDC).

These treatments essentially treat the symptoms, and in mild cases, this might simply mean rest and fever-reducing medications such as acetaminophen (Tylenol) for comfort.

In hospitals, doctors and nurses are sometimes treating COVID-19 patients with the antiviral drug oseltamivir, or Tamiflu, which seems to suppress the virus' reproduction in at least some cases.

The National Institutes of Health has begun a clinical trial at the University of Nebraska Medical Center to test the antiviral remdesivir for COVID-19. In China, doctors are also testing an array of other antivirals originally designed to treat Ebola and HIV.

In cases in which pneumonia inhibits breathing, treatment involves ventilation with oxygen. Ventilators blow air into the lungs through a mask or a tube inserted directly into the windpipe. A New England Journal of Medicine study of 1,099 hospitalized patients with the coronavirus in China found that 41.3% needed supplemental oxygen and 2.3% needed invasive mechanical ventilation. Glucocorticoids were given to 18.6% of patients, a treatment often used to reduce inflammation and help open airways during respiratory disease.

What about a cure

Currently there is no vaccine for the coronavirus that causes COVID-19. Scientists are working to develop one, Hilary Marston, a medical officer and policy advisor at the National Institute of Allergy and Infectious Diseases (NIAID), said in a Harvard T.H. Chan School of Public Health webcast on 2 March.

On 16 March, government health officials announced a healthy volunteer in Seattle was the first person in the U.S. to receive a dose of an experimental coronavirus vaccine as part of a new clinical trial.

Researchers plan to enrol 45 participants in the trial, which will test the safety of the vaccine as well as its ability to induce an immune response in the volunteers. The trial will take place at Kaiser Permanente

Washington Health Research Institute (KPWHRI) in Seattle.

The National Institute of Allergy and Infectious Diseases (NIAID) allowed the new vaccine to be fast-tracked into clinical trials without thorough testing in animal models, which usually stands as a strict prerequisite to human testing. While making the jump to human trials could bring the vaccine to market faster, this is only step one.

New drugs must pass through three iterative phases of clinical trials before being deemed safe and effective for widespread use. Assuming the initial tests go well, it may be 12 to 18 months before any vaccine is ready for public use.

"Finding a safe and effective vaccine to prevent infection with SARS-CoV-2 is an urgent public health priority," said NIAID Director Anthony Fauci. "This Phase 1 study, launched in record speed, is an important first step".

The new vaccine is a collaboration between NIAID scientists and the biotechnology company Moderna Inc., based in Cambridge, Massachusetts. ■

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SECTION 2: PROTECTING YOURSELF & LOVED ONES AGAINST COVID-19

28 What's the best way to prevent catching or spreading the virus?

30 Lowering the risk by effectively cleaning your clothes

32 Be prepared to stay home

34 What to do if you or a household member has symptoms of COVID-19

36 What to do if you're healthy, but have to go to infected areas

CHECKLIST:
WHAT'S THE BEST WAY TO PREVENT CATCHING OR SPREADING THE VIRUS?

PRACTICE GOOD HYGIENE AND HEALTH HABITS

- ☑ Wash your hands often and thoroughly with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer (with at least 60% to 95% alcohol).

- ☑ **Cover your coughs and sneezes with an elbow sleeve or tissue.**

- ☑ Clean frequently touched surfaces and objects like doorknobs and countertops. Evidence suggests that disinfectants with 62% to 71% ethanol, 0.5% hydrogen peroxide or 0.1% sodium hypochlorite (bleach) can "efficiently" inactivate coronaviruses within a minute, though it's not yet known how the new coronavirus reacts to these products.

- ☑ **Avoid touching your eyes, nose or mouth, as you can pick up the virus that way.**

- ☑ Get the flu shot if you haven't already! Although the seasonal flu vaccine cannot protect you from COVID-19 directly, you may be more likely to develop severe pneumonia if you contract both diseases simultaneously. By avoiding the flu, you may also avoid making a trip to the doctor in the middle of a COVID-19 epidemic, when health care workers may be overwhelmed with other patients.

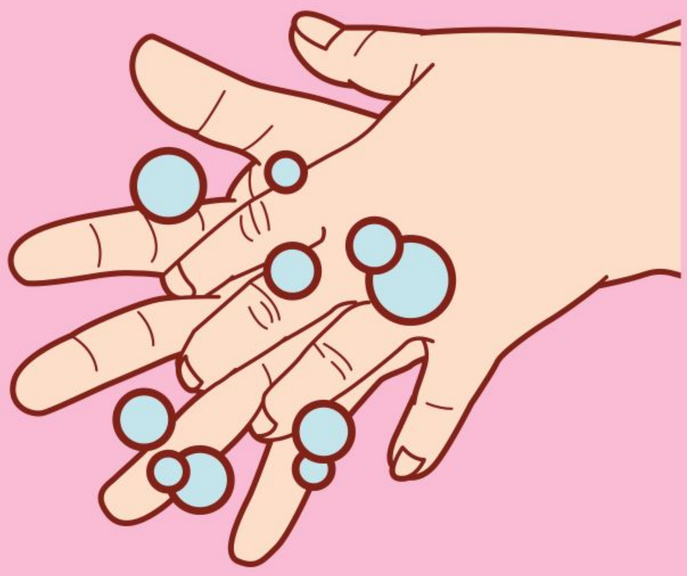
HOW TO WASH YOUR HANDS

The novel coronavirus is able to adhere to you by attaching itself to the fatty oils that coat your skin. Therefore, washing your hands is the best way to protect yourself, because it breaks down those fatty oils, leaving nothing for the virus to cling to. However, a quick rinse under cold water is not sufficient — medical experts suggest washing in hot soapy water for at least 20 seconds. Here's how to do it properly.

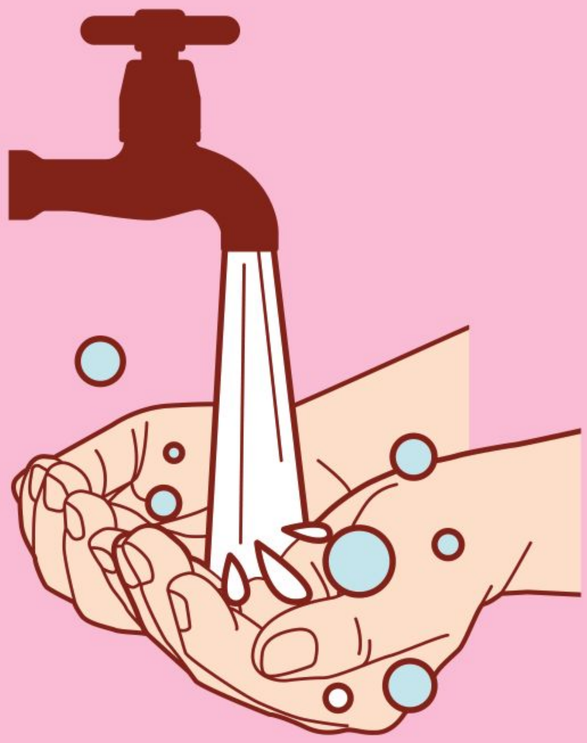
1. Apply soap to your hands. For this purpose soap is more efficient than hand sanitizer.

2. Now apply water and work the soap into a lather.

3. First, wash your palms and the backs of your hands by rubbing your soapy hands together.



4. Then, work the soap in between your fingers. Don't forget to wash your thumbs too, and underneath your fingernails. Count to 20 seconds, or sing "Happy Birthday" to yourself twice, to ensure that you're washing your hands for long enough.



5. Rinse your hands thoroughly.

6. Finally, dry your hands on a towel. Remember to replace this towel every few days, especially if you are sharing the towel with other people.

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LOWERING THE RISK BY EFFECTIVELY CLEANING YOUR CLOTHES

If you are worried contracting COVID-19 via the novel coronavirus latching onto your clothing, via the virus getting on your clothing, then don't panic. Most clothing items don't need cleaning all that often; it's knowing which ones you do need to wash often (and in hot water) that can make a real difference to staying healthy.

Wash your gym kit as soon as you get home

■ Your sports wear is a breeding ground for bacteria. Sweaty sportswear should be washed immediately after use, separately from your other clothes. Not only is it sweaty, but it's also collected all the bacteria from previous gym users, and you really don't want that collection of bacteria lying around in your house. While you're at it, pop your sports bag in the wash, too. Wash everything at the highest temperature it can stand without shrinking – usually 40°C (104°F) for synthetics and 60°C (140°F) for

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most of your cottons.

And your trainers? You can try washing them, too, or at least air them out outside for a bit before bringing them in.

Wash your towels on hot, especially if you share

■ **Used towels are often rife with bacteria: after all, they are made from a deep-pile fabric that gets damp all the time. Hand towels must be changed every three days at the most. Bath and shower towels can be changed every five days or so, provided that only you are using the towels. If you share, change them more often and always wash them on a 60°C (140°F) cycle.**

Wash your underwear separately

■ If you are a fan of low-temperature washing, then wash your underwear separately. It's unlikely that your knickers will give you the coronavirus, but they might give you food poisoning, because of, you know, faecal matter (sorry). If it's cotton, wash it in 40°C (104°F); if it's synthetic or silk, 30°C (86°F) is okay.

Don't forget your gloves and scarf

■ **Your winter coat is unlikely to give you a virus, unless you wore it while in contact with someone who is ill. Winter coats are typically made from materials like wool that, up to a point, naturally repel dirt and germs. You should have your winter coat cleaned at least once mid-season, and again before putting it away for the warmer months of summer.**

Your gloves and scarf, on the other hand, could legitimately make you sick. Your gloves are absolutely full of germs and should be washed every week during peak cold and flu season, even if they're leather. Your scarf is the item of clothing that spends the most time level with other people's coughs and sneezes, and should also be washed about every week.

Clean your handbag and reusable shopping bag

■ Handbags can be filthy. One in five handbags has more germs on it than a toilet seat – and it's the one item that many women use every single day, placing it on all kinds of surfaces. Clean yours with a leather cleaner or mild detergent.

If you're an eco-friendly shopper, you're probably taking reusable cotton tote bags with you shopping. These get very dirty very quickly, absorbing bacteria from absolutely everything around them, including food. Wash them separately on a hot cycle.

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BE PREPARED TO STAY HOME

- Talk with your employer about what the company's work-from-home and sick leave policy might be in the event of an outbreak.

- **Schools may be closed in your area during an outbreak. Ask your child's school, local school board or health department about how much advance notice there might be preceding a closure. Plan for how you will handle child care if schools and day care centers are closed.**

- Large group gatherings may be canceled, including concerts, religious services and public events.

- **Keep up with local announcements to find out about those cancellations.**
- If you or someone in your household regularly takes prescription drugs, it may be wise to ask your health care and insurance providers about procuring an emergency supply.

Important information

Please refer to the back of this book for contact details of your local health authority.

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- **Make a plan for how to care for those at greater risk of serious illness and hospitalization, such as those over 65 years old and those with preexisting health conditions. Also have a backup plan for who will care for your dependents if you get sick, personally.**

- Make sure you have reasonable amounts of groceries and other basic household necessities, such as laundry detergent. However, it's a balance: "On the one hand, your chance of exposure will be minimal if you stay home, but if the cost of that is runs on grocery stores and having nothing available, that's a problem," Rutherford said.

Check in with your neighbors and loved ones

- Talk with your neighbors to check in on their health status and see how you can help each other if one of you is home sick or caring for others.

- Share the newest information from local health authorities, and make sure others are up to date.

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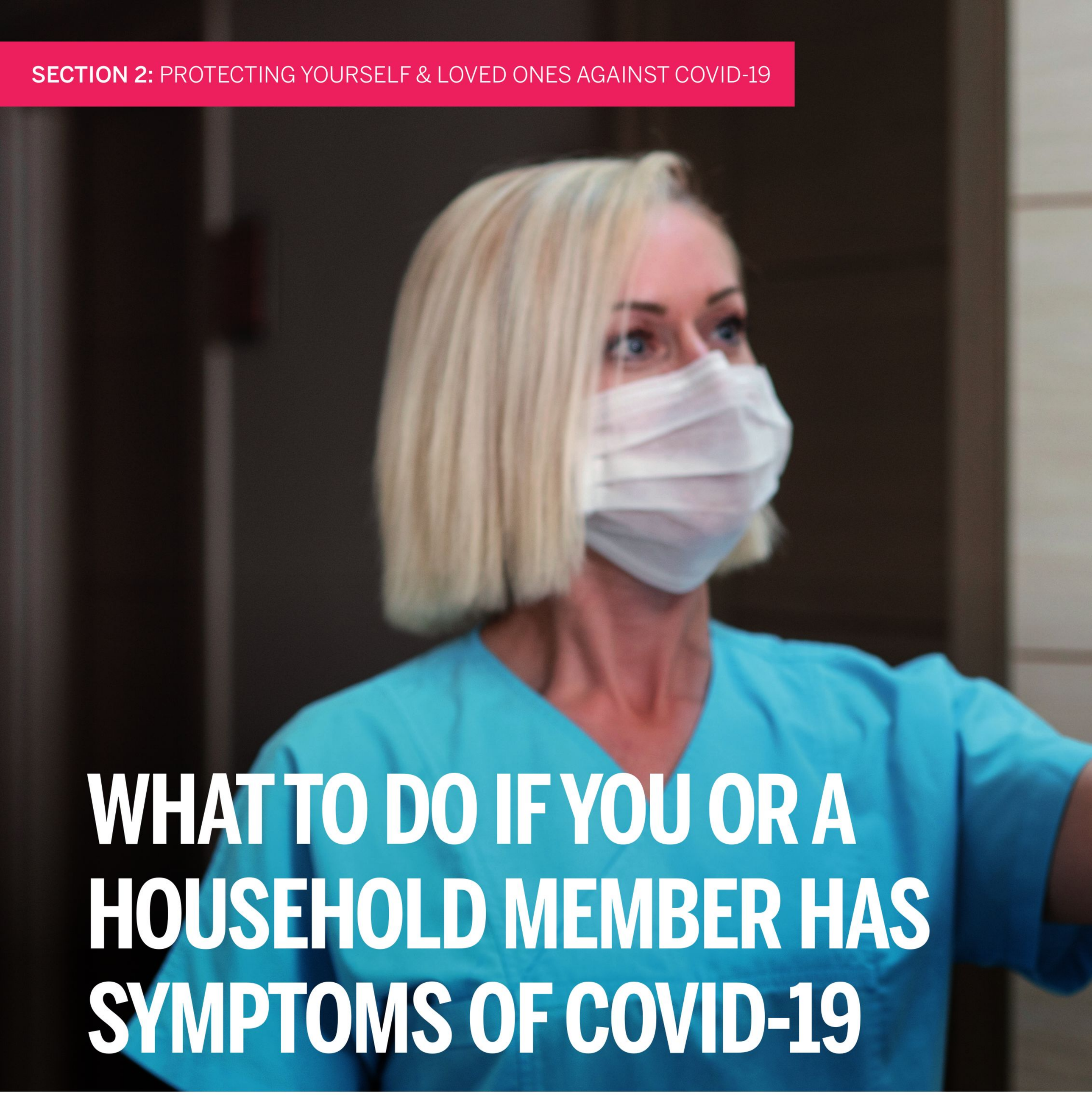

WHAT TO DO IF YOU OR A HOUSEHOLD MEMBER HAS SYMPTOMS OF COVID-19

- If you are experiencing high fever, weakness, lethargy, or shortness of breath, or have underlying conditions, then you should seek medical attention at the nearest hospital, according to Amesh Adalja, an infectious disease expert at the Johns Hopkins Center for Health Security. "The older you are, the shorter the fuse you should have for seeking care," Rutherford added. Infants should also be taken to a health care center if they have a fever or are breathing rapidly.

- **Health care centers may establish triage tents or separate entrances for those with suspected COVID-19 infections, Adalja said. It may be wise to call ahead to learn if this is the case, so**

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that you can find out what you should do when you get to the hospital.

- If you live with an infected person, you may be asked to voluntarily quarantine yourself at home to prevent the possible spread of the virus to others, according to the Seattle Public Health Insider.

- **If you have to leave your home (to seek medical care, for example), wearing a medical face mask can help to reduce your chance of infecting others with the virus. If you don't have a mask, you must make sure to cover your coughs and sneezes with an elbow sleeve or disposable tissue.**

WHAT TO DO IF YOU ARE HEALTHY, BUT HAVE TO GO OUTSIDE IN AN AFFECTED AREA

■ Wearing a standard medical mask can't protect you from COVID-19, as they are not designed to lock out viral particles. However, if you suspect you may have been exposed to the virus, you might consider wearing a mask as a courtesy to others.

■ In crowded spaces, creating distance between yourself and others – also known as "social distancing" can help reduce your risk of person-to-person infection.

■ Health officials recommend standing at least 2 meters away from nearby persons, but if an epidemic proves more severe, the recommended distance may be increased.

■ You can read more about these non-pharmaceutical interventions (NPIs) on the CDC website (details on page 6). Some of these countermeasures may resemble those used during a pandemic bout of the more common influenza.

What is social distancing?

As the number of COVID-19 cases continues to grow, social distancing appears to be the best way to curb the pandemic. There are a lot of people who are confused about what social distancing means and how to best practice it to stay safe as the coronavirus outbreak continues to spread throughout the United States and the world.

According to researchers at John Hopkins University, “social distancing is a public health practice that aims to prevent sick people from coming in close contact with healthy people in order to reduce opportunities for disease transmission.”

The CDC defines social distancing as it applies to COVID-19 as "remaining out of congregrate settings, avoiding mass gatherings, and maintaining distance (approximately 6 feet) from others when possible.” It also says that social distancing means "remaining out of places where people meet or gather," and "avoiding local public transportation."

How it can help

What health officials are trying to avoid is the continued exponential growth of COVID-19 infections, so that the U.S. does not mimic the explosive growth of cases in China and Italy.

Epidemiologists want to do what’s called “flattening the curve” of this pandemic. By increasing social distancing, the spread of the virus can be slowed, preventing lots of people getting sick all at the same time and creating an influx of COVID-19 patients that can overwhelm medical systems, which includes access to mechanical ventilators. This has already happened in Italy.

Social distancing is not going to cure coronavirus, but it can slow the spread of this pandemic and give the health care system enough time to test and help those who already have the disease. It will prevent millions from getting sick or dying.

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VISIT OUR MINDFULNESS ZONE

ON PAGE 92

For things to do to help keep you and your family de-stressed

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SECTION 3: WORKING FROM HOME: A SURVIVAL GUIDE

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44 Data protection and cyber security while working from home

48 The best home workout apps 2020

9 ESSENTIAL TIPS FOR WORKING FROM HOME

Many workplaces are now erring on the side of caution to prevent the spread of coronavirus, meaning that millions of people have found themselves suddenly working from home for the foreseeable future. However, being productive in your home environment isn't always easy, thanks to limited space, less-than-ideal work areas and everyday household distractions.

Fortunately, with the right routine (and the right gear), you can make working from home as efficient as being in the office. Naturally, everyone has their own method, and while there's not a one-size-fits-all solution for turning your house or apartment into a place of productivity, here are some essential tips for getting work done from home, from hardware recommendations to everyday advice on staying focused and avoiding serious burnout. ■

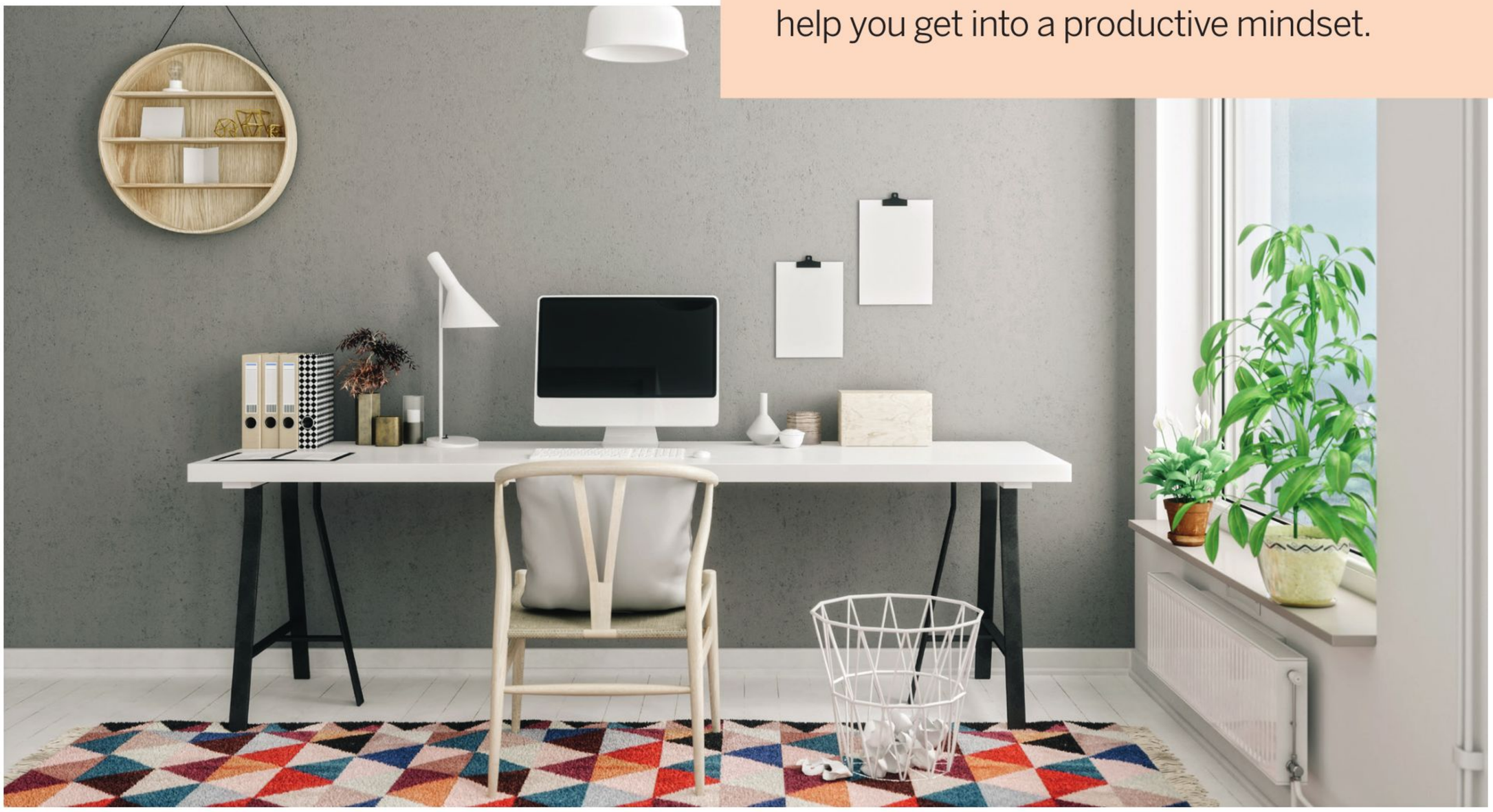
© Getty

Give yourself time before your workday starts

Working from home doesn't mean skipping breakfast and working in your pyjamas. In fact, one of the worst things you can do is log onto work the minute you wake up. Try to keep a normal routine in the morning. Enjoy a cup of coffee, catch up on news/personal email, and then log onto work when your day begins. You want to create a healthy routine and not one that has you waking up and immediately beginning working.

Eat a nutritious breakfast

One of the great things about working from home is that your entire kitchen is just a few rooms away. If you don't have to run out of the door to catch a train, then you don't have to settle for granola bars, microwaved oatmeal or cold cereal. Take some time to make yourself eggs, toast, sausage – maybe even pancakes or waffles, if you have the time. If you make these early enough for your roommate or spouse to share, you'll be a household hero (!). While you won't want to make yourself something decadent every day, taking some time to cook, eat and relax each morning can help you get into a productive mindset.



Set up a dedicated workspace

Having a dedicated work area is critical – you're unlikely to get much done if you're just lounging on the couch with your laptop. Pick up a cheap desk if you don't already have one, and set up your laptop or desktop somewhere that's ideally outside of your living room or where you do most of your relaxing. If you live with family or roommates, try to work in a room where you can be alone.

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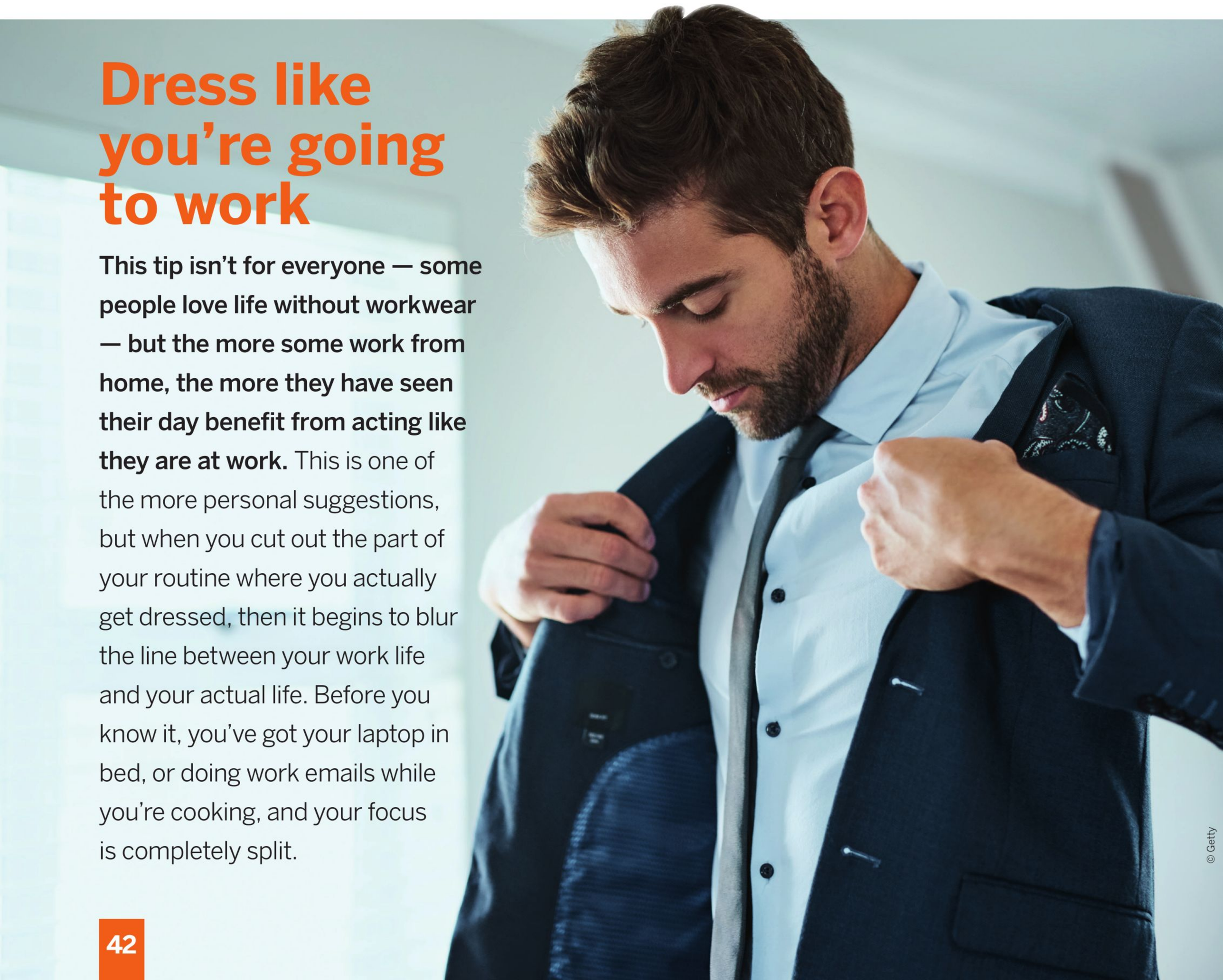
Have a dedicated monitor

Barring some exceptions, it's extremely hard to get most office work with a single screen – especially if it's just your tiny laptop display. Aim to have at least one external monitor, so that you can easily bounce between spreadsheets, Slack chats and emails.

Take your work computer home

You might think that just using your personal computer is an acceptable alternative to bringing your work laptop home, but we need to talk about boundaries. I take my company-issued laptop home so that I can keep work tasks separate from the personal projects and entertainment that I enjoy on my main laptop. If you let work and play blend too much, you're possibly headed to burnout and sloppy work caused by being less focused.



Dress like you're going to work

This tip isn't for everyone — some people love life without workwear — but the more some work from home, the more they have seen their day benefit from acting like they are at work. This is one of the more personal suggestions, but when you cut out the part of your routine where you actually get dressed, then it begins to blur the line between your work life and your actual life. Before you know it, you've got your laptop in bed, or doing work emails while you're cooking, and your focus is completely split.

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Invest in a good pair of headphones with a mic

Meetings are easy when everyone's in the same room; they are a lot more difficult when everyone has to dial into a video chat. One thing you can do to make things a little easier is get a great pair of headphones with a built-in mic. All of the best gaming headsets have mics, but even some of the best headphones for music are getting in on the act these days. When you can hear what your colleagues are saying, and they can hear you, without feedback or static, then meetings can be short and sweet, and you can get right back to work. Furthermore, headphones let you listen to music or white noise without making the rest of the household share your playlist.

Give yourself a set time to log off

Ordinarily, you leave work at or around the same time. Do the same with your sign-off time, because without rules in place, you might find your personal time slipping away. Many use working as a way to expend nervous energy, but all work and no play makes self distancing even harder to endure. A routine, if applied properly, will help maximize efficiency and keep you from getting burnt out.

Keep healthy snacks in your kitchen

To avoid gaining weight during your work from home period, it's a good idea to stock up on healthy snacks. This is especially true if you like to snack throughout the day. So rather than stocking up on Pepsi and Doritos, you might want to trade them for slightly healthier snacks like granola, nuts, and healthy drinks.

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DATA PROTECTION AND CYBER SECURITY WHILE WORKING FROM HOME

While these are extraordinary and challenging times, companies that require employees to work remotely will still need to consider the same kind of security measures for home-working that would be used in normal circumstances.

Whether this is to cope with individuals who may not be sick but who have been advised to enter self-isolation, or in response to formal guidance, remote working introduces new data protection and operational risks that organisations will need to review and mitigate.

These are the top challenges your business will need to consider when introducing remote working.

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How will my existing work processes be affected?

Some processes will be easier to move to remote working than others, so it's important to identify and thoroughly understand how all of your processes operate. You should establish:

- Which processes are critical and/or high-risk?
- Are there any processes that require someone's physical presence to complete? This includes any processes to maintain your IT infrastructure.
- Have you locked any systems down so that they can only be accessed from the office, or only from specific named IP addresses?
- Do you have any paper-based processes or processes that cannot be easily moved online?

It is much easier to get a handle on this if you have comprehensive, up-to-date processes and data flow maps. If you don't, you should begin by identifying and mapping your critical and high-risk processes – these are the ones where any problems will cause the biggest impact.

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What effect will home working have on hardware?

It is important to understand what equipment you will need in order to work from home. These may include:

- Internet access
- Computer equipment
- Telephone
- Printer
- Scanner
- Filing cabinets
- Shredders
- Secure authentication devices

Some individuals may not have all the equipment they need, or it may not be fit for purpose. For example, it is likely that most households have only one WiFi router, which is used for all purposes, and may not have had any default settings changed.

It is important to understand how domestic equipment affects information security and data protection, as this will highlight what risks may be introduced and the information your employees may need in order to control those risks.

It is also necessary to understand what effects the increased range of equipment will have on your IT team's ability to provide helpdesk support, and particularly around securing devices and the information on those devices.

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Will you need to introduce any new technology?

In order to facilitate home working, it's very likely that you will need to increase your teleconference and video conference capacity. This may mean introducing new technology such as Microsoft Teams, Slack, Google Hangouts or Zoom.

Carrying out a Data Protection Impact Assessment (DPIA) will do more than just help you assess the data protection risks associated with this – it will also help you think through the challenges associated with switching from face-to-face to virtual meetings. These could include:

- **How will employees share information with each other?**
- **Who will need to be able to join a video or phone conference? Just your employees, or third-parties too? How will you limit access, especially when sensitive issues are being discussed?**
- **What support will your employees need to successfully install and use the software, and how will you provide this?**

I'm a manager, how can I check in on my remote staff?

It may be tempting to introduce new technologies to monitor employees who are working remotely. However, there are risks associated with this, especially if individuals are being monitored in their own homes, are using their own devices, and may even be sharing devices with other users.

You should be able to document and demonstrate that the benefits of any monitoring technologies outweigh the risks to the monitored individuals. If you cannot clearly demonstrate this, you should not implement the technology and should consider other management methods

Data protection law should not be seen as a barrier to increased and different types of remote working, but as necessary practice to ensure your organisation and employees are still kept as safe as possible in different working environments. Whether home working is an occasional requirement for self-isolation or the start of a new working pattern for your organisation, taking the care to ensure your remote working operations will run securely and effectively will be a huge benefit your organisation in the long term.

THE BEST HOME WORKOUT APPS 2020

Stay strong and flexible if you can't get to the gym

Home workout apps are a great way to get moving when you're unable to get to a gym. It can be tricky to know which ones are worth your time, though. Apple iTunes and Google Play are both packed with apps that promise to help you improve your flexibility and fitness at home, but only the best are made by qualified professionals with a real understanding of what makes a workout safe and effective.

The best home workout apps provide clear instructions in video or audio form (or both), and provide encouragement from real coaches as you progress. They also provide a wide range of different workout ideas so that you never get bored, and they let you create custom plans and monitor your progress.

Here we're looking at apps that offer workouts that you can perform indoors at home, although many also offer ideas, guidance and support for exercising outdoors or at the gym. We've also included a mix of free and paid-for options so there's something for every budget.

© Getty

1: Aaptiv

PLATFORMS: Android, iPhone, Apple Watch

PROS

- **Thousands of voice-guided workouts at your fingertips**
- **Motivational coaches**
- **No need to use a screen**
- **Huge choice of workouts**

CONS

- **Assumes you want to lose weight**

While most home workout apps use videos to demonstrate what you should be doing, Aaptiv talks you through every activity, which means that you don't have to prop up your phone or tablet and peer at your screen mid-stretch. It features licensed music too, so you don't have to worry about setting up a playlist in a completely different app.

The first time you log in, you'll be prompted to set a goal (such as running faster, losing weight or just keeping fit) and provide a little information about your current fitness level and exercise habits. You'll also be asked what equipment you have access to, so you'll only be recommended workouts that you can do with what you already have.

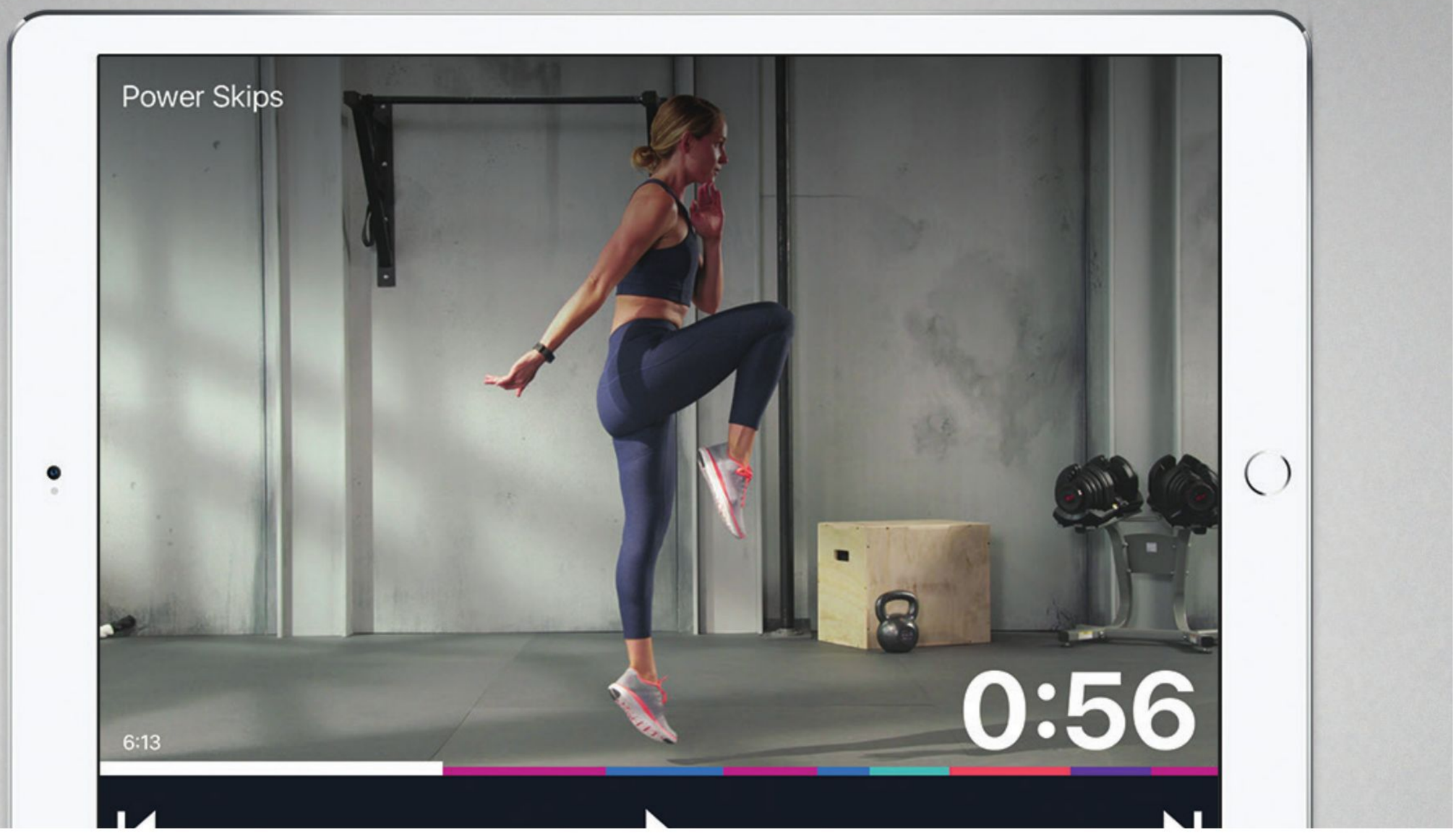
Workouts are split into categories such as strength training and stretching, and each one comes with an estimated duration and difficulty level, plus star ratings from other users to help you make your choice.

All trainers featured in the app are relentlessly cheerful and encouraging as they motivate you to push yourself, which can really help when you're working out alone away from the buzz of a real gym.

All this comes for a monthly fee of $15, with a discount available if you pay for a whole year up-front. That's quite a financial commitment, but there's a lot on offer here, including over 3,000 classes to ensure that you never get bored, plus group challenges to keep you massively motivated.

If you're interested, but want to try it first, then each subscription begins with a free trial period, and you won't be charged if you cancel before it's over. ■

© Aaptiv



© Fitbit

2: Fitbit Coach

PLATFORMS: Windows 10, Xbox, Hololens, Android, iPhone, iPad

PROS

- **Fun, video-led workouts to follow, with out without a Fitbit**
- **Free option available**
- **Doesn't require a Fitbit device**
- **Clear video instructions**

CONS

- **Lacks training plans**

Workouts in Fitbit Coach are led by professional, enthusiastic instructors (you choose yours before beginning the fitness test) who guide you through each movement with clear video instructions. If you're not sure how to perform a particular exercise, then just tap it and you'll be shown exactly how to do it safely (an invaluable feature when you're working out alone).

The first time you launch the app, you'll be prompted to sign up for a Fitbit account (or log in with your existing one), then run through an eight-minute fitness test. After that, you'll be able to get stuck in properly, and take your pick from a range of programs designed with different goals in mind.

You can sign up for Fitbit Coach Premium, which offers more workouts, personalized plans based on your progress and goals, audio coaching for running and walking, a wider pool of trainers to choose from, and several music stations. It costs $9.99 per month, or $79.99 if you pay annually.

You don't need a Fitbit device to use Fitbit Coach, although if you do own one, connecting it is a piece of cake. The app can also link to Facebook and Google Fit, allowing you to share your efforts with friends, providing another great motivation to get up off the couch and get moving. ■

3: Asana Rebel

PLATFORMS: Android, iPhone, iPad, Apple Watch, Apple TV

PROS

- **Makes yoga accessible and encourages healthier habits**
- **Create your own daily plans**
- **Huge choice of workouts**
- **Beautifully designed**
- **Asana Rebel is primarily a yoga app, though it's also packed with tools to help you develop better sleep hygiene and other lifestyle habits.**

CONS

- **Assumes you want to lose weight**

As with most home workout apps, you'll need to start by registering for an account and entering a few details about yourself (including height, weight and age). There's an assumption that you're aiming to lose weight – it prompts you to enter a goal – but you can always just make this the same as your current weight.

While you can download the app and browse through its scores of yoga practices for free, accessing them all requires a premium subscription. This will also unlock meditation sessions, regular reminders, and guided meditations to help you sleep better. Membership costs £9.89 per month, or £Ú.88 for a full year if paid up-front, making it one of the most affordable home workout apps around.

Workouts are broken down into categories, such as core work and relieving tension, with detailed descriptions to help you pick one that suits your current mood. It's very much about picking something that meets your needs right now, though you can add any practices you particularly enjoy to your firm favorites for quick access later.

Videos are beautifully shot, and while many yoga classes and apps seem to be aimed primarily at women, Asana Rebel's developers have made sure to include plenty of guides from male instructors as well, plus options for all abilities. ■

© Getty

4: Adidas Training and Running by Runtastic

PLATFORMS: Android, iPhone, Apple Watch

PROS

- **A home workout app packed with free audio and video guides**
- **Great range of free content**
- **Clear audio directions**
- **Can create custom workouts**

CONS

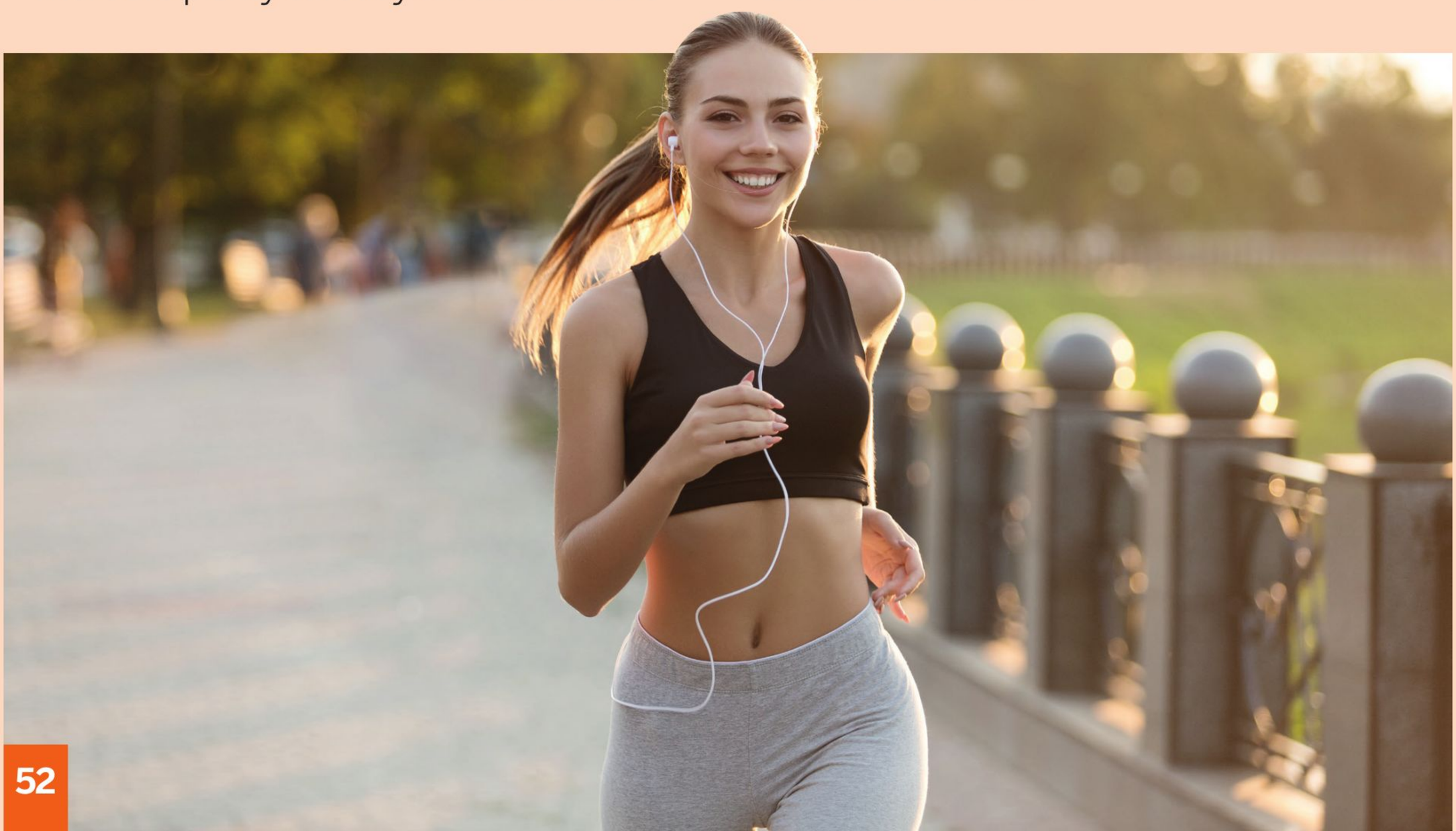
- **Lacks motivational coaching**

Adidas Training and Running by Runtastic has one major advantage over most home workout apps: if offers a decent range of free features. As you might expect, the Adidas brand is heavily promoted throughout, but this isn't just a marketing tool – it's a seriously good app when you peel back the three stripes.

There are plenty of ready-made workouts to choose from, and if you can't see anything that appeals to you, then you can create a custom workout by selecting body parts and setting a duration – a thoughtful feature that could save you a lot of scrolling.

You're led through workouts by videos and audio narration. There's little in the way of motivational speaking here; you're simply told what to do, and for how long. It'll help to have your phone at eye level the first time you try a new exercise so that you can check your form against the video provided, but once you've got the hang of it, you'll be able to get by with the voice instructions alone.

If you want to unlock premium training plans then paid subscriptions are available for $9.99 a month, or $49.99 for one year if paid up-front, but for basic fitness, the free app has a lot to offer. ■



© Getty

5: Nike Training Club

PLATFORMS: Android, iPhone, Apple Watch

PROS

- **Over 190 completely free home workouts to choose from**
- **Completely free to use**
- **Easy casting to TVs**
- **Highly customizable**

CONS

- **Workouts must be downloaded**

Like Adidas Training and Running, Nike Training Club offers an impressive archive of free content in exchange for burning the sportswear brand into your consciousness – and it's another impressive app below the branding.

There's no paid-for tier, either; everything is completely free.

Registration is straightforward, and after entering just a few details about yourself and your current activity levels, you'll be presented with a helpful set of workouts (complete with timings) that might suit your needs. If you can't find what you are looking for, then you can also browse for options by muscle group or workout type (endurance, strength, mobility or yoga). It's also possible to limit your scope to short workouts, or ones that can be carried out without any extra equipment. There are over 190 available at the time of writing, with more added regularly.

The videos in this home workout app are well made (although not quite as polished as some premium offerings) and offer lots of customization options. If you like working out to music, then there's a switch to toggle it on. If you want to turn off the audio guidance and just be told the drill timings, then that's possible too. You can even switch off the audio entirely and just use the visuals.

Many of the apps here can cast video to your TV, but Nike Training Club is the easiest to use, letting you send workouts to a big screen with a couple of taps.

The only downside is that each workout has to be downloaded before you can start (they're not all included when you install it) so you'll need an active Internet connection. The initial install size is smaller, however. ■

© Getty

Make remote learning easy with

TECH & LEARNING'S GUIDE:

tinyurl.com/skara9m

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SECTION 4: USEFUL TIPS IF YOU'RE A PARENT

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EXPLAINING CORONAVIRUS TO YOUR CHILDREN

The COVID-19 pandemic is scary enough for adults, but it must be doubly so for children, who might not fully understand what is happening, or why they can't go out to play with their friends. And explaining what is happening in a way that children can understand can be difficult. Hopefully the following will be able help you communicate about what is currently happening in the world to your child, by answering some of their very important questions.

© Getty

What is a coronavirus?

A virus is a teensy, tiny germ, way smaller than anything you can see. Viruses can make us sick, but they can't do anything on their own — they need to live inside another creature (their host) to survive. To do that, they have to get into our cells.

You may have noticed lots of adults talking about a "coronavirus." This is a new kind of virus spreading around the world. It's called a coronavirus because "corona" means "crown" in Latin. And the virus looks like it's wearing a spiky crown. Mostly, it makes people cough, feel tired and have a fever. But older people and people who have other conditions can get very sick from it. The disease the virus causes is called the coronavirus or COVID-19.

Where did the coronavirus come from?

The virus was first found in a city in China, called Wuhan, last December. But we think the virus actually comes from bats. From there, it hopped into another type of animal, which gave it to humans. No one knows for sure what this mystery animal was, but some people think it might have been a pangolin, a scaly animal that eats ants.

How does the virus get into cells in the body?

The virus enters cells using a special "door" on the outside of human cells. The new coronavirus also needs a "key" to get into cells. In this case, the coronavirus has a special "spike" on its surface that it uses as a key to open the door.

Once inside cells, the virus makes lots of copies of itself. Those copies break out of cells, then infect other cells. At a certain point, there are so many virus particles being produced that our normal cells can't work properly, so we get sick.

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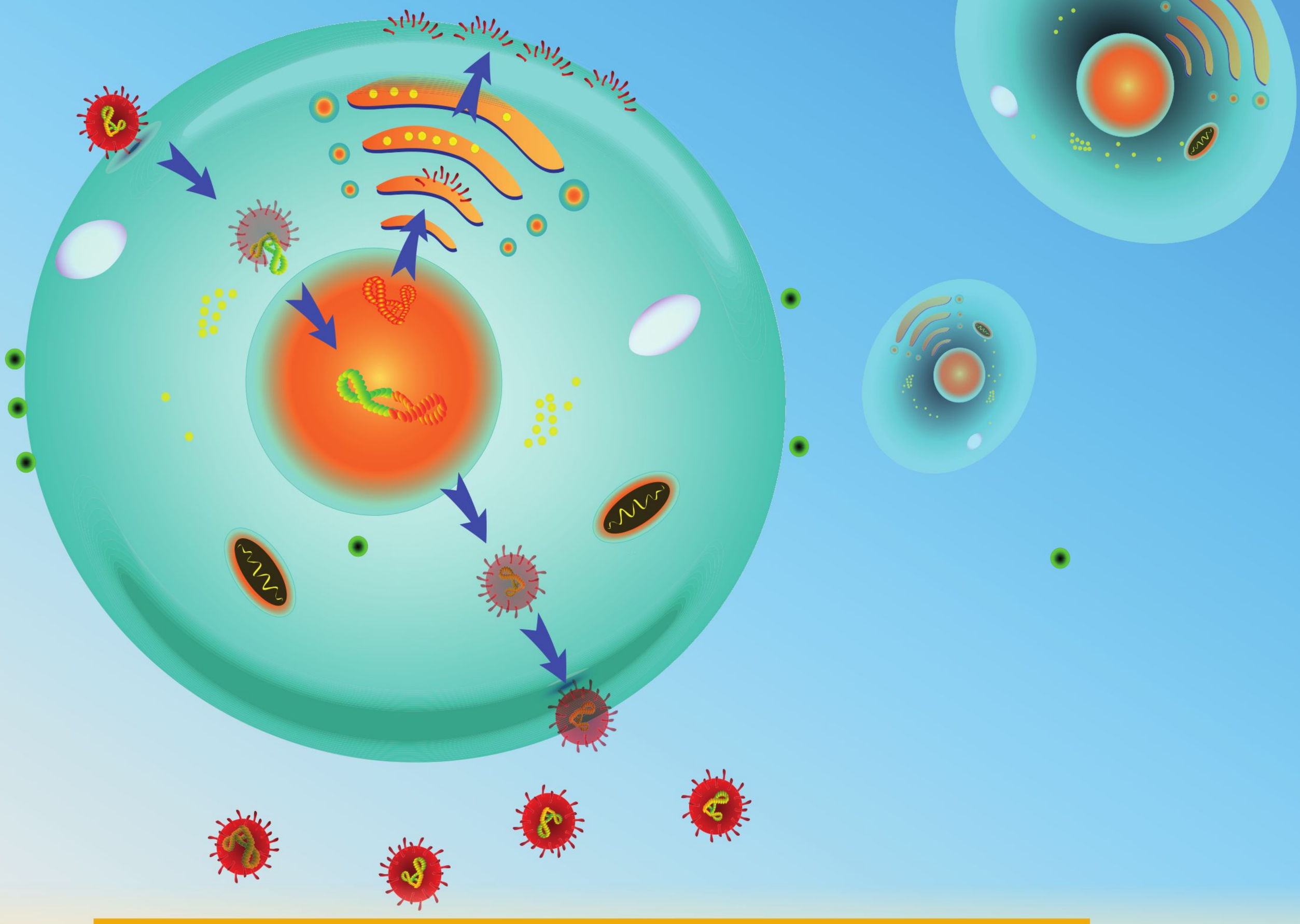

How does it make people sick?

Viruses make people sick by killing human cells or making them not work properly. Like we said, the new coronavirus uses a special door to get into cells. Those special doorways are on cells in the nose and lungs. If the virus grows too much in the lungs, it can make it hard to breathe. That is called pneumonia.

Luckily, your body has an army to fight germs like the coronavirus. It's called the immune system. When a virus enters your body, the immune system attacks the virus. You know how you can get a fever, headache or runny nose when you're sick? That's caused by the immune system, and it's good! These yucky symptoms are signs that your body is fighting the virus.

Most people who get COVID-19 just have symptoms like a cough, fever or runny nose. Doctors are not sure why, but some people get really sick. Some peoples' immune systems may not fight hard enough. Other peoples' immune systems may fight too hard, hurting their own cells. Both of these things can make people sicker.

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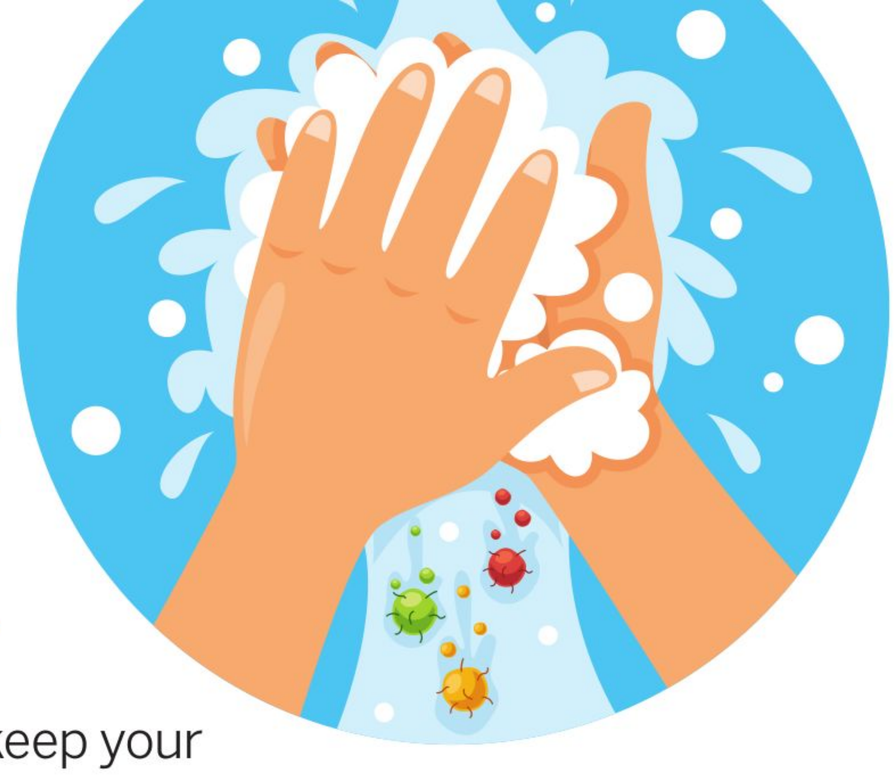


What can I do to help?

You can help stop the virus by washing your hands. This means sudsing up with soap and rubbing your hands together to clean all your fingers, under the fingernails and between the fingers. You can sing the ABCs or come up with another tune that lasts about 20 seconds – that's how long you should wash your hands for each time.

Also, try to keep your hands off your face, so no rubbing your eyes or nose or putting your hands in your mouth. That way, if there is any of the virus on your hands, you won't give it a way to enter the body where it can make you sick.

And remember to cough or sneeze into your elbow, and stay home when you're sick.

How will I know if I get it?

There's a special test to see if you have COVID-19. If you feel sick, tell your parents. They will call your doctor to see if you need the test. It's just like a flu test; they stick a Q-tip up your nose and test your snot for the virus. The results come back a day later.

Should I be worried?

There's no need for you to worry, because adults are working very hard to keep kids and other adults safe. Even if you do get this virus, kids usually don't get very sick from it. It's more like a mild cold.

But you still have a special role to play in protecting others! Older people, like grandparents, need your help to stay healthy. That means washing your hands and staying home if you're sick. It may also mean skipping your activities if grown-ups in charge decide that's best. That can slow down the spread of the virus and protect older and sicker people.

© Getty

Will my school close for long?

Each school has made the decision to close until the virus disappears. Your schools has closed because there are loads of cases of COVID-19 in your area or someone at your school might have caught it. But it's not easy closing schools. There are many things to think about before doing that. For example, some children eat school meals and may not have enough food at home if schools close. Parents who work in hospitals may not be able to care for sick people if they need to stay home with their children. Parents, teachers and principals don't decide to close a school on their own. City leaders will help make this important decision.

Many schools will teach online or may send home workbooks so you can still learn.

Will I be able to see my friends?

It may be harder to see your friends if you are told to stay in your home. However, there are lots of great ways to stay in touch online. You probably already know about these, and you can also get creative! There are ways to play games and have fun with friends, even if you're not able to see them in person.

If you can meet with friends, you'll probably have to keep the group small. So, no birthday parties for now. Meeting in large open spaces like parks, where you can keep lots of distance, is probably the best choice.

© Getty

What is being done to keep us safe?

Doctors and government officials are working hard to make sure families stay safe. That's why they may ask people to cancel activities, like sports events. They may close schools to stop the virus from spreading. They may tell you to keep your distance from other people when you're out. All these tricks make it hard for the virus to jump from one person to the next. If the virus can't spread, fewer people get sick.

Doctors are also working hard to care for sick people. Scientists are trying to make a coronavirus vaccine — kind of like the shots you get at the doctor's office. Others are trying to make medicines to help sick people get better.

When could the coronavirus outbreak end?

We don't know for sure. (I know, that's not what you want to hear!) But using math, we can make educated guesses. Left on its own, the virus would take many months to spread all around the world. But that doesn't mean your city would be affected for that long. And a vaccine could stop the virus sooner, if scientists can create one.

Some scientists think that the virus will go away when the weather gets warm. That's what happens with other coronaviruses and the flu. Lots of viruses like cold, dry air. But we don't know if that is true for this new virus.

© Getty

TOP 25 LEARNING TOOLS FOR WHEN SCHOOL IS CLOSED

Remote teaching and learning has been on a steady increase in recent years. Now, with the rapid spread of the novel coronavirus, more and more schools are cancelling classes. Consequently, teachers are turning to technology to deliver instruction to their remote students while school is closed.

Here is an alphabetical list of digital tools that can be used to keep the learning happening for when school is closed for the foreseeable future:

© Getty

ABCMOUSE

www.abcmouse.com

■ Offers an online curriculum for ages 2 to 8, covering numerous core subjects including math, reading, and science.

ADVENTURE ACADEMY

www.adventureacademy.com

■ **From the creators of ABCmouse, this online curriculum is for ages 8 to 13 and features gamified learning for math, reading, and science.**

ANSWER PAD

www.theanswerpad.com

■ A free visual- and student-based response platform that allows educators to blend learning and flip classrooms in real-time on browser-based devices. Students can interact with teacher-developed resources from home.

BOOMWRITER

boomwriter.com

■ **Teachers and students love this free site that lets educators create student accounts before then directing them to super-engaging fiction, non-fiction and/or vocabulary-focused personalized writing activities in any subject. Enter instructions (with or without vocabulary), upload resources, and then share!**

BRAINPOP AND BRAINPOP JR

www.brainpop.com / jr.brainpop.com

■ These deliver online learning opportunities in numerous subjects by showing animated videos and then following up with brief assessments and quizzes.

BUNCEE

app.edu.buncee.com/ideas-lab

■ **A versatile learning tool that provides a digital canvas for multiple educational needs. The Ideas Lab showcases learning resources to be used remotely.**

CLASSHOOK

www.classhook.com

■ Chock full of educational videos and pre-made playlists that can be assigned to students to view from home.

DOGONEWS

www.dogonews.com

■ **Allows the creation of reading assignments for students in grades K-8 that can also be integrated into Google Classroom. It features a curated, COPPA-compliant database that provides assessment as well as a few language/speech options.**

EDPUZZLE

edpuzzle.com

■ Useful for flipping a classroom or lesson. Educational videos can be viewed remotely and followed up with assessments.

EDUCATIONCITY

www.educationcity.com/us

■ This online platform provides an abundance of engaging games, resources, and activities for grades PreK-6.

EXPLANIA

www.explania.com/en

■ Offers hundreds of animated explanation videos, on subjects from biology to social media, that can be embedded and shared.

GLOGSTER EDU

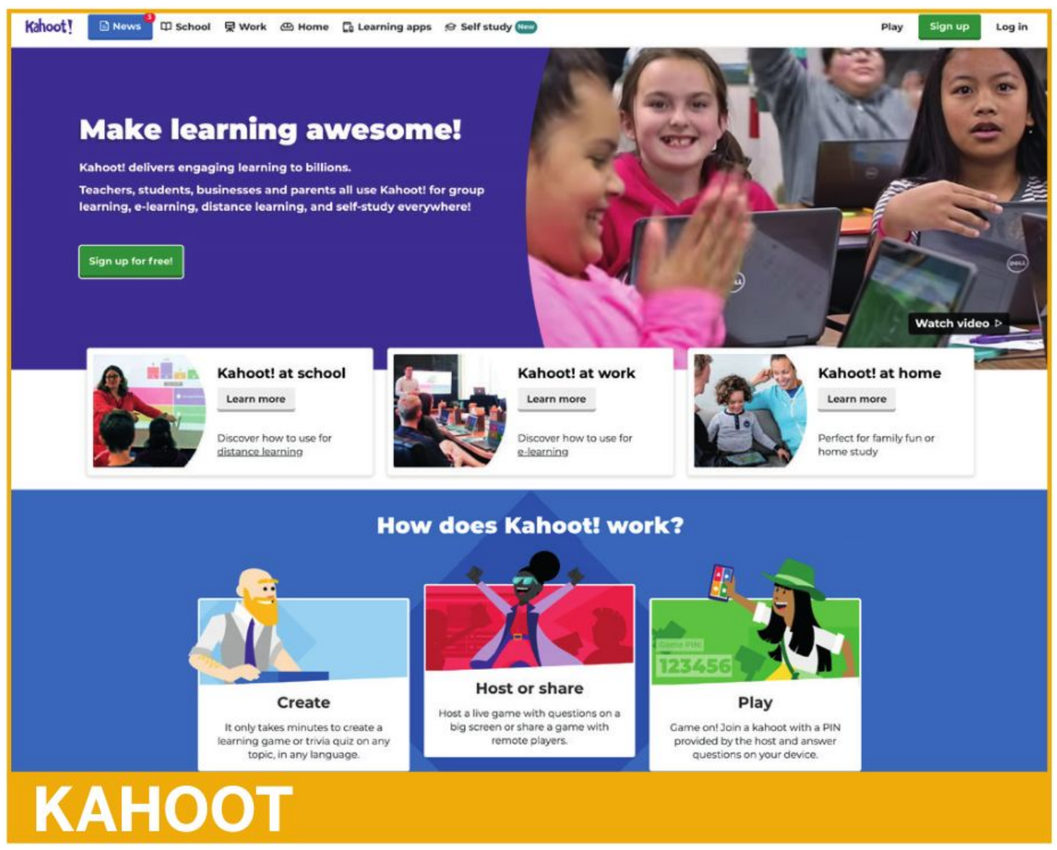
edu.glogster.com

■ **The Glogpedia features multimedia posters covering more than 80 topics across nine disciplines, such as math, social studies and science.**

IKNOWIT

www.iknowit.com

Interactive math practice for grades K-5 that offers an easy-to-use interface and tracks student data.



KAHOOT

kahoot.com

■ **One of the most used game-based learning platforms that allows educators to create their own content-related quizzes and games.**

KNOWORD

playknoword.com

■ A fast-paced vocabulary game site that also allows teachers to choose from existing work packs or develop their own. You can also track student progress.

NEARPOD

nearpod.com

■ **A mobile learning tool that supports effective student engagement and collaborative learning.**

NEOK12

www.neok12.com

A teacher-curated trove of educational videos, lessons, quizzes and games.

ROOMRECESS

www.roomrecess.com

■ **More than 140 teacher-developed games for kids involving math, reading, literacy, typing, and more.**

SOCRATES

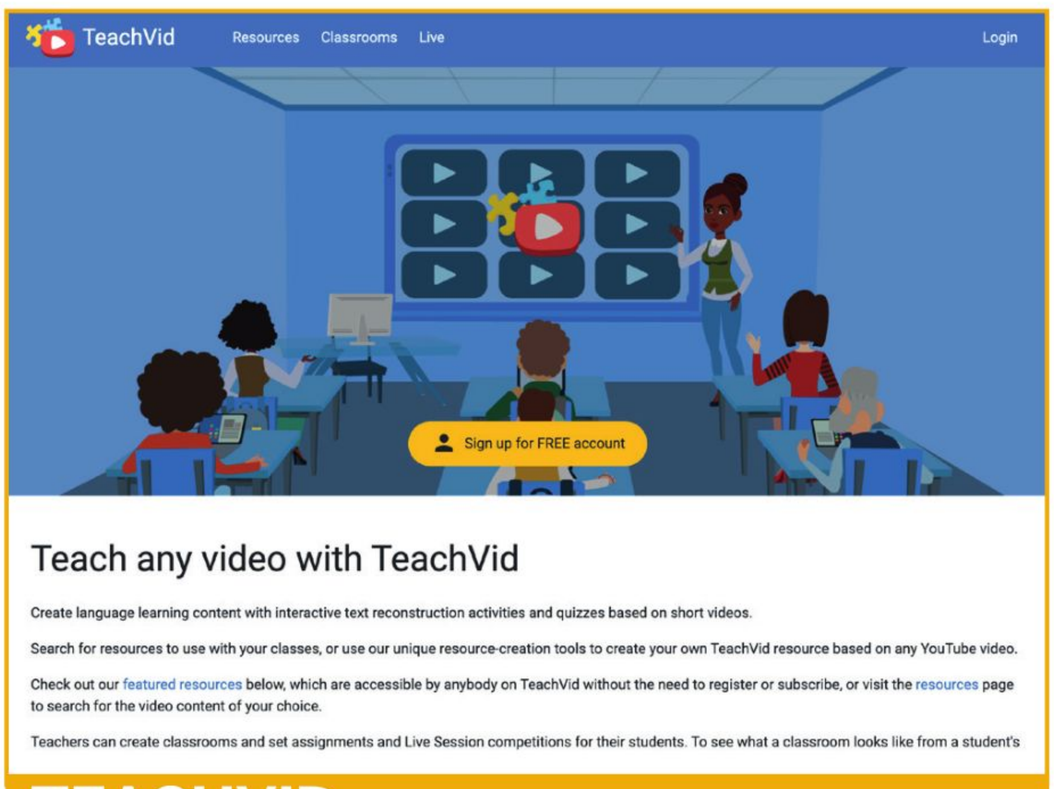
withsocrates.com/classroom

■ A new site focused on differentiated instruction through game-based learning that adjusts to the student as they progress. It also provides excellent tracking and assessment tools.

SUPERTEACHERWORKSHEETS

www.superteacherworksheets.com

■ **This features hundreds of worksheets and activities that can be printed for home use, ranging from math and science to literacy and phonics.**



TEACHVID

www.teachvid.com

■ With this platform, ESL, ELL and foreign language teachers can flip a lesson and have students work at home with the help of numerous videos and activities.

VOCAB VICTOR

vocabvictor.com/index.html

■ A free mobile app for building vocabulary skills that assesses and adapts to a student's vocabulary level in real-time.

VOICETHREAD

voicethread.com/products/k12

■ Students can develop their creativity, critical thinking, communication and collaboration through interactive digital stories and presentations.

WATCHKNOWLEARN

www.watchknowlearn.org/About.aspx

■ **A free site with an abundance of K-12 videos on a wide variety of subjects.**

YOUTUBE TEACHERS

www.youtube.com/user/teachers

■ Dozens of educational videos covering topics that range from vector quantities to plate tectonics.

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AWESOME ARTICLES FOR STUDENTS: FREE WEBSITES AND OTHER RESOURCES

Current event and general interest articles are a wonderful resource for students. They can be used for researching a topic, staying informed on what's happening in the news, pleasure reading, and more.

Below is a list of useful websites, listed in alphabetical order, that provide current event and general interest articles for students. Many of these sites provide additional resources such as:

- Articles written at multiple reading levels (Lexile levels)
- Quizzes over the article content
- Discussion questions or writing prompts
- Options for students to leave comments on the articles
- Audio versions of the articles

All of these sites are free, although some may require you to register to log in, or to provide your students with a code to access the articles. Some of the sites also have paid versions with additional features, but all provide access to the articles at no cost. Some of the sites are also providing updates on coronavirus and/or free access during the coronavirus school closing crisis.

© Getty

KIDSPOST

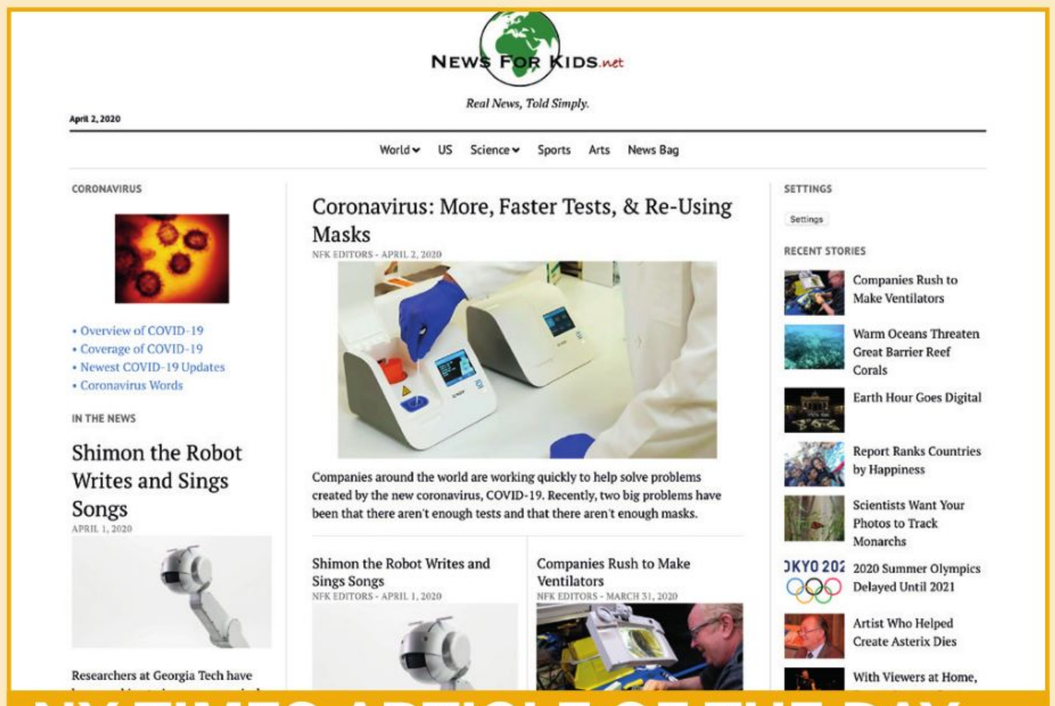
www.washingtonpost.com

■ The Washington Post provides these articles written for students.

KIWIKIDS NEWS

www.kiwikidsnews.co.nz/

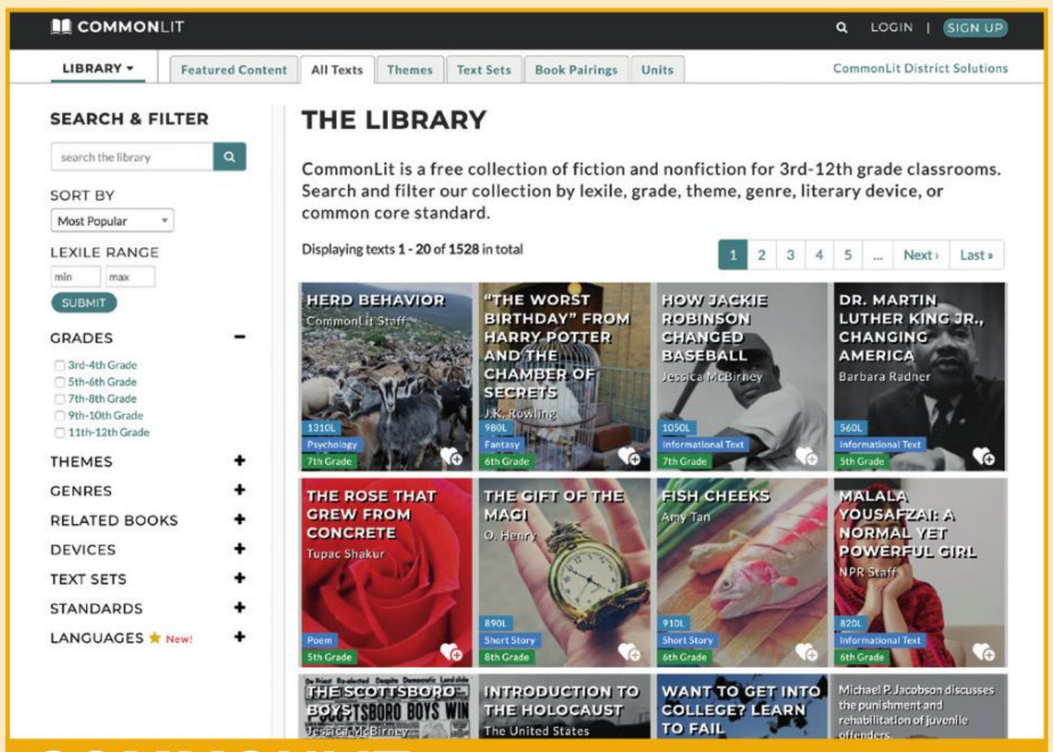
■ **This New Zealand site provides top-quality articles on world events as well as general interest topics.**



NY TIMES ARTICLE OF THE DAY

www.nytimes.com/spotlight/learning-article-of-the-day

■ This site looks at one New York Times article each day and offers questions for pre-reading, class discussion, and writing.



COMMONLIT

www.commonlit.org/en/texts

■ Offers a free collection of fiction and nonfiction for 3rd-12th grade classrooms, searchable by lexile, grade, theme, genre, literary device, or common core standard.

NEWS FOR KIDS

newsforkids.net

■ **Provides the latest articles on world news, science, sports, arts and more. Features a coronavirus update page**

DOGONEWS

www.dogonews.com

■ **Current event articles covering news, science, social studies, world events, environment, sports, and more.**

NEWSELA

newsela.com

■ Standards-aligned content, with each article written at five different reading levels. Free access during COVID-19 crisis.

© Getty

READWORKS

www.readworks.org

■ 1000's of non-fiction and fiction passages with curriculum and support designed to improve comprehension.

SCIENCE NEWS FOR STUDENTS

www.sciencenewsforstudents.org

■ Science, health and technology news stories and features, aimed at readers 9 to 14 years old. Featuring Top 10 tips to stay safe during an epidemic.

STUDENT DAILY NEWS

www.studentnewsdaily.com

■ Content for students including a daily news article, world events, editorials, editorial cartoons, new quizzes, examples of media bias and more. Includes a section devoted to the 2020 presidential election.

TEACHING KIDS NEWS

teachingkidsnews.com

■ This site provides articles on news, art, science, politics and more for students in grades 2 through 8, along with thinking questions and discussion prompts. Includes a Fake News resource section.

TIME FOR KIDS

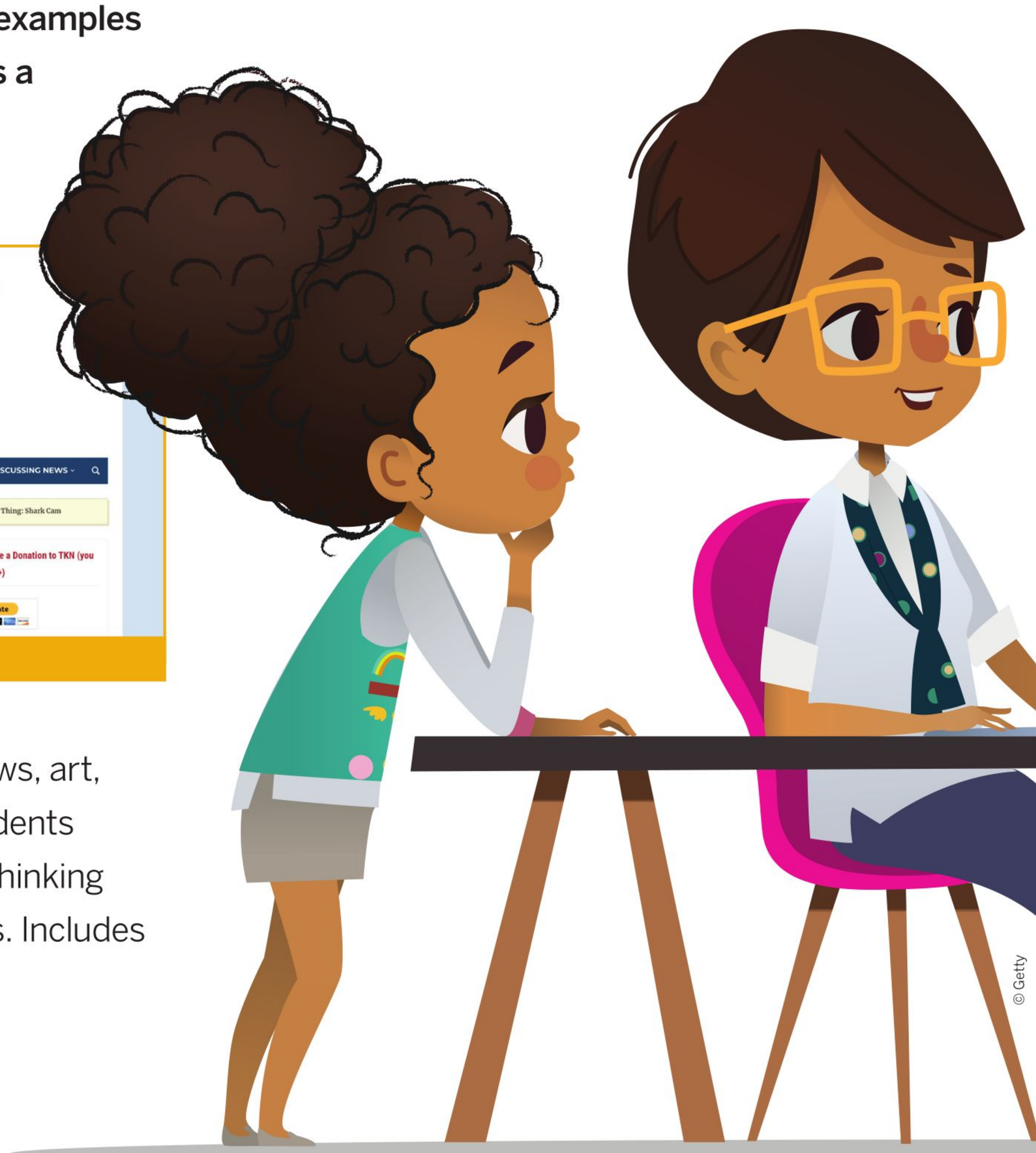
www.timeforkids.com

■ News and articles from Time, written for students K through 6th grade, with some articles including versions in multiple reading levels. Now offering elearning resources to help schools cope with coronavirus disruptions.

TWEENTRIBUNE

www.tweentribune.com

■ Divided into sections for grades, making it easy to find appropriate articles for any level. Diverse topics include tweens in the news, tanimals, video, culture, world news and much more.



WONDEROPOLIS

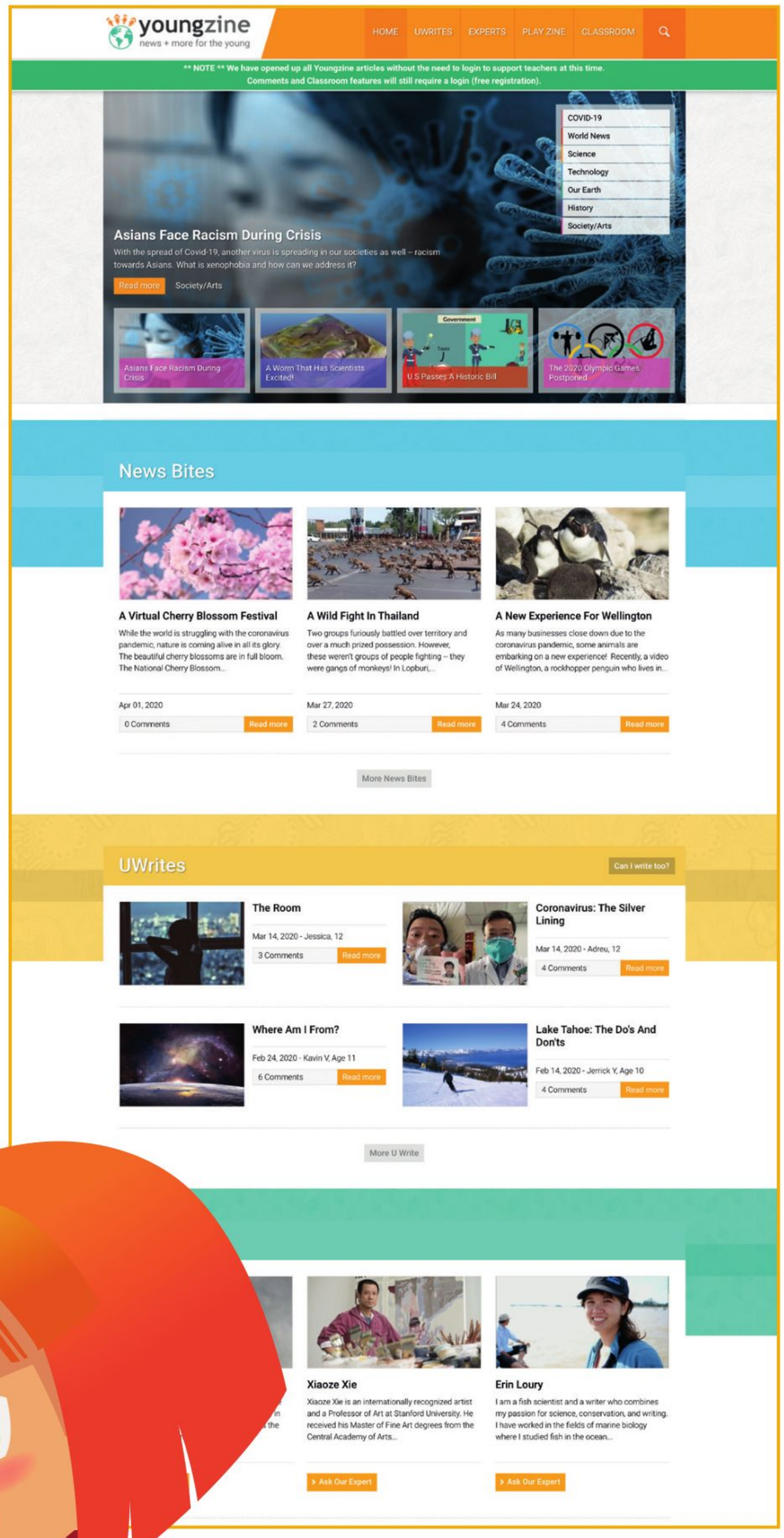
wonderopolis.org

■ This site posts a new article each day answering an intriguing question, such as 'What are Zombie Worms?' or 'Can You Believe Two Opposite Things?' Users are invited to contribute their own questions.

YOUNGZINE

youngzine.org

■ This site is updated weekly with news articles aimed at upper elementary through high-school students. Provides a chance for students to express their beliefs via its Op Ed articles.



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TIPS FOR HANDLING WORK AND KIDS DURING COVID-19 ISOLATION

With school districts across the country shutting down for weeks or months, many parents are finding themselves working from home while parenting at the same time.

It's a challenging balance that has already spawned social media jokes like the "my coworker..." meme. (Describe your child's behavior as if they were your coworker; the exercise involves a lot of reports of coworkers refusing to wear pants.) But jokes aside, the combination of working and supervising children during a pandemic has the potential to create stress and family conflict. Experts say that the best route forward is to maintain some semblance of structure, while allowing that this is an unprecedented situation.

"I would say to parents, do your best and cut yourself some slack as well, because it is not really possible for parents to suddenly be able to juggle everything, to be 100% present, to oversee all their children's homeschooling with complete efficiency and also to do their job," said Eli Lebowitz, a clinical psychologist at the Yale School of Medicine who treats child anxiety.

The first challenge many parents are facing is how to explain the coronavirus pandemic to their children, particularly given the uncertainty over how long school closures may last. (Some states have already announced that students will not return to school this academic year; others are so far under closures lasting several weeks.)

The exact information that parents give to their children will differ depending on the child's age, Lebowitz said, but one important rule is to maintain calm when speaking to children about COVID-19. "If they perceive the parent as being very anxious and scared and worried, then that's what they're going to pick up even if the words are not necessarily all that charged."

It's important to be factual and give clear explanations of the situation, said Matthew Cruger, the senior director of the learning and development center at the Child Mind Institute, a nonprofit organization dedicated to children's mental health. Don't overload children with information or bring up issues that they don't ask about, he said. "The easiest rule of thumb is to try to be direct and

honest and brief."

If children do exhibit stress or worry about the virus, ask them questions to gauge what they know and understand, Lebowitz said. Many may have heard misinformation from peers, or they might have misinterpreted something they overheard from adults. Accept and acknowledge the worry, he said, and try to give kids the sense that the changes happening around them are designed to keep everyone safe.

While the sudden disappearance of daycare, school and other daily routines may be destabilizing, parents can combat this by setting up new routines, both Cruger and Lebowitz said. This doesn't have to be regimented or perfect, they said: A good start is to make sure everyone still wakes up at a reasonable hour, eats a good breakfast, brushes teeth and puts on clothes. Block out time for physical activity and try to give kids a sense of what life will look like, day-to-day, Lebowitz said.

"The sense of complete chaos is more anxiety-provoking for kids ... than having a schedule," Lebowitz said.

A plan and a schedule can also help reduce conflict for school-age kids who might have academic work to do during school closures, he added. It's easier to get buy-in from kids to do a worksheet or reading or writing time if they know what to expect, rather than surprising them with a request to do homework when they were settling in with a video game or TV.

For younger kids who may struggle to play independently, Cruger recommends a graduated approach. Set aside short periods of quality time, when you can put away other responsibilities and focus on playing with your child. During this quality time, let the child direct the play and praise them for their ideas. When you need to do another task, stay nearby and tell the child to play by themselves, but to let you know if they need some help.

"Being near your child while they play is sometimes sufficient," Cruger said.

Though chores with young kids can be more time-consuming than getting them done solo, Cruger also recommends including kids where you can: Mix pizza dough for dinner together or pancake batter in the morning. And use all hands, he said. If two or more caregivers are home, work out a predictable plan for trading off work time and childcare time, he said. ■

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EXPERIMENTS TO TRY AT HOME WITH YOUR FAMILY

© Getty

Disclaimer

■ The following experiments should only be performed under adult supervision. The saucepan and liquid will be very hot and extreme care must be taken. Also, while this form of hot ice is non-toxic, it should not be consumed. Finally, do not cover your liquid when it is still boiling, as the pressure may cause the container to explode.

From making hot ice and a cola volcano to creating giant tootpaste and a lemon battery, try these experiments today!

© Getty

MAKING HOT ICE

The supercool liquid that instantly freezes at room temperature

Apparatus:

- 1 litre of clear vinegar
- 4 tablespoons of baking soda
- Steel saucepan
- Container

Step 1: First, a litre of clear store-bought vinegar must be measured out. This must be clear, as brown vinegar contains impurities that will prevent the experiment from working. Next, you need to add about three to four tablespoons of baking soda (sodium bicarbonate) to the vinegar. This has to be done slowly, as the reaction can make the liquid explode over the side of the container. Stir this until all the baking soda is dissolved and then put the mixture on to the hob to boil.

Step 2: You need to get rid of about 90% of the liquid, so leave it to boil for over 30 minutes. You'll start to notice a white substance on the side of the pan. This is sodium acetate, and a bit of this needs to be saved for later use. Eventually, a crust (sodium acetate anhydrous) will begin to form on the liquid. At this point, take it off the boil and transfer it into a container. This must be immediately covered to prevent the substance crystallising. You then need to cool it, so place it in an ice bath for 15 minutes or a fridge for a bit longer.

Step 3: The liquid needs to cool below room temperature. This makes it into a supercool liquid that will exhibit the characteristics of hot ice. Once it's cooled, you can take the lid off and put some of the white sodium acetate collected earlier in the liquid.

Step 4: The points where sodium acetate is introduced will begin to crystallize. After a few seconds the entire liquid will appear to freeze. However, when touched, the substance is hot and not cold because the process of crystallization here is exothermic, so heat is given off as the liquid solidifies. So, what's happened in this experiment?

What have you learned? Almost every substance has a freezing point, but for something to solidify the molecules must rearrange from a liquid to a solid or crystal arrangement. However, hot ice, or sodium acetate trihydrate, is a supercool liquid where the molecules do not rearrange until they are disturbed, in this case by introducing sodium acetate. Hot ice melts at 58 degrees Celsius (136 degrees Fahrenheit) and is a crystalline solid at room temperature, allowing this effect to be produced as the baking soda and vinegar are heated. The unarranged molecular structure results in the occurrence of this crystallization effect. You can re-use your hot ice by adding vinegar until the solid crystals are fully dissolved and repeating our method all over again.

MENTOS AND COLA JET

How well does this famous experiment work with other liquids?

Equipment

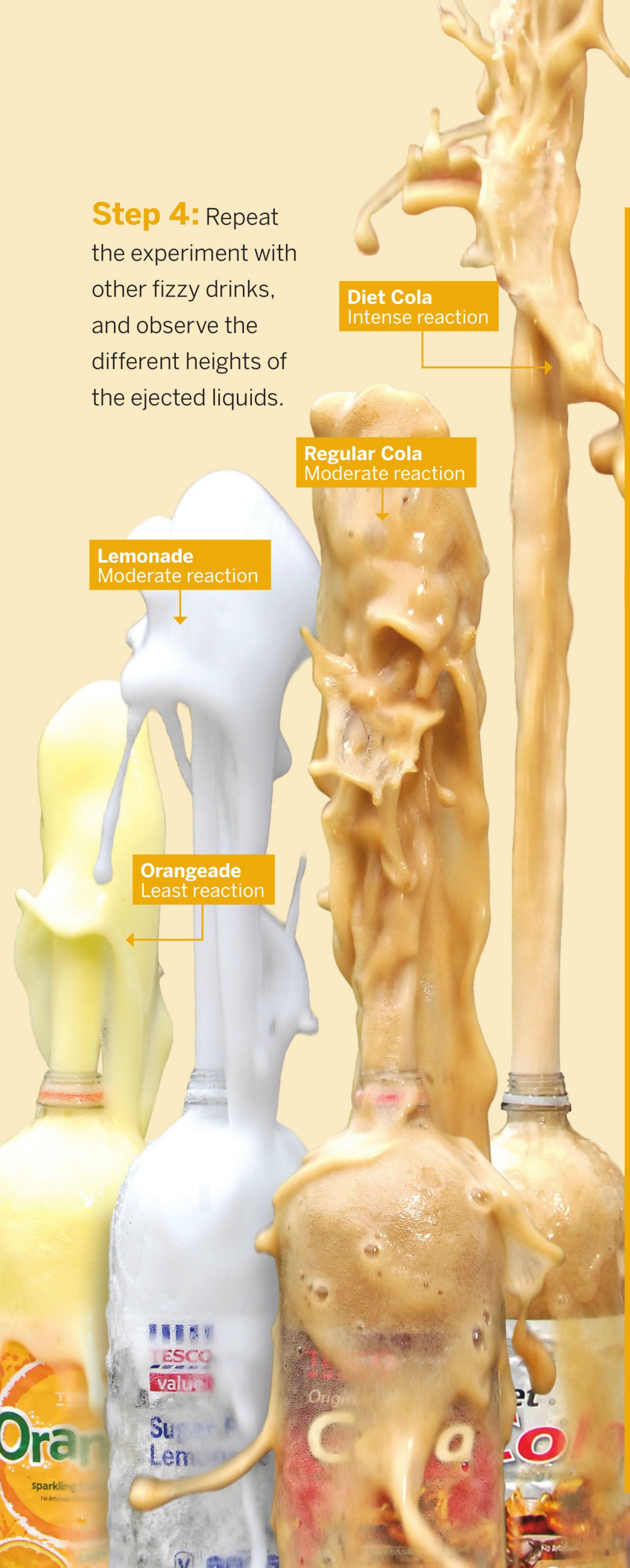
■ Cola ■ Diet cola ■ Diet lemonade ■ Orangeade ■ Mentos ■ Toothpicks

Step 1: Place one of your fizzy drinks on a flat surface outside, away from any electrical equipment, and open the lid (ensure as little gas as possible escapes).

Step 2: Align two toothpicks on top of the bottle, and place one of the Mentos between them. Take care not to drop it in.

Step 3: Quickly pull the toothpicks away and step back. After a second or two, the whole bottle fizzes up and the liquid shoots upwards in a vertical column.

Step 4: Repeat the experiment with other fizzy drinks, and observe the different heights of the ejected liquids.



What have you learned?

This explosive reaction is due to the thousands of tiny pits, or dimples, on the surface of the minty Mentos. The intensity of the reaction is determined by the surface tension of the soda being used, ranging from the lowest (diet orangeade) to the highest (diet cola). As the Mentos come into contact with the soda, a huge number of bubbles are created at their surface, covered in a surfactant known as 'gum arabic'. These sweets are dense, so they sink rapidly, producing more bubbles as they pass through the liquid that, in turn, create further bubbles. You can prove this by washing the Mentos in water before dropping them into the soda. The now-smooth sweets will produce no reaction.

Why do some drinks outperform others? It's partly due to the presence of the artificial sweetener aspartame, which makes the surface tension of the liquid much less than without it. This was present in our diet cola and lemonade, but not the regular cola or orangeade. The lower the surface tension in the liquid, the faster the bubbles can form.

GIANT TOOTHPASTE

Speed up the reaction of hydrogen peroxide to produce some impressive foam

Equipment

- Empty plastic bottle
- Tray
- Food coloring
- Dry yeast
- Hot water
- Washing-up liquid
- Hydrogen peroxide solution (3-6% concentration from a pharmacy)

Step 1: Pour about two tablespoons of hydrogen peroxide into the bottom of an empty plastic bottle. Add food coloring for aesthetic effects, and a tablespoon of washing-up liquid as well.

Step 2: Mix one tablespoon of yeast with two of hot — but not boiling — water.

Step 3: Pour your yeast mixture into the bottle, but get ready because you're about to see the reaction in action.

Step 4: The liquid in the bottle will now rise up and turn into a thick foam, safe to touch but not to ingest.

What have you learned?

The main thing to note from this experiment is that the hydrogen peroxide is being made to decompose into oxygen and water very quickly, much more so that it would naturally if left to stand. This is made possible by adding a catalyst, in this case yeast. This catalyst breaks the hydrogen peroxide down rapidly, resulting in a lot of oxygen and water being produced. By adding soap to this reaction, the release of oxygen turns the soapy water into a multitude of tiny bubbles that resemble foam. These bubbles have nowhere to go and so they fire out of the bottle. The more concentrated the hydrogen peroxide is the more oxygen it contains, releasing more of it when the reaction occurs and resulting in a more violent or larger reaction.

COLOR-CHANGING LIQUID

Make a liquid move through the entire pH scale

Equipment

- Red cabbage
- Saucepan
- Sieve
- Glass
- Milk of magnesia
- Vinegar
- Spoon
- Water

Step 1:

First, you need to make a universal indicator that will visualize the change in pH. To do this, soak two cups of chopped red cabbage in boiling water for ten minutes, and then pass it through a sieve to obtain the resultant purple liquid.

Step 2:

Place 100ml of milk of magnesia inside a 500ml beaker and mix with water until it is half full.

Step 3:

Add 10ml of the universal indicator you made in step 1, and stir the mixture until it turns blue/purple, indicating an alkali pH.

Step 4:

Continue stirring your solution and start adding some vinegar, a little at a time. If you do it slowly enough, the mixture should change to light blue, then green, then yellow, and finally settle at red, indicating an acidic pH.

What have you learned?

Milk of magnesia contains magnesium hydroxide, which is a fairly strong alkali. When a universal indicator is added, it shows the pH of the milk of magnesia solution, which will be somewhere above pH 7. However, adding an acid such as vinegar neutralizes the alkali. The universal indicator continues to show the pH level, and as more acid is added, the alkali is overpowered. This means that the liquid will move down the pH scale, gaining acidity as it does so.

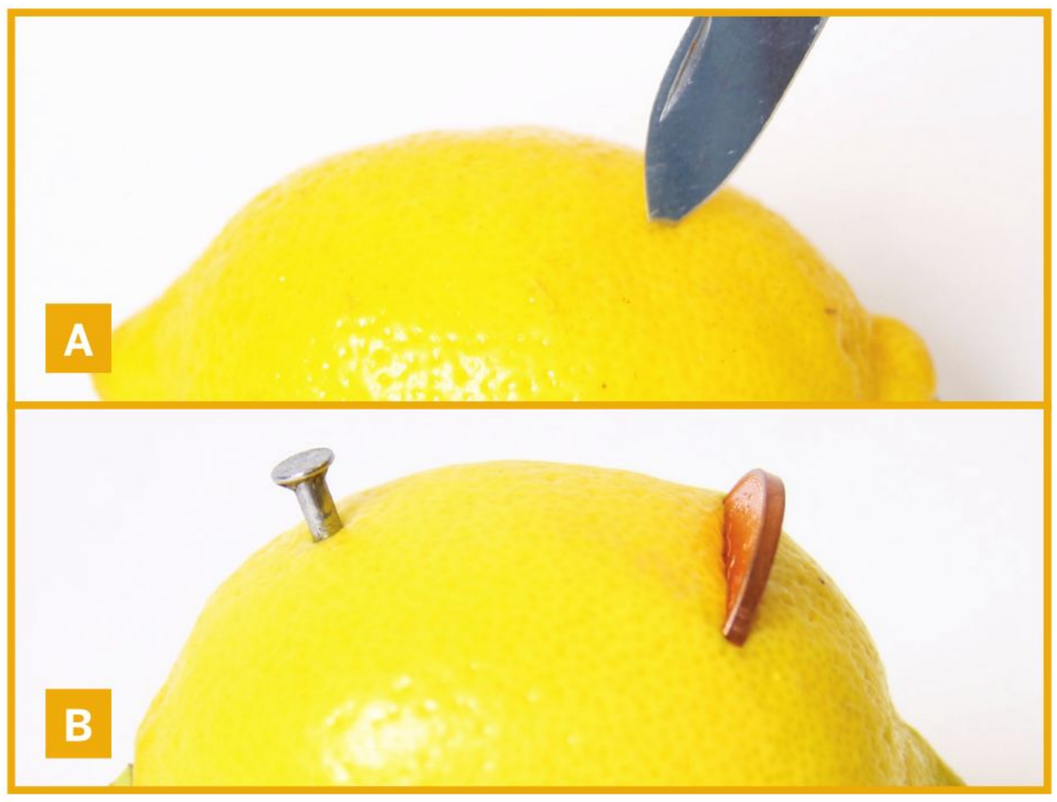
LEMON BATTERY EXPERIMENT

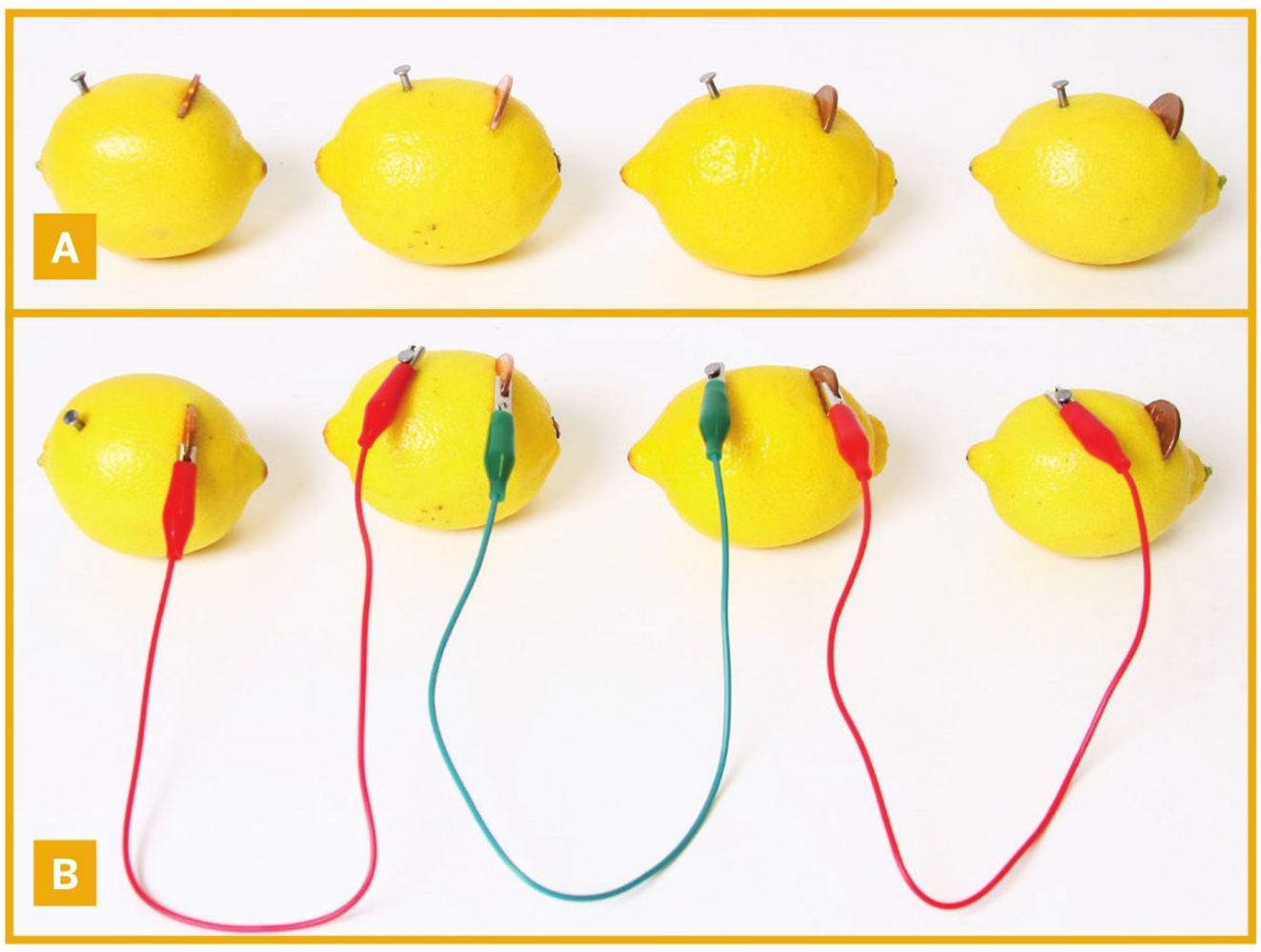
Learn about how batteries work by powering an LED light with some lemons

Ingredients:

- 1 x multimeter
- 4 x lemons (fresh)
- 4 x copper pennies
- 4 x galvanized nails
- 5 x crocodile clipped copper wire
- 1 x LED

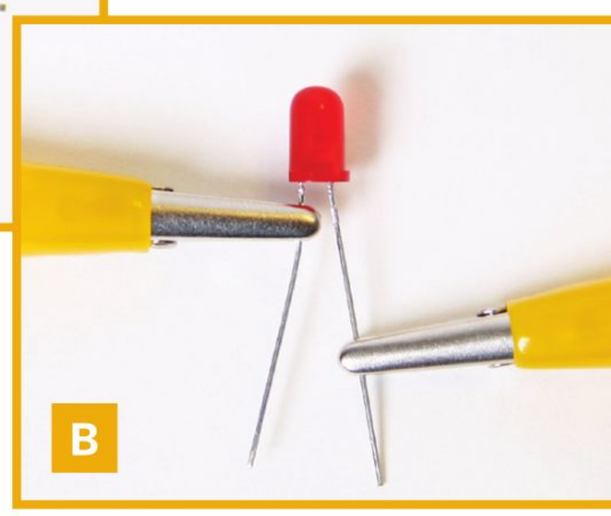
Step 1: First, take a lemon and insert both a copper coin and galvanized nail into its top left and right as depicted here. Ensure that both items penetrate the skin as deeply as possible, while retaining a graspable surface area above the surface. In addition, ensure that the coin and nail do not come into contact within the lemon. When this is achieved, repeat the process on each of the remaining lemons.





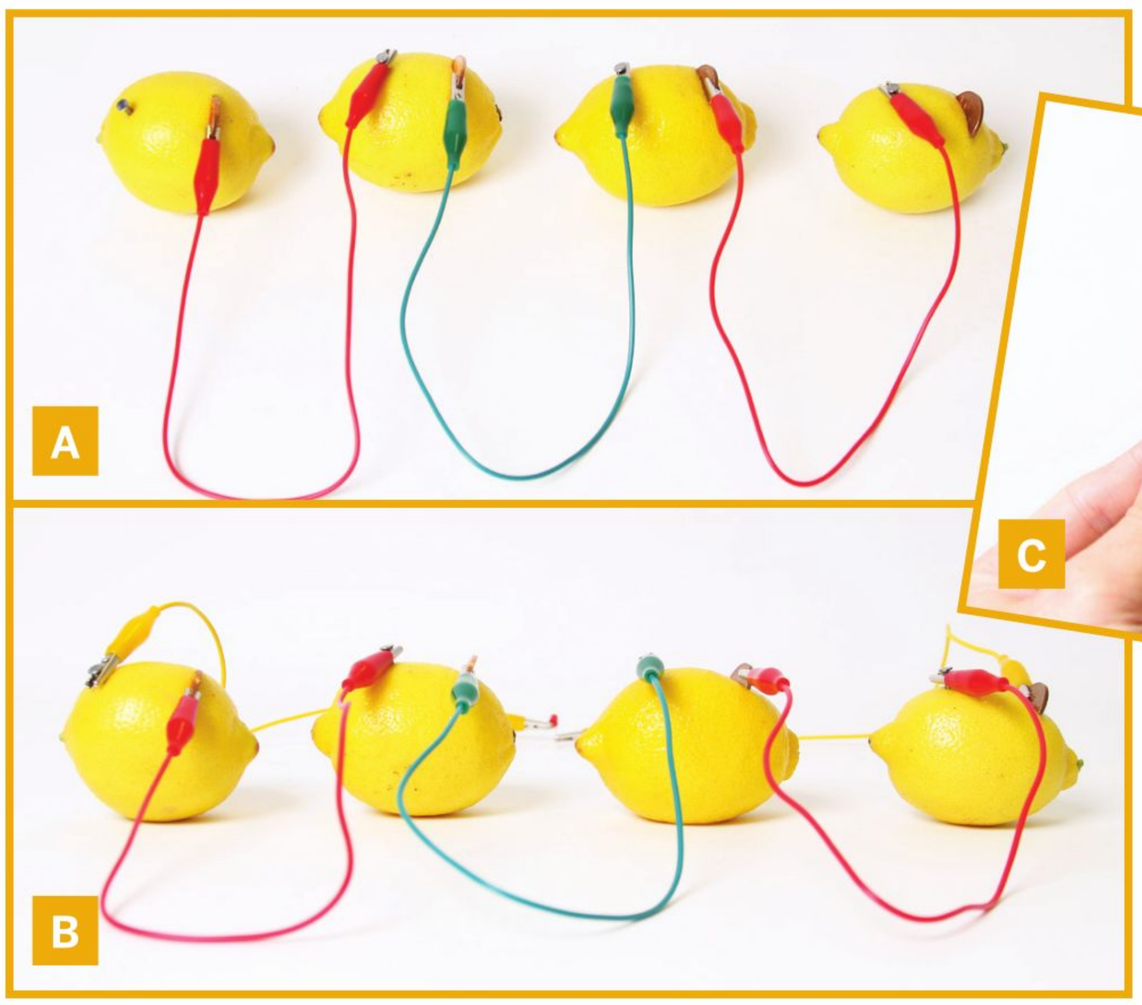
Step 2: When all four lemons are prepared, line them up in a row. Next, taking three crocodile clipped copper wires, connect each of the lemons to the next from coin to nail. If you have connected them properly you should have something like this. It is important that the wires run from coin to nail, as that way the lemons' produced power will accumulate to LED-powering levels.

Step 3: If you have a multimeter, now is a good time to utilize it. First, attach the remaining two wires to the remaining unclamped nail and coin located at either end of the lemon lineup. Once this is achieved connect the free ends to the multimeter and take a reading. If you have set up the experiment correctly, the multimeter should give a reading of approximately 3.50 volts.



Step 4: It's now time to connect the LED light to your lemon battery. Disconnect your multimeter if you have used one and connect the free clips to the LED's plus and minus pins. You can determine which is the minus pin by the indent on the side of LED's plastic casing. Remember as well that the crocodile clip leading from the furthest right-hand coin must connect to the minus pin on the LED, and the plus pin on the LED to the furthest left-hand nail.

Step 5: Upon completing the circuit the LED should light up, powered purely by the lemons' oxidizing effects. If this is the case congratulations, you have created your very own multi-cell lemon battery. Why stop here, however, why not try some variables on the experiment too in order to generate a larger electrochemical reaction? For example, does using a larger nail and penny make a difference to the LED's luminosity? Does switching the lemons for potatoes have any effect?



What have you learned?

So what have we learned here? Batteries, in their simplest form, consist of an anode, cathode and electrically conductive electrolyte solution. Further, their energy comes from an electrochemical oxidation/reduction process instigated when the battery cell is connected in a circuit to a load. Finally, while everyday batteries such as those found in your television's remote control are made from very pure substances (100% pure metals/salt-based electrolyte pastes), the same electrochemical cells can be crudely replicated using impure substances, such as copper coins, nails and lemons.

HOTLINES For Help & Advice

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If you are experiencing severe symptoms including difficulty breathing, call the emergency services immediately.

United States: If you have an emergency call 911 immediately.

Alabama: 1-800-338-8374

Alaska: 1-800-Ú8-0084 or 1-907-269-8000

Arizona: 1-480-303-1191

Arkansas: 1-800-554-5738

California: 1-800-852-7550 (ask for the CDPH Duty Officer)

-**If you are in L.A. County, call:** 1-213-288-8707 (available from 8:00am-5:00pm)

Colorado: 1-303-370-9395

Commonwealth of the Northern Marian Islands: 1-670-234-8950

Connecticut: 1-860-509-8000

Delaware: 1-302-744-Ú00

District of Columbia: 1-202-576-1117

Florida: 1-850-245-4401

Georgia: 1-866-782-4584

Hawaii: 2-1-1 or 1-808-586-4586

Idaho: 1-208-334-5939

Illinois: 1-800-889-3931

- **If you are in Chicago, call:** 3-1-1 (inside city limits) or 1-312-744-5000

Indiana: 1-317-233-1325

Iowa: 1-800-362-2736

Kansas: 1-877-427-7317

Kentucky: 1-888-973-7678

Louisiana: 1-800-256-2748

Maine: 1-800-821-5821

Maryland: 1-410-795-7365

Massachusetts: 1-617-983-6800

Michigan: 1-517-335-9030

Minnesota: 1-651-201-5414

Mississippi: 1-601-576-7725 or 1-601-576-7400 (after hours, holidays, and weekends)

Missouri: 1-800-392-0272, Ext.1

Montana: 1-406-444-0273

Nebraska: 1-402-444-3400 (available from 8:30am-U00pm CT)

Nevada: 1-775-400-0333

New Hampshire: 1-603-271-4496

New Jersey: 1-800-222-1222

New Mexico: 1-505-827-0006

New York: 1-866-881-2809

-If you are in New York City, call: 1-3Ú-396-7990

North Carolina: 1-866-462-3821

North Dakota: 1-701-328-2270

Ohio: 1-614-722-7221

Oklahoma: 1-405-271-4060

Oregon: 1-971-673-1111

Pennsylvania: 1-877-724-3258

-If you are in Philadelphia, call: 1-215-686-4514

-If you are in Pittsburgh, call: 1-412-687-2243

Puerto Rico: 1-787-765-2929, Ext.3552 or 3551 or 1-787-692-6276

Rhode Island: 1-401-222-2577 or 1-401-276-8046 (after hours)

South Carolina: 1-888-8Ú-0902

South Dakota: 1-800-592-1861

Tennessee: 1-615-741-72Ú

Texas: 1-512-776-7111

Utah: 1-888-374-8824

Vermont: 1-802-863-7240

Virgin Islands:

-If you are in St. Thomas, call: 1-340-774-9000

-If you are in St. Croix, call: 1-340-718-1311 (available from 9:00am-5:00pm)

Virginia: 1-877-ASK-VDH3 (1-877-275-8343)

Washington: 1-800-525-0127

West Virginia: 1-304-558-5358, Ext. 1

Wisconsin: 1-608-258-0099

Wyoming: 1-888-996-9104

INTERNATIONAL:

Australia: 1800 022 222

Canada: 1-833-784-4397

United Kingdom: 111 (or visit https://111.nhs.uk/covid-19)

For all the latest updates and news on the coronavirus, visit www.livescience.com

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Medical advice and guidance

World Health Organization - **www.who.int**

American Health Care Association - **www.ahcancal.org**

Association for Professionals in Infection Control and Epidemiology - **www.apic.org**

Infection Prevention and Control Canada - **www.ipac-canada.org**

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Government health advice

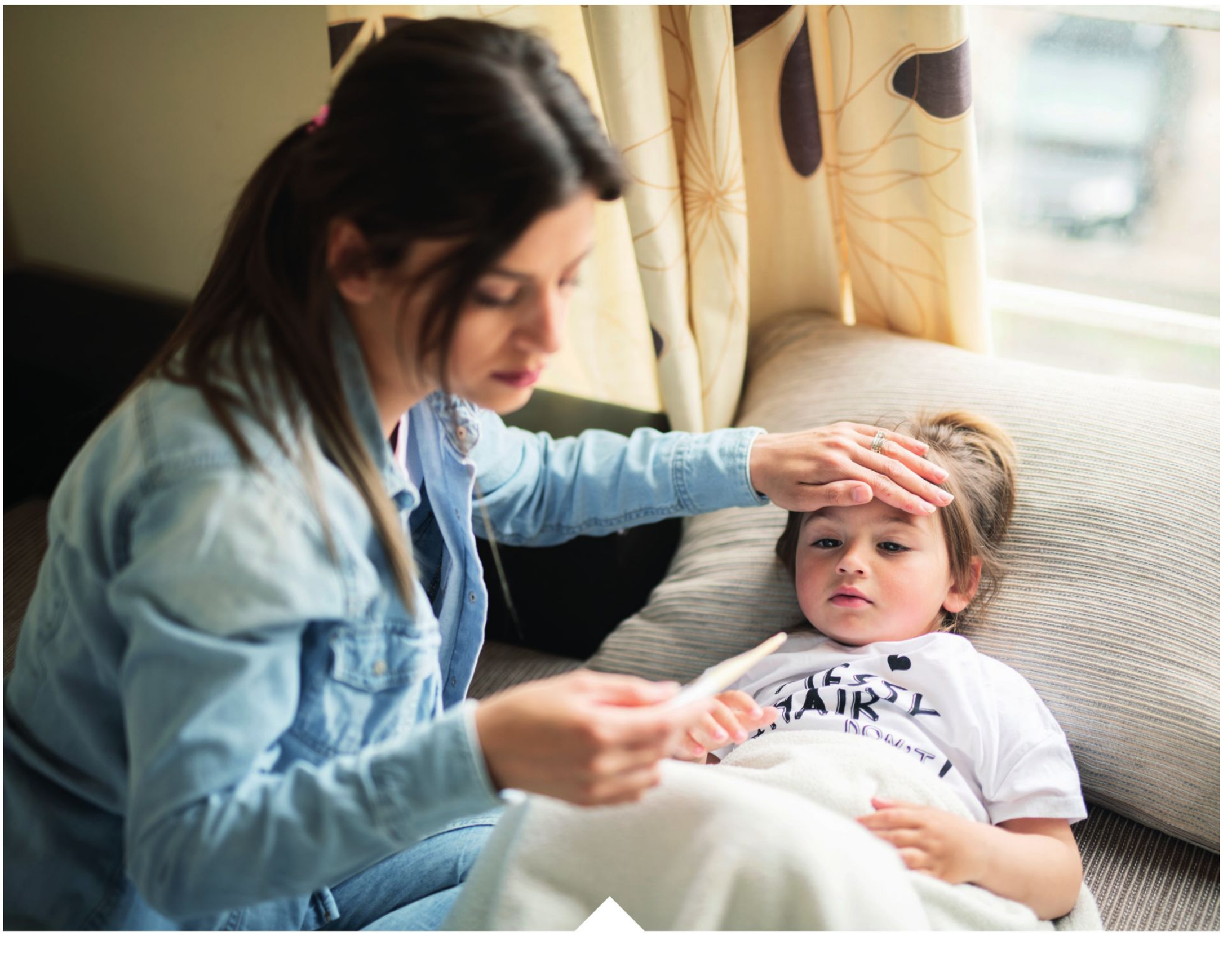
US: Centers For Disease Control and Prevention - **www.cdc.gov**

UK: National Health Service - **www.nhs.uk/conditions/coronavirus-covid-19/**

Australia: Department of Health - **https://www.health.gov.au/**

India: Ministry of Health and Family Welfare - **www.main.mohfw.gov.in**

Canada: Health Canada - **www.canada.ca/en/services/health.html**



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Parents and carers

Nemours - **www.nemours.org**

National Association of School Psychologists - **www.nasponline.org**

American Association of Retired Persons - **www.aarp.org**

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Businesses and workers

Department of Labor - **www.dol.gov/coronavirus**

Small Businesses Association - **www.sba.gov**

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SECTION 6: WELLBEING AND MINDFULNESS

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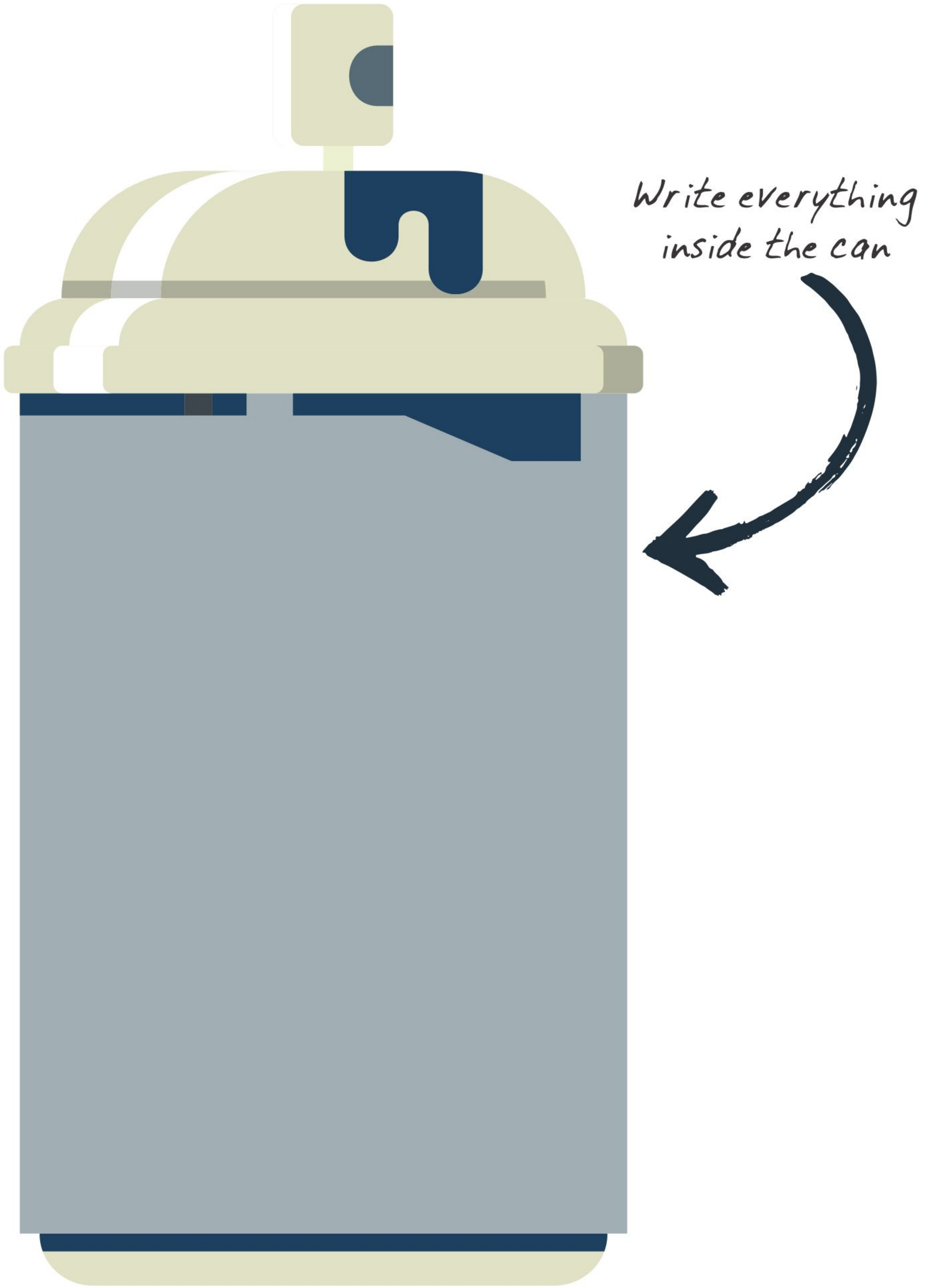
THE *STRESS* CANISTER

Empty everything that is in your head concerning work, study and home life into your stress canister below



Everyone has varying tolerances to stress. Think about how full your stress canister is. Is there much space left? Visualize the pressure building inside the can as you add to it. Some people are able to cope with more than others. Having the ability to cope with less at once isn't necessarily a bad thing, it just means that you probably need more support and positive coping strategies, like mindful activities, to stay on top of them.

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Now pretend you are using the spray canister to do some art here. Draw what that would look like.

WILL ANY OF THESE STRESSES MATTER A YEAR FROM NOW?

WHAT CAN I CHANGE?

WHAT CAN'T I CHANGE AND NEED TO ACCEPT?

CAN ANYONE HELP ME?

WHAT ARE SOME OF MY UNHELPFUL COPING STRATEGIES?

WHAT ARE SOME OF MY HELPFUL COPING STRATEGIES?

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BREATHE AND MEDITATE YOUR WAY TO *Mindfulness*

Simple breathing and meditation exercises will make you more present throughout the pandemic

TRAINING GROUNDS FOR MINDFULNESS

"Meditation is the training ground for learning mindfulness," explains leading meditation app Headspace. Meditation exercises allow you to practice being fully aware of the present moment in a controlled setting. In the same way that you can strengthen your body by regularly doing push-ups, you strengthen your ability to be mindful through meditation.

Like meditation, breathing exercises can help you become more mindful. While we breathe all the time, intentional breathing allows you to connect with your body, which automatically brings you out of a distracted mind. Over time, breathing techniques also improve your focus by regulating certain chemicals in our brain. A more focused brain allows us to be more present.

ESTABLISHING YOUR PRACTICE

When to practice? For meditation, the morning is particularly recommended. Just after you have woken up, the mind tends to be calmer — and equally importantly, no other commitments will get in the way. In the evening just before bed can also be a good time to schedule it in, particularly if you struggle with sleep. But the most important thing is to find a time of day that fits with your schedule.

WHERE TO PRACTICE?

Find a quiet space where you will not be disturbed. As you progress, you will find you can practice your breathing exercises or meditation anywhere — on the bus, the train, or when lying down in the sunshine in your garden.

HOW LONG TO PRACTICE FOR?

Start small. Sit down for five to ten minutes – or if that sounds like a dauntingly long time, start with only one minute. Consistency is more important than duration. Begin with an amount of time that feels achievable every day. A few minutes every day of the week is considered to be more beneficial than cramming in one long weekly session. If sitting still isn't for you, maybe trial a walking meditation instead.

"MEDITATION AND BREATHING ARE FULLY PORTABLE TOOLS AND THEY ARE FREE"

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A WHOLE LOT OF GOODNESS
Meditation can reduce anxiety, ease depression, alleviate stress, increase empathy and improve physical health.

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BREATHING TECHNIQUES

1 Even inhales and exhales

To calm and soothe your body and mind, evenly match the length of your inhales and exhales.
You can do this wherever you are, but ideally find a comfortable seated position.
Once you're in a still position of your choice, whether that's sitting, standing or lying down, you can try to inhale for a count of three, then exhale for a count of three.
If that's easy, try inhaling for a count of four, exhaling for a count of four.
You can keep extending the length of the inhales and exhales evenly up to a count of seven or eight.

2 Extended exhales

To relax, improve sleep and reduce anxiety, increase your exhalations, so that they are longer than your inhales.
Find a comfortable seated position or lie down on your back.
Breathe and mentally count the length of each inhalation and exhalation.
Then, gradually increase the length of your exhalation by one to two seconds every few breaths – but if your exhalation starts feeling forced, shorten it again to a more comfortable level.
Keep going until your exhalation is up to twice the length of the inhalation, but no more (so for example inhaling for a count of three and out for a count of six).
Finish with six to eight natural, relaxed breaths.

3 Alternate nostril breathing

To relax, improve sleep and to create a feeling of clarity and balance, alternate breathing in and out of opposite nostrils.
Find a comfortable seated position and take a deep breath in through the nose and out through the mouth.
Use your thumb to block your right nostril. Inhale through your left nostril and — while your lungs are full of air — block your left nostril using your ring finger or little finger and breathe out through your right nostril.
Keeping your left nostril blocked, inhale through your right nostril before blocking off your right nostril again with your thumb and breathing out through your left nostril.
Repeat for several rounds.

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MEDITATION TECHNIQUES

1 Awareness meditation / mindfulness meditation

Find a comfortable seated position, sit tall and set a timer for the duration you want to meditate for.

Close your eyes and breathe naturally. You are not controlling your breath, but simply staying aware of each breath.

Focus your mind on the physical sensation of your breath flowing in through your nose, down your throat, into your lungs, and back out again. Counting each breath in and out can be helpful.

Whenever you realize you have lost your focus on the breath, all you have to do is come back to noticing your next breath.

Continue until the timer goes off.

2 Body scan

Find a comfortable seated position, sit tall and set a timer for the duration you want to meditate for.

Close your eyes and focus your mind on the body.

Starting at the top of the head, slowly move your attention down through each part of your body. Notice sensations in your scalp, forehead, eyes, nose, mouth, jaw, throat, neck, shoulders, upper back, chest, arms, torso, top of the legs, thighs, knees, calves, feet, toes.

You don't need to change anything, simply notice what is there.

3 Walking meditation

When you are walking, bring your awareness to the contact between your feet and the ground.

Walk with ease instead of rushing.

Notice every step. Relax any tension in your shoulders or arms.

Begin to synchronise your steps with your breathing. Depending on the natural rhythms of your breath and the pace of your steps, you might take two or three steps while you inhale, and three or four steps as you exhale.

You can also listen to the sounds around you and look at your surroundings — not evaluating them, but simply observing them with your senses.

TOP OF THE APPS

Headspace and Calm are the leading meditation apps. Headspace has reached 50 million users, while Calm has been downloaded over 40 million times.

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GRATITUDE & WELLBEING

The simple act of focusing on the positives in your life can have a huge impact on your physical and mental wellbeing

Sometimes life has a habit of getting you down. There's no need to feel bad. The everyday routine can become mundane, and we can feel so busy that time seems to fly by without anything really seeming to happen. It can be hard to look at the positives in your life, but there are real benefits, both physical and mental, if you take the time to harness the healing power of gratitude.

Recognizing even small things and people in your life that you're grateful for can have a huge impact on your wellbeing. "Being grateful for people, things and situations in our lives can create a balanced view in our mindset and lead us to experience the abundance in our lives, rather than feeling closed, deprived and constantly striving to better our lives," explains clinical psychologist Sarah Maynard **(www.wildandpreciousminds.com)**. "Learning to feel grateful shows us what there is to appreciate and be thankful for in our lives right now, and can create a sense of contentment and fulfilment, without actually changing anything. This in turn can be something that effectively lowers our stress levels and affects us physically."

This feeling of gratefulness can impact different areas in your life. For example, instead of constantly focusing on what you don't like about your body, remind yourself what it can do from a non-aesthetic perspective. You might be >

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"THERE IS ALWAYS SOMETHING TO BE GRATEFUL FOR"

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grateful to your body for enabling you to walk along the beach, bend down to pick up something heavy or take part in an online exercise class. By turning your attention to these positives, you are more likely to feel motivated to look after your body through good exercise, healthy eating and mindfulness.

BARRIERS TO GRATITUDE

It can be difficult to show gratitude in our lives if it's something that's new to us. It's not uncommon to be stuck in a negative mindset, always seeing the downside and struggling to embrace the good. So, what can we do to begin introducing gratitude into our daily lives? Maynard says: "The best way to develop a gratitude habit is to practise little and often.

This helps build the neural pathways in our brain so the habit becomes more automatic. A great exercise is the 'ten-finger gratitude practice' (finding something we are grateful for, for each finger), which stretches our thinking so we realize how much there is around us to be grateful for, both the big stuff and the small."

Give it a try and see if you can isolate those first ten things that you're grateful for in your life right now. If you find it difficult, you're not alone. Maynard explains that there is a psychological reason why this happens: "The brain is typically able to hold on to negative thoughts (so-called "velcro thoughts") because it determines that these may be important to our survival, whereas positive thoughts (including areas like gratitude) are so-called "teflon thoughts" because they more easily slip right out of our minds and off our radar unless they are consciously practised."

"YOU REALIZE HOW MUCH GOOD THERE IS"

There are barriers to overcome to embrace a life of gratitude. Maynard says that when we're in a negative mindset, "it's easy to convince ourselves there is nothing good in our lives worth being grateful for, or anything significant to include." This is limiting our ability to show gratitude and it takes practise to let go of this negativity: "If we buy into this thought we stay stuck. If we get a bit of distance from this thought and recognize "this is just a thought" we become free to look for things we are grateful for, regardless of whether such thoughts are present or not."

START TO FEEL GRATEFUL

If you want to introduce gratitude into your life, Maynard has some tips: "Look around you; there is always something to be grateful for. Maybe it's simply the fact we are alive. Anything or anyone that brings pleasure and wonder into your life, be it the blue sky, or your committed partner, can be something to be very grateful for."

Once you start consciously seeking things you are grateful for, you suddenly start to realize how much good there is around you. It can be worth starting a gratitude diary (see the box below) to list the things you are grateful for each day. There are so many benefits to being grateful. Those who practise gratitude daily might experience better sleep — one technique is to run through the things you appreciate or everything that was good about your day just before you go to sleep. This puts you in a positive mindset for a good night's sleep, so you can wake up feeling refreshed and ready to face a new day.

As you practise gratitude daily and start to feel the benefits, pass it on by showing your gratitude towards others. "Demonstrating and voicing gratitude towards others can take them by surprise!" says Maynard. "However, it opens up the opportunity to show others how much we value them, and in turn cultivate a more reciprocal exchange of appreciation towards each other. Being grateful also creates a ripple effect; if someone has been the recipient of gratitude, they may be more likely to pass this on in their interactions with others." Whether it's through writing letters, sending flowers or a verbal expression of appreciation, it's certainly worth sharing your gratitude.

Make today the first day you consciously show gratitude for the good things and people in your life.

Write down something or someone you're grateful for, and why...

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KEEP A GRATITUDE DIARY

Consider making the act of acknowledging what you are grateful for a regular task with a journal

A gratitude diary is a great way of helping you to focus on the things you are grateful for. There is no set format for you to start a diary, though there are some you can buy with handy headers and ideas to prompt your thoughts. All you really need, though, is five minutes a day with a notepad and pen.

You really should try and write in your gratitude diary every day, which helps to establish a good habit. Write down anything good that happens in your day. You could carry it with you and journal something as soon as it happens, or you could make it a regular part of your pre-bedtime routine.

There is no limit to the things you can cover. Did you have a nice walk? Write it down. Did you manage a task for the first time? Write it down. It can be big things and small things. A gratitude diary is only for noting down the positives, to build up a resource that you can pull out whenever you feel down so you can look back on all the good things that have happened to you.

If you prefer a more structured approach, you could work to a set format in your gratitude diary. You could list five things that you were grateful for today, one person you were grateful for today and one personal skill you were grateful for today. This can really help to streamline your thoughts, if that's how you work.

The key thing to remember is that this is purely personal — it is what you are grateful for. What makes you happy is very individual and your diary is a reflection of that.

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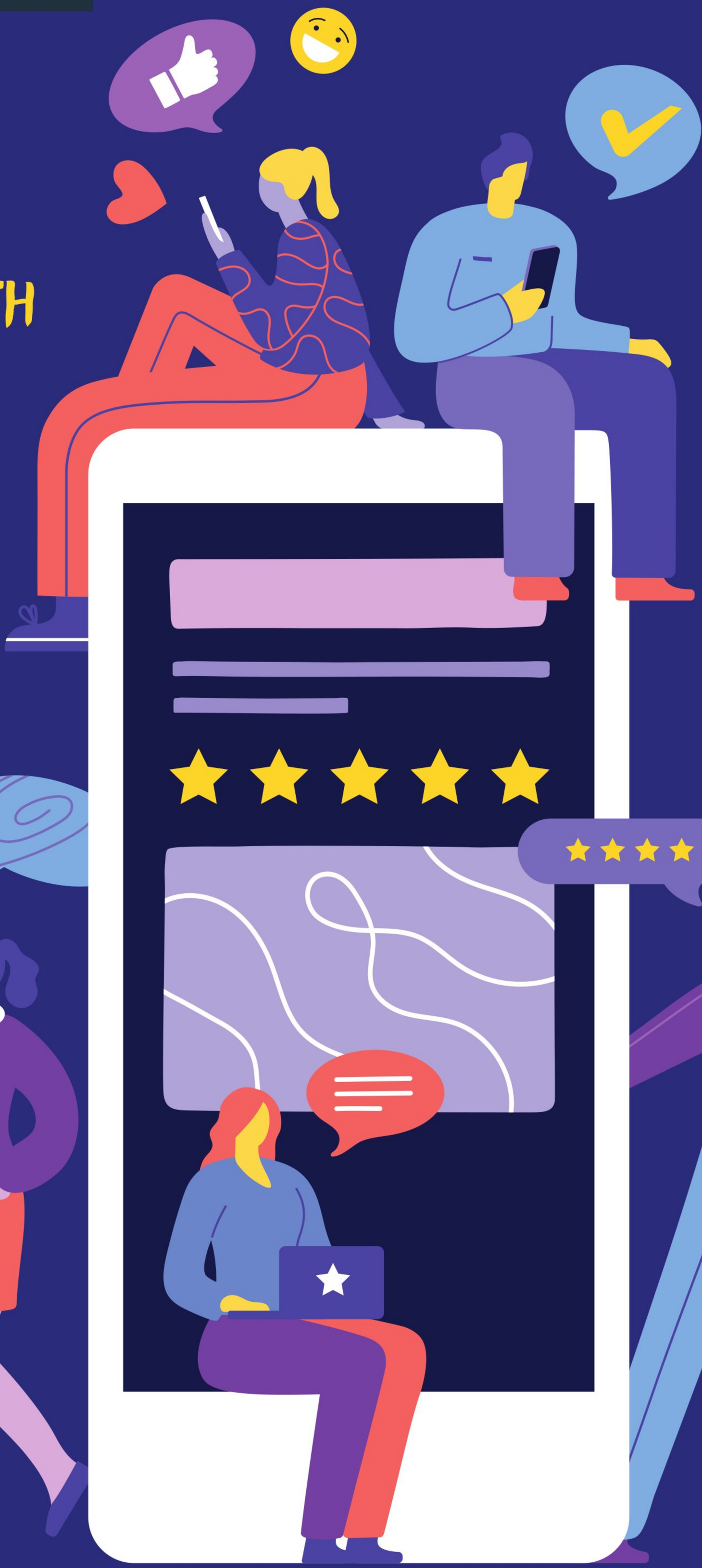
"EXCESSIVE SOCIAL MEDIA USE CAN BE CORRELATED WITH MOOD SWINGS, ANXIETY OR EVEN DEPRESSIVE SYMPTOMS"



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LIVING WITHOUT *constant* PHONE USE

We use technology so much over a single day, but is it healthy during the pandemic?

Your mobile phone may feel like the single item that you cannot leave your home without, or when it is lost it feels like a part of you has gone missing. The reason for this is that over the last 20 years, phone companies have refined the technology so that it will not only do more things than a standard computer, but it is pocket-sized and doesn't need a constant power supply. This makes a mobile phone a very useful tool, but it is considered "vital" for many people, who use the phone as a way of directing their attention (with social media feeds), even when they are not doing a phone task (texting/calling). Rather than simply being an all-purpose tool that is handy to keep on you, your phone becomes the thing constantly taking up your attention, and many of us have allowed this to happen without really questioning it, especially the over-use of social media. Social media use has been reported as being as high as two hours a day for many people, which naturally is a large chunk of someone's free time. Excessive social media use has been strongly correlated with mood swings, anxiety or even depressive symptoms.

While social media may not be the only factor at play, it is certainly a significant input. This is because many people's social media profiles represent an idealized version of their lives, meaning onlookers might feel inferior by comparison. Like anything new, the sensible thing to do is to not over-indulge. Over the next two pages, you will find several mindful ways to put your phone — and any other pieces of technology — down, and expand your life beyond it. These steps can even be seen as therapeutic, and will assist in creating a much rounder, healthier you.

BUY YOURSELF A NOTEPAD AND PEN

If you need to do something that must be done on your phone, write a reminder to do it later.

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SMART-PHONE ACTIVITIES *free*

Put your phone down and find out what your passion is

WRITE WITH A PEN AND PAPER

A blank piece of paper and a pen can be one of the most challenging things for a writer, whether it's poetry, the start of a novel, or even a list of what you want to accomplish in the immediate future.

GO FOR A LONG WALK

Either leave the phone at home, or in your pocket on silent (for emergency use only). Let your feet do the thinking, and just let your mind wander. Practise a mindful state while walking somewhere solitary, perhaps walking somewhere new, far away from your normal beat — while sticking to social distancing rules and current lockdown advice.

EXERCISE

Don't listen to music, don't record distance. Become connected with your body with each repetition, and if you have a goal you're working towards, make a note with a pen and paper. Working out in a mindful way is harder, but ultimately more rewarding than distracting yourself with music.

LEARN AN INSTRUMENT

This is the only activity that you are allowed to use a computer/phone for. Learning how to play an instrument is much cheaper than it used to be; all you need is access to the instrument and the time to practise. It's something you can come back to for the rest of your life.

THINK ABOUT WHAT YOU WANT TO DO

What things feel attractive to you that you'd like to focus on? This doesn't need to be your future occupation, but what you want to define you as a person. Writing, art, carpentry, hiking, education, the list goes on! Go to the library on your own, walk around it and wait for inspiration to fly off the shelves.

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CHECK IN WITH RELATIVES

Who haven't you spoken to in a while? If they live nearby, pop over for a visit, and if they're far away, give them a phone call. It's a small gesture, but it may mean the world to the person you speak to.

COOK A NEW RECIPE

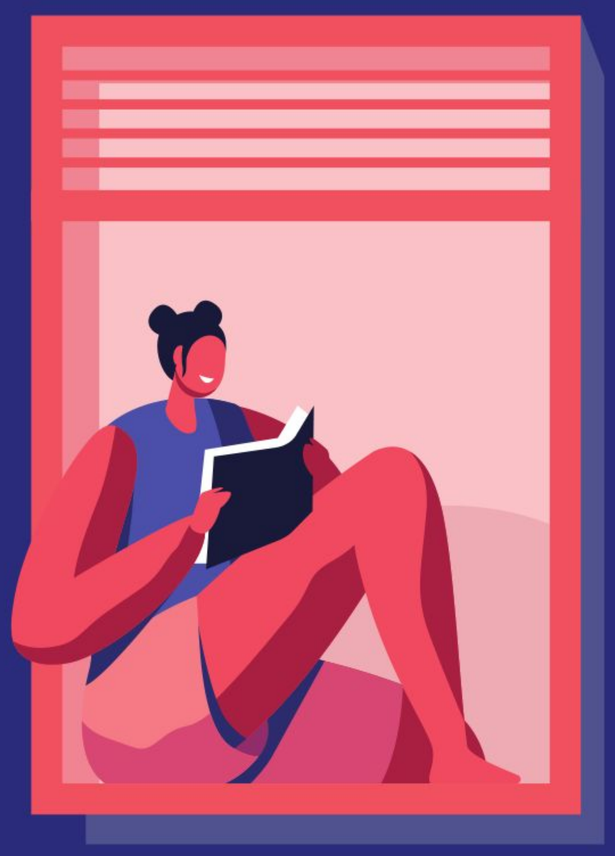
Being able to cook well is a skill that you'll use for the rest of your life, and the best way to learn is to by trying new ideas. Whether it's a meal for your family, or cakes for other people in your household, find a new recipe and get started.

ART (WHETHER RESEARCHING IT OR ATTEMPTING IT YOURSELF)

Any form of art is a valid exploration of who you are — and finding out what type of art complements you is an adventure in itself. When lockdown is over, go to a gallery, an exhibition or even a studio — see what calls out to you. Then try it yourself (and don't be self-critical). Remember, it is only for you.

READ A BOOK ABOUT ANYTHING

When was the last time you picked up a book based purely on the front cover or blurb? Reading with a lamp is simply more enjoyable than reading with a back-light. It also enables you to connect with the writer in a much more mindful way, without the notifications from other apps that you may get from a phone or tablet.



VOLUNTEER

Giving your time to a cause from home or to health services is a great place to put your mind in a better place, and feel that you're making a positive impact. There are many ways to offer support, and no time limits on donation.

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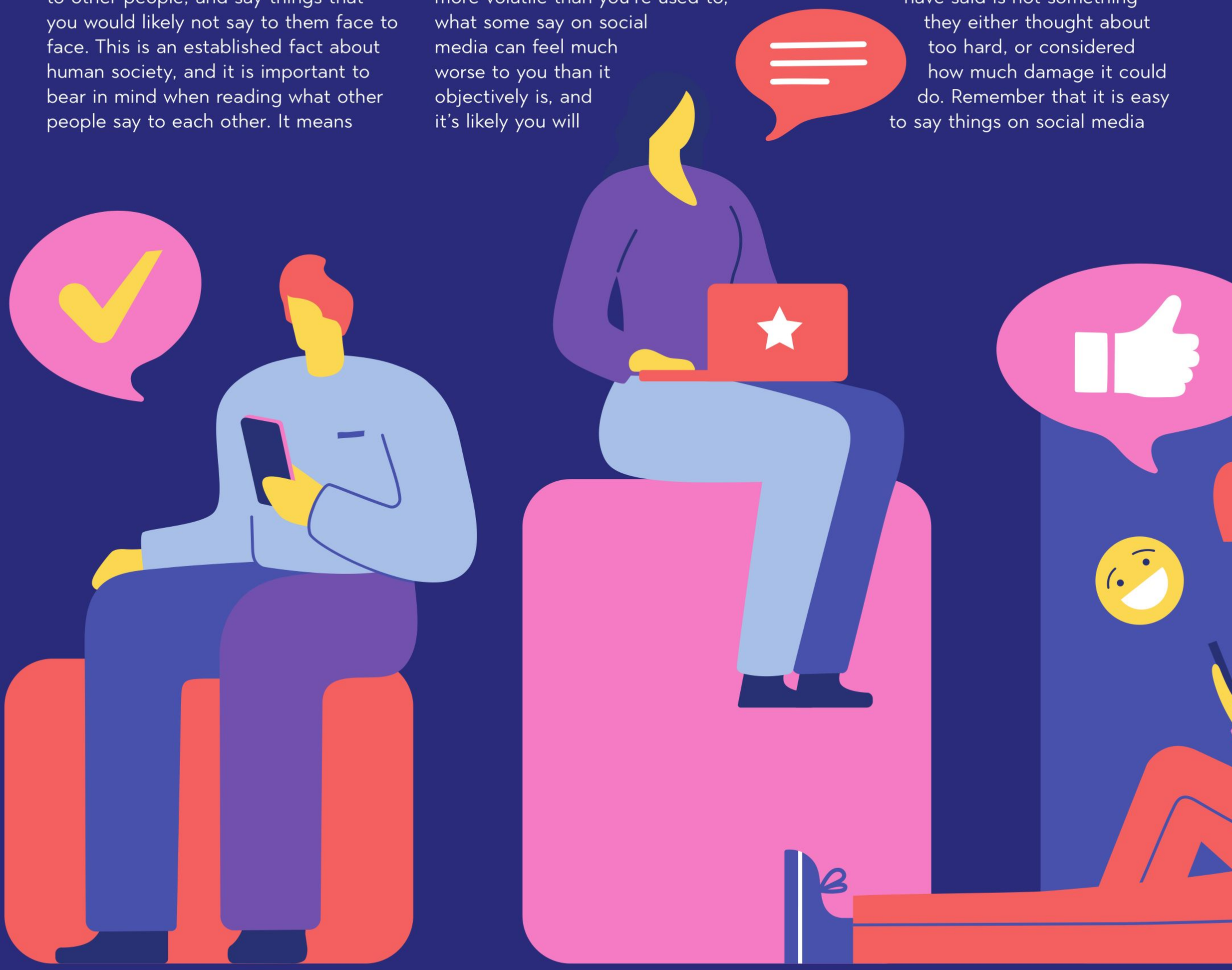
Social Media

HOW MUCH IS TOO MUCH?

More of our time is expected to be spent on our social media feeds, but is this a good thing?

Over-use of social media can be harmful to anyone. Not only in terms of what you see and what affects you, but how easy it is to be hurtful to other people, and say things that you would likely not say to them face to face. This is an established fact about human society, and it is important to bear in mind when reading what other people say to each other. It means people can appear to be much more hurtful or callous than they are in reality, if we're judging people by what they say rather than what they do. At a time when your emotions are naturally far more volatile than you're used to, what some say on social media can feel much worse to you than it objectively is, and it's likely you will feel very differently about what people say in a few years.

A healthy way to engage with social media is through mindful thinking. Consider that what someone might have said is not something they either thought about too hard, or considered how much damage it could do. Remember that it is easy to say things on social media



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that you wouldn't say in person, and therefore you should be reflective when thinking about what you want to post. Do you really want to have an argument with someone if they are not going to even try to see it from your perspective? Is it worth letting yourself get into a situation where you get upset, and the other person may either not care, or actually want this emotional response from you? Remember that social media is a tool, not a necessity. You only have to engage with it as much as you care to, and people who say otherwise will be left behind when everyone moves on to yet another platform. Use it to stay in contact, but don't get sucked in.

LIKES DO NOT EQUAL VALIDATION

Don't get hung up on how many responses you get to your posts

Remember that the level of response on social media does not equal either your worth or the worth of what you've said. Some of the greatest poets, painters or writers were either ignored or unnoticed for many years by the society at the time, and the work they produced didn't receive the validation it would later get. Also consider how easy it is to "like" something. It's barely half a second's thought, and the person will likely never think about it again. It therefore isn't worth staking how you feel about yourself based on how many people respond to what you post. The only person your opinion should matter to is yourself. As long as you are content with what you've made, then it doesn't matter how the rest of the world responds. Social media is a tool, but isn't the only way to get your thoughts and feelings out into the big wide world!

TRY TO USE TECH LESS

If you can't leave your phone behind, there are apps that help you put it down – either muting notifications, or gaining points through not using the phone.

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NIGHT, NIGHT, *sleep tight*

Struggling to drift off at night, or always waking up in the early hours? Sleep expert Jennifer Morgan is here to ensure you always get that elusive eight hours a night

© Getty

Just one more episode of Killing Eve or Game of Thrones won't hurt, will it? You know it's late, but there are no ads, so you'll be tucked up by oh, at least midnight. But deep down, you know that this nightly binging on box sets is having a major impact on your sleep.

A survey by The Sleep Council (sleepcouncil.org), found that while most adults need around seven to eight hours of sleep a night, a third of people are getting just five to six. And teens need even more, especially when they are going through puberty. A growing body of research suggests that mental and physical problems become more pronounced in those sleeping for less than six hours. That extra episode delaying your bedtime could amp up the fight or flight response to stress level, releasing hormones that speed up your heart rate and raise blood pressure.

"It's important to remember though," says Lisa Artis from The Sleep Council, "it's also about the quality of sleep you are getting, not the quantity. If you are sleepy, exhausted and unable to function, then chances are you are not sleeping very well."

SLEEP MYTHS BUSTED

Counting sheep can help you fall asleep, but so can counting cows or dogs. It's the repetitive nature of the task that makes you feel sleepy. Absorption in a mental task is an aspect of mindfulness and can help to relax you.

Sometimes it can be hard to switch off (and not just the TV), with stress one of the most common causes of you lying there, staring at the ceiling. "If there's something playing on your mind, write it down," says Artis, "whether that's worries or even a to-do list." Tech should be avoided before bed — in particular the hour before it. "The blue light that emits from devices messes around with your body's circadian rhythms by suppressing the sleep-inducing hormone melatonin in the brain, which is what we need in order to feel sleepy," says Artis.

"Bedrooms should be kept for sleep only," says Dave Gibson, a health care practitioner, who specializes in helping those with sleep problems (thesleepsite.co.uk). "This is so the brain associates this room with getting to sleep. Smartphones and tablets should, as much as possible, be kept out. Try using a dawn simulator, which is a great way to wake up. Even if you do use your phone, avoid hitting the snooze button as it confuses the brain over when it's time to wake up. You simply need to just get out of bed and open the curtains to let the daylight into your room."

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"SET YOUR ALARM FOR WHEN YOU HAVE TO GET UP AS YOU WON'T GET QUALITY ZZZZS IN BETWEEN SNOOZES"

CONSIDER YOUR SURROUNDINGS

Your sleep environment is very important in getting the best night's sleep. Neither too hot or too cold, and as quiet and dark as possible. "Your bed needs to be comfortable," says Artis. "It's difficult to get deep, restful sleep on one that's too hard, too soft, too small or too old." The Sleep Council recommends changing your new mattress every seven years, with research showing that swapping an uncomfortable one for a new one resulted in nearly an hour of extra sleep a night... just imagine that for a second!

Likewise, if you suffer with back and shoulder pain, look to your pillow. "A good pillow should hold your head in the correct alignment, in the same relation to your shoulders and spine as if you were standing upright with the correct posture," says Artis. "Replace a pillow once it has lost its 'loft' (height), or it has become lumpy or discoloured." Gibson adds that linens should be clean, cool and crisp, and ideally cotton, which helps skin to breathe, plus bedlinens should be changed once a week because we lose a half pint or more of fluid each night while we snooze.

MAKE A ROUTINE

It's not only children who benefit from a bedtime routine. Artis advises finding ways of relaxing, such as a warm bath with soothing scents, background music, gentle stretches and yoga. "It's also important to establish a regular sleep pattern — going to bed and waking up at roughly the same time each day. Your body and mind will feel much better for it," she says. "Our brains like repetition," adds Gibson, "a consistent sleep routine helps support and strengthen our body clocks."

So you have your own bedtime routine — you're weaning yourself off more than one Netflix episode after 10 p.m.; your bed is

SLEEP MYTHS BUSTED

Yawning isn't always a sign you're tired. Sometimes we yawn when we wake up, we're bored or someone else does.

looking super-inviting; and you've cut back on caffeine and alcohol and other bad-sleep foods (incidentally, there's no evidence that cheese causes nightmares — it's actually a good bedtime snack thanks to the calcium, which is an amino acid the body uses to produce melatonin, the sleepy hormone, says the Sleep Council).

But what if the other members of your household aren't quite on the same sleep-promotion page? If you're lying next to a snorer, what starts as a niggle, can become a major issue.

"It's important to get it sorted," says Artis, who recommends the British Snoring & Sleep Apnoea website (britishsnoring.co.uk) if earplugs aren't doing the trick. If you follow Artis and Gibson's advice, improved sleep can come to us all (hopefully), but when it does, just don't hit that snooze button.

Set your alarm for when you actually have to get up as you won't get any quality zzzzs in between snoozes. Artis even advises putting the alarm clock on the other side of the room, especially if you have a hard time not pressing the snooze button each day.

"You'll have to walk right across the room to turn it off, waking yourself up along the way," says Artis. Then you'll be ready to start your day, and you will feel as fresh as a daisy!

5 steps to sleep like a baby...

ONE

Start a bedtime routine. This could include a bath, gentle stretches or reading a book.

TWO

Get your sleep environment right. The ideal temperature is around 16° C. Try to keep your room as dark as possible.

THREE

Replace your mattress every seven years as advised by the Sleep Council. Test it before you buy (or take advantage of a no-quibbles return if buying online). Check your pillow still has its plumpness too.

FOUR

If you've been trying to get to sleep for more than 20 minutes, get out of bed and read a book under dim light until you feel sleepy, says Dave Gibson (**thesleepsite.co.uk**).

FIVE

Ditch the tech and avoid checking emails last thing at night or first thing in the morning. Swap your phone for an alarm clock.

IMAGE SOURCES · GETTY

EAT WELL, Move More

Do you mindlessly munch? Gratuitously graze? Lazily lumber? No more! Read on to discover how to take charge of your food and your fitness

When it comes to eating and exercising, forget about being thin, fitting into that outfit or crafting a six-pack to rival Tom Holland's. The key to eating and exercising is being healthy. And not just physically healthy, but mentally healthy, too. Eating and exercising mindfully means you'll be in control and fully aware of what you consume and how you get active, rather than unwittingly shovelling biscuits into your mouth while binge-watching F.R.I.E.N.D.S. Having a healthy diet and being active will give you more energy, improve your mood and allow you to think more clearly. >

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THE HUNGER GAMES

Do you only ever eat when you're hungry? Probably not, right? There are a whole host of other reasons why you might open the fridge, resulting in mindless eating. These include:

- **Boredom –** *"Hmm, what shall I do? I know... eat!"*
- **Sadness –** *"Sam just dumped me. A slice of cake will cheer me up."*
- **Temptation –** *"I'm full but that freakshake looks soooooo good."*
- **Tiredness –** *"A sugar hit will perk me right up."*
- **Routine –** *"It's 12.30: lunchtime! Even though I had a mid-morning snack so am not really hungry."*
- **Habit –** *"Time for my Netflix fix... pass the Doritos."*

Nutritional therapist Monica Watson-Peck **(www.appleaday.org.uk)** says, "when we eat mindlessly, not only will we not enjoy our food so much, we're also more likely to gulp rather than chew well." This leads to poor digestion of the food — and less uptake of the nutrients in it. "If you consider that every single metabolic process in our body needs nutrients, then what starts as a bad habit in front of the TV can actually impact your health further down the track." It's important to chew every mouthful until the food has turned into a liquid to ensure that your body produces more of the enzyme amylase, which helps with digestion.

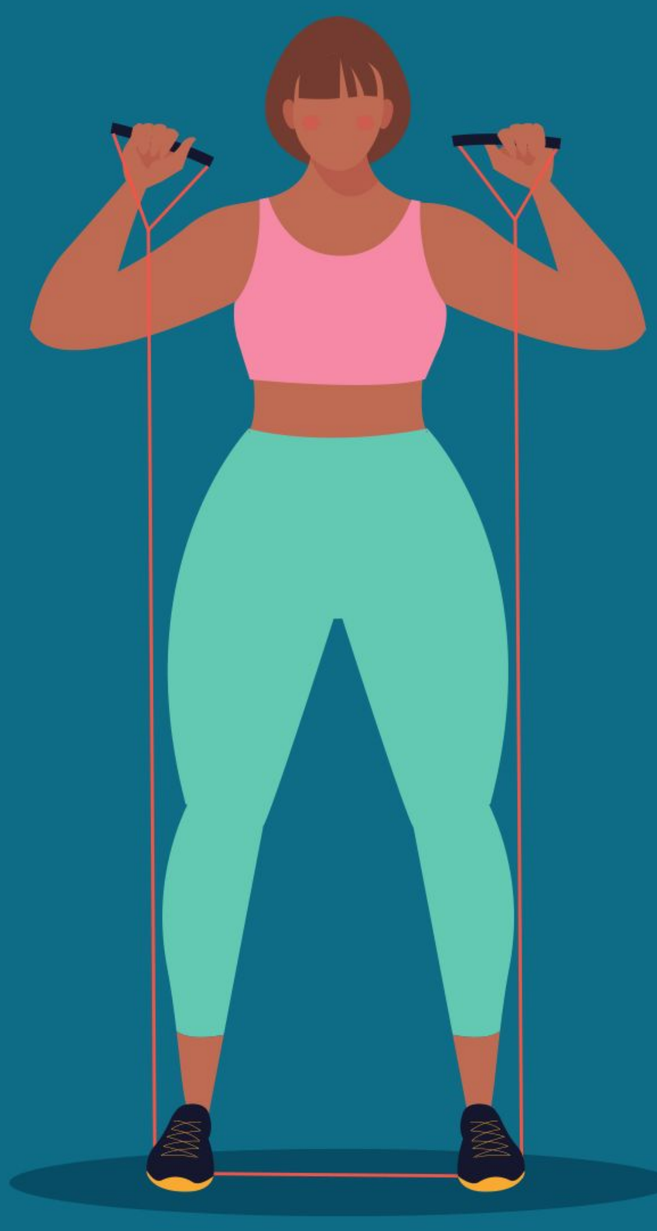
It's vital to listen to your body – when you're hungry, eat; when your body is telling you it's full, stop. So, how can you tell if you're hungry or simply bored/tired/craving a sugary treat? Tune into your body's cues: is your tummy rumbling? Are you lightheaded? Do you feel hunger starting to creep in? If the answer is no, try to figure out the reason why you're wanting food right now. If you're actually thirsty or tired, have a glass of water instead. If you're feeling stressed, do something to calm down, like trying some yoga poses or calling a friend. If you're wanting to eat just because the food is there, simply remove yourself from the temptation by going for a walk or distracting yourself in some other way.

FOOD FOR THOUGHT

So, you've established that you're hungry and have prepared yourself a delicious dinner. How do you eat >

MOVE YOUR BODY, HELP THE MIND

Boost your mood and focus the mind, by moving your body in whichever way gets you going



REALLY FEELING IT

To get the most from yourself, match your workout to your mood. If you're happy, try online zumba; if you're stressed, try yoga or pilates; if you're pumped, try spinning or circuit training; if you're sad, run, walk or cycle outside and allow the fresh air and natural light to perk you up.

SUCH A POSER

Yoga is great for people of all fitness levels. There are many poses, bringing different benefits to the body and mind. Downward Dog is one of the most common poses — it sends fresh oxygen and blood to your spine, boosts core strength and relaxes you.

© Getty

"WALKING IS A FAB WAY TO FOCUS"

SAY SQUAAAAAAT

Squats do way more than just strengthen your legs. They also: burn fat, increase flexibility, improve posture and balance, reduce cellulite, increase the body's strength and muscle, build core strength, improve circulation, help with mobility, and tone your legs, bum and tum. Now, bend!

DANCE THE BULGE AWAY

Depending on how much you weigh, dancing for 15 minutes can burn up to 100 calories.

WALK OF LIFE

Walking is a fab way to stay healthy and focus your mind. Nordic walking is even better – and actually burns 20% more calories than regular walking! Because you're holding poles, you'll use the muscles in your arms, shoulders and torso, meaning you're giving yourself an all-body workout.

AAAAAND... BREATHE...

Focusing on deep breathing encourages your body to remain calm, bust stress and burn fat. Try to do ten minutes of deep diaphragmatic breaths a day. Put one hand on your chest and one on your tummy, then feel them rise and fall as you inhale and exhale.

© Getty

"OVERFILL YOUR PLATE, OVERFILL YOUR STOMACH"

it mindfully rather than just, you know, eating it? Firstly, dine without distractions such as watching TV, or scrolling on your phone. This will not only mean you're aware of how much you're eating, you'll also be able to enjoy your food more, appreciating the flavour and texture of each bite. Next, eat slowly. The feeling of fullness takes around 20 minutes to reach your brain, so chew your food thoroughly, put your fork down between mouthfuls, and generally take your time to allow your brain to get the message. Stop eating when you're full, not when you've cleared your plate. When your stomach is full, it will push against your diaphragm and you'll sigh. The goal is to be comfortably satisfied, not overstuffed with the need to undo the top button of your jeans.

DON'T FEED GREED

Portion control is very important when trying to eat mindfully. Often if you overfill your plate, you'll overfill your stomach. To avoid this, try some of these simple hacks:

- Use a smaller plate or bowl for your meal.
- Serve yourself a portion, then put the leftovers away, out of sight (this goes for meals as well as snacks — it's all-too-easy to polish off a big sharing bag of crisps if you eat straight from the packet).
- As soon as you've finished eating, brush your teeth so you're not tempted to eat more (spag bol and mint isn't a taste sensation!).
- Never eat while standing in front of the fridge.
- Keep a food record — knowing you're going to write down exactly what you eat will make you think twice about that extra dollop of sour cream.

FITNESS IS YOUR FRIEND

"Being active means different things to different people," says Watson-Peck. For some, it's hitting the gym hard; for others, it's going for a walk. "Movement, whatever it is, improves health," she continues. Why? So many reasons! For starters, exercise can reduce your risk of serious illnesses – like heart disease, cancer and type 2 diabetes – by up to 50%. It also improves your circulation, balances your nervous system, improves digestion and turns your frown upside down (due to the release of endorphins, aka happy hormones). Exercise has been called nature's antidepressant and can positively influence mental health and mindfulness. Whether you choose to run, swim, walk, lift weights, do yoga, play tennis, belly-dance or hula-hoop, staying active means that every organ in your body is getting a workout in one way or another.

The key is to do something that you enjoy and will look forward to doing — otherwise you'll lose motivation and the lure of your onesie may become too much to resist.

Being active doesn't have to mean donning Lycra and doing a full-on workout until you're all sweaty and gaspy. It can simply mean incorporating more movement into your everyday routine: take the stairs instead of the lift, get off the bus two stops early and walk the rest of the way, park further away than usual, get off the sofa to change the channel!

In short, inconvenience yourself — your body will thank you for it. And so will your mind.

Chew on this...

POPCORN

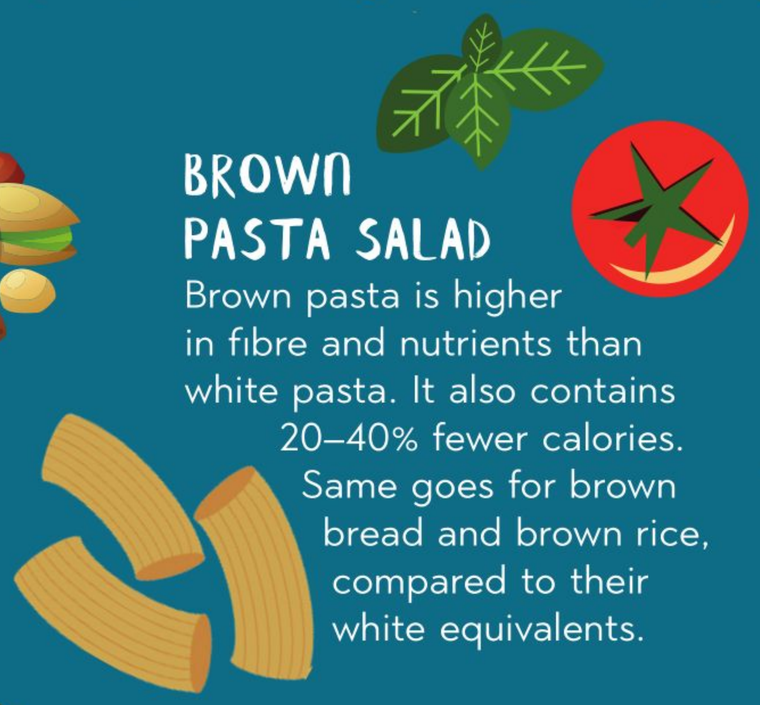
As popcorn is a wholegrain, it's actually good for you. Obviously, it becomes less healthy if you add butter, sugar or salt. Instead, sprinkle paprika or cinnamon over it.

SEEDS AND NUTS

To keep your blood sugar levels steady, eat a handful of nuts and seeds. They are slow-release carbs with a low glycaemic index (GI), and will combat cravings for sugary foods.

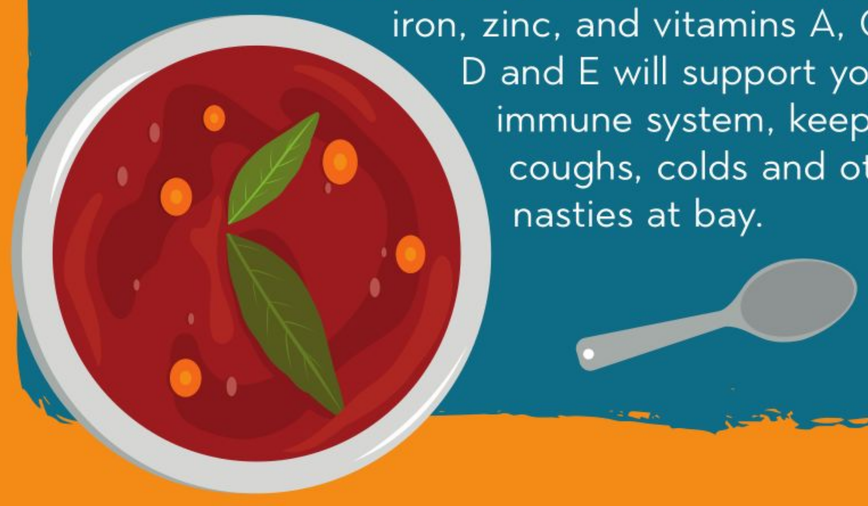
BROWN PASTA SALAD

Brown pasta is higher in fibre and nutrients than white pasta. It also contains 20–40% fewer calories. Same goes for brown bread and brown rice, compared to their white equivalents.



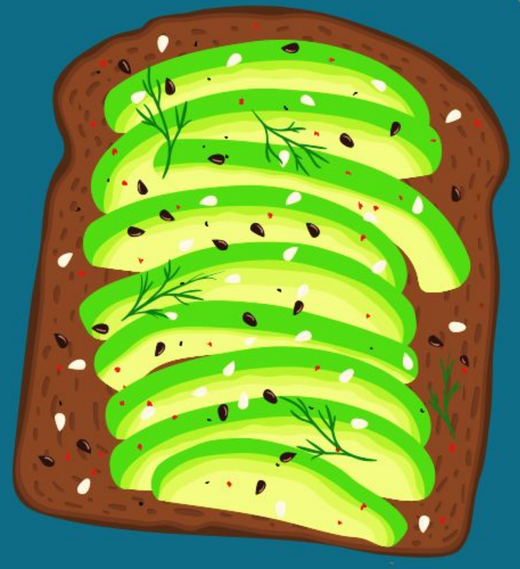
LENTIL AND BEAN SOUP

A hearty soup containing plenty of iron, zinc, and vitamins A, C, D and E will support your immune system, keeping coughs, colds and other nasties at bay.



AVOCADO ON TOAST

You'll find good fat in abundance in this green superfood, which will encourage a healthy heart, boost metabolic health, build muscle, keep you feeling fuller for longer, and improve the condition of your hair, skin and nails.



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MY MEAL PLAN

BRING ON THE CARBS

Carbohydrates contain the same amount of calories per gram (four) as protein, and are essential to your body for energy.

Make sure you are eating a healthy and balanced diet by creating a weekly meal plan. It will also help you to prevent food waste

	BREAKFAST	LUNCH	DINNER	SNACKS
MON				
TUES				
WEDS				
THURS				
FRI				
SAT				
SUN				

IMAGE SOURCES · GETTY

DISCOVER OPTIMUM HEALTH THROUGH EXERCISE

Combine regular activity with healthy eating to feel your best and boost your energy levels

© Getty

Eating a healthy, balanced diet every day is one of the best things we can do to keep our body in its best condition. Eating the right foods can help to reduce the risk of certain illnesses and conditions, help us to reach and maintain a healthy weight, and boost our natural immunity. While nutrition is a large part of the puzzle to living a healthy lifestyle, being active is another, with numerous benefits for both our mental and physical wellbeing.

> *“By engaging in exercise, you will live a longer, healthier and happier life”*

WHY IS EXERCISE SO IMPORTANT?

Inactivity levels among all age groups have been rising — so much so that the Department of Health dubbed inactivity as “the silent killer”. Physical activity guidelines have been developed to highlight the importance of getting enough exercise for people of all ages. If you are generally healthy and not suffering from any conditions that limit your ability to stay fit, then someone aged between 19-64 should be looking to do at least 150 minutes of moderate aerobic activity each week, as well as strength exercises on two or more days a week. If you do activity that is considered “vigorous”, then you should aim for at least 75 minutes each week. Roughly one minute of vigorous activity can count for two minutes of moderate activity.

If you don’t currently exercise, and even if you do, this can seem like a lot to fit in. After all, life can be busy enough, without having to find dedicated time to exercise. The problem is that so many of us sit for long periods of the day – at work, on our commute and to relax in the evenings. The modern lifestyle is far more sedentary than in previous generations and is having a large impact on our overall health.

The benefits of making time to exercise enough are too great to ignore. For a start, getting enough exercise can reduce your risk of major illnesses and conditions, including heart disease, stroke, some cancers and type 2 diabetes. According to health services, you can lower your risk of an early death by up to 30%. By engaging in exercise, you will live a longer, healthier and happier life.

Exercise also greatly impacts on our mental wellbeing as much as our physical. It can help with sleep quality, which alongside nutrition and exercise is another key element to living a healthy life. Exercise can reduce your risk of conditions like depression, stress, dementia and Alzheimer’s disease. For those who may already suffer from anxiety, depression or stress, exercise can help to manage the condition and is often recommended as part of a treatment plan.

PICKING THE RIGHT EXERCISE FOR YOU

Anything that gets you active counts as exercise, but there are different categories of activity that will help you meet your minimum guidelines.

First, let’s look at the aerobic aspect of exercise. As we’ve said, you should be looking to achieve 150 minutes every week of “moderate” activity. But what is moderate? These are activities that raise your heart rate, but you can still hold a conversation, albeit a breathy one! This includes things like walking briskly, doing water aerobics, cycling at a moderate pace, hiking or rollerblading. Some gym classes may also fit in this category.

You can break this activity down to make it easier to fit into your life. For example, if you aim to do 30 minutes on five days a week, that already sounds more manageable. Even better, you could combine it with something you already need to do, such as commuting to work. Can you get off at a different stop or park the car further away, so you get 15 minutes of brisk walking in each direction? Can you cycle the journey to work instead of driving? Can you manage a walk or short gym class in your lunch break?

If you can make some of your activity vigorous, that’s even better. Studies have shown that activities that get your heart

racing have even greater benefits. This includes running, swimming quickly, cycling at a faster pace, tennis, football, higher-intensity gym classes and martial arts. You know that you're working at a vigorous level if your breathing is hard and fast, and you can't speak a whole sentence.

We also mentioned that you need to think about including strength exercises into your weekly activity. This is really important aspect of a healthy lifestyle but is something so often overlooked. Doing dedicated strength work helps your bones to stay strong and also helps with the maintenance of a healthy weight.

A great way to get started is to incorporate weights into your routine, which we will look at later. It's not as intimating as it sounds! You can also include bodyweight exercises, such as planks, press-ups and sit-ups. You can create your own simple routine and you don't need to spend a lot of time on the exercises. There are lots of home DVDs that you can follow for instruction if you prefer. Strength exercise can also include activities like yoga and Pilates, which also help you with your body's flexibility.

COMBINING HEALTHY EATING WITH EXERCISE

As you introduce more activity into your life, it's important to ensure that what you're eating supports your body and gives you all the nutrition you need. Bear in mind that by exercising regularly, your caloric needs will increase — you have to make sure that you are eating enough to properly fuel your body and promote recovery.

Many people make the mistake of not eating enough to supplement the amount of exercise they do, which can leave you feeling tired and rundown. When you increase what you eat, make sure that you are still making healthy choices. It can be helpful to think of food as fuel — which essentially it is. By choosing the best quality fuel, you are helping your body to perform at its optimum.

With a lot of hype around low-carb eating, it's easy to forget that carbohydrates are an incredibly important part of a healthy diet. Carbs are our main and most accessible form of energy. Carbohydrates are broken down in the body to form glucose, which we can use quickly. When you are exercising, you need this glucose to fuel your workout and enable you to perform at your best. As the body can only store a limited amount of glucose, in the form of glycogen, it's essential that you provide your body with a good source of carbs before a hard workout so that the energy is ready and waiting. The more you exercise and the higher the intensity of that exercise, the more carbs you will need on a daily basis. Try and ensure that your carb intake comes from healthy sources, such as wholegrain pasta, grains, sweet potato, wholemeal bread, bananas, oats and pulses.

Protein is the next key part of your diet. Protein builds muscles and helps to repair them after a hard workout. Our body cannot produce all the amino acids that it needs for protein, so it needs to come from a balanced diet. There are both animal proteins and plant proteins, so even if you follow a vegetarian or vegan diet, there are options to increase protein in your meals. Animal proteins include meat and fish, eggs and dairy products. Plant sources include nut milks, soy products, tofu, quinoa and some meat alternatives, like Quorn.

> *"It's important to ensure that what you're eating supports your body and gives you all the nutrition you need"*

Another macronutrient that has been alternatively demonised and lauded is fat. Both low-fat and high-fat diets have come and gone, but it's much easier to ignore both of these extremes and just make sure you are getting the right amount of fat into your body and of the right types. Fat is necessary — it is another source of fuel for the body, as well as essential for many of our organs, including our brains. A lot of it comes down to common sense... the type of fat you find in cakes and chocolate isn't going to promote good health; the kind of fat that you find in nuts, olives, oils, fish and avocado is going to help you reap health benefits. Consuming too much fat can lead to weight gain, but when you are exercising, it plays an important role and certainly shouldn't be left out.

As well as eating from all the major food groups, the other thing to bear in mind when you increase your exercise levels is to ensure that you're drinking enough water. You need around eight average-sized glasses a day, but if you are partaking in vigorous exercise, you will need to drink more — before, during and after a workout

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IMAGE SOURCE · UNSPLASH / YAYAN SOPHIAN

PROTEIN POWER

DO I NEED TO SUPPLEMENT MY PROTEIN INTAKE?

Protein and exercise often go hand in hand, and as such a massive market for protein-powered products has sprung up. From protein powders and shakes, to protein bars, the message seems to be that we need more protein.

Protein is a macronutrient essential to the healthy operation of our body. There are a number of different proteins and these help to build or repair muscle, as well as serving as a source of fuel. It's advised to eat around 0.75g protein per kg of body weight, but as a very general average it's around 55g for men and 45g for women. Most of us get this through our normal daily diet. High-protein foods include eggs, nuts, meat and fish, oats, yoghurt, milk, lentils and some grains, like quinoa. It is possible to have too much protein; an excess of animal proteins can put pressure on the kidneys.

If you're not eating enough protein, or you are working out regularly, you may consider supplementing. Those who are highly active will have higher protein requirements than those who are sedentary. These products are designed to give you a boost of protein in an easily digestible form. They are also very convenient – if you've finished a workout and don't have time to cook a full meal, a protein shake gives your body what it needs quickly. It is best to use high-protein supplements after a workout, when you can benefit from the muscle recovery and development most. However, if you are able to prepare a meal, you can get all the protein you need from real foods.

WHAT TO EAT BEFORE EXERCISING

There is a lot of trial and error when it comes to knowing when and what to eat before a workout. Some people find it hard to exercise if they eat too close to a workout, whereas others need a full meal to fuel them through a tough session.

Most people can tolerate eating their last meal around two hours before a workout. This gives enough time for it to be digested and provide energy to the body. Others may need longer, while some may need to eat closer to a workout.

However, sometimes our meals and exercise times are dictated by our day-to-day lives and we can't always eat what we want, when we want. For example, many people find that they exercise best first thing in the morning, but don't have time for a full breakfast. In this case, it's best to have something before to give you a little fuel and a proper breakfast when you get back. Similarly, you might exercise after work, but before dinner and it's a long time from lunchtime. In this case, have a small snack before working out for an energy boost and eat well afterwards.

Before exercise, you should limit your fat intake, as for some people this can lead to gastric problems. Ideally you should look to consume some starchy carbs, such as oats or pasta. You could have a cereal bar or a banana if you're on the go. Make sure that you also drink a large glass of water so that you start your workout well hydrated.

DO I NEED TO FUEL DURING A WORKOUT?

You will need to regularly sip water during any workout, but whether you need anything more depends on what you are doing. If you are involved in a vigorous activity for more than an hour, you will likely need to look at taking on board some more fuel. This is because after an hour of intense exercise, you will deplete your carbohydrate stores and therefore need to top up your fuel for energy.

This usually applies to activities like long-distance cycling, swimming and running. If you play a team sport that lasts for a long time, such as football, you may also need to think about taking on board some more fuel.

What your body is looking for is a simple source of carbohydrates, which it can instantly access and use to keep you going through your activity. You also don't want to wait until you run out of carbs before topping up — if you know you're going to be exercising for over an hour, try and take on board extra carbs after about 45 minutes so that you don't go down to empty. This is part of the reason that some people talk about hitting a "wall" in marathons, for example.

There are lots of different sports drinks and products that you can experiment with. There's no one-size-fits-all answer. Some people can tolerate products that others can't. Some products contain caffeine for an energy burst, but this can cause stomach cramps or gastric troubles for some people. The best thing to do is experiment — try a mix of sports drinks, gels and bars to see what works for you.

If you are working out for a long time, or you are in a hot environment, you are probably losing a lot of salts through your sweat as well as water. It is important to replenish these salts — especially potassium, sodium and magnesium — so you may also need to consider having an electrolyte drink instead of plain water.

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THE HEART IS THE STRONGEST MUSCLE IN THE HUMAN BODY, SO MAKE SURE YOU GET IT PUMPING FOR OPTIMUM HEALTH

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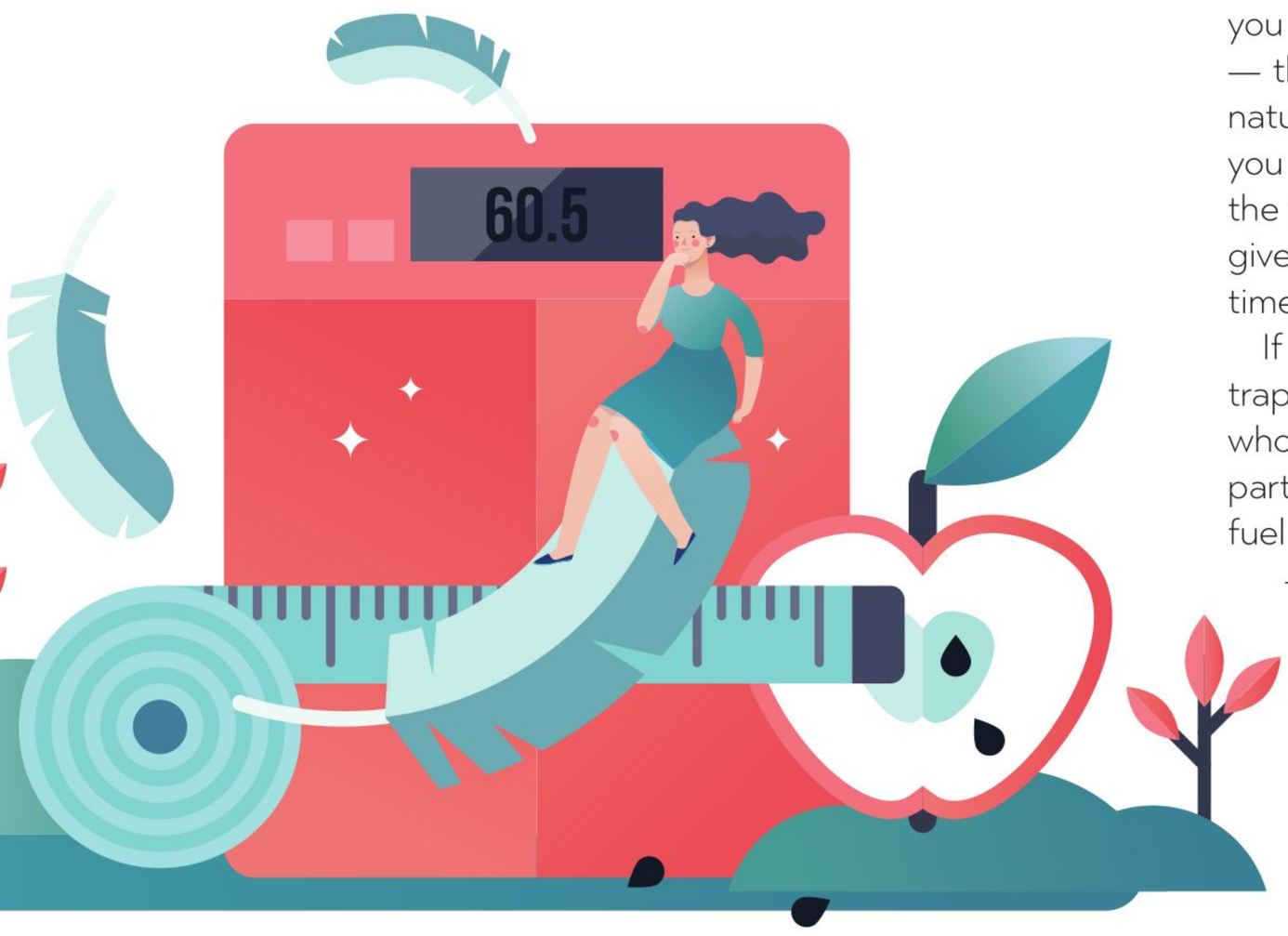
EATING AFTER A WORKOUT

When you finish exercising, there are two things you need to think about when planning what to eat. First, you will have run down your carbohydrate stores so you will need to replenish them as quickly as you can. Second, your muscles will have been put under strain and will need to rebuild, which is why you need protein.

Ideally you want to eat something soon after exercising, which should contain starchy carbs and high-quality protein. However, if you can't eat immediately, you should make sure that you have a snack within 30-60 minutes of finishing, and then eat a main meal later on. This could be something as simple as oatcakes and nut butter, or a homemade smoothie with milk and oats.

If you don't eat properly after a workout, you won't recover fully. Then you will go into your next workout at less than optimum and, over time, your performance will suffer and you can start to feel run down. Eating properly and healthily after every workout is absolutely vital.

"The modern lifestyle is far more sedentary than in previous generations and is having a large impact on our overall health"



EATING FOR MUSCLE GROWTH

When it comes to building muscle, it's often thought you need a high-protein diet. However, like any fad diet, it's not easy to reap results on a long-term basis. It's much better to look at your diet and how you can create balanced meals that provide your body with everything it needs to build lean muscle.

According to the British Nutrition Foundation, just 20g of good-quality protein is enough for "optimum muscle protein synthesis" following an exercise session. It says that any protein over this amount will not go towards muscle building, but is just used as energy for the body. For context, a protein shake can contain 40g of protein — which is about the same as a grilled chicken breast.

What is more important when it comes to eating well to promote muscle growth is the timing of your protein intake. While you need to ensure you have enough protein on a day-to-day basis, you should also make sure you have protein soon after finishing a workout. This is when your muscles most benefit from the protein for building and repairing muscle tissue. This helps you go into your next workout fully recovered and you will also begin to build muscle mass.

The key is in being prepared. When you know you have a workout planned, make sure you pack a healthy protein snack to eat immediately afterwards. This could be a couple of hard-boiled eggs, for example, a chicken salad, a large handful of nuts or a carton of milk.

LOSING WEIGHT THROUGH EXERCISE

Many of us will start exercising and eating healthily with the intention of losing weight. However, in our bid to lose weight we can forget that food is an essential fuel for our body to work properly. One thing you should never do when starting to increase your activity levels is limit your food intake drastically.

In this book we're looking at living your best, healthy life long term. It's all too easy to sacrifice this long-term goal for short-term success. It may take a little longer for weight to come off by not limiting your food intake too much, but it is far more sustainable and will help you stay healthy for life.

By combining a healthy eating plan and regular exercise, you are reaping a lot of benefits over and above weight loss — though if you do need to lose weight, this will happen naturally as you get fitter, build muscle and eat well. When you start exercising, you shouldn't skip a meal — you need the fuel! Start with a healthy, filling breakfast designed to give you energy for the day. Have lunch and dinner at regular times, and have healthy snacks in between if you are hungry.

If you are trying to lose weight, don't get caught in the trap of consuming processed products that target those who exercise. As we have mentioned, if you are taking part in exercise for over an hour you'll need to top up your fuel stores. However, these products are high in calories — deliberately so, as you need calories for sustained endurance when running a marathon, for example — but for normal day-to-day exercise, you simply don't need them. It is much better to eat a balanced diet, with plenty of fruit and veg, fibre, carbs, protein and fat to meet your body's requirements. Want to get started? We look at some fitness ideas the next few pages.

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WALKING IS ONE OF THE MOST ACCESSIBLE AND EASIEST FORMS OF EXERCISE, JUST MAKE SURE THAT YOU KEEP THE PACE BRISK!

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ESSENTIAL YOGA POSES FOR BEGINNERS

Discover how to build strength, flexibility and mental wellbeing with this ancient form of movement

Yoga is thought to be over 5,000 years old, originating in India. It has, in the past, suffered from a reputation as being an exercise only accessible to the more flexible among us. However, yoga is in fact an endlessly adaptable form of exercise, making it suitable for people of all ages, shapes and abilities. Thankfully it is far more widely understood and practiced these days, especially with the introduction of modified versions of yoga — such as chair/seated yoga — proving that anyone and everyone can get involved.

Yoga counts as one of your two recommended weekly strength sessions to help keep your muscles strong. It also helps you to improve your flexibility, balance and co-ordination. Because of its attention to breathing, posture and stillness, yoga is a mindful form of exercise. There is also some evidence that shows it can help to reduce stress and anxiety, be used to manage back or muscle pain, and could even be beneficial for those with high blood pressure or heart conditions. With all of these advantages, it is definitely worth making yoga part of your fitness regime, and here we look at some of the best poses to get you started.

CAT/COW POSE

Cat/Cow is a basic pose with a wide range of benefits. You start on your hands and knees, with wrists under your shoulders and knees under your hips, lining up at 90-degree angles. When you breathe out, you round your spine, pulling your head towards your navel — this is the Cat form of the pose. As you breathe in, you turn your head towards the sky and open the chest, creating a curve in your spine. This is a great stretch for the back and hips, as well as strengthening the muscles in the spine and neck. It's a good pose for mornings, to release any tension built up from lying in bed at night. For women, it can also help alleviate pain associated with menstrual cramps.

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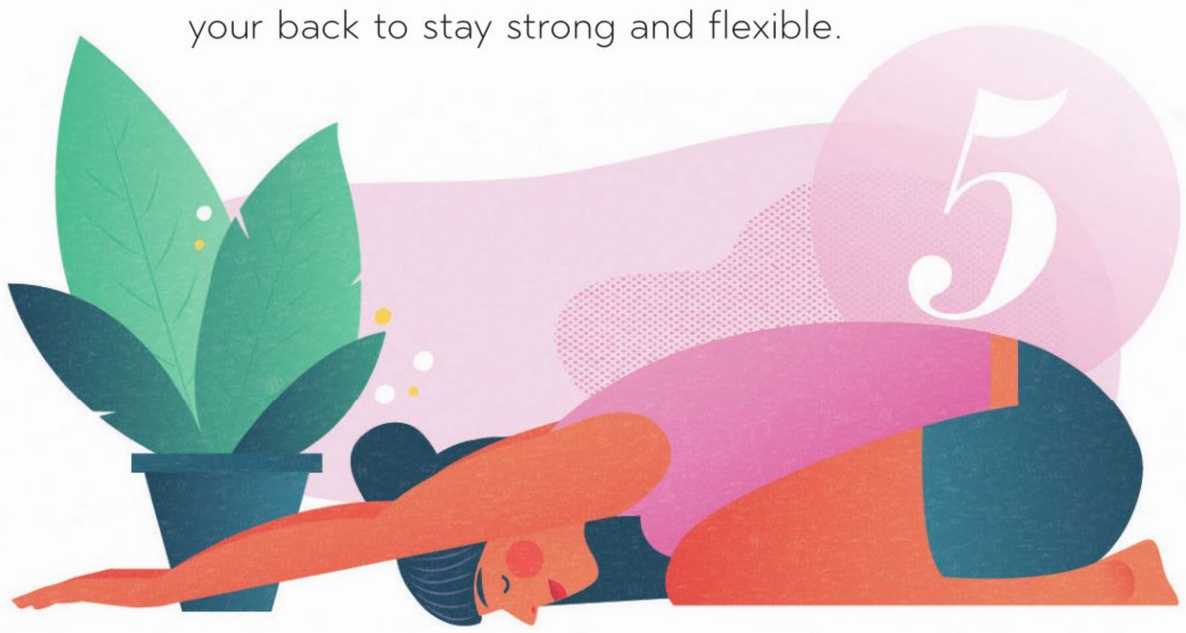
WARRIOR II POSE

The Warrior poses help to build standing leg strength. These are also strong poses that can boost mental wellbeing by creating feelings of empowerment. Warrior II targets the hips, inner thighs and groin areas, opening them all up in a powerful full-body pose. Stand with your feet wide apart. Start with your right foot and turn it 90 degrees to the right. Your left foot should turn about 45 degrees to the right. The heel of your right foot should be in line with the side arch of your left foot. Bend your knee towards the right foot so that your knee sits directly over your ankle, but keep your core centred between both feet. Your arms stretch out to both sides, and you look forward towards your right foot. Repeat on the left side.

CHILD'S POSE

This is a very simple, relaxing pose and is often used in yoga practice as a rest pose to release muscles in between more intense poses. But it's also a powerful pose in its own right and can be a great way to start or end the day. Kneel down and tip forward, bringing your arms in front of you, forehead to the floor and push your chest down. Keep your bottom pushing towards your heels and lengthen through your spine. Take deep breaths as you sink into the pose and hold. This can help to release tension in the body, as well as help your back to stay strong and flexible.



DOWNWARD-FACING DOG

This is one of the most common yoga poses, thanks to its full-body strengthening ability. Starting on all fours, with wrists under shoulders and knees under hips, lift your knees up and push your hips towards the sky. Your hands should be firm to the ground. Push your chest and head between your arms, and keep your core tight. You may have to bend your knees if your hamstrings are tight and your heels can lift off the ground when you first start. You're aiming to create straight lines and form a triangle.

STANDING FORWARD BEND

Start in a standing position, with feet firmly planted hip-width apart. Draw your spine to its full length, then bend forwards, hinging at the hips. With each breath try to relax the neck and shoulders. Your hands can hang, grasp your ankles or lightly touch the floor for support. Your knees should be bent as much as you need for comfort, and you can start to work on straightening them over time. This forward bend pose helps the hamstrings, relieving tension and creating length in your body. If you can't invert your head in this way, try a Seated Forward Bend instead, with your legs out in front of you as you sit on the floor, and hinging from the hips towards your feet.

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5 TOP TIPS TO START RUNNING

Join the running revolution and reap the physical and mental benefits of this sport

The great thing about running is that, at its most basic level, it's very simple to get started. All you need is some well-fitting trainers, sports kit and a can-do mindset. Running is growing in popularity every year. The Virgin Money London Marathon and the Bupa Great North Run are both televised events that inspire and motivate hundreds of viewers to try running for themselves —the fact that both these events require entering a ballot and are hugely oversubscribed is testament to the fact that running is a sport with wide appeal. Then there are activities like parkrun (parkrun.org.uk), an amazing venture where you can turn up to your local event (there are hundreds around the country) on a Saturday morning and run, walk or jog the 5K course with absolutely no pressure, for free.

Running is a great cardio activity to build strength, stamina and endurance. It can help you to achieve or maintain a healthy weight, and it can boost your heart health. It's also linked to improved mental wellbeing, and can be very beneficial to those with depression or anxiety.

START SMALL

Running too much too soon can lead to injury, and this can often put people off the sport. Make sure that you start slowly when it comes to running. Begin by alternating running and walking — for example, run for one minute, walk for one minute and repeat for 20 minutes. You should always start with a short warm-up before you begin running, and gently stretch at the end (more on this later). Consider following a structured programme like Couch to 5K (there are a couple of apps available that are broadly the same), which builds you up carefully week by week and therefore reduces your chance of getting injured.

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INVEST IN DECENT TRAINERS

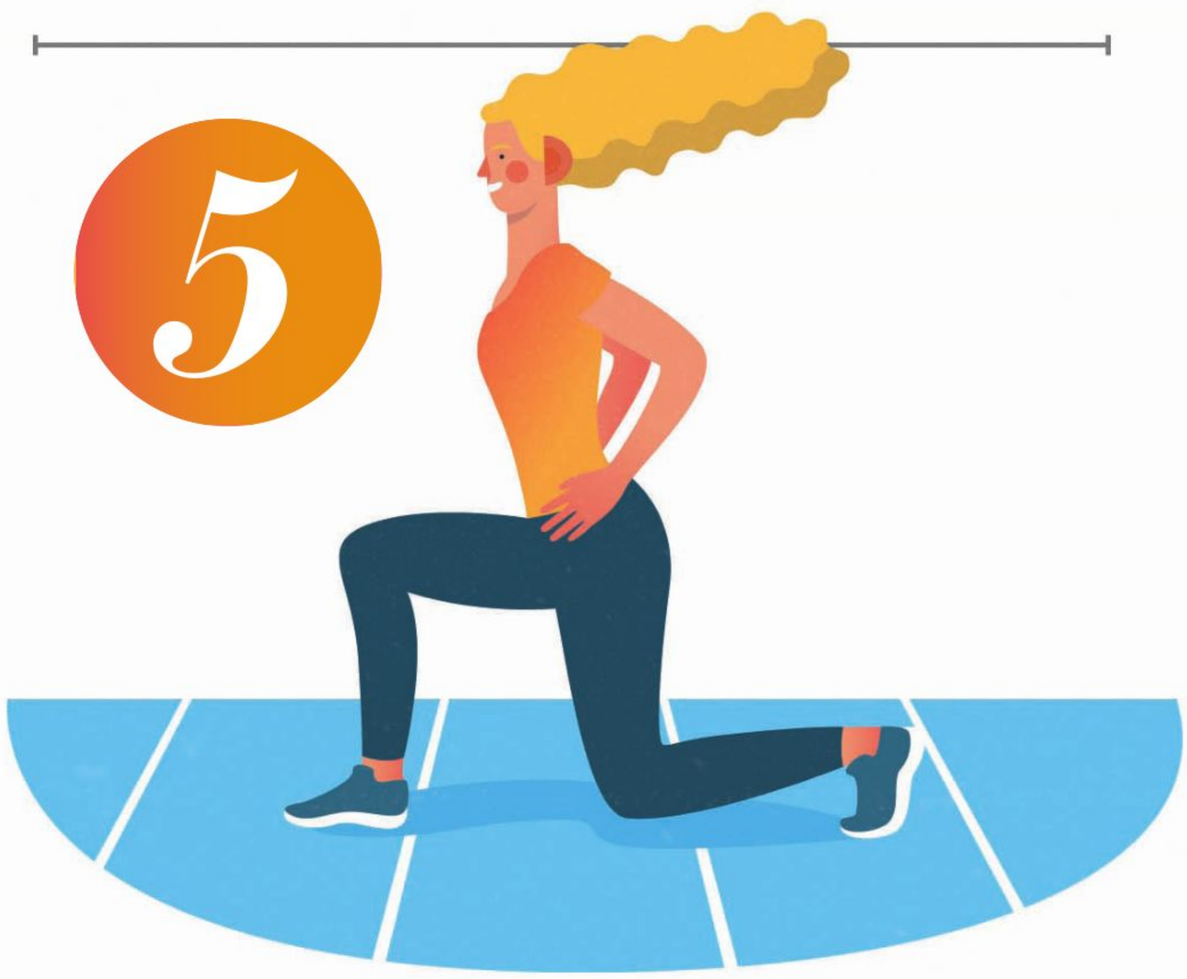
You don't need a lot of kit to start running, but it's important to think about what you are putting on your feet. A lot of injuries can occur because you are wearing trainers that don't support your feet properly as you run. It's worth going to a running shop and asking for their advice. They will often look at how you run and recommend the right type of shoe for your feet. This can help to prevent injury and prevent uncomfortable blisters. Tell the advisor your budget before you start, as running shoes can be quite pricey for higher-end models. Also consider some proper running socks to further protect your feet.

SET MINI GOALS

Think about what you want to achieve with your running. For some people, it's about gaining fitness, for others it's improving health and for others it might be about losing weight. Whatever your personal reasons, it's a good idea to set yourself some goals to achieve along the way. Track your progress using a running app or writing in a notepad. This will enable you to look back over how far you have come. You can also decide on rewards along the way. For example, the first time you run 20 minutes non-stop, you could treat yourself to a new running top or a massage. Then you can move on to the next mini goal to keep you on track.

FIND A RUNNING BUDDY

It's much easier to motivate yourself to go for a run if you do it with someone else. Having someone to talk to while you run helps the time go quicker. It's also nice to have a buddy to share experiences with. You could also run with someone more experienced, who can answer any questions you might have or give you some practical advice. If you don't have anyone to run with, consider looking for a club or running course in your area, where you can connect with like-minded people and commit to sticking with running for the long term. Many running clubs will have a beginners' session or a Couch to 5K-style course to build you up from scratch.



LEARN TO STRETCH PROPERLY

A common cause of injuries is not stretching after you run. Even when you first start out and even if you are doing more walking than running, getting into the habit of stretching for a few minutes after a run will do you the world of good. Make sure that you stretch through your main leg muscles: calves, thighs, hamstrings and quads. You should also stretch your arms and shoulders (where many runners hold a lot of tension), hips and glutes. A full stretch routine doesn't have to take long, but it should be considered an essential part of each running session.

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WHY EVERYONE SHOULD LIFT WEIGHTS

Improve muscle mass and bone density through regular strengthening exercises

It's recommended that we all do some form of weight training, and yet so many of us shy away from lifting weights. For many people, that section of the gym can be intimidating and it's easy to assume that it's not for you if you're not looking to build large muscles. However, physical activity guidelines recommend that all adults should lift weights twice a week to keep muscles strong, and to help fight the natural decline in bone density and muscle mass that happens from around the age of 50. Lifting weights is also great for sculpting lean muscle, toning up and increasing strength. If you invest in some weights at home, you don't even have to go to the gym — a quick routine in your own living room a couple of times a week can make a huge difference. If you've never done any form of weight lifting before, you can start really small with a couple of bottles of water or tins of beans, or invest in some very light dumbbells. Just don't forget to increase the weight as you get stronger to continue to reap the benefits.

SIMPLE DEADLIFT

The deadlift is a classic weight-lifting manoeuvre. It's a great beginners' move to help you perfect your form, build strength and give you confidence to move on to harder moves or heavier weights. Stand with your feet about hip-width apart, with a dumbbell in each hand or a kettlebell in the centre just in front of your thighs. Hinge forward from your hips, keeping your spine neutral and lower the dumbbells towards the ground until your torso is level with the ground, pushing your hips back, then drive back up. This functional move can help your posture and is great for those who have to sit at a desk all day. It's also a really practical move that can help you build strength to lift objects in your day-to-day life, such as suitcases or boxes.

© Getty

CHEST PRESS

If you have access to a bench, this is best for alignment. Lie on the bench, with your feet on the floor. You can also use a step or you can lie on the floor with your feet on the floor and your knees towards the ceiling. With a dumbbell in each hand, raise your arms above your chest. Pull your arms down so that your elbows are at 90 degrees in line with the floor. Push the weights back up to the starting position. It's best to do this move slowly and with control. A good chest press can help to build your chest muscles, shoulders and arms, increasing upper body strength.

WEIGHTED LUNGE

Just like the weighted squats, this is a compound move. This means you are working little muscles alongside big muscles, which helps you tone and strengthen your body faster. Stand with your feet hip-width apart, holding a dumbbell in each hand. Lunge forwards with one foot, keeping your knee in line with your ankle. Hold for a couple of seconds and step back, repeat with the other foot. Progress to adding in a dumbbell curl with your weights as you lunge (see the next exercise).

WEIGHTED SQUAT

Squats are great for targeting the large muscles in your lower body. Add weights and you can work your arms at the same time for a full-body workout. Make sure that you have your squat right before you add weights. Start with your feet just beyond hip-width apart and sit back, making sure that you push your bottom back and down, so your knees don't travel forwards. Push to stand up, keeping a slight bend in the knee. You can add weights by holding a dumbbell or kettlebell in your hands as you squat down. Progress to a squat and press, where you hold dumbbells by your shoulders and press up as you stand.

CURLS

A simple weighted exercise that often features on beginner programs. And for good reason; the curl is a great introduction to using weights as it's easy to master. Hold a dumbbell (or any light weight) in each hand. Stand with your feet hip-width apart, with a slight bend in your knees. Pull your core in tight and slowly curl your forearms upwards. You want to keep your upper arm from shoulder to elbow still, so that you target the bicep muscles. Curl down just as slowly; don't just drop the weight. You can always do one arm at a time as you increase strength, and over time you can build up to both arms with increasingly heavier weights.

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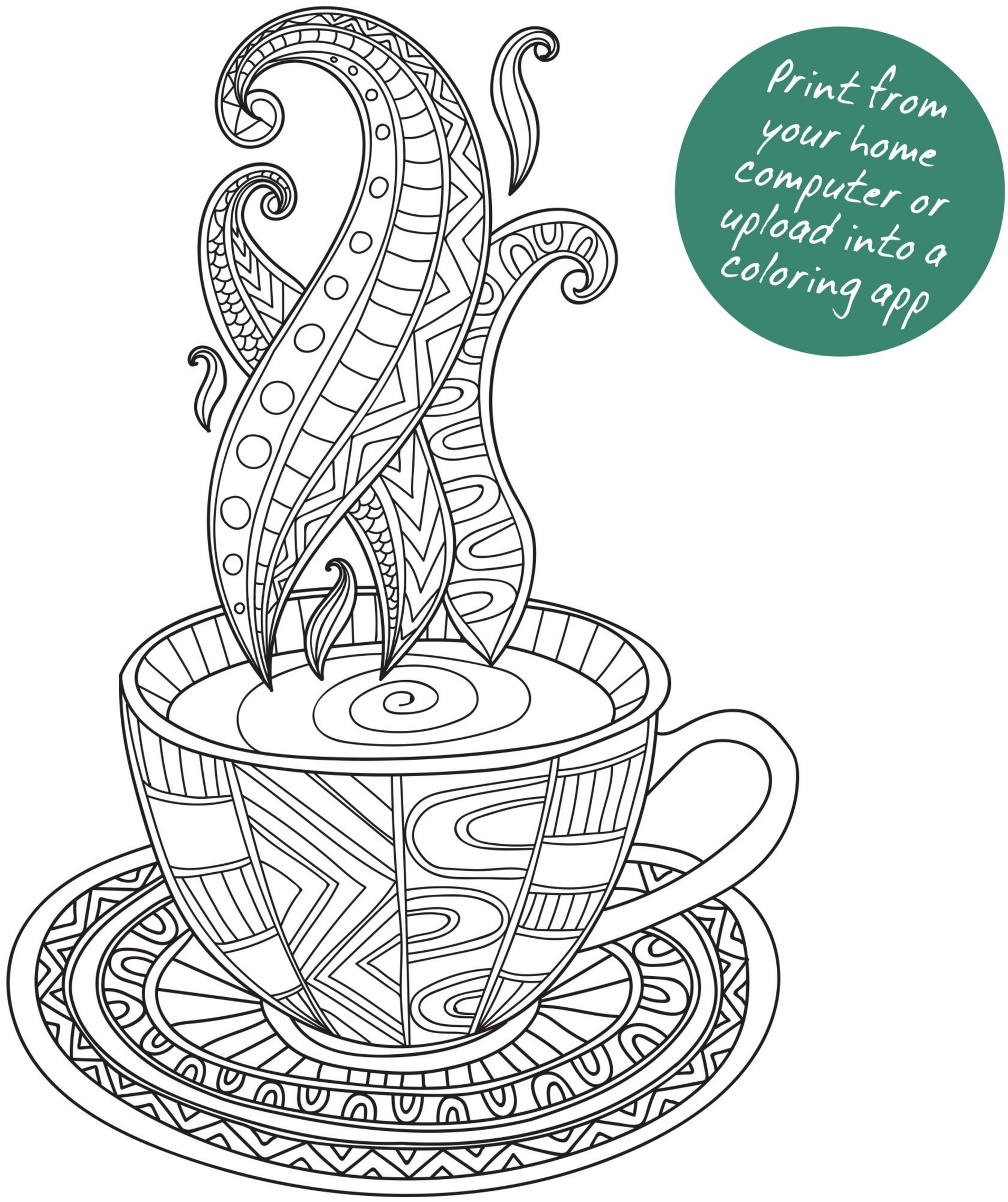
TAKE A MINDFUL BREAK

Forget about coronavirus, put down your phone, step away from your computer and turn off Netflix. Try to switch off your mind and colour in the following pages



Print from your home computer or upload into a coloring app

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SECTION 6: WELLBEING AND MINDFULNESS

CHANGING YOUR THOUGHTS

Write down some negative thoughts that you have, then think of positive thoughts that you could have instead

NEGATIVE

POSITIVE +

NEGATIVE

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THE CORONAVIRUS HANDBOOK

HOW TO SURVIVE & THRIVE AT HOME

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THE CORONAVIRUS HANDBOOK

HOW TO SURVIVE & THRIVE AT HOME

What are the symptoms of coronavirus? How can I stop it from spreading? How can I protect my family? What is the best way of homeschooling my children? How can I work effectively from home? What's the best way of staying fit and healthy, physically and mentally?

In the coronavirus handbook, you'll find the answers to these questions and more as **Live Science** keeps you up to date on the latest information on the pandemic. Providing practical advice on everything from creating an office space and finding a healthy balance between parenting and worklife, to choosing the right diet and pastimes for you and your family, **Live Science** ensures you thrive and survive at home during these challenging times.

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