

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Half of Teens Think They're Addicted to Their Smartphones

Source: Kelly Wallace, CNN, May 3, 2016

I don't have teenagers yet, but watching my 8- and 10-year-olds spend endless amounts of time on iPads during spring break makes me worried about the day -- hopefully years from now -- when they have their own devices.

A new poll that confirms just how much teens depend on their phones gives me even more to worry about. Fifty percent of teens feel they are addicted to their mobile devices, according to the poll, which was conducted for Common Sense Media, a nonprofit focused on helping children, parents, teachers and policymakers negotiate media and technology. A larger number of parents, 59%, said their teens were addicted. The poll involved 1,240 interviews with parents and their children, ages 12 to 18.

"Technological addiction can happen to anyone," said digital detox expert Holland Haiis, who describes technology as "the new 21st century addiction" in her book "Consciously Connecting: A Simple Process to Reconnect in a Disconnected World."

"If your teens would prefer gaming indoors, alone, as opposed to going out to the movies, meeting friends for burgers or any of the other ways that teens build camaraderie, you may have a problem."

How many teens are truly addicted to their devices and the Internet? It is difficult to say. A 2011 review of 18 research studies found that Internet addiction might affect between zero and 26% of adolescents and college students in the United States, according to Common Sense Media. And, while Internet addiction is viewed as a public health threat in other parts of the world, it is not yet a recognized disorder in the United States. After reviewing all the existing research, Common Sense Media concludes that more study is needed to determine how real digital addiction is, and what the signs and consequences could be.

Whether it is an addiction or not, two-thirds of parents -- 66% -- feel their teens spend too much time on their mobile devices, and 52% of teens agree, according to the poll.

'Teenage zombies' consumed by phones

Nearly 80% of teens in the new survey said they checked their phones hourly, and 72% said they felt the need to immediately respond to texts and social networking messages. Thirty-six percent of parents said they argued with their child daily about device use, and 77% of parents feel their children get distracted by their devices and don't pay attention when they are together at least a few times per week.

Terry Greenwald, a father of three grown children, works as a custodian at a high school in Homer, Alaska, and said the hallways are often half-filled with "teenage zombies who are glued to their phones."

They often walk near the walls so they can move from class to class without looking away from their screens, he said. "It gets interesting when they get to the stairways and the walls end for the stairway," he said. "They don't want to look up and they don't want to tumble down the stairs but often just slow way down and inch along until they reach the wall just past the opening. They are often late to the next class, but that's OK because they were successful at not diverting attention from their phone."

Janis Elspas, founder of Mommy Blog Expert, believes the rules and boundaries parents set for their children when they get their first cell phone or smartphone might be helpful in heading off any addictions later on.

Her children, 18-year-old triplets and a 20-year-old, didn't own their first cell phones until they were at least a junior in high school and had a part-time job to pay for part or all of the monthly phone service. She also has a no-phone policy at the dinner table, which extends to her and her husband.

"This rule also applies to the kids' friends who might be sitting at the table with us," said Elspas of Los Angeles. "Sometimes they are shocked when I reprimand them for bringing their phone out and if there's a notification or it rings, I ask them to turn off their device."

Such a rule can prove to kids, firsthand, that they can "survive" without having to see or use their smartphone constantly, she added.

There are signs that some teens may be getting that message and realize too much time on their devices isn't necessarily a good thing. More than one-third of teens, 37%, said they very often or occasionally try to cut down the amount of time they spend on their devices, the Common Sense Media poll found.

Parents have a problem, too

Parents might complain about the amount of time their teens spend on their phones, but they admit they have their own difficulties when it comes to unplugging.

Twenty-seven percent of parents feel they are addicted to their mobile devices, while nearly the same number of teens, 28%, believe their parents are addicted, according to the poll.

Sixty-nine percent of parents check their devices at least hourly compared to the 78% of teens who say they do that, and nearly half, 48%, of parents feel they need to immediately respond to texts and social networking messages. More than half, 56%, of parents admit checking their mobile devices while driving and nearly the same number, 52%, very often or occasionally try to cut down the amount of time they spend on devices.

GG Benitez, a mother of three, said that as the founder and chief executive officer of her own public relations firm, she feels the pressure to always be available due to the fear of losing any potential press opportunities for her clients.

While she is often praised by her clients and her family and friends for her "immediate response" to texts, emails and social media posts, she said this constant need to be connected can be taxing. Yet, even when she tries to stay off her phone in the evenings for at least one hour, she has a tough time.

"I had taken my son to a movie, and he turned around to me and said, 'Are you serious, Mom? We are at the movies and you are still on your phone?'" said Benitez, who has a 10-year-old son and two daughters, ages 11 and 22.

Haiis, the digital detox expert, said one way to try to curb an addiction to digital devices is to resist endless hours of surfing the Internet. "We have constant access to new information and this is alluring, intriguing and exciting, but without setting limits for yourself, it's a slippery slope," she said.

She also said to limit posting on social media to three to five times a week, if possible, which will make you more specific about what you post and will lead to less time spent looking at other people's posts.

And, when you are at home and feel the urge to reach for your device, go outside, take a walk or exercise, she said. "The dopamine in our brains is stimulated by the unpredictability that social media, emails and texting provide," said Haiis. "It's a vicious cycle and in order to break that cycle, you need to find the same unpredictability and stimulation which is out there if you are exercising. You never know what's around the bend when out for a jog, bike ride or walk."

Benitez, the public relations executive who finds it hard to stay off her phone, said she has taken steps to curb her own digital addiction, such as setting aside the phone during mealtime.

"I have consciously made the decision to be more 'present' and will place the phone on silent and away from my vision, but not without the anxiety that I may be missing something important," she added.

Possible Response Questions:

- Do you have a cell phone addiction? Explain.
- Choose a passage and respond.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Lamb Fetuses Can Now Grow in Artificial Wombs. Will Humans Be Next?

Source: Jessica Roy/*Los Angeles Times*/April 28, 2017

When babies are born, they draw their first breaths. Those gulps of oxygen trigger the lungs to stop developing.

When babies are born prematurely, the same thing happens. But a preemie's lungs are critically underdeveloped. Scientific advancements have made it possible for babies born as early as 22 or 23 weeks to survive, but they suffer from high rates of chronic issues. Babies born that early have only a 30% to 50% chance of survival. If they do make it, they face a 90% chance of developing a serious condition related to prematurity.

An artificial womb developed by researchers at the Children's Hospital of Philadelphia could be a way to let premature babies get that much-needed extra time for their lungs and other critical organs and systems to develop. It could also reduce the estimated \$43 billion the U.S. spends every year caring for premature infants.

A study published this week in the journal *Nature Communications* explains how it works.

The artificial womb, called the Biobag, is a closed-fluid system that uses a pumpless circuit to continuously circulate electrolyte-rich fluids via the umbilical cord in a polyethylene bag. In essence, it's a big sterile Ziploc bag with tubes coming out of it.

Most premature babies are delivered by caesarean section. Inside the womb, the lungs are deflated, and the baby gets oxygen from the umbilical cord. Upon leaving the mother's body, the change in temperature and environment triggers the lungs to inflate and, within about 10 seconds, the baby takes its first breaths. The umbilical cord is cut and clamped. Then the child is put on a ventilator in an incubator to stay alive. The baby spends weeks or months in the neonatal intensive care unit fighting for her life.

With the new system, doctors would begin a C-section by making a small incision and giving the fetus a dose of a narcotic. Doctors would connect the system's circuit to the veins in the umbilical cord. Once blood was flowing properly through the circuit, the umbilical cord would be detached from the mother. The baby would then go into the Biobag.

Researchers at the Philadelphia children's hospital have been testing their invention on sheep fetuses. Dr. Alan Flake, a fetal surgeon and director of the hospital's Center for Fetal Diagnosis and Treatment, said lambs have been used for fetal physiological research for 50 to 60 years because of their similarity to humans.

In the experiments, sheep fetuses were delivered at 100 to 115 days of gestation, which is roughly equivalent to the 22- to 24-week mark for human fetuses. Once delivered, the lambs were submerged in the Biobag and monitored for as long as four weeks.

Inside the artificial womb, the lambs did just what they would have been doing in utero: breathing, sleeping, swallowing, moving around and, most importantly, growing. Echocardiograms showed normal heart activity. Brains grew at the appropriate ratio for the

animals' size. The lambs fattened up and grew wool. Overall, the animals "generally appeared comfortable and non-distressed," according to the study.

After up to four weeks in the artificial womb, the eight lambs incubated in the final Biobag prototype were "born" and put on a ventilator to begin breathing on their own. They were "surprisingly stable," the study reported. Organ growth and maturation, including of the lungs and brains, were comparable to control lambs born via C-section at the same gestational age.

Despite this success, the researchers acknowledged that parents might find it a little jarring to see their babies floating in a bag. But, the study noted, the alternative is the ventilator in the neonatal intensive care unit.

Babies would only stay in the artificial womb for a few weeks — as long as it takes for their lungs and other systems to develop, said Dr. Emily Partridge, a researcher at the Philadelphia hospital.

"Our intention would not be to support them on our system until they are a chubby 40-week gestation babe," Dr. Partridge said in a video released with the study. "The idea is to bridge the rough patch when they're really struggling and carry them through to a point where they can do OK."

A new device may transform care for extremely premature infants: After birth, they would be immersed in lab-made amniotic fluid — and kept underwater for weeks.

Of course, the study points out, lambs and human babies are not exactly the same. And though the lambs' brains looked healthy, there are limitations on how well you can measure a sheep's neurological function.

Fetal lambs are about three times larger than human fetuses, so the entire Biobag system would have to be sized down for preemies. The synthetic amniotic fluid hasn't been perfected yet. Finally, as currently designed, the system wouldn't work for babies delivered vaginally.

But researchers will be addressing those issues soon. Flake, the director of the research center, said things are moving fast.

"We're in the process of interacting with the FDA, so it's not impossible that we could be doing a clinical trial one to two years from now," he said.

Possible Response Questions:

- What is your opinion about artificial wombs?
- What other medical advancements do you predict will happen in the future? Explain.
- Select a passage and reflect on it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

What Happens to Your Brain When You Give Up Sugar?

Source: Jordan Gaines Lewis, CNN.com, March 2, 2017

Anyone who knows me also knows that I have a huge sweet tooth. I always have. My friend and fellow graduate student Andrew is equally afflicted, and living in Hershey, Pennsylvania -- the "Chocolate Capital of the World" -- doesn't help either of us. But Andrew is braver than I am. Last year, he gave up sweets for Lent. I can't say that I'm following in his footsteps this year, but if you are abstaining from sweets for Lent this year, here's what you can expect over the next 40 days.

In neuroscience, food is something we call a "natural reward." In order for us to survive as a species, things like eating, having sex and nurturing others must be pleasurable to the brain so that these behaviors are reinforced and repeated.

How much sugar is OK? Paper adds to debate

Evolution has resulted in the mesolimbic pathway, a brain system that deciphers these natural rewards for us. When we do something pleasurable, a bundle of neurons called the ventral tegmental area uses the neurotransmitter dopamine to signal to a part of the brain called the nucleus accumbens.

The connection between the nucleus accumbens and our prefrontal cortex dictates our motor movement, such as deciding whether or not to taking another bite of that delicious chocolate cake. The prefrontal cortex also activates hormones that tell our body: "Hey, this cake is really good. And I'm going to remember that for the future."

Not all foods are equally rewarding, of course. Most of us prefer sweets over sour and bitter foods because, evolutionarily, our mesolimbic pathway reinforces that sweet things provide a healthy source of carbohydrates for our bodies. When our ancestors went scavenging for berries, for example, sour meant "not yet ripe," while bitter meant "alert -- poison!"

Sugar isn't just empty calories; it's also making us sick

Fruit is one thing, but modern diets have taken on a life of their own. A decade ago, it was estimated that the average American consumed 22 teaspoons of added sugar per day, amounting to an extra 350 calories; it may well have risen since then. A few months ago, one expert suggested that the average Briton consumes 238 teaspoons of sugar each week.

How to stop sugar from sneaking into your child's diet

Today, with convenience more important than ever in our food selections, it's almost impossible to come across processed and prepared foods that don't have added sugars for flavour, preservation, or both.

These added sugars are sneaky -- and unbeknown to many of us, we've become hooked. In ways that drugs of abuse -- such as nicotine, cocaine and heroin -- hijack the brain's reward pathway and make users dependent, increasing neuro-chemical and behavioural evidence suggests that sugar is addictive in the same way, too.

Sugar addiction is real

"The first few days are a little rough," Andrew told me about his sugar-free adventure last year. "It almost feels like you're detoxing from drugs. I found myself eating a lot of carbs to compensate for the lack of sugar."

There are four major components of addiction: bingeing, withdrawal, craving, and cross-sensitisation (the notion that one addictive substance predisposes someone to becoming addicted to another). All of these components have been observed in animal models of addiction -- for sugar, as well as drugs of abuse.

The best and worst sugars to eat before your workout

A typical experiment goes like this: rats are deprived of food for 12 hours each day, then given 12 hours of access to a sugary solution and regular chow.

After a month of following this daily pattern, rats display behaviours similar to those on drugs of abuse. They'll binge on the sugar solution in a short period of time, much more than their regular food. They also show signs of anxiety and depression during the food deprivation period.

Many sugar-treated rats who are later exposed to drugs, such as cocaine and opiates, demonstrate dependent behaviors towards the drugs compared to rats who did not consume sugar beforehand.

Like drugs, sugar spikes dopamine release in the nucleus accumbens. Over the long term, regular sugar consumption actually changes the gene expression and availability of dopamine receptors in both the midbrain and frontal cortex.

Specifically, sugar increases the concentration of a type of excitatory receptor called D1, but decreases another receptor type called D2, which is inhibitory.

Regular sugar consumption also inhibits the action of the dopamine transporter, a protein which pumps dopamine out of the synapse and back into the neuron after firing.

In short, this means that repeated access to sugar over time leads to prolonged dopamine signalling, greater excitation of the brain's reward pathways and a need for even more sugar to activate all of the midbrain dopamine receptors like before. The brain becomes tolerant to sugar -- and more is needed to attain the same "sugar high."

Sugar withdrawal is also real

Although these studies were conducted in rodents, it's not far-fetched to say that the same primitive processes are occurring in the human brain, too. "The cravings never stopped, [but that was] probably psychological," Andrew told me. "But it got easier after the first week or so."

In a 2002 study by Carlo Colantuoni and colleagues of Princeton University, rats who had undergone a typical sugar dependence protocol then underwent "sugar withdrawal." This was facilitated by either food deprivation or treatment with naloxone, a drug used for treating opiate addiction which binds to receptors in the brain's reward system.

Both withdrawal methods led to physical problems, including teeth chattering, paw tremors, and head shaking. Naloxone treatment also appeared to make the rats more anxious, as they spent less time on an elevated apparatus that lacked walls on either side.

Similar withdrawal experiments by others also report behaviour similar to depression in tasks such as the forced swim test. Rats in sugar withdrawal are more likely to show passive behaviours (like floating) than active behaviours (like trying to escape) when placed in water, suggesting feelings of helplessness.

A study published by Victor Mangabeira and colleagues in *Physiology & Behavior* reports that sugar withdrawal is also linked to impulsive behaviour. Initially, rats were trained to receive water by pushing a lever.

After training, the animals returned to their home cages and had access to a sugar solution and water, or just water alone. After 30 days, when rats were again given the opportunity to press a lever for water, those who had become dependent on sugar pressed the lever significantly more times than control animals, suggesting impulsive behaviour.

These are extreme experiments, of course. We humans aren't depriving ourselves of food for 12 hours and then allowing ourselves to binge on soda and doughnuts at the end of the day. But these rodent studies certainly give us insight into the neuro-chemical underpinnings of sugar dependence, withdrawal, and behaviour.

Through decades of diet programs and best-selling books, we've toyed with the notion of "sugar addiction" for a long time. There are accounts of those in "sugar withdrawal" describing food cravings, which can trigger relapse and impulsive eating.

There are also countless articles and books about the boundless energy and new-found happiness in those who have sworn off sugar for good. But despite the ubiquity of sugar in our diets, the notion of sugar addiction is still a rather taboo topic.

Are you still motivated to give up sugar? You might wonder how long it will take until you're free of cravings and side-effects, but there's no answer -- everyone is different and no human studies have been done on this.

But after 40 days, it's clear that Andrew had overcome the worst, likely even reversing some of his altered dopamine signalling. "I remember eating my first sweet and thinking it was too sweet," he said. "I had to rebuild my tolerance."

And as regulars of a local bakery in Hershey -- I can assure you, readers, that he has done just that.

Possible Response Questions:

- Comment on your relationship with sugar.
- Select a passage and reflect on it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

The Rise of Legal Marijuana in America

Source: TheWeek.com, November 26, 2016

A majority of the U.S. population now has access to legalized cannabis in some form. What's the track record so far? Here's everything you need to know:

Where is weed legal?

Recreational use is now fully legal in eight states plus Washington, D.C., after voters in California, Massachusetts, Nevada, and Maine approved marijuana ballot initiatives earlier this month. On Election Day, voters in Arkansas, Florida, and North Dakota brought the tally of states with legal medical marijuana to 28. Though cannabis is still illegal under federal law, Election Day was widely considered a tipping point for the legalization movement. A recent Gallup poll found that 60 percent of Americans now approve of legalizing marijuana, and there is a growing bipartisan consensus that the \$1 trillion war on drugs has failed. Criminalizing the use and sale of drugs has sent millions of nonviolent criminals to prison — a disproportionate number of them black — and empowered violent drug cartels. At the same time, there is growing scientific research showing that casual cannabis use by adults is fairly safe — less dangerous than alcohol or tobacco. Another major factor propelling legalization is that states can tax it and get a big boost in revenues. As one pro-legalization ad in Colorado put it: "Jobs for our people. Money for our schools. Who could ask for more?"

What's happened in states that legalized weed?

There have been some huge upsides, as well as serious downsides. In Colorado, the booming new cannabis industry has created more than 18,000 full-time jobs and generated \$2.4 billion in economic activity. The state tightly regulates weed sales: Adults over 21 can possess only 28 grams, and marijuana plants are tagged with a radio-frequency ID chip so that they can be tracked. Products are tested for potency and contaminants, and are sold in child-resistant containers. "There are a certain number of folks, like myself, who were pretty reticent about [legalization] to begin with," says House Speaker Dickey Lee Hullinghorst, a Democrat. "[But] the sky didn't fall."

What are the downsides?

Legal-weed states have experienced a significant jump in marijuana-related DUIs. In Washington state, a record 745 drivers who were pulled over on suspicion of DUI in the first six months after legalization tested positive for THC, the main mind-altering ingredient in marijuana, compared with 1,000 over the entire previous year. At the same time, the number of drivers involved in fatal car crashes who tested positive for THC rose by 48 percent between 2013 and 2014, when legalized marijuana hit the market. Hospitalizations for overdoses are also up. "Washington serves as an eye-opening case study for what other states may experience with road safety after legalizing the drug," says Peter Kissinger, CEO of the American Automobile Association Foundation for Traffic Safety.

Why are hospitalizations up?

A big factor is edibles, says Dr. Michael DiStefano, who has seen at least 15 children admitted to the emergency room at Children's Hospital Colorado for accidentally ingesting cannabis. Edibles "look like regular candy," DiStefano says. The number of overall patients hospitalized in Colorado who admitted to marijuana use spiked from 809 per 100,000 before legalization to 2,413 per 100,000 afterward.

Is overall weed use up?

Yes. As weed has become legal, easier to obtain, and cheaper, more Americans are smoking on a regular basis. About 10 million more Americans smoke marijuana now than 12 years ago, and the number who admit to using the drug on a daily or near-daily basis has more than doubled, to 8.4 million people. About half of those heavy users reported symptoms of abuse or dependency, including getting stoned even when it negatively affected their relationships or jobs. "You're seeing this headlong rush into another addictive industry without knowing what widespread marijuana use is going to do to society," says Jeffrey Zinsmeister, co-founder of the anti-legalization group Smart Approaches to Marijuana. And though teen-use rates have so far stayed stable in legal-weed states, there is concern that the drug's normalization will gradually encourage more adolescents to smoke. That's particularly worrying given that scientific studies have connected adolescent marijuana use to a significant loss of IQ points and an increased risk of psychotic illness.

Will it be legalized nationally?

With Donald Trump's election, that's now completely up in the air. Weed is strictly prohibited under federal law and classified as a Schedule 1 drug — the same category as heroin — but the Obama administration has chosen not to enforce that law in legal-weed states. Before Nov. 9, advocates were gearing up to lobby Congress and Hillary Clinton on federal legalization. But Trump is an unknown quantity. In previous years the Republican president-elect has made comments in favor of medical marijuana, but Vice President-elect Mike Pence and some potential Cabinet picks are hard-liners on drugs. Trump's election "does not bode well" for legalization, says the Drug Policy Alliance's Ethan Nadelmann. "There are various ways in which a hostile White House could trip things up."

Weed baths and bacon brittle

Willie Nelson and Snoop Dogg have their own marijuana lines. Dispensaries sell tens of different strains of weed with names like Kamikaze, King Bubba, and Ebola — some of which come with a "sweet floral aroma" or are "intoxicatingly potent." The green rush has sparked a boom in Big Pot, as tobacco companies look to profit from a new market and tech companies like Microsoft cash in by developing software systems for cannabis growers. Then there are the hundreds of marijuana-related products that have hit the markets in legal-weed states — ranging from the artisanal to the frankly bizarre. In Colorado, nearly half of all marijuana sales are for THC-infused items, like edibles, pills, and drops. Pot shops sell ice cream laced with the drug, as well as cannabis-infused breath spray, energy shots, and even bacon brittle. In the budding weed beauty industry, there are marijuana massage oils as well as body lotions and lip balms. "One woman told me she bought the Heavenly Hash Bath so she and her boyfriend could have a romantic night," says Dahlia Mertens, who owns a weed beauty business in Colorado. "He proposed in the tub!"

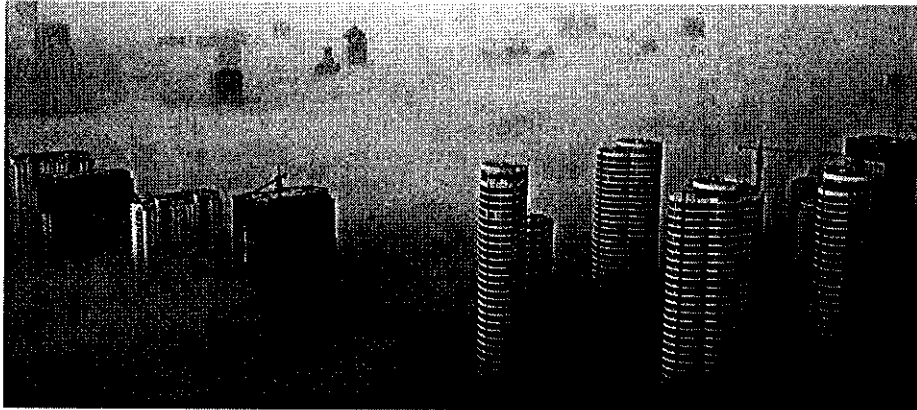
Possible Response Questions:

- What are your thoughts on the legalization of marijuana? Explain.
- Respond to this passage: "...scientific studies have connected adolescent marijuana use to a significant loss of IQ points and an increased risk of psychotic illness."
- Select a passage and reflect on it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

The Filth They Breathe in China

Source: Michael Auslin, TheWeek.com, January 11, 2017



Winter has returned to northern China. And so has the country's trademark, deadly smog.

The central government recently declared its first-ever national red alert for air quality, with pollution levels hovering over 12 times the level recommended by the World Health Organization. Indeed, China's unprecedented growth has come at a horrific social cost that is just beginning to get serious attention. The political leadership of China, like Japan and South Korea before it, put economic growth far above environmental protection or health concerns, and the country now faces a catastrophically polluted countryside. Nearly all aspects of China's environment are affected, and the true economic and health effects are only now becoming apparent.

Pollution in China is at an unsustainable level. The cost in lives and the cost of cleaning up China's ruined rivers, lakes, skies, and soil are staggering. Just as significant will be the economic cost of changing the way business is done in China to prevent further environmental destruction.

The lack of industrial regulation, the burning of dirty coal, and the rapid growth in private ownership of cars have combined to create one of the world's worst air pollution problems. On one of my first trips to Beijing, as our plane touched down in the early afternoon, the sky looked as though it was dusk, a phenomenon universally noted by visitors. The rarity of sunny and blue sky is avidly remarked on by everyone from shopkeepers to government officials — the latter, of course, off the record.

By some estimates, only 1 percent of China's urban dwellers breathe safe air. During the winter of 2012–13, levels of the most dangerous type of particulate matter in Beijing's air were over 20 times the amount recommended by the World Health Organization. Midday in Beijing looked like late evening, and residents were urged to stay inside.

The massive scale of China's air pollution problem was dramatically exposed when Beijing was cleared of over one million automobiles for nearly a month before the start of the 2008 Olympic Games, creating a stretch of clear weather not seen in over a decade. In October 2013, the city of Harbin in northeastern China, home to 11 million people, was essentially shut

Sitting Too Much Ages You by 8 Years

Source: Alice Park, Time.com, January 18, 2017

Sitting too much during the day has been linked to a host of diseases, from obesity to heart problems and diabetes, as well as early death. It's not hard to understand why: being inactive can contribute to weight gain, which in turn is a risk factor for heart attack, stroke, hypertension and unhealthy blood sugar levels.

On top of everything else, sitting has detrimental effects on cells at the biological level, according to a new report published in the *American Journal of Epidemiology*.

In the new study, scientists led by Aladdin Shadyab, a post-doctoral fellow in family medicine and public health at the University of California San Diego, traced sitting's impact on the chromosomes. They took blood samples from nearly 1,500 older women enrolled in the Women's Health Initiative, a long-term study of chronic diseases in post-menopausal women, and focused on the telomeres: the tips of the tightly packed DNA in every cell. Previous studies have found that as cells divide and age, they lose bits of the telomeres, so the length of this region can be a marker for how old a cell (and indirectly the person the cells belong to) is. The researchers compared telomere length to how much the women exercised, to see if physical activity affected aging.

Earlier studies have also looked at telomere length and exercise. But they relied on asking people to report on their activity levels, a process that's often inaccurate. Shadyab instead relied on more objective recordings of physical activity from accelerometers that the women wore for one week. Initially, he did not find any relationship between telomere length and physical activity levels. But when he focused on the women who did not meet the recommended 30 minutes of moderate-to-vigorous physical activity daily, he began to see some interesting trends.

Among women who didn't get the daily half hour of exercise, those who spent more time sedentary (about 10 hours or more) had shorter telomeres than those who spent less time sitting everyday. The amount of shortening added up to about eight years of aging, the scientists estimated—meaning that inactive women who spent more time sitting were about eight years older, on average, than those who were inactive but spent less time sedentary.

Women who got the recommended amount of daily exercise showed no association between how much time they spent sitting and their telomere length, suggesting that physical activity might counteract the shortening that occurs with aging.

“Our results suggest that the combination of being sedentary and not engaging in enough physical activity to prevent the telomeres from shortening leads to the shorter telomere length,” says Shadyab. “Women who did not meet the physical activity guideline and were sedentary for at least 10 hours a day were biologically older; their cells are aging faster than those of women who were less sedentary.”

Exactly how much physical activity is needed to negate the aging effects of sitting on the cells isn't clear yet. But Shadyab's study shows that sedentary behavior has potentially aging effects on the cells, and exercise may be one way to combat that aging process.

Possible Response Questions:

- Explain how the two articles may be related.
- Do you exercise enough? Why? Why not? Explain

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Below are two articles about sleep:

Study: A Third of U.S. Adults Don't Get Enough Sleep

Source: Morgan Manella, CNN.com

You've heard it before, and you'll hear it again: Despite repeated recommendations for adults to sleep at least seven hours each night, a new study shows that more than one-third of us are not getting enough shut-eye. And they've pinpointed which states are the most sleep deprived.

The CDC study analyzed data from the 2014 Behavioral Risk Factor Surveillance System to determine whether adults are getting enough sleep. The survey respondents included 444,306 people in all 50 states and the District of Columbia. Researchers found that more than one-third of the adults reported sleeping less than seven hours in a 24-hour period.

Research has shown lack of sleep is associated greater risk of obesity, diabetes, heart disease, mental illness and other chronic conditions. The Centers for Disease Control and Prevention has even called inadequate sleep a public health problem. Adults 18 to 60 years should be sleeping at least seven hours a night, according to the Academy of Sleep Medicine and the Sleep Research Society, which are sleep-related professional associations.

"People just aren't putting sleep on the top of their priority list," said study author Anne Wheaton, PhD, an epidemiologist at the CDC. "They know they should eat right, get exercise, quit smoking, but sleep just isn't at the top of their board. And maybe they aren't aware of the impact sleep can have on your health. It doesn't just make you sleepy, but it can also affect your health and safety."

The study results suggest the need for public awareness and education about sleep health and workplace policies that ensure healthy amounts of sleep for shift workers, according to the study. Health care providers should also discuss the significance of healthy sleep duration with patients and identify why they aren't sleeping enough.

This study was the first to look at sleep hours on a state level, said Wheaton, which allowed them to map which states got more sleep than others. States in the Southeast and along the Appalachian Mountains reported the least amount of sleep, according to the study. The state with the lowest reported amount of sleep was Hawaii, and the states with the highest reported amount of sleep were South Dakota, Colorado and Minnesota.

State- and county-level data is important because it helps public health departments "see where the problem is most severe," said Wheaton.

For the past decade, about one-third of adults have consistently reported not getting enough sleep, according to Wheaton. She emphasized the importance of establishing good sleep habits, such as going to bed and waking up at the same time each morning; having a good sleep environment, where the bedroom is dark and at a good temperature; removing electronics from your bedroom; avoiding big meals, caffeine, and alcohol before bed; and exercising regularly.

If you're following these guidelines and are still having sleep issues, Wheaton suggests speaking with a physician to see if there is something else that needs to be done.

"It's a public health problem," said Wheaton. "The reason we are trying to draw attention to it is that first it affects such a large proportion of the population and second that it's tied to so many health conditions that are such a big issue."

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Here are two recent articles about your health:

The Average Life Expectancy Could Soon Reach Above 90 Years Old

Source: Maria Cheng, Time.com, February 22, 2017

While most people born in rich countries will live longer by 2030 — with women in South Korea projected to reach nearly 91 — Americans will continue to have one of the lowest life expectancies of any developed country, a new study predicts.

Scientists once thought an average life expectancy beyond 90 was impossible but medical advances combined with improved social programs are continuing to break barriers, including in countries where many people already live well into old age, according to the study's lead researcher, Majid Ezzati of Imperial College London.

"I can imagine that there is a limit, but we are still very far from it," he said. Ezzati estimated that people would eventually survive on average to at least 110 or 120 years. The longevity of South Korean women estimated in 2030 is due largely to investments in universal health care, he said. South Korea also led the list for men.

"It's basically the opposite of what we're doing in the West, where there's a lot of austerity and inequality," he said.

Ezzati and his co-authors used death and longevity trends to estimate life expectancy in 35 developed countries. The calculation is for a baby born in 2030. The study was published online Tuesday in the journal *Lancet*.

Women were ahead of men in all countries. Behind South Korea, women in France, Japan, Spain and Switzerland were projected to live until 88. For South Korea men, life expectancy is expected to reach 84. Next were Australia, Switzerland, Canada and the Netherlands at nearly 84.

At the bottom of the list: Macedonia for women at nearly 78, and Serbia for men at about 73.

While some genetic factors might explain the longevity in certain countries, social and environmental factors were probably more important, Ezzati said.

The study estimated that the U.S., which already lags behind other developed countries, will fall even further behind by 2030, when men and women are projected to live to 80 and 83. American women will fall to 27th out of 35 countries, from their current ranking of 25, and men will fall from 23rd to 26th.

The researchers note that among rich countries, the U.S. has the highest maternal and child death rates, homicide rate and is the only high-income country without comprehensive health care.

The researchers also predicted how much longer 65 year olds in 2030 would live; they guessed that among men, those in Canada would live the longest, surviving another 23 years. Among 65-year-old women in 2030, they estimated that South Koreans would live the longest, another 28 years.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Could Humans Actually Live on Mars?

Source: Laurie Vazquez, TheWeek.com, December 2, 2016

For thousands of years, humans have looked up at the night sky and pondered their place in the cosmos. One little red dot in particular has long held our interest: Mars. Today, experts believe it's no longer a question of *if* we'll ever set foot on the Red Planet, but when. Recent technological advances mean this could happen within decades.

While the dream of colonizing Mars is a fascinating one, is it a good idea? What will be the biggest challenges? And once we get there, could we even survive?

The biggest incentive for putting humans on Mars is to have "an insurance mechanism for our species," says Stephen Petranek, author of *How We'll Live on Mars*. "We're a nomadic species. We learned long ago that if we don't move, we don't survive... [and we'll] have to move out of our solar system when our sun dies." That is a solid if somewhat depressing point. Mars is the closest place for us to practice for that eventuality.

Mars was almost identical to Earth roughly four billion years ago. Today, it remains the only planet in our solar system that's enough like Earth to even possibly sustain human life. It's half the size of our pale blue dot, but has the same amount of land, which means we'd have a place to settle and flourish. The temperature on Mars is frigid, but its ice means we'd have a water source. The planet's oxidized soil means we could grow food, and the existence of methane gas means we could create fuel.

If getting to Mars is the biggest hope for saving human civilization, then our next step is to create the technology to do it.

"The first pioneers are already on Mars," Dr. Ashwin R. Vasavada, MSL-Curiosity project scientist, told *The Week*. Of course, he's not talking about people; he's talking about robots like the Curiosity rover that photograph and analyze Mars every day. Those robots are doing the prep work for Mars' first human explorers.

Between President Obama's push to get humans to Mars by the 2030s, and Elon Musk's plans to build a civilization of 1 million humans on Mars by the 2050s, people all over the world are working to find a way to advance from transporting robots to transporting even more precious cargo: humans. But that presents its own unique challenges.

"On a trip to Mars, which will take six months or more, you need something roomier [than the space shuttle]," writes astronomer Phil Plait for *Slate*. "These habitats have to be big enough to give the crew some elbow room, some space (if you will), but also not be too big to get into space in the first place." Plait cites Bigelow Aerospace's inflatable habitats as a viable solution to that problem. "We've had the technology since we went to the moon," Petranek says. We just need to adapt it. Bigelow Aerospace's habitats are being tested on the space station, so we'll know very soon whether or not they could be a viable option for Mars.

The rockets that could take humans to Mars are almost done, too. NASA already has the Space Launch System rocket and Orion crew capsule, both of which are souped-up versions of the technology that took us to the moon. Musk's SpaceX is building an Interplanetary Transport System with advanced versions of its Raptor engines and a booster system more powerful than anything we've ever built. Private space company Blue Origin is working on its own system. All of these will be tested and completed in the next 10 years.

But for all that technical know-how, once we get to Mars, "the tricky part is to keep people alive," says Petranek. And that's going to take a lot of work, because right now, Mars is a

wasteland. Here's how Richard Davis, assistant director for science and exploration in NASA's Planetary Science Division, explains Mars' various hazards:

Solar flares can represent short term hazards for crews heading to Mars and on the surface of the planet. But such flares can be detected in advance and temporary radiation shelters used to largely protect the crew. A longer term hazard is the general exposure to higher levels of radiation whether it be from the sun or sources external to the solar system. We can minimize these effects, but there will be increased exposure and thus a higher risk of cancer later in life.

Indeed, the adverse effects of radiation are humanity's biggest hurdle to living in space. Research suggests that astronauts would experience short-term neural damage from high-energy space radiation particles. Astronauts on the International Space Station are shielded from these rays by Earth's magnetosphere, but on Mars, astronauts will have no such protection.

A new study published in the journal *Scientific Reports* found that even six months after returning to Earth, Mars astronauts would experience brain inflammation and neuron damage. Other side effects of long-term space travel could include memory problems, anxiety, and depression. The study concludes with a dire warning: "Cosmic radiation exposure poses a real and potentially detrimental neurocognitive risk for prolonged deep space travel... [and] deep space travel poses a real and unique threat to the integrity of neural circuits in the brain."

So, given these dangers, should we even bother with Mars? NASA remains hopeful. "This risk is felt to be manageable," says Richard Davis, assistant director for science and exploration in NASA's Planetary Science Division. "As we have done with all human space flight to date, we will proactively study potential impacts to our crewmembers from this radiation as they travel to, live, and explore on Mars, and will develop additional countermeasures, as needed."

That optimism is contagious. As Vasavada put it: "What an exciting time, to be learning and solving the problems that will one day get humans to Mars."

Possible Questions/responses:

- Do you believe we should explore other planets (even if it costs millions of dollars)? Why or why not?
- Would it be worth the health risk to send explorers to Mars?
- Choose a passage and respond.

Social Media: Friend or Foe?

The other day, my friend and I went out for lunch. I looked down to put my napkin on my lap and heard her saying something. I didn't quite hear her, so I asked her to repeat it. Her reply, "Oh sorry, I was talking

to Siri." If you don't know, Siri is the voice of the virtual iPhone assistant. You can ask Siri questions and "she" will answer using information from the Internet. Apparently, now you can ask Siri to update your Facebook status, which is what my friend was

doing. Was it wrong of me to feel a little annoyed that my friend was talking to her phone instead of me? Now, I know that social media and all the technology that comes with it is everywhere lately, but I wasn't expecting Siri to be joining us for lunch!

I have to admit, it is ironic that I—a blogger who uses social media for a living—am complaining about "technology these days" like my grandfather does. But I argue that I'm actually the perfect person to speak out against what's wrong with how we use social media—to make sure what's wonderful about it remains that way. I have a stake in this endeavor! But first, a little background information.

Connecting the world

One of the first social networks, MySpace, was founded in 2003. In less than ten years, social media has become part of many people's everyday lives. It's truly the first tool that connects the entire world. True social media sites like Facebook, Twitter, and Google+ are meant for chatting with your friends and sharing photos and news. Sites like Foursquare allow people to "check in" to different places to let their network know where they are. At the dentist? Picking up some coffee? Just click a button on your smartphone and your friends will know what you're doing. (My question is, does the world really need to know every time you stop to pick up your dry cleaning?) There are hundreds



Search

About Kara



I am a tech journalist with a passion for finding ways to make technology work harder and smarter for people—not the other way around. I'm a regular contributor to technology publications and national public news organizations. I live, work, and play in the San Francisco Bay Area.

Recent Posts



Bigger screens on the new iPhone? Yes, please!



Eleven ways to go paperless in your office.

of social networking sites: professional, hobby, photo sharing, video sharing, and gaming sites. Not to mention blog sites, like this one. No matter what your interest, there's a social media site that covers it.

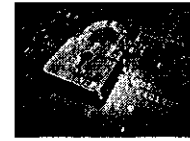
Who uses all these websites? There are about 130 million social media users in the United States. That's more people using social media in this country than the number of people in the country of Japan!⁽¹⁾ Facebook users spend an average of more than fifteen hours each month on the site.⁽²⁾ That's about thirty minutes per day. I'm almost certain that thirty minutes is coming out of our time with our friends and families. Either that or we're stealing time from when we probably should be studying or working. The truth is, while there are some wonderful things about social media, it can often be a source of distraction rather than connection. I also argue that it can be detrimental to quality journalism. Furthermore, it can actually be dangerous when used improperly.

Are we connected or distracted?

I'll give one thing to social media: it's fun, pure and simple. We love to connect with each other about experiences, laugh at silly videos, and share news. Getting online to chat with a friend is easy. We can socialize on our own terms when it's most convenient for us. But let's think about that for a moment. What if a friend needed you at a time that wasn't convenient for you? Would you turn them away, not answer the phone or come to the door, simply because the timing was wrong? I imagine that some people are so used to connecting online that they get out of the habit of talking in person. Could social media actually be making us less social?

Another good thing about social media is that keeping in touch with friends has never been easier. Even people who move away can stay connected to their hometown friends and family by sharing pictures and stories about their lives and enjoying the same information from their friends. Social media also allows people to share their creativity by posting ideas, art, and music on blogs and podcasts. Expanding our social networks, either virtually or in real life, can also be a way to increase our understanding of other people, especially those from backgrounds different than our own. Learning more about others creates respect and tolerance, which can grow into compassion and acceptance.

Social media can help people who are shy or have special needs learn how to communicate better. Kyle, who has been diagnosed with developmental disorders, says that using social media helped him ease into having conversations in person. "Two to three years ago I wasn't able to talk to people face-to-face. Like, this right now, I wouldn't have been able to explain anything. I would have been all shy..." Kyle was introduced to MySpace and Facebook as a teenager, and he says



Time to update your Facebook privacy settings—again.

practicing talking with others online helped him learn to make friends and have conversations. "It's basically just the fact that you don't have to have a person staring back at you with what you're saying," he explains.⁽³⁾

While all of that is good, I contend that connecting online takes time away from real-life relationships. And there are facts to prove it. In a recent survey, thirty-nine percent of people said they spent more time socializing online than in person and twenty percent said they prefer texting or talking online than meeting face-to-face.⁽⁴⁾ In another survey, twenty-four percent said they missed important moments because they were busy trying to share those moments on their social network.⁽⁵⁾ It seems to me like many of us are missing real life while we're sharing it with our virtual life.

The end of journalism?

Many people use social media as a way to get news. Over half of all Americans have learned about a breaking news story using social media.⁽⁵⁾ News that comes out on social media is often instant and occurs as the story is unfolding. Protesters in Cairo, Egypt, during the Arab Spring in 2011 sent tweets—messages sent over Twitter—that gave real-time, first-person coverage of the revolution. Social media became a very important organizing tool, allowing leaders to broadcast information to their followers and encouraging others to join the protest. At the same time, people all over the world were able to read about, and see photos of, the uprising as it happened. In this demonstration and in many other cases, people with cameras on their cell phones are able to go into places and take photos of things that television cameras cannot. The problem with all this access and immediacy is that many people "reporting" using social media aren't trained journalists, so it's easy to miss facts and report inaccurate information. In fact, 49 percent of Americans have heard breaking news from social media that turned out to be false.⁽⁵⁾ Also, because people are turning away from traditional news sources like newspapers and television, those sources have experienced a major decline in recent years. News directors don't have the budgets to spend on high-quality reporters who seek to uncover actual news stories. Some have even said that social media is bringing about the end of real journalism.

Could it even be dangerous?

Thinking about safety risks are probably not on the top of the list when people get online to connect, but the truth is, dangers exist. Using social media while driving is a widespread and dangerous problem. It contributes to many distractions while driving, such as texting, watching videos, checking social media sites, even playing games online. In 2011, 1.3 million car crashes involved cell phones, and 3,331 people were killed in crashes involving a distracted driver.

⁽⁶⁾ Using social media to bully others, called "cyber bullying," is

another common risk that can be extremely harmful. According to the American Academy of Pediatrics (AAP), over fifteen percent of six- to eleven-year-olds have reported being cyber-bullied. It's often used to spread rumors and other hurtful information about the victim. It can lead to anxiety, depression, and even suicide.⁽⁷⁾ "Sexting," which is texting, emailing, or uploading explicit photos or language to social media sites is also dangerous. In the AAP survey, twenty percent of teen respondents said that they have taken part in sexting images of themselves.⁽⁷⁾ In some states, receiving these types of images from a minor can lead to felony child pornography charges. How can we change the culture around us so that people use these tools responsibly? What is upsetting to me is that no matter what the technology, people will always find a way to abuse it.

Put technology to work for you.

One of the main reasons I decided to start my blog was to help people understand that technology can help us in many ways, but only if we use it the right way and make it work for us. It's up to each of us to be aware of the correct ways to use social media and avoid the things that can make it harmful. This thought from Dr. Michael Rich, Director of the Center on Media and Child Health at Children's Hospital Boston sums it up, "We should not view social media as either positive or negative, but as essentially neutral. It's what we do with the tools that decides how they affect us and those around us." So how do you make social media a tool to help you connect rather than distract you from your real-world relationships? Consider turning off your mobile devices and spending quality time with the people you care about. Here's an idea: make a game out of ignoring your phones the next time you have lunch with friends. Leave your phones on, but stack them on the table together. The phones will ring and the reminders will sound. Siri may remind you that it's time for your next meeting. But be brave—leave them in the stack! The first person that checks his or her phone has to pay for everyone's meal. That ought to give each of you an incentive to connect in person!

References

1. Staff Writers. Battle of the Social Sexes. Internet Service Providers, 15 April 2013.
2. Browser Media, Socialnomics, MacWorld. Social Networking Statistics. Statistic Brain, 12 Aug. 2013.
3. Gerstein, Jackie, Ed.D. Using the Internet and Social Media to Enhance Social-Emotional Learning. User Generated Education, 25 Feb. 2013.
4. Bennett, Shea. Is Social Media Making Us Antisocial? All Twitter, 15 June 2012.

5. Marino, Kristin. Social media: The new news source. Schools.com, 16 May 2012.
6. National Highway Traffic Safety Administration and U.S. Department of Transportation. What is Distracted Driving? Distraction.gov, 8 Dec. 2011.
7. Koriath, Trisha. Teach children to beware of bullies in the cyber-schoolyard. American Academy of Pediatrics (AAP) News. 1 Mar. 2011.

23 Comments:

Enter your comments here

comment

Is Happiness the Beginning or the End?

By Jamie Anderson

Happiness is considered so fundamental to the American way of life that it's listed as one of only three "unalienable rights" in the Declaration of Independence. The wording used 200+ years ago – "the *pursuit* of Happiness" – indicated that happiness was to be found only at the end of a chase. Even now, it's still widely believed that happiness is something you have to work hard for in order to earn.

But there's a big problem with that viewpoint: we the people are terrible at finding happiness. A 2013 Gallup poll found that only 30% of us are happy at work; fully 70% of Americans, according to Gallup, "are emotionally disconnected from their workplaces and less likely to be productive" (qtd. in Adams). As a general rule, we can't be happy in life if we aren't happy in work. It's where we spend most of our time, and it's a large part of who we are. So ouch.

How can we get happier at work? It's no secret that business journals and management courses have long been full of strategies for increasing productivity, which is supposed to lead to success and from there to raises and rejoicing all around. Why aren't these ideas getting the job done?

Well, it could be because we've had things backward all this time, and that contrary to what we (and the Founding Fathers) assume, happiness should not be our destination but instead our starting point. Shawn Achor is one researcher who thinks that's exactly the case. Achor began his career teaching a happiness course at Harvard and has since become a business consultant. His firm advertises a simple but lofty goal on its website: "to make you happier" (*GoodThink*).

Achor uses science to show that the formula of success leading to happiness needs to be reversed. As he writes in his best-selling book, "happiness and optimism actually fuel performance and achievement—giving us the competitive edge that I call the Happiness Advantage" (*The Happiness Advantage* 3-4). Watch his 2011 TED talk, "The Happy Secret to Better Work," for a rundown:



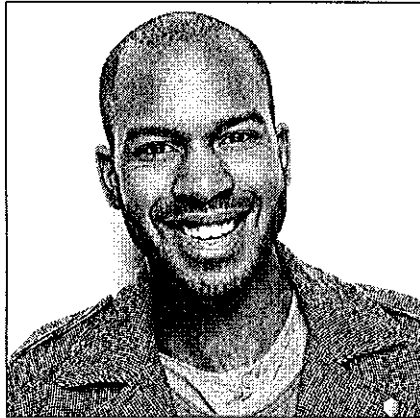
This [TED.com](https://www.ted.com) talk is licensed under [CC BY-NC-ND 3.0](https://creativecommons.org/licenses/by-nc-nd/3.0/).

The short version of Achor's lecture is that our brains are not wired to find lasting happiness from success, because once we achieve a goal, we move the goalposts. If we lose five pounds, we decide we should lose ten. If we get a raise, we soon start thinking about needing another one. In contrast, our brains are designed to respond well to happiness. Happiness stimulates the brain to release a chemical called dopamine, which increases learning and creativity. According to Achor, a happy brain is 31% more productive than an unhappy one.

The good news about Achor's research is that it doesn't just apply to the optimists among us. We can all train ourselves to be happier, by following a five-part process of gratitude, journaling, exercise, meditation, and random acts of kindness. He claims that real world experience proves that just three weeks of practice yields lasting results. Happiness, he says in his TED talk, is not the end but the beginning:

It's not necessarily the reality that shapes us but the lens through which your brain views the world that shapes your reality. And if we can change the lens, not only can we change your happiness, we can change every single educational and business outcome at the same time.

Now there's a self-evident truth we can all appreciate.



Jamie Anderson

Jamie Anderson has an MBA from the Stanford Graduate School of Business and a Ph.D. in Human Resource Studies from Cornell University. He founded Cloud Nine, a company specializing in creative solutions for happier workplaces, in 2002, and since then has helped many of Silicon Valley's most successful businesses establish fulfilling and productive corporate cultures. Jamie is a frequent guest on CNBC, PBS, and the Business News Network.

Works Cited

Achor, Shawn. *The Happiness Advantage*. New York: Broadway, 2010. Print.

---. "The Happy Secret to Better Work." *TED*. TED Conferences, May 2011. Web. 1 July 2014.

Adams, Susan. "Unhappy Employees Outnumber Happy Ones By Two to One Worldwide."

Forbes. Forbes.com, 10 Oct. 2013. Web. 1 July 2014.

GoodThink. GoodThink Inc., 2014. Web. 1 July 2014.

**Note: While this article uses MLA citation style, it is not formatted according to MLA guidelines for student papers, which require regular margins, headers, double-spacing, etc. For more help about how to use MLA or APA guidelines, review the Foundations.*

1. Mark your confusion. □
2. Show evidence of a close reading. □
3. Write a 1+page reflection. □

TV's Callous Neglect of Working-Class America

Source: Noel Murray, *TheWeek.com*, February 15, 2017

Back in the 1950s, television audiences tuned in every week to *The Honeymooners*, and were dropped into the small, spartan Brooklyn apartment of a bus driver and his wife. The early '60s brought a string of hard-hitting urban dramas like *Naked City*, *The Defenders*, and *East Side/West Side*, which showed Americans what was really going on in our mean streets and slums. The '70s saw a boom in earthiness and grime, in sitcoms like *All in the Family*, *Sanford and Son*, *Barney Miller*, and *Welcome Back, Kotter*, which set stories of blue-collar families and the working poor in rooms with threadbare decor and barely functional utilities. Then in the '80s and '90s we had *Roseanne*, which captured the cramped clutter of an ordinary lower-middle-class home, and used sardonic humor to face — with at-times painful honesty — the hard trade-offs of work and family for people living paycheck to paycheck.

All of these shows were either critically acclaimed or popular — or both. They were part of a rich and varied television landscape, where suburban affluence and conspicuous wealth were just as widely represented as they are today, but put into context by some starker visions of American life.

Do we have that now?

Consider some of the comedies and dramas of the 2010s that have drawn the most love from audiences, critics, and awards ceremonies: *The Big Bang Theory*, *Scandal*, *Empire*, *NCIS*, *Criminal Minds*, *Girls*, *Veep*, *Louie*, *Silicon Valley*, *Transparent*, *Black-ish*, *Modern Family*, *Mad Men*, *The Good Wife*, *Homeland*, *The Americans*, *Crazy Ex-Girlfriend*, *You're the Worst*, *This Is Us*, *Stranger Things*, and *Mr. Robot*. Money and labor factor into all of those series to varying degrees, but the two are rarely intertwined. When characters talk about their jobs, it's usually in terms of personal fulfillment, not whether they can make enough to pay their bills. When they talk about money, the conversations tend to revolve around the payday as a marker of self-worth, coupled with questions about whether they've become spoiled by privilege. Whenever the heroes don't have enough in the bank to do what they want, it's more that they can't realize their grandest ambitions, not that they have to eat canned soup for a week to afford to keep the lights on.

There are some popular dramas and genre series that touch on the persistent divisions between the haves and have-nots, but they tend to fall into three categories: historical fiction (like *Downton Abbey*), punchy stories of crime and punishment (like *Breaking Bad* and *Orange Is the New Black*), and sensationalistic fantasies (like *The Walking Dead*, *Game of Thrones*, and *American Horror Story*). The best science fiction, horror, police procedurals, and period pieces offer contemporary resonances aplenty, but they're mostly operating in the mode of allegory or metaphor, and not deeply engaging with modern life.

What's even more fascinating are the modern sitcoms that come close to commenting on the 21st-century economy, but then back away. Tina Fey's two shows, *30 Rock* and *Unbreakable Kimmy Schmidt*, fire off jokes and cultural references that seem on the surface like pointed political commentary, but are really just rapid-fire absurdism. Kimmy Schmidt herself is frequently low on funds, and through two seasons so far has had multiple jobs; yet nothing about her predicament is presented realistically. Everything is exaggerated for comic effect. Similarly, *Parks and Recreation* is set in a quirky Indiana small town that throughout the series is depicted as on the brink of fiscal ruin; yet it is also held up as a kind of fantasyland, where even low-level city employees have enough money to buy extravagant gifts for their friends and for themselves.

It's not to knock any of these shows to say that they don't take place in our much more quotidian world. Realism is hardly a prerequisite for great entertainment. Besides, in many of the cases above, the characters and stories express truth in other ways. (*Parks & Rec*, for example, is unusually insightful about our political divisions, and about our unreasonable expectations for public servants.)

But when our highest-profile comedies and dramas have no interest in — or perhaps even no understanding of — what really goes on in low-rent office parks, supermarkets, fast food restaurants, un-gated subdivisions, and apartment complexes, then a large chunk of the populace can feel like their voices are going unrepresented in the mainstream media. They've become forgotten, invisible... implicitly told that they're uninteresting, or even alien.

I'm not just talking here about "the overlooked middle American Trump voter," which has been the subject of so many think pieces and belated bits of field reportage lately.

For one thing, the presumption that our "red states" are uniformly right-wing and reactionary is part of the problem with TV and movies today. When Hillary Clinton was struggling to get past Bernie Sanders in the primaries, some of Sanders' celebrity supporters were downright derisive about the states she was winning. (Tim Robbins famously scoffed, "Winning South Carolina in the Democratic primary is about as significant as winning Guam.") The fact is that there were significant numbers of Clinton *and* Sanders supporters in the states Trump carried in the general election — and of every ethnicity and economic background, too. If those people *and* the Trump voters were on TV in primetime more often, they might not seem so remote and/or inscrutable, to each other or to the press.

Because the truth is that lower-income middle Americans *are* on TV all the time. It's just that they primarily show up as participants and contestants in reality shows and game shows. There's more talk about work and money and religious faith on a typical episode of *Survivor* or *The Amazing Race* than there is on the average sitcom or drama in 2017. The problem there, though, is that the storytelling tools of reality shows force real people to become characters, with just a few key traits to define them. It's almost like the producers are afraid to push too far whenever the people in front of the cameras start mentioning God or values, as though too much nuance would get in the way of the game. The format encourages monologues — delivered straight into the camera, "confessional"-style — not dialogue.

To be fair, it's not like the non-genre dramas, comedies, and dramedies of the 2010s completely avoid the topic of class struggle. But the ones that do hit the subject head-on tend to be less talked about by critics.

Over the course of the past year the CBS comedy *Mom* has moved away from eking out jokes from its characters' money woes, but in its first couple of seasons the writers' unflinching engagement with how their heroines lived was a big part of what made the show feel fresh. Even now on the show, Anna Faris' divorced mother of two, Christy Plunkett, juggles waitressing, child-rearing, and Alcoholics Anonymous meetings, all while living in rental properties so small that she ends up sharing a bed with her mother. At its best, the series has made sure that viewers understand that every choice Christy makes has to be weighed against its consequences. To find a better job, she has to go back to school. To re-enroll in college, she has to work less, and make less money. Taking classes and filling shifts at the restaurant take time away from raising her kids and keeping her home neat and tidy. *Mom* keeps all of that in mind — without forgetting to be funny.

An even better example is ABC's long-running *The Middle*, which is better than any sitcom since *Roseanne* at generating jokes from how many of us actually live: In too-small houses where the sink hasn't worked right in months, and where the fridge and pantry are stocked with off-brand foods from a discount store. The title of the show refers to middle America (Indiana, to be exact) and the middle class (with a dad who's a construction foreman and a mom who has a hard time holding on to a succession of low-paying service jobs). But it could also describe how the Heck family feels in their neighborhood, stuck between their high-achieving friends the Donahues and their trashier enemies the Glossners. Harried matriarch Frankie Heck constantly worries that they're sliding closer and closer to becoming the Glossners, even though she deludes herself into believing that if they managed their resources and time better they could live as comfortably as the Donahues.

Compare *The Middle* to its fellow ABC family comedy *Speechless*, where the main characters are also framed as lower-middle class, but primarily as a way of making them seem more like proud "outsiders," instead of as a nod to a common economic struggle. One of the reasons why *The Middle* has been on the air for so long (eight seasons and counting) is that it's relatable. It's the kind of show where when a piece of furniture gets busted, it's still out of commission six episodes later — which sharply reflects the general entropy of modern life. So many Americans are over-scheduled and underfunded, always feeling like we're just one week's vacation and about \$20,000 away from getting our lives in order.

That's why one of the most promising new series of the past year has been FX's *Atlanta*, created by and starring Donald Glover. Ostensibly about how a college dropout hustles to get ahead by managing his drug-dealer cousin's hip-hop career, the show is also refreshingly open about how jobs, money, and leisure are intertwined. Glover's character Earnest Marks is an educated young man from a middle-class background. Throughout the first season, he and his occasional girlfriend Vanessa go from upscale parties and fancy restaurants to the cheap apartment where they each take turns raising their daughter when the other's not at work. *Atlanta* can be surreal, and it can be satirical, but even at its strangest it's still set in a world where everything is kept in a precarious balance between big dreams and mundane needs.

The more TV acknowledges that this is what most of us face every day, the more we all may understand that a lot more unites us than divides.

Possible Response Questions: □

- What is this writer's argument? Do you agree? Disagree? Explain. □□
- Select a passage and reflect on it. □

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

The Problem with Polls

Source: TheWeek.com, April 10, 2016

Are polls really less accurate?

There's no doubt about it. In recent years, polls have been egregiously wrong in several high-profile elections. In the months before the 2012 presidential election, an average of leading polls showed a virtual tie between Obama and Mitt Romney, and some—notably Gallup—predicted a narrow Romney victory (see box). Instead, the president easily won re-election, by 5 million votes and a 51.1 percent to 47.2 percent margin. Pollsters vastly underestimated a Republican wave in the 2014 midterms, and last month had an epic fail in the Michigan Democratic primary, with the poll average predicting Hillary Clinton would crush Bernie Sanders by 21 points. When Sanders upset Clinton by 1.5 percent, polling aggregator Nate Silver of *FiveThirtyEight.com*—who had given the Vermont senator just a 1 percent chance of winning—deemed it “among the greatest polling errors in primary history.” And it's not just an American problem. Pollsters totally misread the 2014 referendum on Scottish independence, which was resoundingly rejected, and missed decisive victories last year for Britain's Conservatives and Israeli Prime Minister Benjamin Netanyahu's Likud Party.

What's gone wrong?

Pollsters primarily blame recent failures on two factors: “the growth of cellphones and the decline in people willing to answer surveys,” says political scientist Cliff Zukin, former president of the American Association for Public Opinion Research. Ten years ago, about 6 percent of Americans relied primarily on cellphones; by 2014 that figure had jumped to 60 percent. That caused problems for opinion researchers, who typically polled by making automated “robocalls” to random landline exchanges and then, when people picked up, passing them to a live interviewer. “To complete a 1,000-person survey, it's not unusual to have to dial more than 20,000 random numbers,” Zukin says. Federal law, however, prohibits autodialing cellphones—which means paid interviewers have to make calls manually, which can be prohibitively time-consuming and expensive. As a result, some organizations make compromises, such as leaning too heavily on landline surveys, which can skew results.

How so?

The poll can end up ignoring large segments of the population. “Guess who answers the [landline] phone now? It's all people over 50,” says Republican pollster Bill McInturff, who helps conduct the NBC News/*Wall Street Journal* survey. That can make for a more affluent and conservative sampling. In addition to overlooking younger voters, landline polling also gives short shrift to minorities and the poor, sectors most likely to rely on cellphones. Underrepresenting those groups, McInturff explains, “means you are systematically undercounting Democrats.” Since people take their cellphone numbers with them when they move, it's also harder to use area codes to target specific regions. One of the ways pollsters try to compensate for these problems is by “weighting” their results.

What's weighting?

If a polling sample includes 3 percent African-Americans, but African-Americans account for 12 percent of the population, the pollster will “weight” the preferences of the black respondents four times as much. “The goal is noble,” says pollster Jeanne Zaino, but weighting “is fraught with challenges and uncertainties. How do we know if the African-Americans sampled represent the

views and attitudes of all African-Americans?” Besides race, polls also weight by party, cellphone use, gender, and other factors—but the formula for doing so varies from pollster to pollster, and is subject to error and partisan bias. Rasmussen Reports, for example, is known to skew Republican, while Public Policy Polling (PPP) leans Democratic. Weighting can lead to another phenomenon that affects polling firms’ accuracy: “herding.” If most polls show a candidate with a 10-point lead, and Poll X finds that the race is much closer, Poll X often finds an excuse to cook its numbers to avoid being an outlier. And no matter how polls are weighted, they really can’t compensate for declining response rates.

How far have those rates fallen?

A lot. “In the late 1970s, we considered an 80 percent response rate acceptable,” says Zukin. “By 2014, the response rate had fallen to 8 percent.” For more than a century, people answered their landline phones faithfully, but they’ve grown much warier. “Telemarketing poisoned the well,” says Charles Franklin, director of the Marquette University survey. Scott Keeter, who runs the respected Pew Research poll, says people can now use voice mail and caller ID to ignore calls from unknown numbers. Online polls are becoming more prevalent, but since they’re voluntary, people who choose to answer them may be unusually ideological, skewing the results.

Is there hope for polling?

The most accurate technique appears to be the kind of poll averaging conducted by *RealClearPolitics.com* and Silver’s *FiveThirtyEight.com*. Silver weights polls according to historical accuracy and factors in demographics and other data to create election models. Despite his miss in Michigan this year, he’s scored spectacular successes, correctly calling the outcomes of 49 states during the 2008 presidential election, and a perfect 50 in 2012. Still, as Sean Trende, senior elections analyst for *RealClearPolitics.com*, points out, even these data-savvy methods can fail if they’re based on flawed samplings of voters. “Electoral modelers have a nerdy little secret,” he says. “We aren’t oracles.”

Gallup’s missed call in 2012

Mitt Romney was so sure he would be elected the nation’s 45th president in 2012 that he ordered a fireworks display to be unleashed over Boston Harbor the moment he notched his 270th electoral vote. Internal surveys gave him a consistent lead over President Obama, and so did several outside pollsters, including venerable Gallup. But skies over Boston remained dark that Election Night, as Obama cruised to a second term. What went wrong? Gallup’s post-mortem found it had misidentified likely voters, undercounted Democratic-leaning regions, overcounted whites, and when calling landlines dialed only listed numbers, which skewed older and Republican. Gallup has tweaked its model for 2016. “When the next presidential election rolls around,” promises Gallup’s Frank Newport, “we think we’ll certainly be in a position to be at the accurate end of the spectrum.”

Possible Response Questions:

- Explain why polls have become much less reliable.
- Choose a passage from the article and respond to it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Should Parents Be Allowed to Choose The Sex of Their Baby?

Source: Juan Andrade, CNN.com, February 29, 2016

Many couples trying to conceive a child have at least some inkling of whether they want a girl or a boy. These preferences have made some resort to less-than-surefire methods, from taking vitamins to timing when they have sex in order to influence gender.

But with the growing popularity of in vitro fertilization, more and more parents-to-be are gaining the ability to determine, with almost 100% certainty, the gender of their baby. This week, model Chrissy Teigen and her husband, singer John Legend, announced they not only wanted a girl but chose the gender of their baby, a daughter, due this spring.

But decisions over whether couples should be given this choice, and what the consequences of it could be, are anything but certain.

Doctors have been grappling with these questions for years. In 1999, the American Society for Reproductive Medicine, a professional organization, held the opinion that using IVF for sex selection should "not be encouraged." But last year, the group eased its stance and urged clinicians to develop their own policies as to whether or not to offer the service in their practice.

"From my own personal perspective, I don't think there's anything unethical about any of it; however, it's ethically controversial," said Dr. Mark Sauer, chief of the division of reproductive endocrinology and infertility at Columbia University Medical Center.

Some people view choosing the gender of the baby as a part of the concern that IVF is upsetting a natural process, and those concerns date back to the first IVF baby born in 1978, said Sauer, who is a member of the American Society for Reproductive Medicine Ethics Committee, which issues opinions about assisted reproductive technologies.

Some of the loudest outcry over sex selection and IVF in general can be heard in the public response to celebrity news. Teigen faced an uproar when she announced that she chose to have a female embryo implanted after she and Legend underwent IVF because they had difficulty conceiving. People wondered publicly whether Kim Kardashian and Kanye West selected the sex of their baby boy born in December.

But what are the most common concerns that experts and the general public have over sex selection?

It is not safe for the embryo

IVF on its own does not reveal anything about the sex of the embryo. In the conventional method, a doctor retrieves a woman's eggs and fertilizes them in a Petri dish. After letting the resulting embryos grow for a few days, the doctor looks at them under the microscope and implants one (or more) of the embryos that appear to be most viable in the woman.

However, over the last 20 years, women and couples have increasingly had the option of adding a screening step to their IVF cycle, which determines a lot about the embryos, including gender. In 2013, 6% of IVF procedures involved screening for specific diseases. A 2008 survey of clinics in the United States found that 74% offer the service.

One type of more general screening, known as pre-implantation genetic screening or PGS, involves taking one cell from the embryo and looking at its chromosomes. The rest of the embryo is frozen while doctors carry out the test. It helps doctors determine which embryos are most viable and rule out chromosomal abnormalities responsible for conditions such as Down syndrome and Turner syndrome.

"Inherent to (all these types of) screening is knowing the sex as well," Sauer said.

Sauer lets couples decide if they want to know the sex of the embryos and if so, to choose which to implant. They know the questions are coming -- it's part of the informed consent when couples order the screening -- and most of them do want to know the sex of the embryos and also want to decide which gender to implant, Sauer said.

Some doctors have argued that manipulating the embryo in order to do the screening carries "intrinsic risk" to the embryo. Despite these concerns, there is currently no evidence that it is unsafe, Sauer said. "But

when you've got millions of babies (who were screened in this way), you get less and less concerned that you are doing harm," he said.

Likewise, there is growing evidence that IVF in general is safe, Sauer said. A 2015 study looked at more than a million assisted reproductive technology procedures between 2000 and 2011 and found no evidence for concerning complications, although there were increases in reports of ovarian pain and other side effects.

If anything, the screening step may lead to safer pregnancies. The better job doctors can do at determining which embryos are most viable, the more likely they may be to implant only one embryo and reduce the "epidemic of multiple births in this country," Sauer said. "In the future, it may become the standard of practice to screen almost every embryo."

It could lead to gender bias

So far there is no evidence, at least in the United States, that giving couples the option of selecting the sex of their child could lead to a surplus of girls or boys. "Let's face it, there is discrimination against women, but I don't sense in the practice of assisted reproductive technology, at least in my experience, there is an overwhelming bias" toward one sex or the other, Sauer said.

There are concerns, particularly in some Asian countries, about societies valuing boys more than girls, "but to some extent this could be a cultural stereotype," said Brendan Foht, assistant editor of *The New Atlantic*, a journal that publishes articles by experts and the general public on bioethical issues.

Even if sex selection is not likely to skew the gender ratio in the United States anytime soon, there is a general philosophical concern that parents should not have this level of control over their offspring. "Sex selection kind of undermines the concept of unconditional love and obligation by making the love conditional upon the child being a certain thing, in this case, a boy or a girl," Foht said.

Sauer is less worried that choosing gender will affect how a parent loves their child. "They really just want to have that experience. They love their children. It's not like they think one sex is better than the other, but they think, 'Wouldn't it be nice to have a child of (this) gender?'" he said. This kind of thinking sometimes happens if, for example, a couple already has three boys and wants to try for a girl, a concept sometimes called "family balancing."

It could divert resources away from medically necessary IVF

Currently, the only reliable way for parents to "balance" their family in terms of the sexes of their children is through IVF -- although it is possible to some extent to select for gender using intrauterine insemination, by separating female and male sperm. This is a much less precise science. "The best techniques are about 90% to 95% successful," but there's a lot of variation, Sauer said. In contrast, the reliability of sex selection using IVF is about 100%.

Join the conversation

Still, there are probably not a lot of couples that specifically carry out IVF in order to be able to choose the gender of their child. But it's hard to know for sure. IVF clinics do not have to report on the motives of their clients. Currently federal law requires fertility clinics to report their success rates, but other aspects, such as clients' reasons for using assisted reproductive technology or why they decided to have screening done, are not included in the data reporting.

"It's a for-profit industry, so if customers come in with some idiosyncratic desire for IVF, they're probably not going to turn them away," Foht said. Nevertheless, some insurance plans do cover IVF, as well as screening, and in these cases it's conceivable that there could be competition for limited IVF resources, he added.

A number of countries, including the United Kingdom and Canada, have placed bans on sex selection for "social uses," as opposed to when it is used to avoid the risk of sex-linked diseases, such as Duchenne muscular dystrophy, which primarily affects boys. However, ethicists have challenged these types of bans, arguing that sex selection will not lead to gender imbalance in the population.

Possible Response Questions:

- Should parents be allowed to choose the sex of their child? Explain.
- Pick a passage from the article and respond to it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

5 New Brain Disorders that Were Born Out of the Digital Age

Source: Tammy Kennon, TheWeek.com, February 27, 2017

It's hard to remember what life was like before we had the internet at our fingertips, smartphones in our pockets, and a laptop on every desk. Today, our brains are racing to adapt to the digital age. Cognitive neuroscientists say all that time we now spend in front of screens has changed the way we read and comprehend. Internet browsing has shortened both our attention spans and our patience. And it's doing a number on our memories.

In one recent study, researchers asked people a series of trivia questions. Half the group was allowed to use Google, the other half was not. Then, in the second half of the study, all participants were given a new round of easier questions and told they could choose whether or not to use Google to answer them. Sounds pretty standard, right? But those who used the internet in the first round really struggled to answer any questions in the second round while relying solely on their own knowledge and memories. One-third of them didn't even try, reaching for Google immediately.

"Whereas before we might have tried to recall something on our own, now we don't bother," says lead author Dr. Benjamin Storm. "As more information becomes available via smartphones and other devices, we become progressively more reliant on it in our daily lives."

Of course, the internet has done a lot of good for the world. But considering these revelations, it's worth highlighting a few of the more recent disorders that experts blame on our digital obsession:

1. Nomophobia

Some people are afraid of spiders. Others, heights. Or maybe you're unreasonably fearful of clowns. The list of phobias is long, and researchers recently added one more: In 2012, the world learned of "No-Mobile Phobia" or "nomophobia" — the feeling of panic one has upon being separated from one's phone or tablet. In one U.K. survey, 73 percent of respondents felt panic when they misplaced their phone. And for another 14 percent, that panic spiraled into pure desperation.

But the research into this new fear is so new, it's hard to say conclusively whether nomophobia is good or bad for our long-term health. "Maybe the nomophobic have higher quality relationships," Piercarlo Valdesolo speculates at *Scientific American*. "Maybe the nomophobic have greater life satisfaction. Maybe they have more successful professional lives. Or maybe I should admit this is wishful thinking and try to detach from my device for a while."

2. Technoference

Our digital obsession might be doing more than just making us feel a bit panicky. It could also be dragging down our relationships. In one 2014 study, more than half of the 143 participants said that tech devices interrupt their leisure time, conversations, and meals with their significant other. The researchers gave these interruptions a name: "technoference." Not surprisingly, higher technoference correlated directly with lower relationship and life satisfaction. "We would still hypothesize that when partners experience what they perceive to be an interruption due to technology, their views of the relationship are likely to suffer, especially if these interruptions are frequent," says Brandon T. McDaniel, one of the study's authors.

3. The phantom ring

Fauxcellarm, phantom ringing, and ringxiety are new to our lexicon, thanks to the universal presence of our buzzing, pinging smartphones. These terms refer to the perception that one's mobile device is ringing (or, more precisely, vibrating) when, in fact, it is not. David Laramie, a clinical

psychologist in Los Angeles, studied this phenomenon for his dissertation. Among the 320 adult mobile phone users he polled, two-thirds of them reported experiencing phantom ringing. That is, they "heard" their phone ringing when it actually wasn't. "Phantom vibrations are this unusual curiosity that speaks to our connection with our phones," Laramie told *Wired*.

What causes this weird phenomenon? "What happens, I think, is that because your clothes are rubbing against your skin, you cause activity in the same receptors, and that activity is just similar enough to the activity caused by a vibrating phone that it triggers the learned association and the perception of a vibrating phone," Sliman Bensmaia, a neuroscientist at the University of Chicago, explains.

4. Cyberchondria

Hypochondria is not a new disorder, but the internet has taken it to the next level. In the broadest definition, cyberchondria refers to people who research and diagnose their own illnesses online. Sure, we've probably all done that — in fact, one in three American adults say they have used the internet to self-diagnose. But for some people who might already be prone to hypochondria, this can be detrimental. They get neurotic, and go down a Google wormhole, frantically reading about every dreaded disease that matches their symptoms. A search for abdominal pain brings up diagnoses that include everything from food poisoning to stomach cancer, and soon, the Googler is convinced they're dying.

This is a huge problem considering that online symptom checkers are wrought with inconsistencies and inaccuracies. More than half the time, the top diagnoses matching a symptom search will be wrong, one study found.

"For a number of reasons, most medical professionals aren't too happy about the self-diagnosis trend," writes psychologist Mary Aiken at *Quartz*. "It isn't simply a matter of loss of control or an undermining of their authority through online medical searches — it can mess with the diagnostic process, because the results can suggest rare or morbid conditions to patients, which in turn can prompt the appearance of new 'symptoms.'"

5. Truman Show Delusion

Do you ever have that spooky feeling that someone's watching you? In the 1998 film *The Truman Show*, Truman Burbank had that feeling too, only his turned out to be true. Although the film was intended as a sort of dark comedy, it is not funny to those suffering from the Truman Show Delusion, the false perception that their lives are being broadcast. Joel Gold, a professor of psychiatry at New York University School of Medicine, first identified the syndrome in 2003. Gold is co-author of *Suspicious Minds: How Culture Shapes Madness*, along with his brother Ian Gold, professor of philosophy and psychiatry at McGill University. They claim the disorder is not a new diagnosis but a fresh twist on persecutory and grandiose illusions. And while it isn't directly caused by our digital devices, Truman Show Delusion is a product of our overly connected, reality-TV obsessed, social media-driven lifestyles that nurture our most narcissistic qualities.

"Shifts in technology have caused the content of delusions to change over the years," writes Colin Lecher at *Popular Science*. "In the 1940s, the Japanese controlled American minds with radio waves; in the '50s, the Soviets accomplished this with satellites; in the '70s, the CIA implanted computer chips into people's brains. And today's delusion fuel? Take your pick of the Kardashian sisters, then compound it with a dose of the latest NSA revelations. The resulting delusions aren't real, but they certainly aren't random: They're a half-skip past reality, a snippet of the world taken and blown out of proportion."

Possible Response Questions:

- Discuss your thoughts about one or more of these disorders.
- Pick a passage from the article and respond to it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Attention Students: Put Your Laptops Away

Source: NPR.com, April 17, 2016

As laptops become smaller and more ubiquitous, and with the advent of tablets, the idea of taking notes by hand just seems old-fashioned to many students today. Typing your notes is faster — which comes in handy when there's a lot of information to take down. But it turns out there are still advantages to doing things the old-fashioned way.

For one thing, research shows that laptops and tablets have a tendency to be distracting — it's so easy to click over to Facebook in that dull lecture. And a study has shown that the fact that you *have* to be slower when you take notes by hand is what makes it more useful in the long run.

In the study published in *Psychological Science*, Pam A. Mueller of Princeton University and Daniel M. Oppenheimer of the University of California, Los Angeles sought to test how note-taking by hand or by computer affects learning.

"When people type their notes, they have this tendency to try to take verbatim notes and write down as much of the lecture as they can," Mueller tells NPR's Rachel Martin. "The students who were taking longhand notes in our studies were forced to be more selective — because you can't write as fast as you can type. And that extra processing of the material that they were doing benefited them."

Mueller and Oppenheimer cited that note-taking can be categorized two ways: generative and nongenerative. Generative note-taking pertains to "summarizing, paraphrasing, concept mapping," while nongenerative note-taking involves copying something verbatim.

And there are two hypotheses to why note-taking is beneficial in the first place. The first idea is called the encoding hypothesis, which says that when a person is taking notes, "the processing that occurs" will improve "learning and retention." The second, called the external-storage hypothesis, is that you learn by being able to look back at your notes, or even the notes of other people.

Because people can type faster than they write, using a laptop will make people more likely to try to transcribe everything they're hearing. So on the one hand, Mueller and Oppenheimer were faced with the question of whether the benefits of being able to look at your more complete, transcribed notes on a laptop outweigh the drawbacks of not processing that information. On the other hand, when writing longhand, you process the information better but have less to look back at.

For their first study, they took university students (the standard guinea pig of psychology) and showed them TED talks about various topics. Afterward, they found that the students who used laptops typed significantly more words than those who took notes by hand. When testing how well the students remembered information, the researchers found a key point of divergence in the type of question. For questions that asked students to simply remember facts, like dates, both groups did equally well. But for "conceptual-application" questions, such as, "How do

Japan and Sweden differ in their approaches to equality within their societies?" the laptop users did "significantly worse."

The same thing happened in the second study, even when they specifically told students using laptops to try to avoid writing things down verbatim. "Even when we told people they shouldn't be taking these verbatim notes, they were not able to overcome that instinct," Mueller says. The more words the students copied verbatim, the worse they performed on recall tests.

And to test the external-storage hypothesis, for the third study they gave students the opportunity to review their notes in between the lecture and test. The thinking is, if students have time to study their notes from their laptops, the fact that they typed more extensive notes than their longhand-writing peers could possibly help them perform better.

But the students taking notes by hand still performed better. "This is suggestive evidence that longhand notes may have superior external storage as well as superior encoding functions," Mueller and Oppenheimer write.

Do studies like these mean wise college students will start migrating back to notebooks?

"I think it is a hard sell to get people to go back to pen and paper," Mueller says. "But they are developing lots of technologies now like Livescribe and various stylus and tablet technologies that are getting better and better. And I think that will be sort of an easier sell to college students and people of that generation."

Possible Response Questions:

- Do you prefer to write by hand, or to use a computer? Explain.
- How about reading? Do you prefer a physical book? Or a digital book? Explain.
- Discuss a "move" made by the writer in this piece that you think is good/interesting. Explain.
- Pick a passage from the article and respond to it.

Your College Major May Not Be As Important As You Think

By Zac Bissonnette

This article first appeared in "The Choice," a New York Times blog, on November 3, 2010.

Here's an excerpt from a letter that an indignant father sent to his son after hearing that he had opted for an impractical major:

I am appalled, even horrified, that you have adopted Classics as a major. As a matter of fact, I almost puked on my way home today. ... I am a practical man, and for the life of me I cannot possibly understand why you should wish to speak Greek. With whom will you communicate in Greek? ...

I suppose you will feel that you are distinguishing yourself from the herd by becoming a Classical snob.... I think you are rapidly becoming a jackass, and the sooner you get out of that filthy atmosphere, the better it will suit me.

The reaction of Ted Turner's father, who wrote that letter⁽¹⁾ to his son, years before he founded CNN, is pretty typical.

Many students encounter tremendous pressure from their parents to adopt "practical" majors, and I've talked to a handful of students whose parents flatly refused to provide for their educational expenses unless they majored in something career-oriented.

With less than half of recent college graduates⁽²⁾ landing jobs that require a college degree, this concern is understandable. But it's misguided. In recent years, research into the importance of choice of major has led to a surprising conclusion: it's really not all that important.

To wit: A University of Texas at Austin professor, Daniel Hamermesh, researched career earnings data sorted by choice of major and concluded that:

Perceptions of the variations in economic success among graduates in different majors are exaggerated. Our results imply that given a student's ability, achievement and effort, his or her earnings do not vary all that greatly with the choice of undergraduate major.

A study conducted by PayScale Inc.⁽³⁾ found that history majors who pursued careers in business ended up earning, on average, just as much as business majors.

Ramit Sethi, a blogger and the author of "I Will Teach You to Be Rich" is also a fan of "impractical majors." He studied in the Sciences, Technology, and Society⁽⁴⁾ Program at Stanford.

"I never thought of my university education as technical training. If it was, why wouldn't I just go to ITT Tech?" he said in an e-mail, adding:

Where else will you get four years to intellectually challenge yourself and learn subjects in university-level depth? In fact, pair a 'weird' major with summer internships and interesting projects and you've got a leg up on the typical 3.5-G.P.A., by-the-book student. I majored in an obscure major — S.T.S. — and I use my background in social influence, persuasion and behavioral change every day of running my own company.

To be sure: if a student wants to be an engineer or an accountant, those are fine majors. But don't think that you are doomed to a life of poverty if you pick the wrong major. There are at least four great reasons to pick a liberal arts major:

Most people will graduate with higher G.P.A.'s if they study something they are passionate about. High G.P.A.'s help graduates land jobs, and there is a fairly strong correlation⁽⁵⁾ between class rank and career earnings. Great grades also help with graduate school admissions, and the rigors of liberal arts often lead to better performance on the G.M.A.T. and L.S.A.T. than other majors.

One study⁽⁶⁾ found that economics majors achieve the best scores of anyone on the G.M.A.T., meaning that students interested in M.B.A.'s are probably better pursuing an economics major than a finance major.

There is a disconnect between students' perceptions of what employers want and what employers actually want, according to a survey described in an article in Canadian HR Reporter⁽⁷⁾, which reported: "Most employers cite communication skills as the most important skill for a candidate to possess, while generation Y (aged 18 to 35) believe employers are looking for experience, found the survey by Toronto's George Brown College."

If your goal is to develop written and verbal communications skills, a finance major may not be the best bet.

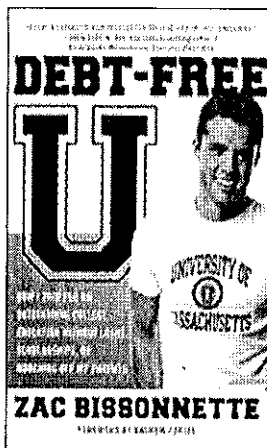
Transferability of skills. It's become a cliché that the best jobs of tomorrow don't even exist today. Such is life in a rapidly changing, technology-driven global economy. Remember all those television ads for training in VCR repair that suddenly stopped running a few years ago? That's the potential risk of a major that places job training ahead of mind development.

Most importantly, majoring in something that interests you is just the obvious thing to do. You'll have more fun, have a richer experience and be less likely to drop out if you are actually passionate about what you're studying.

Now, here's my message for parents: Relax about your children's choice of major, and realize that their abilities, work ethic and passion will ultimately lead them to a fine destination.

References:

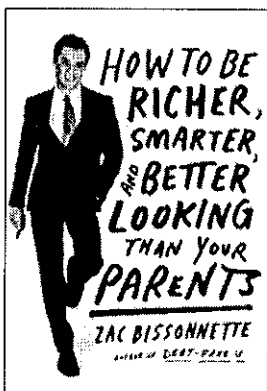
- 1) The Lost Tycoon, by Ken Auletta: http://www.kenauletta.com/2001_04_23_thelosttycoon.html
- 2) Recession's toll: Most recent college grads working low-skill jobs, by Tony Pugh: <http://www.mcclatchydc.com/2009/06/25/70788/recessions-toll-most-recent-college.html>
- 3) Ivy Leaguers' Big Edge: Starting Pay, by Sarah E. Needleman: http://finance.yahoo.com/news/pf_article_105499.html
- 4) I Will Teach You to be Rich, by Ramit Sethi: <http://www.iwillteachyoutoberich.com/blog/>
- 5) Economic Scene; Children smart enough to get into elite schools may not need to bother, by Alan B. Krueger: <http://www.nytimes.com/2000/04/27/business/economic-scene-children-smart-enough-get-into-elite-schools-may-not-need-bother.html>
- 6) Econ Majors Score Well on the GMAT Too!, by Terry D. Monson and Paul A. Nelson: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=960088
- 7) Canadian HR Reporter: <http://www.hrreporter.com/userlogin?article=8246-employers-and-gen-y-have-different-skills-expectations-survey>



Zac Bissonnette

Zac Bissonnette is a personal finance writer and 2011 graduate of the University of Massachusetts Amherst. The Washington Post dubbed Zac's first book, *Debt-Free U*, "the best and most troubling book ever about the college admissions process." His book has been featured in *The BBC*, *The New York Times*, *The Huffington Post*, *USA Today*, *The Suze Orman Show*, *The Boston Globe*, *ABC News*, and many others publications and news programs.

His second book, *How to Be Richer, Smarter, and Better-Looking Than Your Parents*, offers advice to his fellow 20-somethings on avoiding common financial mistakes and staying out of debt. Zac published two books by the time he was 23 years old and is currently the editor of *Warman's Antiques & Collectibles*.



**Note: This article does not use MLA or APA citation style, but instead uses a citation style typical to newspapers, blogs, and popular magazines.*

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

The Great Solar Eclipse of 2017

Source: TheWeek.com, August 5, 2017

On Aug. 21, the moon's shadow will roll across the U.S. as tens of millions of Americans witness a total solar eclipse. Here's everything you need to know:

Why do total eclipses occur?

Occasionally, the moon's elliptical orbit carries it directly between the sun and Earth, placing all three celestial objects in complete alignment. The moon's shadow then falls across Earth's surface, ultimately appearing to blot out the sun entirely. The phenomenon isn't especially rare, occurring somewhere on Earth every 18 months or so. But from any single given spot, a total solar eclipse is observable only once in 375 years. This one will be the first anywhere in the U.S. since 1979, and the first since 1918 to be visible from coast to coast. It will also be the first solar eclipse to be seen *only* on American soil since 1776. "The path of totality will cross through a whopping 14 states," says astrophysicist Ethan Siegel. "More than 12 million people will get to experience totality without ever leaving their homes."

What will eclipse gazers see?

It's a gradual process, beginning with first contact — "when the sun and moon 'touch,'" explains NASA heliophysicist Mitzi Adams. "This leads to the partial phase, when it looks like someone is taking increasingly large bites from the sun. Next is the actual eclipse itself, when the sun is totally covered by the moon." All that is visible then is the solar corona, the sun's gaseous halo, which peeks out from the blackness. Totality lasts from a few seconds to just over two minutes, depending on where you view it. The sun's brightness in the totality falls by a factor of 1 million, temperatures plummet by as much as 20 degrees, and winds fall still. "Some animals react," Adams says. "Cows may start walking toward the barn. Crickets start chirping." Indeed, the sheer strangeness of eclipses has inspired fascination — and fear — since ancient times.

How so?

For centuries, people saw eclipses as omens, perhaps as harbingers of Doomsday. "When anything extraordinary happens in nature it stimulates a discussion about instability in the universe," says astronomer Anthony Aveni. In Indian mythology, it was believed eclipses occur because the Hindu demon Rahu continually chased the sun and occasionally swallowed it up. The Babylonians, one of the first civilizations to study the cosmos, believed eclipses heralded the death of their king; by the 8th century B.C. they had devised mathematical formulas that predicted them. (To "fool" an impending eclipse, they'd dress someone up — usually a condemned man — as a substitute monarch.) Greek historian Herodotus credits the philosopher Thales with accurately predicting the solar eclipse of May 28, 585 B.C. "People realized there were patterns," says astronomer Tyler Nordgren. "If it is a dragon eating the sun, then evidently the dragon works on a timetable."

What's the timing of this eclipse?

Beginning at 10:16 a.m. in Government Point, Oregon, the eclipse will follow a 67-mile-wide path from Oregon through Idaho, Wyoming, Nebraska, Kansas, Iowa, Missouri, Illinois,

Kentucky, Indiana, Tennessee, North Carolina, Georgia, and South Carolina — ending near Charleston at 2:48 p.m. Some 75 million people live within a 200-mile drive of the totality path, and large crowds are expected to gather in towns and cities along the route, snarling traffic and straining infrastructure and emergency responders. To prepare, communities are coordinating with government, law enforcement, and food vendors, and ferrying in portable cellphone towers. Glendo, Wyoming — population 200 — set up an airstrip viewing area to accommodate some 20,000 visitors. Eclipse watchers are advised to bring their own food and water and take appropriate safety precautions (see below). "The biggest shortage on the day will probably be port-a-potties," predicts geographer Michael Zeiler.

Will scientists learn anything from the eclipse?

They usually do. For example, reduced glare during the total eclipse of 1919 enabled British astronomers Arthur Eddington and Frank Watson Dyson to observe the extent to which solar gravity bends starlight — confirming a key prediction of Einstein's general theory of relativity. This year, in a project dubbed EclipseMob, astronomers across the country will use special radio receivers to study the ionosphere, an atmospheric region between 46 and 621 miles above Earth ionized by solar and cosmic radiation. Day-to-night ionospheric fluctuations can disrupt radio waves and communications systems. (Ion reduction after sundown is one reason AM stations come through better at night.)

Are there other projects?

In Citizen CATE (Continental-America Telescope Eclipse), astronomers from coast to coast plan to splice film footage into the longest-ever movie of a total solar eclipse — about 90 minutes' running time. Their primary goal is to analyze the solar corona. Normally almost invisible, the corona is revealed in striking detail during an eclipse. It's a turbulent region, with temperatures up to 3.5 million degrees Fahrenheit, swirling solar winds, and coronal mass ejections — scorching ionized particles that fly toward Earth, pummeling our atmosphere and sparking the aurora borealis. These ejections pose threats to astronauts, satellites, and ground-based technology, and generate powerful currents that can short out power stations, potentially imperiling the grid. CATE researchers have meticulously synchronized their specialized cameras; there's no chance for retakes until the next total eclipse in the U.S. in 2024. "You have to be ready when totality starts," says astronomer Matt Penn, "because you can't stop the moon."

How to view the eclipse

It's not an old wives' tale: You can permanently damage your eyesight, or even go blind, by staring at an eclipse. "The only safe way to view the eclipse directly is through sufficient eye shielding," warns astrophysicist Ethan Siegel. That would include specialized glasses, designed explicitly for solar viewing; gazing through welder's glass/goggles/hoods, "where you need shade 14 or higher glass to be safe"; or through a telescope or binoculars *only* if they're fitted with a specialized solar filter over the outer lens. "Only during absolute totality is it safe to remove your glasses," Siegel says. During that all-too-brief period — if skies are clear — you can check out the sun's corona and Regulus, an extremely bright star next to the sun. Siegel says that if viewing conditions are perfect, you might also see "the planets Mars and Mercury, ahead and behind the path of the sun, respectively."

Possible Response Questions:

- Does the eclipse interest you? Explain.
- Discuss a "move" made by the writer in this piece that you think is good and/or interesting. Explain.
- Pick a passage from the article and respond to it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Talking to Our Devices

As voice technology matures, we don't need touch screens and keyboards to send commands.

Source: TheWeek.com, February 10, 2017

How does voice technology work?

Computer dictation programs have been around for decades, but in recent years, voice-activated technology has advanced by leaps and bounds, thanks to dramatic strides in artificial intelligence that have made computers much better at understanding the nuances of human speech. AI-powered personal assistants like Apple's Siri and Amazon's Alexa can now answer trivia questions, list appointments on your calendar, or order pizza when asked, thanks to "deep learning" techniques, in which software is trained to suss out meaning and context from millions of recorded examples of commands, jokes, and conversations—most of them found on the internet. Deep learning is also being used to teach AI assistants to speak back to users in ways that sound more natural, and less robotic, than earlier talking machines. As voice activation becomes even more advanced, many technologists believe, it could be as revolutionary as the search engine or the computer mouse, and become the dominant way in which we interact with our devices. Instead of typing on a keyboard or tapping on a screen, we will simply talk to them.

Who's working on voice control?

Amazon, Apple, Google, and Microsoft are all pouring resources into voice technology, in particular AI assistants. Apple's Siri was released for the iPhone in 2011, but voice tech arguably took off with the introduction of Amazon's Alexa, built into the e-commerce giant's Echo home device, in 2014. Alexa was already in roughly 4 percent of U.S. households in the run-up to the most recent holiday season, when Amazon sold another 10 million Echo speakers. Analysts say that beyond the increasing popularity of home assistants, voice-activation technology on smartphones is growing rapidly. Tech research firm Gartner predicts that 20 percent of smartphone interactions will occur through AI assistants by 2019, and by 2020, the majority of all tech devices will be designed to work with "minimal or zero touch"—just voice.

What else will voice control be used for?

Smart gadgets for the home that you can speak to as if they were virtual servants. This year's Consumer Electronics Show in Las Vegas saw a proliferation of smart gadgets designed to sync up with voice-activated assistants, including laundry machines, lightbulbs, showerheads, door locks, and air purifiers. LG's smart refrigerator, for example, comes with Amazon's Alexa built in, which means consumers can order groceries via Amazon Fresh just by talking to the fridge. Gadget makers envision a fully connected future smart home that will respond to your every command. Automobiles are another natural fit for hands-free, voice-activated technology. Using Google Assistant, Hyundai is integrating voice-control features into some vehicles that will allow drivers to lock the doors on their car or start the engine.

What are the limitations?

Though AI assistants can appear to be eerily intelligent, they can't yet engage in meaningful, extended conversations, or think creatively. So to humanize their AI creations, tech companies are trying to infuse them with their own personalities. Google has hired writers from Pixar and



Sticks and Stones

Words from an earth scientist

September 17, 2013

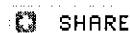
Casey Kennedy is an Assistant Professor of Geosciences at Northern Nevada University



9



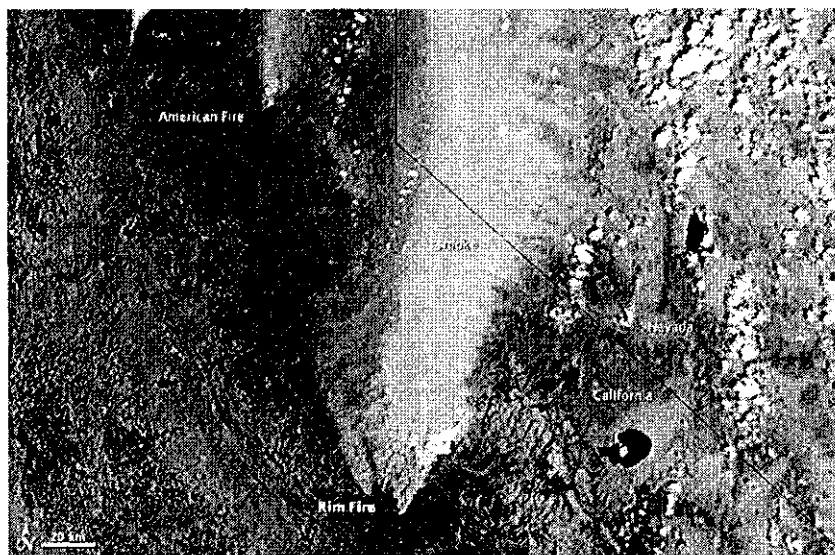
6



Global warming – this time it's personal

You know that old saying that seeing is believing? Is there one for not just seeing, but smelling, tasting, and touching, too? For the past few weeks, smoke and ash from the Rim Fire in and around Yosemite National Park has covered wide stretches of California and Nevada in a stinking, eye-watering cloud of smoke and ash. Those of us living under this plume have been told to stay inside, close the windows, and not move around too much.

After days of cowering in the choking smoke and ash of a record-breaking wildfire, you'd have to be more than blind not to realize that there's something happening here. That something is global warming.



Satellite image of the Rim Fire smoke plume on August 24, 2013. NASA

Living in a greenhouse

Light from the sun hits Earth and warms the planet. Some of that heat escapes right back into space, and some of it is caught and held by gases in the atmosphere. This heat trapping process is called the greenhouse effect, after what the windows in a greenhouse or a car do to sunlight—they let the light move in and out, but trap a lot of the heat inside.

The greenhouse effect is powerful, and for most of Earth's history, it's been a good thing. Without it, the average air temperature would be just above 0°F.

unit 8

Skeptical Science Graphics by Skeptical Science is licensed under a Creative Commons Attribution 3.0 Unported License. Based on a work at www.skepticalscience.com.

But over the last three hundred years, human activity has pumped a lot of greenhouse gases into the atmosphere. The most potent of these are carbon dioxide, methane, ozone, nitrous oxide, and CFCs.

Gas	Source	Increase in atmosphere since 1750
Carbon dioxide (CO ₂)	burning fossil fuels, waste, and vegetation; industrial processes; weathering and decay of rocks and organic matter	40%
Methane (CH ₄)	landfills; livestock and manure; fossil fuel processing	168%
Nitrous oxide (N ₂ O)	engine exhaust; fertilizers	20%
Ozone (O ₃)	chemical reaction between sunlight and hydrocarbons and nitrogen oxides in the air	36%
Fluorinated gases (CFC, HFC, PFC, SF ₆ , ect.)	industrial processes; refrigerants; production of electrical components and semiconductors	synthetic chemicals, not present before Industrial Revolution

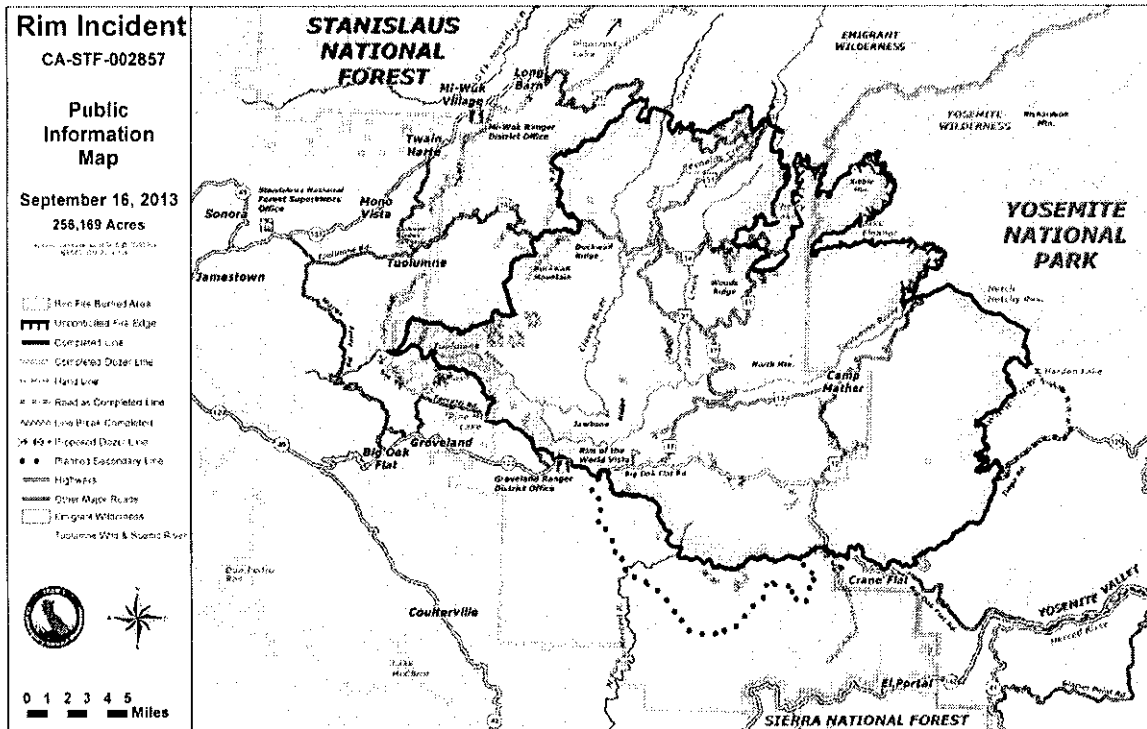
The major greenhouse gases

More greenhouse gases in the air mean the greenhouse effect catches more reflected heat, and the planet warms up. There is now overwhelming scientific consensus that global warming is happening—the average temperature of the Earth’s surface increased by about 1.4° F over the past century, with two thirds of it happening since 1980.

Not impressed? It's true that the difference of a couple of degrees in a local weather report barely matters. But that amount of shift in global climate will affect the lives of every person on the planet. Indeed, it already has. Consider just three of the changes that are already happening: extreme wildfires, the spread of diseases, and rising sea levels.

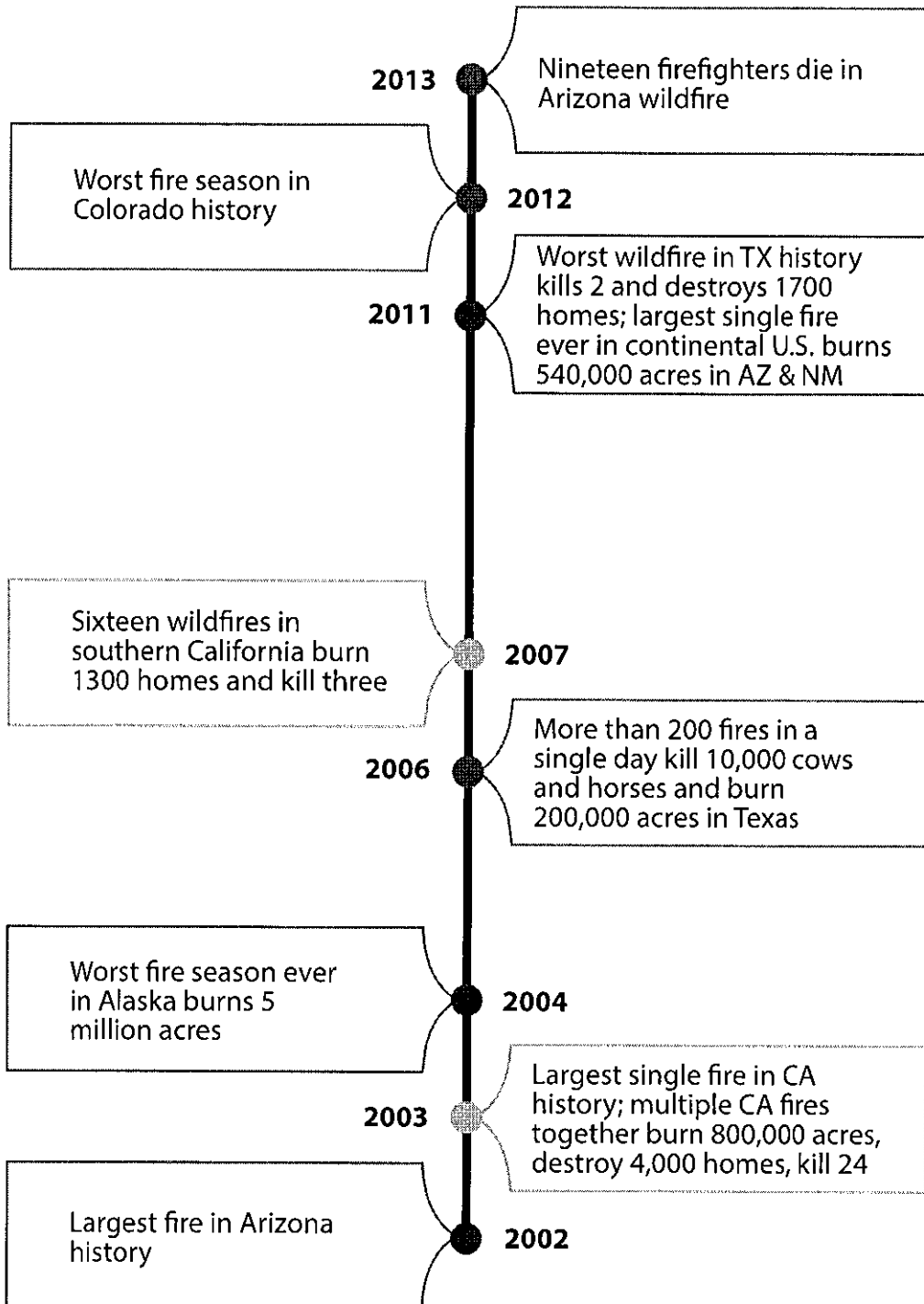
Where there’s smoke...

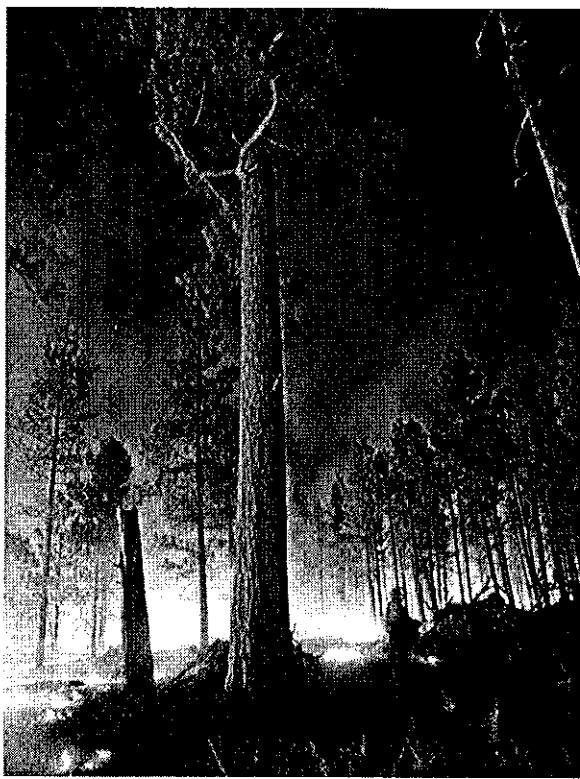
Luckily for me, the winds shifted and the smoke from the Rim Fire is now blowing into someone else’s neighborhood. But Yosemite still burns; over a month in, over \$100 million spent fighting the fire, and 400 square miles of forest up in flames, and still it burns.



Map of the Rim Fire showing the burned area and active fire line. Started by an illegal campfire on August 17, 2013, the fire is still not completely contained as of September 17.

Over the last decade, devastating wildfires like this have exploded across the American west.

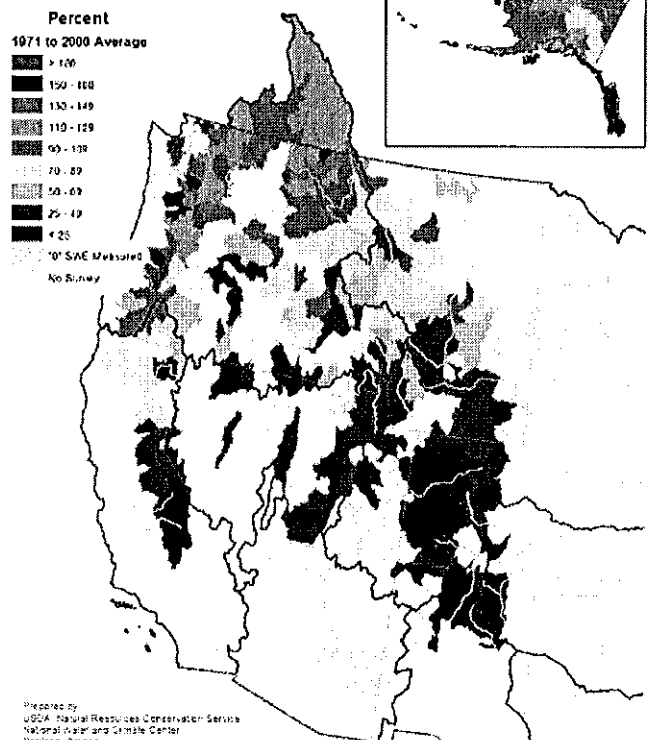




The Whitewater-Baldy Fire of 2012 was New Mexico's largest fire. So far. Kari Greer, USFS Gila National Forest.

There is a clear trend developing in the western U.S. of larger and more damaging wildfires. These are spurred on by three effects of global warming that combine to make forests more likely to burn: drier winters, hotter summers, and increasingly severe, long-term droughts.

Mountain Snowpack as of May 1, 2012

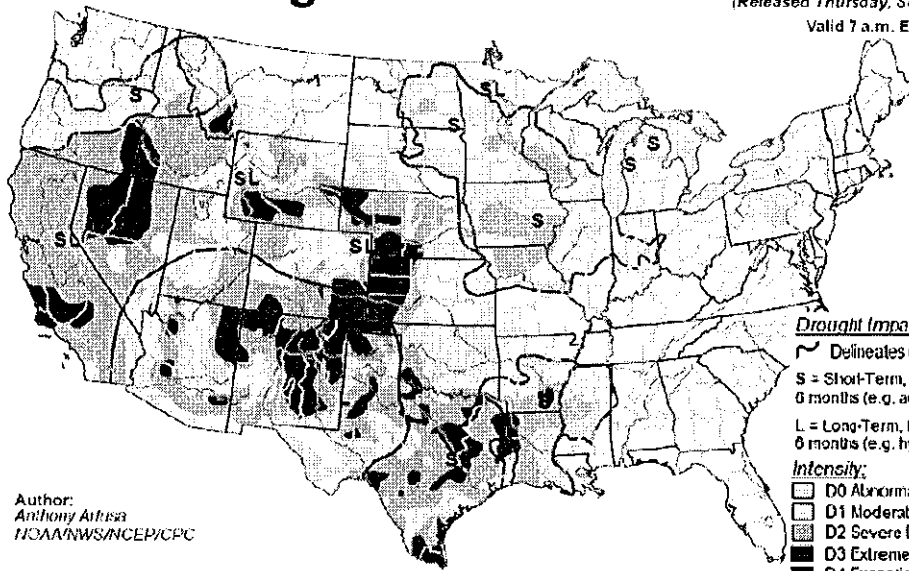


A large, slowly melting snowpack keeps a forest cool, lush, and moist well into the summer. A small snowpack that disappears by early spring leads to the build up of dry, highly flammable fuel.

Snowpack map of the western U.S. Over most of the region, the spring snowpack is significantly lower than usual. Image courtesy of NOAA.

U.S. Drought Monitor

September 10, 2013
 (Released Thursday, Sep. 12, 2013)
 Valid 7 a.m. EST



Author:
 Anthony Auer
 NOAA/NWS/NCEP/CPC

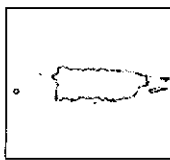
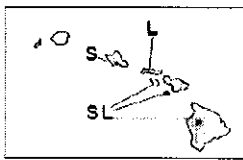
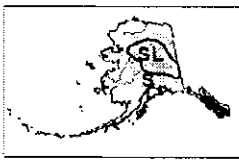
Drought Impact Types:

- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on local-scale conditions. Local conditions may vary. See accompanying text summary for relevant statements.



<http://droughtmonitor.unl.edu/>

Much of the Midwest and West are in the grip of a severe, multi-year drought.

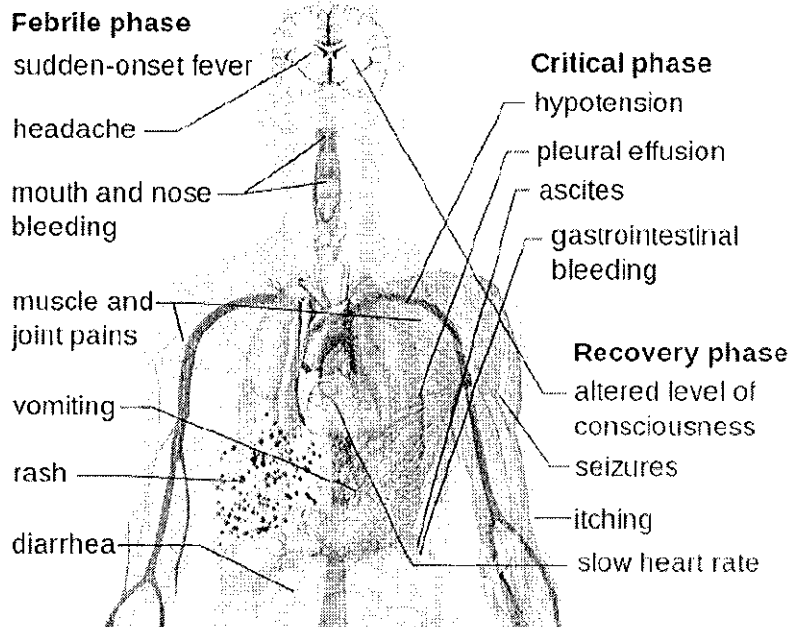
Long-lasting droughts kill vegetation and increase wildfire fuel supply, so that wildfires spread more easily and burn more intensely. Ecosystems already stressed by drought will also be less able to survive the added pressures of even small fires. [Click [Climate Change Fuels Western Wildfires](#) to learn more.]

They're here...

In the nineteen fifties, mosquito control efforts and public health campaigns eradicated the misery of dengue fever from the U.S. Now, sixty years later, it's back. Carried by mosquitoes, new strains of the disease have appeared in Florida, Texas, and Hawaii, and they are spreading. Sometimes called breakbone fever because of the extreme joint pain it causes, dengue also brings rashes, blistering fever, and sometimes bleeding, organ failure, and shock.

Although it's usually not fatal, there is no vaccine or cure. The World Health Organization reports that dengue fever is now the fastest spreading mosquito-borne viral disease worldwide, infecting 100 million new victims every year. A 2012 study of the illness concluded that "Dengue fever most likely will become a disease the United

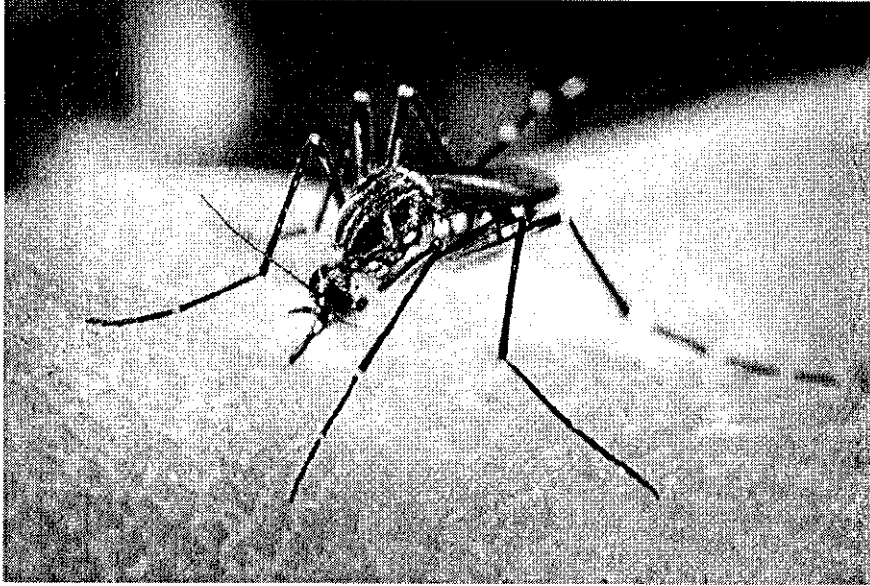
Symptoms of Dengue fever



Dengue fever symptoms. Doesn't sound like fun, does it?

States must learn to live with as climate change creates opportunities for the disease to gain a foothold." [[Click Climate Change and Tropical Disease](#) to learn more.]

Dengue fever is not alone. Infectious disease cases are rising in step with the temperature. Milder winters and wetter springs in many parts of the warming world have led to mosquito and tick population booms. These insects can be active during more months of the year, and in some areas are now able to survive where winter freezes used to kill them off. As they have spread, so have the diseases they carry - Lyme disease,



Aedes aegypti mosquitoes carry viruses that cause several different tropical fevers. Credit: CDC Public Health Image Library.

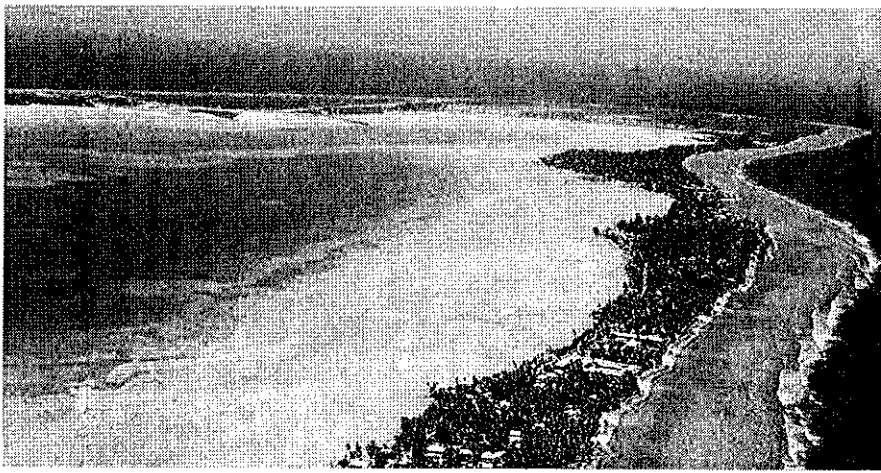
malaria, encephalitis, yellow fever, and West Nile virus. In other regions, fungal spores carried on drier, gustier summer winds are blowing once rare lung and brain diseases, like Valley Fever, into new areas. [[Click Dengue Fever and West Nile Virus](#) to learn more.]

We're going to need a bigger boat...

Kiribati is a small country in the equatorial Pacific, made up of 100,000 people, 32 atolls, and a single island. But not for long. Kiribati is predicted to be the first country to be lost to climate change, when rising sea level submerges the island nation. Several of the country's atolls are already disappearing beneath the waves. The rest are only one or two meters above sea level. Even areas that are still dry are becoming uninhabitable as seawater encroaches into the ground and contaminates the fresh water supply.

In 2008, Kiribati President Anote Tong asked neighboring countries to accept his people as permanent refugees, saying, "We may be beyond redemption. We may be at the point of no return, where the emissions in the atmosphere will carry on contributing to climate change, to produce a sea-level change so in time our small nation will be submerged. to plan for the day when you no longer have a country is indeed painful but I think we have to do that."

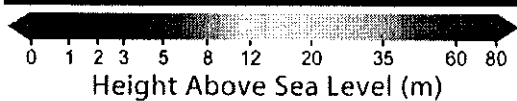
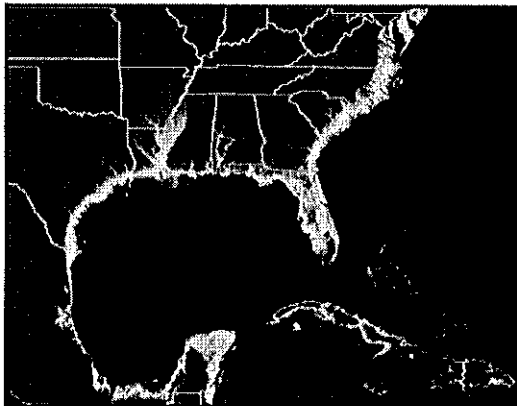
Kiribati could see the first large-scale migration of modern times driven by climate change, but it won't be the last. Sea level is on the rise worldwide, up seven to ten inches on average in just the past century. Warming air is melting mountain glaciers,



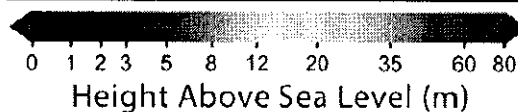
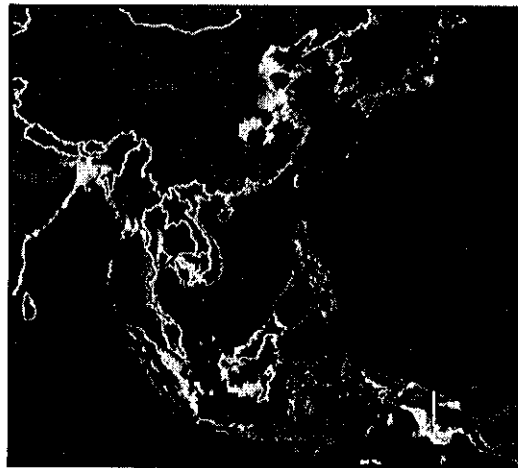
South Tarawa Island - low, narrow, and shrinking. Photo courtesy of the Government of Kiribati.

sending their water into the sea. And warming oceans are simply taking up more space, because water expands as it heats up. Although sea level has gone up and down many times during the Ice Ages, the current change is substantially faster than before, and it's speeding up. Most current models predict an additional rise of at least two to six feet by 2100, enough to put some of the most populated coastal areas on earth at risk of flooding, storm surge damage, salt-water incursion, and increased erosion. [Click [Rising Sea Levels](#) to learn more.]

Sea Level Risks - US East Coast



Sea Level Risks - Southeast Asia



Areas in burgundy and red are at high risk of flooding, especially during large storms. Images created by Robert A. Rohde / Global Warming Art.

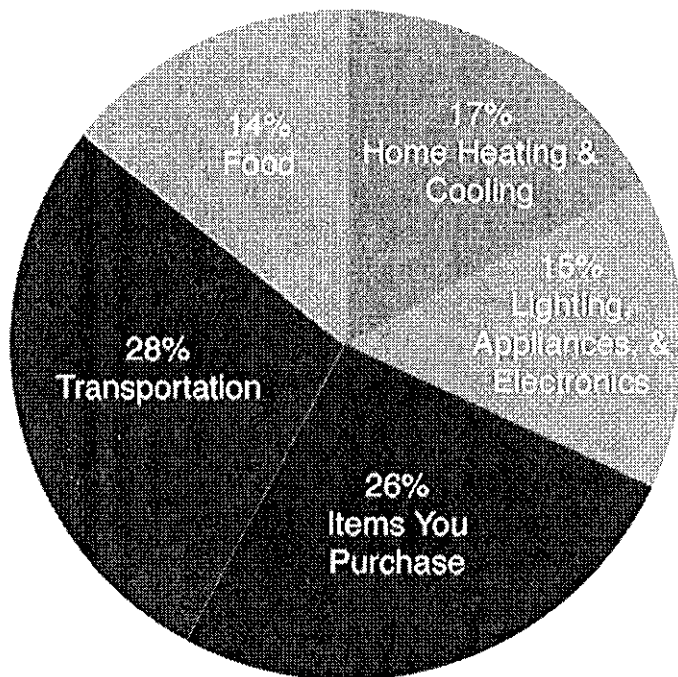
Yeah, so? What do you want me to do about it?

Global warming is here, and it's happening. We've had the data for a long time, and now we also have the evidence of our own experiences. It's making us sick and costing us money. The good news is that there are things we can do about it, besides writing indignant blog posts.

First of all, we can support government and business initiatives to limit emissions, develop non-fossil fuel technology, and increase energy efficiency. Global warming is a complex, difficult problem, and it's going to take a lot of effort, technology, and muscle to address it.

Second, we can each reduce our personal carbon footprint. A 'carbon footprint' is the amount of greenhouse gas produced by a person or an activity. It includes what we produce directly, by driving a car or turning on the stove, and also what we are indirectly responsible for, like the emissions that were given off in manufacturing and shipping the jeans and t-shirts we're wearing.

Where the Average American's Carbon Emissions Come From



The average American produces a whopping twenty tons of CO₂ every year. The good news is that means we don't need to live in a cave and eat twigs to make a difference. Here are a few ideas to shrink your carbon footprint:

Reduce CO₂ and ozone emissions by walking or taking the bus just a little more often, turning your water heater down a few degrees, and switching off the lights when you leave the room.

Cut agricultural methane and soot releases by going meatless once a week.

[Click [Slow Climate Change](#) to learn more.]

Drink water from the tap instead of a bottle. Producing just one year's worth of plastic bottles in the U.S. uses the equivalent of more than 17 million barrels of oil, and gives off more than 2.5 million tons of carbon dioxide.

Want to know more about your footprint and how to make it smaller? Head on over to the EPA website and its carbon footprint calculator.

[Click [Carbon Footprint Calculator](#) to learn more.]

[Contact Us](#)

You are here: [EPA Home](#) » [Climate Change](#) » [Emissions](#) » [Individual Calculator](#)

Household Carbon Footprint Calculator

You can use the following online calculator to get a rough "ballpark" estimate of your personal or family's greenhouse gas emissions and explore the impact of taking various actions to reduce your emissions. The calculator is broken into three sections:

Section 1: Estimate your current total household emissions.
Section 2: Explore actions you can take to reduce your greenhouse gas emissions, energy use, and waste disposal costs.
Section 3: See how much you can save (in dollars and emissions) by taking the actions you chose in Section 2.

Instructions

1. To get the most accurate results, gather your recent electric, gas, and/or oil bills so you can use real numbers for your household's energy consumption. Remember that your energy bills vary by season, so use an average of winter and summer values if you can.
2. Allow yourself 10-15 minutes to enter the data.
3. After entering data, use the TAB key to continue moving through each section of the calculator. When you get to the end of a section, click "Next Section" to move on.
4. Visit the What You Can Do section of the climate change website to learn about other actions you can take to reduce your greenhouse gas emissions.

19 COMMENTS...

Joe Peshtigo...

Come off it. The Rim Fire was started by an idiot with a campfire, not carbon dioxide!

TheSkyAintFalling...

I just read in the Daily Mail that there is 60% more ice cover in the Arctic Ocean than there was at this time last year. Kind of shoots down your whole "we're melting!" hysteria, don't it?

Sticks and Stones...

There is more ice in the Arctic this year, but only compared to last year, which was the all time record low! This year the ice recovered a little, but it was still the sixth smallest ice cap ever.

Anonymous...

I live in Cali...actually very close to the Rim Fire.... and I know what I'm talking about. You probably don't like the fact that chemtrails are responsible for the death of Stanislaus Forest. You might prefer to blame 'global warming'...but if you dig a little deeper you will find global warming is caused by chemtrails and govt weather modification. Wake Up! This is all done in the name of Agenda 21 and our Cap and Trade here in CA. Anything they can do to make global warming a reality they will do.

GoBears...

Diseases are not any worse than they used to be, but we now have 24-hour news and money-hungry bloggers that will puff up any bad thing over and over to get people to tune-in. If it scares, it sells. What's your next blog about, zombies?

Madison Wan...

Good blog! When are people going to wake up and see what's right in front of them? Sure, climate has changed before, but the here and now is what matters to us. Who cares if it was even hotter during dinosaur times?? This is bad for people!!

Missy1990...

Pffft! Another "climate change" article full of "mights" and "maybes." When do we admit this "climate change" mythology is a full-fledged religion?

Smokey...

The biggest reason for all these wildfires is 100+ years of misguided forest management. Take a walk through the sequoia groves in Yosemite, and you'll see that all the big old trees have lots of fire scars. It was natural for lightning to start lots of small fires, and they cleared the debris and undergrowth off the forest floor before it could build up. The fires wouldn't get too hot or burn up into the tree crowns because there wasn't much fuel lying around. But when Yosemite was set aside in 1860, the government decided it had to step in and put out every little blaze. Dead wood piled up and after a while the open forest was overgrown with dense stands of smaller, more flammable shrubs and trees.

Check out these two photos of the same grove of big trees:



1890

George Reichel/National Park Service



1960

Dan Taylor/National Park Service

Is it any wonder that fires are bigger, hotter, and more damaging now? Look at all that extra fuel! Give the Park Service some credit. By the 1970s they wised up and realized their management practices were creating unhealthy forests and dangerous conditions.

They've tried to get things back on track by carrying out controlled burns to clear out some of the fuel load and restore the ecological balance. But the environmental lobby sues every time they try to do a little logging or put in an access road or firebreak. The tourists complain when they do any burning because they want to see pretty views, not nasty smoke. The bureaucrats back in Washington who don't know squat about the West keep cutting the USFS budget. So the forest is still a long way from back to normal. Under natural conditions, about 16,000 acres would have burned every year in Yosemite. Under "controlled" conditions, we've managed to clear out about 14,000 acres a *decade*. It looks to me like Mother Nature has just gotten tired of waiting.

Please Do Not Write on
this sheet!

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Immunotherapy Drug Opens a New Era of Precision Medicine for Cancer

Source: Melissa Healy, LATimes.com, May 26, 2017

With little fanfare, the Food and Drug Administration did something this week that it's never done before: The agency approved a single prescription drug, pembrolizumab (marketed by Merck as Keytruda) for treatment of solid tumors in any organ so long as the malignancy bears a specific genetic signature.

In the fast-moving field of cancer treatment, the FDA's announcement marks an important milestone, close to two decades in the making. Increasingly, cancer will no longer be identified, categorized and treated by the organ it inhabits, or in which it first gained its foothold. In a shift that is already underway, cancers will be known by — and treated for — the common genetic mutations that nurture and sustain them.

In clinical trial evidence cited by the FDA this week, pembrolizumab induced complete or partial tumor shrinkage in about 40% of patients with one of 15 end-stage malignancies. And for 78% of those patients, that response lasted six months or more. A trial reported earlier this year found that in 17 of 30 advanced cancer patients, pembrolizumab stopped or reversed the progression of cancer, and 24 patients were still alive a year after starting the drug. All of those subjects, of course, had cancers with the genetic mutation that pembrolizumab is designed to target.

In the treatment of patients with metastatic cancers that have failed all other treatments, that record of success constitutes a “home run,” said Dr. Bert Vogelstein of Johns Hopkins University's Kimmel Cancer Center. Vogelstein's 1993 research laid the groundwork for the discovery of pembrolizumab's broad cancer-fighting powers.

With the FDA's announcement, drugs like pembrolizumab have also begun to change the way that physicians, patients and government regulators think of cancer. No longer will they see all cancers of the lung, breast, colon, brain, liver, pancreas and prostate as distinct from one another. Instead, they will look for the common genetic mutations that give rise to cancers no matter where they're found. And they'll treat those cancers with a drug that uses that common signature as a homing beacon, either for the immune system or for targeted cancer drugs to attack.

It's a key principle of what's called “precision medicine” — the idea that cancer therapies should zero in on a tumor's specific molecular fingerprint, and not, as most chemotherapies do, harm healthy cells in the process of attacking malignant ones.

In the cancers pembrolizumab treats, the mutations occur in the complex of genes that govern DNA repair. Deficiencies in the DNA's “mismatch repair system” generate mutant proteins on the surface of cancer cells, and pembrolizumab trains the immune system to attack those targets. The mutations that make pembrolizumab effective had already been found in melanoma, non-small-cell lung cancer, head and neck cancer and Hodgkin's lymphoma, and the FDA had already approved the drug for those cancers before this week.

But this week's FDA approval goes further: It makes clear that the drug's molecular targets are also common in colorectal, endometrial and gastrointestinal cancers, and less frequently present in cancers of the breast, prostate, bladder, and thyroid gland.

All told, scientists believe about 4% of advanced cancers bear the genetic signature that would make them treatable by Keytruda.

The appearance of such a cancer workhorse will bring about profound changes on the cancer landscape — not just for patients but for researchers and drug regulators as well.

Organizations representing, say, people with pancreatic cancer will make common cause with groups that advocate for colorectal cancer patients. In cancer centers, specialists in, say, melanoma will start (in fact, have already started) treating patients with a range of other cancers. When drug companies and their academic partners set out to test the effectiveness of a prospective cancer drug, they'll have to recruit trial subjects using a new and much less obvious criterion than they've used in the past: the genetic signatures their tumors bear.

Even before the FDA's announcement this week, all these processes were underway. The FDA's decision recognizes that fact, said Dr. Svetomir Markovic, an immunologist at the Mayo Clinic in Rochester, Minn., who specializes in treating melanoma. But the decision also puts cancer physicians — as well as insurers, who will be called on to pay Keytruda's \$100,000-per-year price tag — on notice that a new era is at hand, said Markovic.

"The field of cancer medicine is changing at lightning speed," he said. Physicians "are having a hard time keeping up, and I can only imagine that people who are regulating it are doing the same," he added. "But this decision by the FDA is really wonderful: It has made it easier for us to secure treatment for our patients who may have run out of options that may help."

Two other immunotherapy drugs have been approved for cancer treatment — nivolumab (marketed as Opdivo) and ipilimumab (Yervoy) — but neither has been shown to treat cancers across such a broad spectrum. Several other immunotherapy drugs are in early trials, and could yet prove to be the sort of workhorse that pembrolizumab appears to be.

"In many ways we're at the end of the beginning of immunotherapy: There's clear benefit but it's still a minority of patients that get long-term benefit," said Markovic of the Mayo Institute. "We will get better at this."

Markovic suggested that the newly recognized powers of pembrolizumab, as well as the FDA's new openness to cancer drugs that blur traditional distinctions, could prompt drug companies, physicians and patient groups to take a second look at some abandoned cancer drugs. With a clearer idea of which patients they might help, and a willingness to design and conduct innovative clinical trials, some failures may look more promising, he said.

"We just needed to take the first step in showing that this long-believed theory — that the immune system can kill cancer — is true," Markovic added. "It indeed can."

Possible Response Questions:

- What is worth talking about in this article? Share your thoughts.
- Pick a passage from the article and respond to it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

Cell Phone Radiation Increases Cancers in Rats, but Should We Worry?

Source: Carina Storrs, CNN.com

The issue of whether cell phone use could cause cancer has been mired in confusion, with some studies failing to find an increased risk of brain tumors among cell phone users, while others suggest greater risk among the most frequent of users.

Part of the problem is that studying people is less controlled than testing animals in labs. Researchers have asked individuals diagnosed with brain tumors to recall how much they used their cell phones and compared it with usage by healthy people, but it can be hard for people to accurately remember their use. Other studies have followed healthy people for years to see whether those who use their phones the most develop more cancers, and while they have not found that to be the case, heavy users could differ in other ways that affect their cancer risk.

To get around these challenges, some researchers have turned to rodents. They expose mice or rats to known doses of radiation that are equivalent to -- or sometimes more than -- what people get from their cell phones.

In the latest rodent study (PDF), released Friday, researchers at the National Institute of Environmental Health Sciences gave rats high doses of radiation every day for two years and compared them with rats that did not receive radiation. The researchers looked at how many animals developed tumors in the brain and in nerve cells of the heart.

The researchers found that 2% to 3% of the hundreds of male rats that were irradiated developed brain tumors, compared with none of the control rats. The number of female rats that developed these cancers was smaller, about 1% of the animals, and could have been due to chance. Similarly, between 2% and 7% of the irradiated male rats developed heart tumors, compared with only about 2% of the irradiated female rats and none of the control rats.

"Our report outlines small increases in tumors of male rats," said John R. Bucher, associate director of the National Toxicology Program and one of the researchers involved in the new report. He explained that the tumors were "of types similar to those" in other research that found radiofrequency from cell phones is a possible carcinogen (PDF).

However, "much work remains to be done to understand the implications of these findings, if any, for the rapidly changing use of cell phone technology today," Bucher said. For the time being, he is still using his cell phone, putting it next to his head or wearing earbuds, depending on what he is doing.

'It may raise more questions than it answers'

The bulk of the research on this topic has not found a link between cell phone radiation and tumor risk, although the possibility had not been ruled out, said Salvatore Insinga, a neurosurgeon at Northwell Health's Neuroscience Institute in Manhasset, New York.

Because of the unusual findings in the new study, "it may raise more questions than it answers," Insinga said. Nevertheless, it suggests that researchers should double down on studying the possible cancer link, he added.

For now, Insinga said, there are not enough data to advise people to cut their cell phone use or to use earbuds. The Federal Communications Commission states that people could reduce their exposure to cell phone radiation by using an earpiece or headset when they talk, and by keeping the device away from their bodies. However, the agency falls short of endorsing these

practices and states that "no scientific evidence currently establishes a definite link between wireless device use and cancer."

One of the conundrums with the current study is that, for reasons unclear to the researchers, rats in the control group did not live as long as the rats that received radiation. "If rats are living longer, the chance statistically is increased they will get cancer," Insinga said.

Several researchers provided feedback as part of the study and echoed this concern. "It is puzzling why the control [rats] had short survival rate," one researcher wrote. If these animals had lived as long as the irradiated rats, he added, they might have developed brain and heart tumors at similar rates. The rate that rats develop brain and heart tumors, even without receiving radiation, is typically 1.7% and 1.3%, respectively.

It is also unclear why the male rats in the study developed more cancer than the females. Bucher noted that studies in rats generally find males to be more susceptible to developing tumors, but the few studies in people that observed a link between cell phone use and cancer risk did not find gender differences.

The third conundrum is whether the animals received too much radiation. The lowest dose the animals received was 1.5 watts per kilogram, just below the limit of 1.6 watts per kilogram set by the Federal Communications Commission for the amount of energy the body can absorb. However, the animals were exposed to this amount of radiation over their entire bodies nine hours a day for two years.

The rationale for using this amount of radiation is that people could be using their cell phones more and more in the future, and the radiation emitted by newer cell phones and cellular networks could increase, Bucher said. "We wanted to make sure we captured future use," he said.

The researchers also chose to expose the rats' entire bodies to radiation to mimic the situation with people who hold their cell phones on different parts of their bodies, Bucher said.

Previous research in rodents has found that exposing animals to cell phone radiation across their entire bodies for only an hour a day or six hours a day for a shorter number of days did not lead to increases in the rates of lymphomas and brain tumors, respectively.

Action item: More research

The value of the new study is really to strengthen the biological possibility that cell phone radiation could cause cancer, said Jonathan M. Samet, chairman of preventive medicine at the University of Southern California, who led the World Health Organization panel in 2011 that determined cell phone use is a possible cancer risk.

"It really signals the need for a more integrated research agenda than we have had and to try to get a better mechanistic understanding," Samet said.

Some researchers have dismissed the possibility that cell phone radiation could cause cancer, because it is non-ionizing and does not carry enough energy to damage DNA like the ionizing radiation in X-rays and CT scans does. Hopefully, animal studies can help shed light on how non-ionizing radiation could be increasing cancer risk, Samet said.

The current report is the first of two installments of the National Institute of Environmental Health Sciences study. The second report, which should be released in the fall of 2017, will include data from mice as well as rats and will look at rates of cancers in other organs and tissue types.

Possible Response Question(s):

- Pick a passage from the article and respond to it.

1. Mark your confusion.
2. Show evidence of a close reading.
3. Write a 1+ page reflection.

The Plastic Plague: Can Our Oceans Be Saved from Environmental Ruin?

Source: Kieron Marks, CNN.com, September 2, 2016

The Great Pacific Garbage Patch has become the stuff of legend. This hotspot of marine waste, created by the spiral currents of the North Pacific Gyre, has been described as a floating trash island the size of Russia. But when filmmaker Jo Ruxton visited the location, she found clear blue water, and a deep-rooted problem.

"If you were diving, it looked like you had just jumped out of a plane," says Ruxton. "But our nets were coming up completely choked with plastic pieces." The pieces were small enough to mingle with plankton, the tiny organisms at the base of the food web that support many fish and whale species. Researchers have found 750,000 microplastic pieces per square kilometer in the Garbage Patch, and the marine life is riddled with them.

"This was much more insidious than a huge mountain of trash which could be physically removed," says Ruxton. "You can't remove all the tiny pieces."

Rising tide

Ruxton visited the site while producing the film "A Plastic Ocean," in association with NGO Plastic Oceans, which documents the impact of half a century of rampant plastic pollution. Around eight million tons of plastic enter the marine environment each year, and the figure is set to rise. The Ellen MacArthur Foundation estimates that 311 million tons of plastic were produced in 2014, which will double within 20 years, and projects that there will be more plastic than fish in the oceans by 2050.

Plastic is a remarkably durable material, with a potential lifespan of centuries. It does not biodegrade, but photodegrades under sunlight, breaking down into smaller and smaller pieces, which attract toxins and heavy metals as they travel on the tides. Plastic is pulled together in the powerful, circling currents of gyres, but it is also found in Arctic ice, washing up on remote islands, and infesting tourist destinations. Ruxton's crew visited dozens of locations without escaping the plastic plague. They found it covering the Mediterranean Sea bed, the shorelines of Bermuda, and Lord Howe Island in the Tasman Sea, a World Heritage site that has been severely affected.

"We kept coming across dead chicks," Ruxton recalls of Howe Island. "We opened 10 of their stomachs which were so full of plastic they were swollen ... These birds were dying of starvation with their stomachs bulging full." But the most disturbing find was on the South Pacific island of Tuvalu.

Health impact

Tuvalu was once a pristine beauty spot. But the island lacks the infrastructure to dispose of the plastic it imports, which has become a serious hazard for the local population.

"People were just throwing plastic outside," says Ruxton. "They were drowning in the stuff, and trying to burn it. There was a constant pall of black smoke, and people were always exposed to the gases that come out when you burn plastic, including two very scary ones that have been linked to cancer, dioxins and furans."

From a group of 30 islanders featured in the film, five had cancer and two have died in the last 18 months, Ruxton says. She is raising funds to research the health impact of burning plastic. The team is also studying the effects of ingesting seaborne plastic through a partnership with toxicology specialists at London's Brunel University. Studies have shown a quarter of food fish sold at markets in California and Indonesia contain plastic, and although this has not yet resulted in public health warnings, tests have shown ingestion can cause tumors in lab animals.

Californian oceanographer Captain Charles J. Moore, who first discovered the Great Pacific Garbage Patch and studies the impact of seaborne plastic, feels the "jury is still out" on the effects of ingestion on human health. But he believes our exposure is rapidly increasing, particularly through the spread of microplastics.

"Plastic is in the air we breathe, it's become part of the soil and the animal kingdom," says Moore. "We're becoming plastic people."

Counting the cost

Moore believes we do not fully comprehend the damage caused by plastic pollution, largely as the gyres where it collects have been ignored.

"The gyres are 40% of the world ocean -- one third of the planet," says Moore. "But these areas are not part of any exclusive economic zone, they are not used for the shipment of goods, they are not harvested for marine

resources, and their welfare is no one's concern ... I'm convinced we haven't scraped the surface of the damage being done."

From his own research, the volume of plastic has tripled in the gyres since the turn of the century, and plastic is disproportionately consumed by fish at the bottom of food chains, leading to rapid and deadly proliferation.

"It is impossible to quantify death in the ocean as weak and dying creatures are so rapidly consumed," says Moore. He believes U.N. estimates that plastic kills around one million sea creatures a year far understate the impact.

The U.N.'s Joint Group of Experts on the Scientific Aspects of Marine Protection (GESAMP) has conducted several recent studies of plastic pollution and found far-reaching effects.

"If we don't do anything, we will see certain species disappear," says GESAMP Chairman Peter Kershaw, citing the toll of entanglement and ingestion on endangered seals and whales. "In wider ecosystems, (plastic) certainly has an impact on sensitive habitats, including coral reefs."

Kershaw also highlights the economic impact. Plastic causes \$13 billion of damage to the marine environment each year according to the UN, which affects the fishing, shipping and tourism industries.

Getting a grip

The issue of plastic pollution has gained traction over the past decade, which has seen research increase, and the launch of major initiatives such as the Global Partnership on Marine Litter, bringing together policymakers, conservationists and business interests to pursue solutions.

Kershaw believes the key is to end the culture of disposable plastic, and implement closed loop systems for the material to be reused, which would reduce the demand for new production. Around 80% of plastic waste in the oceans originates on land, and recycling rates are poor, with just 9% of plastic in the U.S. recycled, according to the EPA.

"We're suffering from a linear approach," he says. "We need to design waste out of the system."

Kershaw adds that incentive schemes have proved effective. Charging consumers for plastic bags has reduced their use, and introducing refundable deposits for plastic bottles has created a market for collectors in Ecuador. Kershaw sees a role for entrepreneurs to redesign popular goods, such as an initiative to make tiles from discarded fishing nets in the Philippines.

Emerging technologies are contributing to the struggle. Captain Moore uses separation machines to improve recycling and spare plastic pickers from dangerous work. Dutch entrepreneur Boyan Slat is testing a prototype of his Ocean Cleanup machine that he believes could clear 99% of the Great Pacific Garbage Patch within 30 years, although many conservationists are skeptical.

The plastics industry also has a critical role, and leaders recognize the imperative to reform. "Our number one priority is tackling marine litter," says Karl H. Foerster, head of industry association Plastics Europe. "We fully support the circular economy concept."

Foerster cites 260 initiatives the group has launched, from removing microplastics to improving wastewater treatment in developing countries, and developing biodegradable forms of plastic.

Tipping point

Jo Ruxton wants to see greater responsibilities placed on plastic producers, such as in Germany where strict recycling quotas forced companies to use less plastic. Similar quotas will soon be introduced across the European Union.

But the filmmaker is encouraged by the increased focus on the issue in recent years, and is confident that greater public awareness can have a significant impact.

"If people realize how easy it is to make changes, and if they understand the consequences of not doing so, they want to change," she says. Ruxton stresses that time is short. If the culture does not change imminently, more communities will face a grim fate.

"We're at a tipping point," she says. "I see Tuvalu as a snapshot of the future for all of us if we don't get this addiction under control."

Possible Response Questions:

- What could be done to limit the negative effects of plastics in our oceans?
- Select a passage and reflect on it.