the process

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Mind Map
Tell Back
“I seem to specialize in the area of mayhem,” says Nafees Bin Zafar with a smile. This visual effects expert helps bring some of the most memorable smashes, crashes and dashes to the movie screen. The one in Madagascar 3 where the fearless heroes flee a casino, leaving all sorts of rubble in their wake? Check. The scene in 2012 where Los Angeles slides into the Pacific Ocean? Check. The light cycle chase scenes in Tron: Legacy? Check.

At DreamWorks Animation (and previously at another company called Digital Domain) Bin Zafar creates software used to make the special effects in motion pictures — and sometimes cartoons — look as realistic as possible. Often he works with the skimpiest of instructions. “For 2012,” he recalls, “all we really had was one line in the script: ‘And then California sinks into the ocean.’” Bin Zafar and a team of nine other programmers and animators took that one line and turned it into a five-minute montage of falling buildings, collapsing freeways and enormous cracks splitting Earth.

To make all this fakery look real, it has to act real. “We have to make this stuff behave correctly,” Bin Zafar explains. Take the tumbling skyscrapers in 2012: Bin Zafar asked himself, “What would the materials have been made from?” That question generated a list that included glass, cement, steel girders and rebar. It also sparked more questions. “Do we know the math of how this stuff bends and flexes and shakes around?” Bin Zafar asks. “It turned out that we didn’t.”

Bin Zafar eventually solved that math problem along the way to helping create some cutting-edge visual effects. He’s just one expert profiled in this article who relies on math to entertain — and amaze.

How to realistically destroy a fake building
To compute how a virtual building should collapse on-screen in a convincingly real way, Bin Zafar uses engineering, computer skills and a toy familiar to most kids. Yes, he starts by pretending the building is made of Lego bricks connected by springs. (He actually keeps a box of Legos — the regular kind without springs — in his office for inspiration.) The virtual Legos form the large chunks into which the building crumbles, while the virtual springs simulate the forces that would act on the building. Once the building starts to collapse, Bin Zafar then ensures that the thousands of computer-drawn pieces fall in a realistic way, without their passing through each other — something that would immediately spoil the illusion of reality.

Although Bin Zafar instructs his computer program to apply the laws of physics in most instances, he also knows when to bend them. This was especially true in Madagascar 3. “We do things like change gravity’s direction all the time,” Bin Zafar says. “In a cartoon,” he explains, “it’s quite reasonable for a character to start walking up a wall — and yet have everything look natural.”

As a kid, Bin Zafar was a big fan of cartoons and movies. “Looney Tunes were my favorites,” he recalls. He also loved the original Tron, a movie that came out in 1982. Watching it “was the first time I realized, as a child, that the things you see in a movie didn’t have to be real.” Imagine his thrill at being asked to work on the film’s sequel, 28 years later.

Bin Zafar points to two important skills he has needed to work in a digital movie studio: communicating effectively and solving word puzzles.
Communication is critical because creating visual effects is a team job. When Bin Zafar writes a computer program, he also has to explain the program to the animators who use it. “My work makes things look believable, but it really takes an artist to make things look spectacular,” he says.

Solving word problems is almost as important, Bin Zafar notes, because requests are never described in numerical terms. Instead he gets: “And then Los Angeles sinks into the ocean.” It’s his job to translate that request into the language of mathematics, so that a computer can render it into believable images.

In the exciting environment in which Bin Zafar works, the distinctions between artist and mathematician often blur: Artists need to understand math and the mathematicians need to understand art. Says Bin Zafar: “We’re all exploring our imaginations together.”
Circle the best answer to each of the following questions based on the article “Cool Jobs: Math as Entertainment.”

1. For which movies has Nafees Bin Zafar built “smashes, crashes, and dashes”?
   a. Madagascar 3
   b. 2012
   c. Tron: Legacy
   d. All of the above

2. Bin Zafar works for what Animation Studio?
   a. Pixar Animation Studios
   b. Dreamworks Animation Studios
   c. Disney Animation Studios
   d. Nickelodeon Animation Studios

3. In the script for 2012, what one line in the script did the animators have to work with?
   a. “And then California sinks into the ocean.”
   b. “And then South Carolina collapsed.”
   c. “And then California fell to pieces.”
   d. “And then South Carolina was swallowed by water.”

4. On the research list used to make a tumbling skyscraper act true to life, all of the following building materials appeared except:
   a. glass
   b. cement
   c. steel
   d. iron

5. To compute how a virtual building should collapse in a “convincingly real way”, Bin Zafar uses all of the following except:
   a. engineering
   b. video footage of a real building
   c. Lego building blocks
   d. computer skills

6. Which cartoon was Bin Zafar’s favorite as a kid?
   a. Mickey Mouse Club
   b. Looney Tunes
   c. Tom and Jerry
   d. Teenage Mutant Ninja Turtles

7. In what year was the original Tron movie released?
   a. 1980
   b. 1982
   c. 1992
   d. 2012

8. According the the article, two important skills needed to work in a digital movie studio are...
   a. hard work and determination
   b. communicating effectively and solving word puzzles
   c. imagination and practice
   d. solving math and physics problems

9. Which of the following skills is the most critical according to Bin Zafar?
   a. solving word problems
   b. communication
   c. neither is important
   d. both are equally important

10. At the end of the article, Bin Zafar says, “Artists need to understand math and mathematicians need to understand art.” Why?
    a. to appreciate each other’s knowledge
    b. to understand the difficulty of the other’s job
    c. to explore their imaginations together
    d. to stay out of each other’s way

   Comprehension Score: ____________
   (number correct x 10)
Are aliens attacking the Sea of Japan? Not exactly. But these gigantic blobs are unwelcome visitors from another place. Called Nomura’s jellyfish, the wiggly, pinkish giants can weigh up to 450 pounds—as heavy as a male lion—and they’re swarming by the millions.

One hundred times the usual number of jellyfish are invading Japanese waters. And local fishermen are feeling as if they are under siege. The fishermen’s nets are getting weighted down, or even broken, by hundreds of Nomura’s. The jellies crush, slime, and poison valuable fish in the nets, such as the tuna and salmon that the fishermen rely on to make a living.

No one knows for sure what’s causing this jellyfish traffic jam. It’s possible that oceans heated by global warming are creating the perfect jellyfish breeding ground. Another theory is that overfishing has decreased the numbers of some fish, which may allow the jellies to chow down without competition for food. For now, all the fishermen can do is design special nets to try to keep the jellies out. Some of them hope to turn the catastrophe into cash by selling jellyfish snacks. Peanut butter and jellyfish, anyone?
Complaint Box | Packaging

Still haven’t managed to open those blister-packed headphones you got for Christmas? Perhaps you’re waiting for the cuts on your fingers to heal before giving it another try. You are not alone.

The packaging of electronics and other small items has reached the point of outrage. A person practically needs the Jaws of Life to open anything. Normal scissors aren’t sharp enough to cut through the packaging, and attaching the plastic with a knife could have disastrous consequences.

Just recently, my brother had already mastered the hat trick in the soccer video game we’d gotten for Christmas, in a simple CD case, while I was in a 20-minute struggle with the plastic casing protecting my separate controller for the game.

Had my father been there, I might have left it to him, as I have before, relying on his brute force to rip it open.

Almost everything — from action figures to zip drives — suffers from excessive packaging. And often, instruction manuals or warranties are placed so that it is impossible to open the package without damaging them. And if the item is not what you were expecting, you’re out of luck. Having sliced the packaging every which way, you’ve most likely destroyed the possibility of a hassle-free return at the store.

The horror of the sharp plastic edges is a problem all in itself. I doubt there is a single person who hasn’t cut himself while trying to pry open a blister-packed gift. And if any flesh so much as glances off the freshly cut edge, it is immediately bloody. This is especially bad for little kids on Christmas, who, in a combination of excitement and inexperience, can seriously ruin their day. I still remember one Christmas, about seven years ago: I’m not sure what I was opening, but I do recall the nasty gash it left on my left index finger. I still have the little scar.

Since when did putting items inside a box become so taboo? Boxes are easy to open — just cut the tape and, bam, you’re done. They’re easier on companies too; cardboard has to be cheaper than the military-grade plastic they use now. Environmentally, boxes have the advantage again. Plastic spends eons in landfills, while cardboard disintegrates if it touches water. So whose bright idea was it to switch?

The only advantage the plastic containers have is the difficulty they create for shoplifters. The awkward packaging makes it impossible for people to hide them in their clothes, and the difficulty involved in opening one to steal the contents would create quite a scene. But why should the consumers who buy the product be punished? Companies should develop a method of preventing shoplifting that is friendly to the consumer.

There’s no need to introduce brand new packaging technology. Simple is best. All that’s needed is a change of mind-set, to thinking inside the box.
A new downhill biking game called Sidekick Cycle offers a real-world bonus: 50% of any in-app purchases goes toward World Bicycle Relief, to buy bikes for children in remote Africa.

Designed for iPhone, iPad and iPod Touch, this socially-conscious action game from Global Gaming Initiative is also fun and accessible — though it could be improved with a few additional features. The game will drop from 99 cents to free beginning Oct. 21.

In Sidekick Cycle, you’re a downhill cyclist who must race to the finish line, collect coins and gears and pull off gravity-defying stunts ranging from bunny hops to 360-degree flips to free-falls down a cliff and landing on two wheels. Your rider will pedal by himself, so you simply need to touch anywhere on the screen for a bike jump. The strategy comes in when to press — and for how long — hopping over a log or rock or at the top of a ramp to reach the highest coin and more. You’ll get a speed bonus for successful flips.

Earned or purchased coins can also be used for upgrading your bike, continuing your level without starting from the beginning (or bypassing a tough level altogether) or altering the look of your rider and gear. Regrettably, your character can only be a male, for some reason.

Other issues include levels that don’t really change much between worlds (Savanna, Red Rock and Desert, for now), random bugs (such as no sound, on occasion) and no Android version. There is Game Center integration for leaderboards, achievements and challenges from friends, but no cloud support, therefore you can’t continue where you left off on another device as you can with other mobile games like Candy Crush Saga or Plants vs. Zombies 2.

Also, it would’ve been great to offer more than 30 levels as it doesn’t take more than half a minute or so to complete most of them. Perhaps the developers could have offered additional modes, too, such as an “Endless” riding mode to see how far you can ride before crashing? Or a multiplayer feature?

Despite its various shortcomings, Global Gaming Initiative’s Sidekick Cycle is fun and free game that aims to make a difference in the real world — something most games can’t claim.
Poppy the cat is certainly feline her age - after being recognized as the world’s oldest cat at 24 years. The tortoiseshell puss from Bournemouth was born in February 1990, making her a ripe old 114 in human years. She has lived through five British Prime Ministers but is now a frail old lady and spends most of her time indoors relaxing.

Poppy, who has been recognized by Guinness World Records, is one year younger than Misao Okawa of Japan, the oldest person in the world. She has picked up the title following the death of Pinky, a cat from Kansas who passed away at the age of 23 last year.

At the age of five she was adopted by Marguerite Corner and her daughter Jacqui. When she was ten she went with Jacqui who had moved in with future husband Andy West.

The couple now have two sons - Joe, 11 and Toby, eight - and Poppy shares their home with four other cats, two rabbits and a hamster. She is deaf and blind, but despite her age and frailty she is still the boss of the house and if the other cats try their luck with her they are swiftly dealt with.

Jacqui, an accountant, wrote to Guinness World Records in February after Poppy turned 24, submitting her into the category of ‘Oldest Cat Currently Living’. They investigated their claim and have now confirmed Poppy as the world’s oldest living cat. Craig Glenday, Guinness World Records editor-in-chief, said, “We’ve been overwhelmed with claims for the ‘oldest living cat’, with owners from across the globe making applications on behalf of their cats.

“Today, though, I’m pleased to confirm that we’re recognising Poppy from Bournemouth in the UK as the world’s oldest living cat, at the age of 24 years. If anyone thinks their cat beats this, and can prove it, then we’d encourage them to get in touch with us.”

The oldest cat in history was a feline called Creme Puff who lived in Austin, Texas and who survived for an astonishing 38 years and 3 days.

Jacqui added, “Poppy is definitely the top cat and she is still quite feisty. If one of the other cats tries to eat her food she will bite them on the ear.

“She’s deaf and blind and meows for everything. We call her stroppy Poppy sometimes.

“She can get up the stairs but we won’t let her walk down. Over the last year her health has gone down and we know the end is near.

“We knew she is old but to be officially recognized is just great. We are all chuffed for her. I think all old cats deserve recognition of their achievement.”
On August 15, two food tasters joined a chef and a scientist on a stage in London before a live TV audience. Asked to rate a hamburger, they sniffed, tasted, then chewed bits of the meat. Afterward, they gave this burger — yes, the one burger they shared — a thumbs-up. In the mouth, it felt like normal ground meat, they said. And though its taste was less than ideal, they concluded that the patty certainly resembled ground beef. Such comments actually constituted high praise. The reason: This was no ordinary beef.

Conventional beef is muscle tissue harvested from a slaughtered cow. But no animal gave its life for this meat. Instead, scientists at Maastricht University in the Netherlands spent the last five years fine-tuning methods to grow muscle tissue in a dish. Mark Post, the lead scientist behind the new burger, refers to his culinary creation as “cultured beef.”

Post’s team started with stem cells. These special cells multiply rapidly and can differentiate into nearly any type of cell. Post harvested his starting cells from a cow. Using a needle, he removed some muscle stem cells from a living cow. (These cells ordinarily replace lost or damaged muscle tissue to help an animal heal.) In the lab, Post fed those cells so that they would multiply, producing millions more muscle cells.

Over time, these cells can be formed into strips. But they’re small. The scientists needed 20,000 strips to create just one patty. Then, to make it better resemble ground beef, they added bread crumbs for texture and beet juice for coloring.

Hanni Rützler was one of the two people invited to sample the cultured burger. She thoughtfully sniffed and chewed her bite. “There is quite some intense taste, and it’s close to meat,” concluded this nutrition scientist, based in Vienna, Austria. She added, however, “It’s not that juicy.” The other taster, American food journalist Josh Schonwald, similarly concluded that the burger came close to the real thing.

Such an assessment was “more positive than I expected,” Post told Science News for Kids. “We had tasted it before and found it to be satisfying, but not yet perfect.” The tasters’ response gave him some ideas for how to improve the recipe, he added.

Wonder what it tastes like now? Get ready for a long wait. Computer scientist Sergey Brin, who cofounded Google, funded Post’s work on cultured beef. Post’s quest for the first lab-grown burger came with a hefty price tag — more than $300,000. But the lone burger it yielded was worth it, Brin said in a video that aired with the burger tasting.

As weird as lab-grown meat may sound, he and physiologists like Post see its development as one way to plan for the future. A 2011 United Nations study predicted a dramatic
increase in the worldwide demand for meat in the next 40 years. But raising animals like cows will require using large swaths of land and devoting enormous quantities of crops to feed the animals. In addition, those animals produce methane — a colorless greenhouse gas that contributes to global warming.

Cultured beef may meet the growing worldwide demand for meat without raising and slaughtering livestock, explains Post. The August 15 demonstration showed the technology exists. But don’t go looking for cultured beef in the supermarket just yet. Post says scientists still need to design new technologies to mass-produce and process the meat. But they’re off to a good start, and Post says he hopes that within 20 years, cultured beef will be affordable and widely available.

And maybe enticing. After the televised event, more than 60 percent of polled viewers in the United Kingdom and the Netherlands said they’d be willing to try cultured beef.

“Some people think this is science fiction.” Brin says. “I actually think that’s a good thing.” He argues: “If what you’re doing is not seen by some people as science fiction, it’s probably not transformative enough.”
It was an unlikely encounter in the middle of the desert. Kevin Terris was a high school senior from a boarding school in Claremont, Calif., with dreams of a paleontology career. Joe was a toddler stuck under a rock. For 75 million years.

Terris, 22, now can take credit for finding the most complete specimen of a young duck-billed dinosaur, called a Parasaurolophus. The extremely rare fossil of the one-year-old plant eater could reveal how the extinct hadrosaurid developed its odd horn-like protruberance during its lifetime.

"It's important as the youngest, the smallest and also the most complete skeleton known for Parasaurolophus," said Andrew Farke, curator of the Raymond M. Alf Museum of Paleontology, on the campus of the Webb Schools in Claremont. "The fossil tells us a whole lot that we didn't know before about how these things evolved and grew their really bizarre headgear."

On second look, the “ribs” turned out to be toe bones. “If we had the toe bones on one end and the skull on the other, we figured the whole skeleton would be there in between." It took nearly three years to find out. Farke and the students returned the next year to hammer down the boulder to about the size of a small refrigerator, so it could be swaddled in plaster and burlap and air-lifted nine miles to the nearest highway, and trucked to Claremont. Terris went on to Montana State, but Farke kept him informed of progress as researchers chipped away at the rock.

"With pretty much every update that Dr. Farke sent me it just got better and better," Terris said. “It was like living the dream; like, wow, this is every paleontologist’s dream.”

The specimen was named for the late Joe Augustyn, whose family is a major supporter of the museum and schools, Farke said. An analysis of the fossil was published online Tuesday in the open-access journal J. Farke also has created a Dinosaur Joe Web page and made images of the specimen public.

During its short lifetime, Joe the Parasaurolophus probably wandered the flood plains of an island continent known as Laramidia, formed by a shallow inland seaway between western North America and the Appalachian region. Joe grew to about six feet – about a fourth the size of an adult Parasaurolophus – but already had a clearly defined horn-like crest when he died. Most hadrosaurs didn’t form that distinct feature until much later in their lifetime, Farke said.
Scientists believe the skull ornaments common to hadrosaurs served as markers to help distinguish the creatures by age or sex. They also hypothesize that the animals produced sound by passing air through the nasal passages at the core of the bony crest.

How Joe the dino-toddler died is anyone’s guess, but his body wound up preserved in the hardened silt, mud and sand layered in the Kaiparowits formation in Grand Staircase-Escalante National Monument.

Terris, meanwhile, still searches for fossils. Last year, while out with the Alf museum group in Pipestone, in southwestern Montana, Terris came across the skeletal remains of an Ischyromys, a rodent-like creature that roamed North America about 31 to 46 million years ago. It was the first articulated skeleton found at the site, famed for its mammal fossils, Terris said.

“Kevin has got such a good eye. He’s going to find things,” Farke said. “I don’t think this is the end of the road for great discoveries.”
They do it late at night when their parents are asleep. They do it in restaurants and while crossing busy streets. They do it in the classroom with their hands behind their back. They do it so much their thumbs hurt.

American teenagers sent and received an average of 2,272 text messages per month in the fourth quarter of 2008, according to the Nielsen company — almost 80 messages a day, more than double the average of a year earlier.

The phenomenon is beginning to worry physicians and psychologists, who say it is leading to anxiety, distraction in school, falling grades, repetitive stress injury and sleep deprivation.

Dr. Martin Joffe, a pediatrician in Greenbrae, Calif., recently surveyed students at two local high schools and said he found that many were routinely sending hundreds of texts every day.

“That’s one every few minutes,” he said. “Then you hear that these kids are responding to texts late at night. That’s going to cause sleep issues in an age group that’s already plagued with sleep issues.”

The rise in texting is too recent to have produced any conclusive data on health effects. But Sherry Turkle, a psychologist who is Director of the Initiative on Technology and Self at the Massachusetts Institute of Technology and who has studied texting among teenagers in the Boston area for three years, said it might be causing a shift in the way adolescents develop.

“Among the jobs of adolescence are to separate from your parents, and to find the peace and quiet to become the person you decide you want to be,” she said. “Texting hits directly at both those jobs.” Psychologists expect to see teenagers break free from their parents as they grow into autonomous adults, Professor Turkle went on, “But if technology makes something like staying in touch very, very easy, that’s harder to do; now you have adolescents who are texting their mothers 15 times a day, asking things like, ‘Should I get the red shoes or the blue shoes?’

Michael Hausauer, a psychotherapist in Oakland, Calif., said teenagers had a “terrific interest in knowing what’s going on in the lives of their peers, coupled with a terrific anxiety about being out of the loop.” For that reason, he said, the rapid rise in texting has potential for great benefit and great harm.

“Texting can be an enormous tool,” he said. “It offers companionship and the promise of connectedness. At the same time, texting can make a youngster feel frightened and overly exposed.”

Texting may also be taking a toll on teenagers’ thumbs. Annie Wagner, 15, a ninth-grade honor student in Bethesda, MD, used to text on her tiny LG phone as fast as she typed on a regular keyboard. A few months ago, she noticed a painful cramping in her thumbs. (Lately, she has been using the iPhone she got for her 15th birthday, and she says texting is slower and less painful.)
Peter W. Johnson, an associate professor of environmental and occupational health sciences at the University of Washington, said it was too early to tell whether this kind of stress is damaging.

But he added, “Based on our experiences with computer users, we know intensive repetitive use of the upper extremities can lead to musculoskeletal disorders, so we have some reason to be concerned that too much texting could lead to temporary or permanent damage to the thumbs.”

Annie said that although her school forbids cellphone use in class, she could text by putting it under her coat or desk.

Her classmate Ari Kapner said, “You pretend you’re getting something out of your backpack.”

Teachers are often oblivious. “It’s a huge issue, and it’s rampant,” said Deborah Yager, a high school chemistry teacher in Castro Valley, Calif. Ms. Yager recently gave an anonymous survey to 50 of her students; most said they texted during class.

“I can’t tell when it’s happening, and there’s nothing we can do about it,” she said. “And I’m not going to take the time every day to try to police it.” Dr. Joffe says parents tend to be far less aware of texting than of, say, video game playing or general computer use, and the unlimited plans often mean that parents stop paying attention to billing details. He said, “I’m quizzing [parents], and no one is thinking about this.”

Still, some parents are starting to take measures. Greg Hardesty, a reporter in Lake Forest, Calif., said that late last year his 13-year-old daughter, Reina, racked up 14,528 texts in one month. She would keep the phone on after going to bed, switching it to vibrate and waiting for it to light up and signal an incoming message.

Mr. Hardesty wrote a column about Reina’s texting in his newspaper, The Orange County Register, and in the flurry of attention that followed, her volume soared to about 24,000 messages. Finally, when her grades fell precipitously, her parents confiscated the phone.

Reina’s grades have since improved, and the phone is back in her hands, but her text messages are limited to 5,000 per month — and none between 9 p.m. and 6 a.m. on weekdays.

Yet she said there was an element of hypocrisy in all this: her mother, too, is hooked on the cellphone she carries in her purse.

“She should understand a little better because she’s always on her iPhone,” Reina said. “But she’s all like, ‘Oh well, I don’t want you texting.’ ” (Her mother, Manako Ihaya, said she saw Reina’s point.)

Professor Turkle can sympathize. “Teens feel they are being punished for behavior in which their parents indulge,” she said. And in what she calls a poignant twist, teenagers still need their parents’ undivided attention.

“Even though they text 3,500 messages a week, when they walk out of their ballet lesson, they’re upset to see their dad in the car on the Blackberry,” she said. “The fantasy of every adolescent is that the parent is there, waiting, expectant, completely there for them.”

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the toll of texting

Circle the best answer to each of the following questions based on the article “Texting May Be Taking a Toll.”

1. In the fourth quarter of 2008, how many texts per day (on average) did teenagers send?
   a. 40
   b. 80
   c. 120
   d. 200

2. Scientists say too much texting may lead to all of the following except:
   a. falling grades
   b. poor social skills
   c. repetitive stress injury
   d. sleep deprivation

3. Dr. Sherry Turkle is a psychologist at which university?
   a. Harvard University
   b. University of California, Los Angeles
   c. Stanford University
   d. Massachusetts Institute of Technology

4. One job of adolescence mentioned in the article is:
   a. hormonal change
   b. determine career path
   c. separate from parents
   d. mature physically

5. What type of disorders can result from “intensive repetitive use of upper extremities”?
   a. neurological
   b. musculoskeletal
   c. gastrointestinal
   d. conjunctival

6. Why do parents often stop paying attention to cellphone billing details?
   a. unlimited texting plans
   b. takes too much time
   c. kids get their own bills
   d. they set up auto-billing

7. 13-year-old Reina Hardesty initially racked up how many texts in just one month?
   a. 1,982
   b. 10,395
   c. 14,528
   d. 35,102

8. Greg Hardesty is a reporter for which newspaper?
   a. The New York Times
   b. The San Francisco Chronicle
   c. The San Diego Union-Tribune
   d. The Orange County Register

9. After she improved her grades, Reina was allowed to text, just not between the times of...
   a. 11 p.m. and 5 a.m. on weekdays
   b. 9 p.m. and 6 a.m. on weekdays
   c. 10 a.m. and 9 p.m. on weekends
   d. 9 p.m. and 8 a.m. on weekends

10. Teens feel their parents are being hypocritical because:
    a. parents are also always on their phones
    b. parents don’t text their kids back quickly enough
    c. parents don’t pay attention to cellphone bills
    d. parents don’t help with their kids’ homework

Comprehension Score: ___________
(number correct x 10)
The 5 steps of the Quantum Reading process:

The powerful reading belief I will use: ____________________

___________________________________________________
## Reading Speed Chart

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measure up

math as entertainment
  Speed: ______ words per minute
  Comprehension: ______

the toll of texting
  Speed: ______ words per minute
  Comprehension: ______

START

FINISH

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Q-Up!

PULL UP & PICTURE
BREATHE & RELEASE
prime your mind

CDP
• Cluster & Star
• Mind Map
• Fastwrite

PRIME your MIND

My List

•
•
•

SuperScan
• Ask

• Attitude
• Belief
• Curiosity
VAK Preference Survey

Directions: Select A, B, or C based on the word group or sentence you like the best. Circle the letter of your selection. Then transfer your selections to the VAK Data Sheet. Add the number of selections in each column and multiply by four. Graph your results on the VAK Profile.

1. A. Rustling - Hear - Tempo  
   B. Texture - Feel - Soft  
   C. Illustration - Snapshot - Picture

2. A. I get it.  
   B. I see.  
   C. I hear you

3. A. I heard the train whistle.  
   B. I saw the rows of flowers.  
   C. I felt the breeze on my back.

4. A. Focus - Color - Inspect  
   B. Chat - Stillness - Tune  
   C. Race - Latch - Loosen

5. A. Bird's-eye view  
   B. Shiny - Reflection - Attractive  
   C. Call - Whisper - Bell

6. A. This sounds good to me.  
   B. This feels good to me.  
   C. This looks good to me.

7. A. Vision - Clear - Glimpse  
   B. Melody - Quiet - Hear  
   C. This looks good to me.

8. A. I sense how you feel.  
   B. I hear what you're saying.  
   C. I see what you mean.

9. A. Peek - Sight - View  
   B. Scoot - Gallop - Skip  
   C. Describe - Song - Chime

10. A. Get in touch with  
    B. Keep an eye out.  
    C. Give him a hand.

11. A. The sport was fun.  
    B. The sunset was beautiful.  
    C. It was music to my ears.

12. A. Grip - Support - Relax  
    B. Mention - Tone - Rhyme  
    C. It looked good.

13. A. Look at this.  
    B. Catch this.  
    C. Listen up.

14. A. Purring - Listen - Talk  
    B. Smooth as silk  
    C. Hold - Trot - Catch

15. A. The feel of the sand  
    B. The view of the ocean  
    C. Bright as day

16. A. Look as a bell  
    B. The sound of the waves  
    C. The sound of the instruments

17. A. The feel of the sand  
    B. Look - Color - Glance  
    C. Motion - Lukewarm - Sprint

18. A. The sight on the stage  
    B. The sound of the instruments  
    C. The vibration in the air

19. A. Discuss - Silence - Say  
    B. Watch - Shine - Observe  
    C. Run - Throw - Snap

20. A. The sound had an interesting melody.  
    B. The cloth had a smooth feel.  
    C. The painting had beautiful colors.

21. A. Let me hear this.  
    B. Let me do this.  
    C. In touch with...

22. A. A glimpse of...  
    B. Hear the sound...  
    C. In touch with...

Indicator created by John Parks Le Tellier

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### VAK Data Sheet

**John Parks Le Tellier**

**Directions:** Transfer your responses to this data sheet by placing a circle around the letter. Count the number of letters circled and enter the total at the bottom of each column. Multiply by four and then graph your results on the VAK Profile.

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**Total 1**

Total 2

Total 3

[ ] x4= [ ]  [ ] x4= [ ]  [ ] x4= [ ]

*Put the total from the column in this box and multiply by 4 to get the score you will graph on the VAK Profile.*
VAK Profile

Kinesthetic
What did you learn about yourself regarding the learning modalities?

Strategies I can use for each VAK learning modality.

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Refer back to your VAK profile. Select one of the modalities you were not as strong in and explain how you will use strategies to strengthen that modality.
mind map
visual spelling

**Step one:**
Fold a strip of paper into four segments. Choose two colored pens.

**Step two:**
Write the first segment of the word in the first segment of the paper strip with one of your colored pens. Use printing, not cursive. Segments may have two, three or four letters.

**Step three:**
Access visual memory by holding the strip of paper high enough so you roll your eyes up to see it. Look at the word segment for seven seconds.

**Step four:**
Close your eyes and look up in the same manner and paint the word in your imagination. Move your hand to do the painting. See the color and texture. Go over the letters twice to thicken them in your imagination.

**Step five:**
Write the next word segment using the second color. Look at the word segment and paint it in your imagination just like you did with the first section. Do the sequence for each word segment, alternating colors for each new segment.

**Step six:**
Spell segments of the word from memory. Test yourself by mixing the segments up so they are not in the order created on the word strip.
dual-planed learning
1. Para-conscious _____________________.
2. __________ makes a ____________.
3. ________________ is key.
4. ________________ is ________________
   being processed.
5. There is ______ ________.

LIGHTING:
The best lighting for reading/studying is low to moderate levels of natural lighting. The second best choice is full-spectrum fluorescent or incandescent lighting. Indirect lighting is best, since it keeps eye fatigue lowest.

MUSIC:
Low levels of Baroque music have been found to alter physiological states enough to induce relaxed alertness.

SETTING:
Choose a chair that does not promote drowsiness. Avoid couches, beds, and soft chairs—studying is hard enough without the temptation of falling asleep. Don't forget to change your position and get up and stretch now and then!
1. **Stretch your study time**
   Study your class notes, read relevant book chapters, and quiz yourself for 30 minutes every day for 1–2 weeks before a test. Stretching your study time over multiple days helps you remember better than last-minute cramming.

2. **Rehearse like it’s real**
   When studying for a test, try to simulate the exact conditions of the exam for the last few nights before the test—use a hard chair, hard desk, no interruptions, and no music if your teacher does not use music.

3. **Be prepared**
   Know the format of the test, and also make sure everything you need is ready the night before—pencils, calculator, sweatshirt, ID, healthy snack, watch, etc.

4. **Breakfast works**
   Eat a healthy, light breakfast the day of the test. Include some protein in your meal like yogurt, eggs, fruit, or lean ham. It’s great for energy without making you sluggish.

5. **Jot down the big stuff**
   As soon as you can write on the test, jot down important formulas or facts in the margins so you will have them when you need them.

6. **Skim it**
   Glance through the whole test before you start so you can plan your time. Then take a deep breath and get started.

7. **Easy before hard**
   Answer the easy questions first. This builds confidence and can trigger the recall of answers to questions that follow.

8. **Show your work**
   Write down your reasoning for questions when you do not know the exact answer. Teachers want to know that you are giving thought to your answers instead of just writing down anything that comes to your mind.

9. **Cut to the chase**
   Always write the main point you are making immediately on essay or written test questions. Teachers want to know right away that you know what you are talking about. Then, make sure you use every second of your allotted time for the test.

10. **Feedback leads to success!**
    Always review your test thoroughly when it is handed back to you. You will learn the teacher’s style and maybe even get some correct answers for a future test. And there’s always a chance you will catch an answer that should have been marked correct but was not!
Please read each of the items and evaluate where you are by placing a number between 1 and 10 on the appropriate blank line. (1 = not at all, 5 = sometimes, 10 = always)

I enjoy writing in my spare time. _______ _______
I can easily think about what to write. _______ _______
I like sharing my writing with others. _______ _______
My writing is easy to understand and follow. _______ _______
My writing clearly expresses my opinions. _______ _______
I organize my papers before I write them. _______ _______
My writing uses interesting words and descriptions. _______ _______
My writing is usually free of grammatical errors or misspellings. _______ _______
I feel confident in my writing abilities. _______ _______
My overall feeling toward myself as a writer ... _______ _______

1 = terrible, 5 = okay, 10 = great
cluster & star
Introduction:______________________________

_______________________________________

_______________________________________

Body:____________________________________

_______________________________________

• ______________________________________

_______________________________________

• ______________________________________

_______________________________________

• ______________________________________

_______________________________________

• ______________________________________

_______________________________________

Conclusion:______________________________

_______________________________________

_______________________________________
The last step before completing a piece of writing is all about **polishing up**. Check for spelling or punctuation mistakes, sentences-that-aren’t-really-sentences, and grammar errors.

- Read out loud: this is helpful for spotting run-on sentences or sentences-that-aren’t-really-sentences.  
  *think: why is this helpful?*

- If you’re searching for misspelled words, go through your writing backwards, one word at a time.  
  *think: why do we need to slow down to proofread?*

- Check for homophones like “their, there they’re”, “your vs. you’re”, or “too, to, two”. Even the most experienced newspaper editors miss these!  
  *think: what is another common word mixup?*

- Use a blank sheet of paper or index card to cover up the lines below the one that you are currently proofreading.  
  *think: why is this helpful?*

- Use the search function in Word, Google Docs, or whatever program you’re using to write, to help you find important words that are often misspelled (“its vs. it’s”, “he” instead of “the”, etc.)  
  *think: have you ever used the “search” option when writing an essay before?*

- Sometimes when we check our work, we read what we **think** we wrote, rather than what we **actually** wrote. So, have a friend or family member read your writing out loud to you to help you catch mistakes!
Think of an important event in your life, then write a poem about the moments just before or just after the event.

Think of a subject that “eats away at you” and write a poem that exaggerates it.

Write about something you love from the perspective of someone who hates it.

Think of something tiny and write about it, making it seem large.

Imagine you are an inanimate object. What is it like?

Write about something that no one else seems ever to have noticed ... a time, place or thing, or a common occurrence (like the oil spot on the driveway, water draining from the bathtub, stepping off a bus, etc.)
**ABC Frame** (the first letter of each line in the poem spells out the topic)

*SuperCamp*

- Standing at registration alone,
- Unsure about where I am.
- Promises made to come here,
- Everyone seems weird.
- Replace old ideas with new,
- Cement has trapped me in the past.
- About to face a new start,
- Me and my new friends have courage.
- Promises I can keep.

**Repetition Frame** (repeat a phrase or word)

*But You Didn’t*

by Stan Gebhardt

- I looked at you and smiled the other day
- I thought you’d see me but you didn’t
- I said “I love you” and waited for what you would say
- I thought you’d hear me but you didn’t
- I asked you to come outside and play ball with me
- I thought you’d follow me but you didn’t
- I drew a picture just for you to see
- I thought you’d save it but you didn’t
- I made a fort for us back in the woods
- I thought you’d camp with me but you didn’t
- I found some worms ‘n’ such for fishing if we could
- I thought you’d want to but you didn’t
- I told you about the game hoping you’d be there
- I thought you’d surely come but you didn’t
- I asked you to share my youth with me
- I thought you’d want to but you couldn’t
- My country called me to war, you asked me
to come home safely
- But I didn’t.