



Use these 5 tips right away to turbo-charge your creativity and you'll see the results!

1. **Keep an Open Mind** There's a famous quote that says "A mind is like a parachute. It doesn't work unless it's open." Have the capacity to see other people's points-of-view. Be accepting of other cultures, lifestyles, and cuisines. Take in new art exhibits you normally wouldn't go to. Learn to curb your knee-jerk reaction of "I don't like that". If you can train yourself to see the world through a different lens and have an open mind to new and different things, you might just see something you've been missing all this time.
2. **Fill up your mental filing cabinet** Speaking of seeing something you've been missing, become a student of the world. Observe and take note of the things around you. Aikido, the modern Japanese martial art, has a concept known as soft eyes which means to be observant, but not focused. Some also interpret soft eyes as the ability to look deeper than what you first see. Either way, it's a great ability to develop so you can make note of the world around you. Use both your senses and your mental abilities to take note of the world and learn...then, tuck these observations away so you can use them sometime in the future when they'll come in handy. The more in your mental filing cabinet, the more creative you can be.
3. **Cross-pollinate ideas** I often speak about a concept called "creative cross-pollination", something that I believe is an innate method we all have for coming up with new ideas by taking two things that don't have anything to do with each other and "connecting the dots." Our ancestors did it when they wanted to paint and draw on the walls of their caves and all they had were berries and burnt sticks. Each one of us does it naturally and probably multiple times a day whether we know it or not. If you can become more conscious, aware, and *skilled* at cross-pollinating ideas, you can find some wonderful, novel solutions to the challenge in front of you.
4. **Play and Laugh** Pretty much every culture recognizes the importance of this. You've all heard the term 笑是最好的良药 (For those who don't read Chinese--"Laughter is the best medicine") and I really believe it to be true. How many of us get caught day-in and day-out in our work, doing our jobs, perhaps

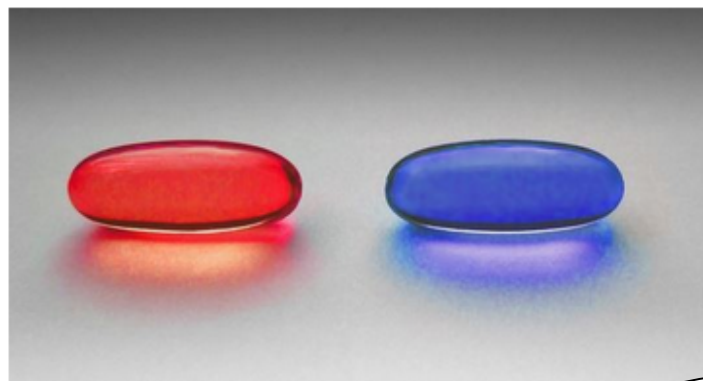
Synthetic Environments and the Metaverse

Edit article

3-4 minutes

Is what used to be science fiction now, as they say, science fact? Synthetic environments, the metaverse, [life-like "holograms"](#), and even what may very well be the precursor to holodecks are all with us here and now. Immersive environments, once restricted primarily to theme parks or other specialized venues are now becoming mainstream in hospitality, retail, and even home architecture. Much of this is because technology is advancing in novel and fun ways...and trailblazers have been quick to find creative adaptations. This will just continue and if you think these immersive experiences are cool now, just wait. In the words of Al Jolson, "You ain't seen nothin' yet!"

As excited as I am to watch this evolution--and be a part of the group that's pushing it--there are also questions that come up regarding the mixing and matching of technologies used to create these experiences. AI, robotics, deep fakes, and more are going to create ethical and legal issues the likes of which we've never seen. The ability--and art--to duplicate an environment in very precise detail, if not exact, has been happening for years in the film industry. Combine physical spaces with the technological wizardry available now and you have some stunning possibilities.



What's your pleasure?

Do you want the red pill or the blue one
although in the not-to-distant future
not even have the chance to decide
Environments and the Metaverse
merge, blurring our



News Release
February, 2017

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CHI RECEIVES USDA GRANT TO DEVELOP CHILDREN'S DIETARY INFLAMMATORY INDEX™ A TOOL FOR CURBING OBESITY IN OUR YOUTH

COLUMBIA, SC. – Connecting Health Innovations (CHI), a spinoff company from the University of South Carolina, has been awarded a Phase I grant by the USDA to develop a Children's Dietary Inflammatory Index (C-DII™) which will be used to help curb obesity in our youth. CHI is focused on the work of Dr. James Hébert who created the world's first Dietary Inflammatory Index (DII™) which addresses chronic inflammation in the body. The DII™ and C-DII™ are based on more than 12 years of academic research and are the only scientifically validated products of their kind in the world.

Chronic inflammation is one of the major contributing factors to obesity, and in children, obesity is a large and growing health problem in the United States. Childhood obesity due to poor dietary choices leads to major negative health consequences, including a predisposition to many long-term health effects, including an elevated risk of developing cardiovascular disease (CVD), diabetes, fractures, cancer, depression and other issues. Since diet is a strong determinant of obesity and has been shown to play a major role in modulating inflammation, the C-DII will allow individuals, researchers and clinicians to determine the inflammatory potential of children's diets. It also will enable children and, more importantly, their parents to become educated regarding dietary inflammation and its consequences, as well as provide the ability to purchase and prepare healthy anti-inflammatory foods.

Developing the C-DII™ is incredibly relevant and timely now, as the economic consequences of childhood obesity are staggering. In 2016, annual direct costs of childhood obesity, including prescription drugs, medical treatment, and outpatient costs were nearly \$14.5 billion dollars. This figure is certain to increase as a third of obese preschool children, and about half of obese school-age children, become obese adults. For this reason, CHI is focused on commercializing the C-DII to offer a suite of products focused on reducing the amount of dietary inflammation in children. Reducing obesity in children by even a small amount, can result in billions of dollars of reduced healthcare costs.

In order to initiate the C-DII™, CHI plans on developing formulations that are not just anti-inflammatory but also tasty, providing an opportunity for the commercial sector to introduce anti-inflammatory food products for children. In this way, CHI will achieve greater adherence to these food items among the targeted younger population. Given that 31 million children receive one to two of their daily meals in 100,000 American schools, there is clearly great economic scope for finding economic opportunities among this population by utilizing the C-DII.

ABOUT CHI

Connecting Health Innovations, LLC (CHI) was founded in February 18, 2013 with a focus on leveraging the work spearheaded by Dr. James Hébert on the effect of inflammatory diets on health in the commercial markets. The first innovation of CHI is its Dietary Inflammatory Index (DII™) for which they have actively been recruiting partners among the healthcare, insurance, research and technology sectors to move the DII to the marketplace. In 2014, CHI received a Fast Track (Phase I and II) SBIR award for \$1.8 million from the National Institute of Health for the validation of the DII™ for adults.

ABOUT DR. JAMES R. HÉBERT

Since 1988, Dr. James R. Hébert has been the Principal Investigator (P.I.), co-P.I., or subcontract P.I. on 48 federal grants with budgets totaling ~\$81 million. He has published over 330 peer-reviewed papers in high-impact medical journals, with most of these focusing on various aspects of diet on health including inflammation and methodological issues encountered in the measurement of diet. Currently, Dr. Hébert's main administrative role is as the Director of the CPCP, which is based at the University of South Carolina in Columbia. His primary academic appointment is in the Department of Epidemiology and Biostatistics in the Arnold School of Public Health of the University of South Carolina. He also holds adjunct appointments in the Department of Family and Preventive Medicine in the USC School of Medicine and in the Department of Medicine at the Medical University of South Carolina. Dr. Hébert has established strong collaborations around the world in the areas of public health, cancer prevention and control and epidemiology and biostatistics as a nutritional and cancer epidemiologist. Over the past seven years, Dr. Hébert has spent considerable effort developing the DII, which has now been established and is regarded as an effective research tool.

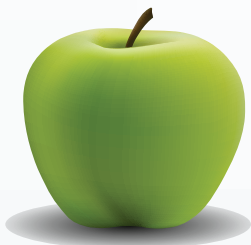
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WHY SHOULD I CARE ABOUT DIETARY INFLAMMATION?

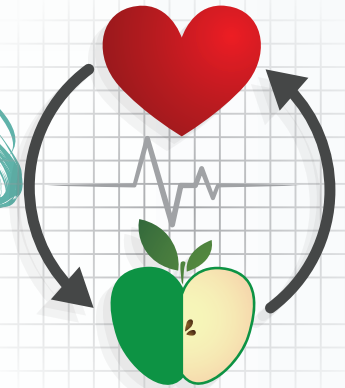
A large amount of evidence links inflammatory diets to virtually all of the long-lasting & persistent diseases that cause the majority of disability and death in the United States, including:

- o Diabetes
- o Heart disease
- o Many cancers
(especially colorectal cancer)
- o Inflammatory bowel disease
- o Arthritis & joint pain

Adopting a less-inflammatory diet can help prevent or reverse the onset of these diseases, as well as lead to weight reduction, increased energy, and a healthier overall lifestyle.

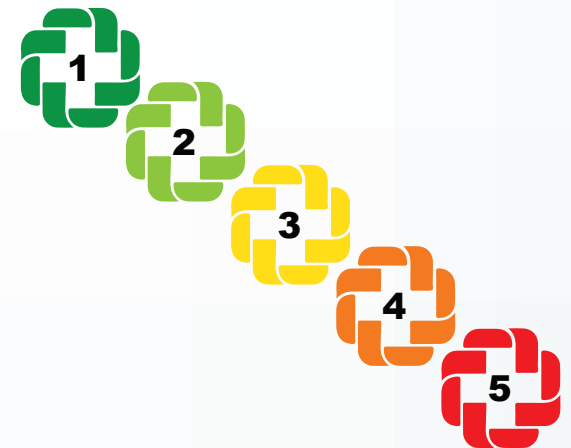


CHI was founded on February 18, 2013 with a focus on leveraging the work spearheaded by Dr. James Hébert on the effects of inflammatory diets on health in the commercial markets. As a relatively young company, CHI has the support of its partners such as BlueCross BlueShield, the University of South Carolina Specialty Clinics, the University of South Carolina Faber Entrepreneurship Center, Eau Claire Cooperative Health Centers, Office of Economic Engagement, and the Columbia/USC Incubator. CHI and its partners will leverage their resources to help fund and deliver this clinically-proven approach to reducing chronic illness in America.



INTRODUCING: THE DIETARY INFLAMMATORY INDEX

An Essential Tool for Monitoring
Your Diet & Your Health



WHAT IS THE DIETARY INFLAMMATORY INDEX (DII)?

The Dietary Inflammatory Index (DII) is a scale used by doctors, clinicians and even the public to measure how inflammatory foods are to your body and organs, thus providing guidelines to consumers and doctors.

Dietary Inflammation has been clinically studied and documented for more than 25 years by Dr. James R. Hébert of the Department of Epidemiology and Biostatistics in the Arnold School of Public Health of the University of South Carolina. Dr. Hébert is the acknowledged expert and creator of the DII.

HOW DOES IMAGINE WORK?

This multi-week course, developed by Connecting Health Innovations (CHI), and led by trained nutrition professionals, will teach participants how to maintain an anti-inflammatory diet. The anticipated components of IMAGINE will include hands-on cooking lessons, as well as informational sessions on healthy eating and shopping practices, stress reduction and other lifestyle factors that support dietary change.

Participants will also have access to online tools, featuring recipes, blogs, games, and the ability to calculate their current DII score. Information from the course may also be fed back to doctors and other providers as appropriate.



WHAT IS DIETARY “INFLAMMATION”? HOW IS IT MEASURED?

Most of us are familiar with the more common symptoms of inflammation as it occurs in our bodies. These might include reddening, swelling, and often painful symptoms occurring to a specific organ or part of the body. This type of inflammation is usually the result of trauma, infection or injury to a localized part of the body. Anyone who has ever had a sore throat can relate to this.

Dietary Inflammation is a little different. Dietary Inflammation refers to the overall reaction your internal organs have based on the foods you eat. While often not painful or even detectable, dietary inflammation is often ongoing and still causes your organs to react in a negative manner leading to other, more serious medical conditions

DII scores are calculated using a complex mathematical computation. This number is then converted into a simple 5-point scale called the Dietary Inflammatory Score. Lower numbers indicate less inflammatory foods while higher numbers indicate more inflammatory foods.



HOW CAN I MANAGE OR CHANGE MY DIETARY INFLAMMATORY SCORE?

The DII-based inflammatory reduction counseling system known as “Imagine” (Inflammation MAnagement INtErvention) is designed to help people adjust their diet and adopt more anti-inflammatory foods.

**IMagine
HEALTHY!**



WHERE CAN I FIND AN IMAGINE PROGRAM?

IMAGINE is currently being developed in collaboration with our partners, including major healthcare providers. Clinical tests are expected to begin in mid to late 2016 with an anticipated role-out shortly thereafter.

For the latest information, please visit our website:

www.chi-llc.net

THE DIETARY INFLAMMATORY INDEX

AN ESSENTIAL TOOL FOR MONITORING YOUR DIET & YOUR HEALTH



The Dietary Inflammatory Index (DII) was created to measure how inflammatory foods are to your body and organs, thus providing guidelines to consumers and doctors.

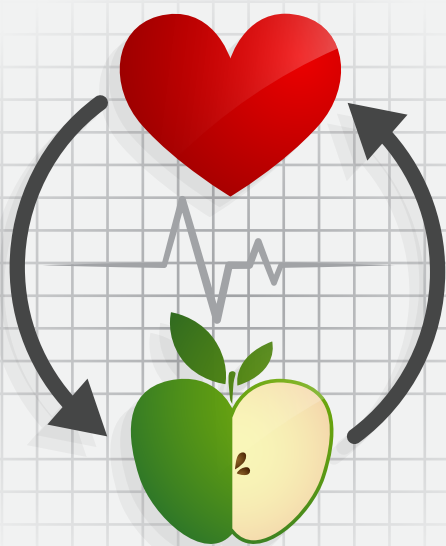
Scientific evidence links inflammatory diets to many diseases that cause disability and death in the United States, including:

- Diabetes
- Heart disease
- Many cancers (especially colorectal cancer)
- Inflammatory bowel disease
- Arthritis & joint pain
- ...And mortality associated with these diseases



Combined, these conditions affect well **over 50%** of the adult population in the United States alone.

The total cost to our healthcare system of these conditions combined is estimated to be over **\$500 billion** per year. Disability and loss in productivity create additional drain on our economy.



Research has shown that many of these conditions are largely preventable by adopting a diet that has more anti-inflammatory foods and fewer pro-inflammatory foods.

Unfortunately, the concept of “pro-inflammatory” vs “anti-inflammatory” foods is confusing to many people because of the difference between the way they taste and the inflammatory affect they have on the body.

For example, many mild tasting dairy products such as milk and yogurt are classified as “highly inflammatory” while spicy or hot foods like chili peppers are “anti-inflammatory.”

The DII-based inflammatory reduction counseling system known as “Imagine” is designed to help people adjust their diet and adopt more anti-inflammatory foods.

Imagine has the potential to reduce healthcare costs throughout the USA by **\$75 billion a year.**



DII scores range from -8.87 to +7.98. These raw DII scores can then be converted into a simple “A to F” scale called the Dietary Inflammatory Food Grade.

The Dietary Inflammation Food Grade is represented by the icons below:



A MARKETING PLAN FOR COMMERCIALIZING THE DIETARY INFLAMMATORY INDEX (DII®) AND ITS ASSOCIATED PRODUCTS

COMPANY OVERVIEW

Company Name:	Connecting Health Innovations
Primary Product:	Dietary Inflammatory Index
Associated Products:	<ul style="list-style-type: none"> • DII® On Demand • DII® Mobile App • IMAGINE®

EXECUTIVE SUMMARY

CHI was founded in February 18, 2013 with a focus on leveraging the work spearheaded by Dr. James Hébert on the effects of inflammatory diets on health in the commercial markets. The first innovation of CHI is its patent-pending DII® for which they have actively been recruiting partners among the healthcare, insurance, research and technology sectors to move the DII® to the marketplace. The Affordable Care Act brings a unique opportunity to fund the promotion of healthier eating in the US population as a whole, and among medically underserved populations in particular.

CHI was incorporated in South Carolina in February 2013. Since that time, CHI has garnered the support of partners such as BlueCross/BlueShield, the University of South Carolina Specialty Clinics, the University of South Carolina Faber Entrepreneurship Center, Eau Claire Cooperative Health Centers, Office of Economic Engagement, and the Columbia/USC Incubator. CHI and its partners will leverage their resources to help fund and deliver this novel approach to reducing chronic illness in America.

The Dietary Inflammatory Index (DII®) was created by Dr. Hébert with the knowledge accumulated over many decades of research showing that diet exerts a major influence over systemic, chronic inflammation.

The goal of CHI is to move the DII®, which is proven to be highly successful in research applications, to effective and efficient use in clinical settings and generate consistent branding for all CHI products. Connecting Health Innovations LLC (CHI) is commercializing products and services that help medical professionals screen for and manage patients at risk of diseases caused by chronic inflammation. To that end, Dr. Hébert and his team at the University of South Carolina have refined the Dietary Inflammatory Index (DII®) for use as a highly effective clinical tool to assist patients in reducing the pro-inflammatory effects of their diets.

As the project moves forward, a SBIR has been secured with the intention of supporting further development and commercialization of three products:

- 1) DII® Screener (Mobile App)
- 3) The Mobile App
- 2) The DII®-based inflammatory reduction counseling system (aka “IMAGINE®”)

This marketing strategy is designed to help propel these three DII® products into full commercialization.

POSTCARD CAPTIONS



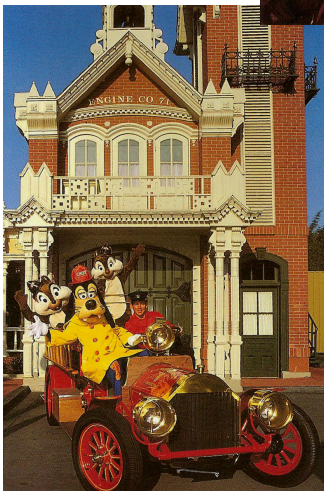
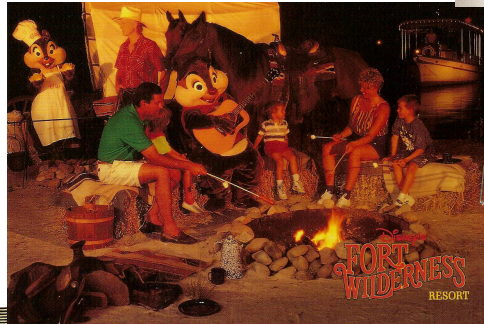
On behalf of Aladdin, his faithful side-kick Abu and the Genie, I bid you welcome. May all your wishes come true!

©DISNEY



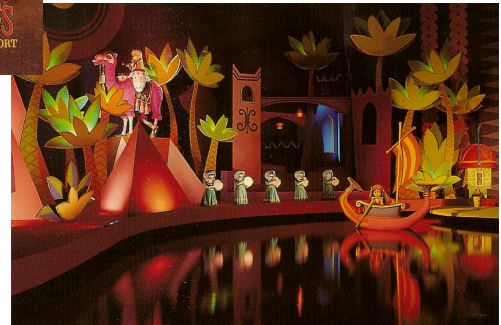
In Fantasyland, guest can ride one of 90 beautiful, hand-painted horses on Cinderella's Golden Carrousel.

©Disney



Sound the alarm—it's Goofy, Chip and Dale to the rescue!

©Disney



Singing children dressed in native costumes take guests on an enchanting journey around the globe to discover *It's A Small World* after all!

©Disney



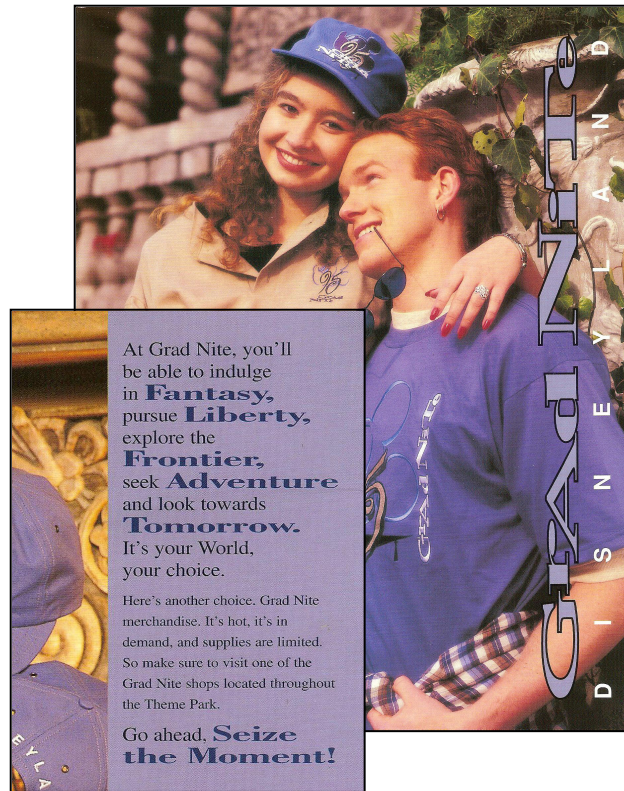
An eerie glow illuminates the entrance to The Haunted Mansion, home of the Magic Kingdom's most spirited guests.

©Disney

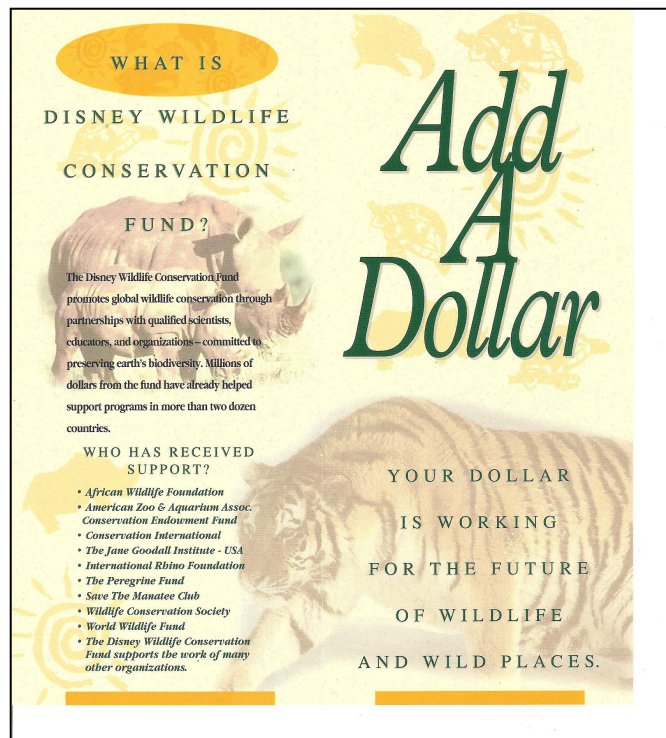
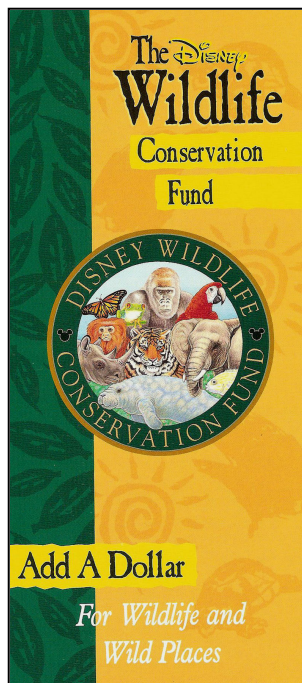


Probably wrote about 100 of these

\$BROCHURE COPY



Somehow I worked in all the lands in one sentence



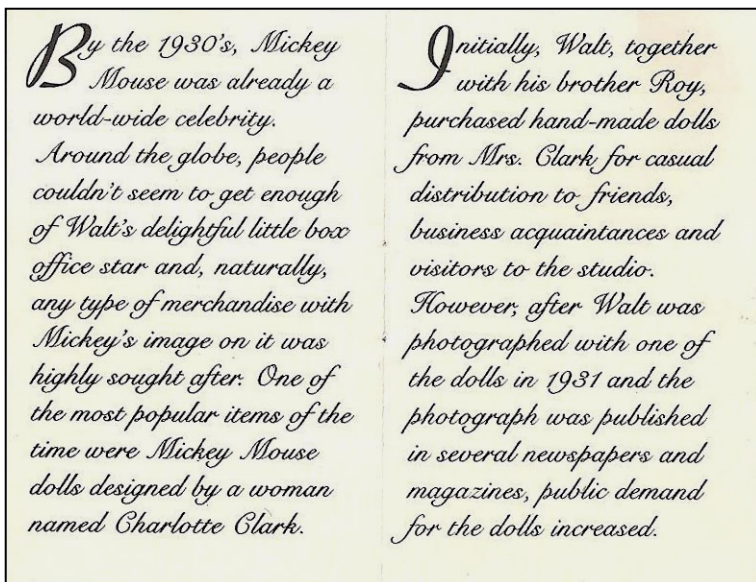
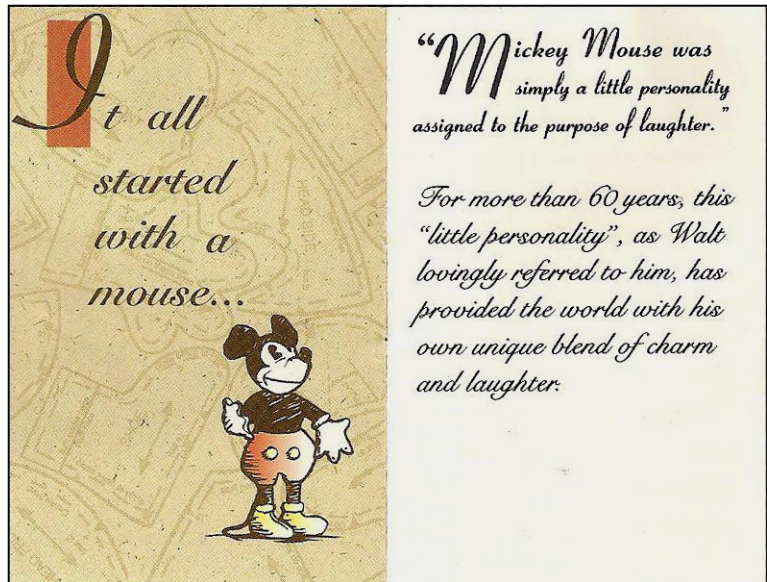
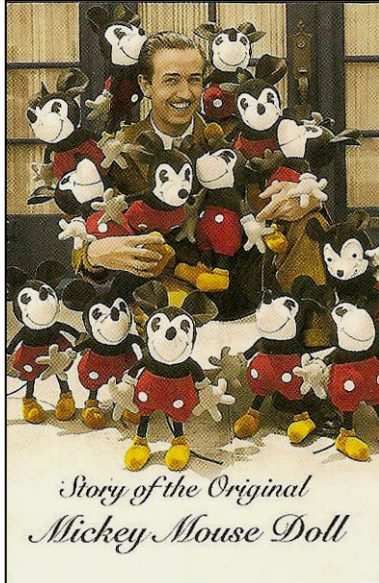
No fluff—purely informational

T-SHIRTS...



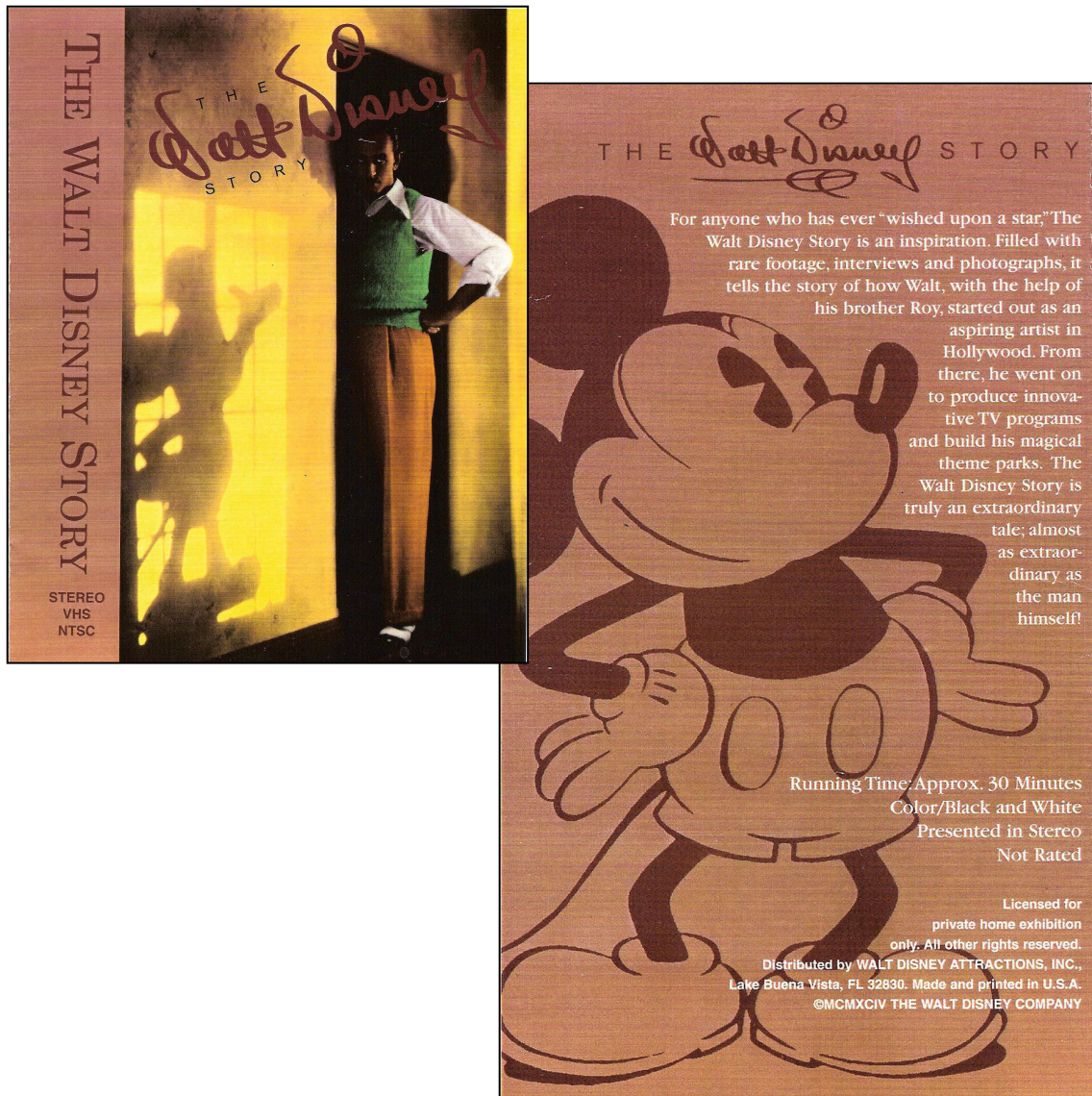
Someone had to come up with the tagline...

MINI BOOKLET



This mini 8-page booklet came with a special edition Mickey Mouse watch

VIDEO/DVD PACKAGING NOTES



This was one of the most widely-sold videos

SUGGESTED COPY FOR TREE PLAQUE TO BE
LOCATED AT ENDOR FOREST (QUEUE AREA FOR
STAR TOURS)

"Real" approach

Spirata Protecoli
"GUARDIAN SPIRIT"
Native to the Moon of Endor

These trees grow to heights exceeding 300 meters. They serve as homes to the Ewoks and provide the basis for much of their culture. Ewoks believe the trees are mighty, intelligent, long-lived beings.

"Parody" approach

Sequoia Pseudosum
"HOLLOW BACK SEQUOIA"
Hybrid developed from similar flora
located on the Moon of Endor

This species, developed by botanists on the planet Earth, has unusually hard and thick tree bark. It requires no water and very low maintenance.



Attention: Will the skipper of the Nile Nellie please move your vessel. You are docked in a "no floating zone." Thank you.

Jungle skippers, don't forget to keep extra oars handy on your ship--that way, you won't find yourself stranded up the river without a paddle.

All Boat Captains, please be advised that there have been several reports of aggressive butterflies along the inner banks of the Amazon River. Three guests have reported minor confrontations with these animals. To minimize the chance of future injuries, butterfly repellent is strongly recommended.

All individuals should be advised that we have had reports of large pythons in the area. If you're travelling with any small children, I'd recommend you put them in the center of the boat. Thank you.

For safety reasons, please do not feed any animals which may approach your vessel during the Jungle Cruise. Especially if they're real ones.

Brian Collins
Show Writer



CHARACTER PROFILE

GANGSTER

"Mugsy" is a classic prohibition era crook, a'la John Dillinger. According to police records, he is 29 years old. His rap sheet goes back to the days when he was a kid, scamming tourists and picking pockets. Mugsy has worked his way up in the local crime scene, one bullet at a time. He is cocky and arrogant and has always felt he was one better than the next guy. Mugsy likes to exchange lead with the local authorities or even, better, with rival crooks trying to move in on his turf. Of course, sometimes, he likes to move in on their turf, which has resulted in some ill feelings throughout the neighborhood. Being a leader of the whole South Side means making sure his interests always come first. Although he is loyal to his boys, this means that everybody is expendable, particularly if it means his hide versus theirs. Mugsy has made quite a name for himself running booze to supply the local speakeasies. He normally wouldn't hurt innocent bystanders, unless he feels threatened by them. Mugsy is almost always cool and in control.

Performance Notes:

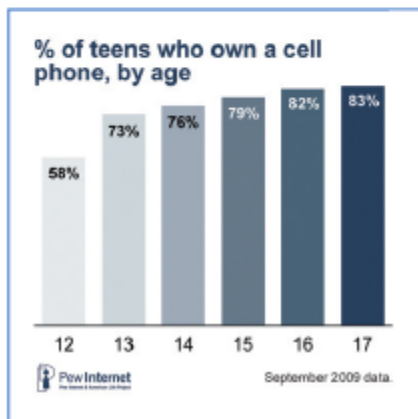
- * Do not try to talk with a strong "gangster" accent. It sounds bad, is very cliché and is, in general, bad show. The spiel is written with certain phrases and pronunciations built into it which are conducive to your character. Deliver the spiel as written and the "accent" will be included almost automatically.
- * For the most part, Mugsy isn't concerned with the guests. They just happen to be unfortunate passengers in the wrong place at the wrong time. He knows they are no threat, so Mugsy decides to make the best of the situation, let them know he's the boss, and then decide what to do with them later.
- * In the Gangster Scene, Mugsy should be brash and aggressive. After boarding the vehicle, Mugsy is too busy trying to escape to fully grasp the situation.
- * In the Western Scene, Mugsy realizes he is on some kind of strange vehicle and has been taken to a completely foreign environment. He is confused, but slightly amused. When the Sheriff starts shooting, he thinks that the law is after him, and he doesn't want to take a bum rap.
- * In Alien/Raiders, Mugsy is very confused. Being the tough guy that he is, however, he never really lets it show. Although the Alien surprises him, once the attack is over, Mugsy regains his composure.
- * In Annubis, Mugsy sees the giant ruby and forgets that he isn't back on the docks--it doesn't matter. All he thinks about is stealing the gem. Mugsy is actually quite nonchalant about making the heist of his career.

groups of teens. Boys and girls are just as likely to have a phone, though they do not always use it in the same way. There are no differences by race or ethnicity in phone ownership by teens.

- Socioeconomic status is one area where cell phone ownership rates vary, with teens from lower income families less likely to own a mobile phone. More than half (59%) of teens in households earning less than \$30,000 annually have a cell phone, while more than three quarters of teens from wealthier families own one.

Two other additional charts to consider; the top 10 U.S. phones & Smartphone market share*

*Note: Symbian is not widely available in the United States



Top 10 Mobile Phones in Use (U.S.) – January -October 2009		
RANK	Device	Embedded Base of All Subscribers
1	Apple 3G iPhone 4.0%	4.0%
2	RIM BlackBerry 8300 Series (Curve, 8310, 8320, 8330, 8350)	3.7%
3	Motorola RAZR V3 series (V3, V3c, V3m, V3i, V3i DG, V3)	2.3%
4	LG VX9100 (enV2)	2.1%
5	LG Voyager	1.7%
6	Samsung SPH-M540 (Rant)	1.5%
7	RIM BlackBerry 9530 series (Storm)	1.4%
8	LG VX9700 (Dare)	1.3%
9	LG Vu series (CU915, CU920)	1.3%
10	RIM BlackBerry 8100 series (Pearl, 8110, 8120, 8129)	1.2%

Source: The Nielsen Company

Mobile & Education

Many schools and school districts have been experimenting with a variety of mobile initiatives for several years now. These programs have varied in size and scope. A sample of some nprograms include:

- According to the Kenosha Unified School District's web site, KUSD 'is dedicated to supporting all users and all devices. KUSD.edu is now available via your mobile device. If you have a Web enabled mobile phone or PDA, you can now access www.kusd.edu for special news, closing, and district related information." Other school districts around the country have initiated similar programs.
- The April, 2010 online issue of The Innovative Educator (<http://theinnovativeeducator.blogspot.com>) contains a series of blog entries on how mobile devices can be used for education. Among the topics are:
 - *Innovative Ideas for Using Cell Phones for Homework and Practice*
 - *iPads? Eh! Social Reading from Your Phone? Now That's Innovation!*
 - *Using Cell Phones to Prepare for Standardized Science Tests*

"KSA&PR Web Site Tips of the Month"

June

Wow 'Em At Your Next Trade Show

Research tells us that you have about three seconds to make an impact on those walking past your booth at a trade show. Not much time, is it? So what can you do to capture that elusive audience and then maximize the contact? The first step is to make sure you have a well designed environment that not only includes stunning visuals and graphics, but also effectively uses color, motion, sound, lighting and even smell!

In addition to an attention-grabbing booth, you also need to think about the internal environment. Do you have informative and creative handouts, brochures, and give-aways? Press kits? Is your staff well-informed to handle any questions or at least get answers quickly? Have you invited existing customers and top prospects to come by, discuss, and even demonstrate your products? Having people actively engaged within your area is one of the best ways to bolster curiosity and credibility.

Finally, make sure you include publicity in your tradeshow promotions plan. This should start before the show by pitching interview opportunities to media representatives who cover your industry or might otherwise be interested. Develop a unique newsworthy angle for your products or services and highlight this at the show—the key here being unique! You may even think about making a significant news announcement during the event to increase press coverage. And don't forget to make sure there are plenty of copies of your press kit in the event's media room.

Bringing all of these components together—show planning, booth design, graphics, collateral materials, media strategies, etc.--typically requires some level of outside consulting and expertise. At Kenton Smith Advertising and Public Relations, our experts can help guide you through the process. Need some ideas? Just ask.

Lessons

Course Information

Assessments

Gradebook

Email

Discussion Groups

ChatRoom

Whiteboard

My Folders

Students

Technical Support

Announcements

Other Courses

Customize

Logoff

Web 2.0 Tools

Lesson 2.20

Fighter Pilot Physics

- Acceleration!

Purpose: To develop the concept of accelerated motion

Congratulations! On your last assignment, you explored non-accelerated and accelerated motion-as an engineer designing the next generation of fighter jets, it's critical you understand these principles. Because of your knowledge base to this point, we are assigning you to work as a Jr. Engineer on Lockheed-Martin's F-22 Raptor project. However, in my work with many physics students, I have learned that acceleration is very often a confusing concept. Given this your next assignment is to review this tutorial on acceleration principles and complete the assignments below. Once you've done that, you'll receive a briefing on what comes next!

Acceleration Explained:

We can change the velocity of an object in three ways. We can change the speed of the object. We can change the direction in which the object is moving. Lastly, we can change both the speed and direction of the object. When we change the velocity of an object, the object undergoes acceleration. Acceleration is defined as the rate of change of velocity.

Think about the accelerator in your car. When you press on the accelerator, the speed of the car increases. This increase in speed is an example of acceleration. Think about the brakes in your car. When you press on the brake, the speed of the car decreases. This decrease in speed is an example of acceleration. We often call this deceleration. Think about the steering wheel in your car. When you turn the steering wheel, you change the direction in which your car is moving. This change in direction is an example of acceleration. Most people think of "speeding up" when they use the term "acceleration." This is a very narrow perspective of acceleration. As you learned from this section, acceleration occurs when the velocity of something changes by changing its speed, its direction, or changing both speed and direction. Acceleration is a vector quantity.

Acceleration Equation:

The acceleration equation $a = (v_f - v_o) / \Delta t$ uses these symbols:


- "a" is the symbol for acceleration;
- "v_o" is the original or initial velocity;
- "v_f" is the final velocity;
- "t" is the time interval.

Sample Calculation of Acceleration:

A ball starting from rest, rolls forward to 40.0 cm/s in 4.00 seconds. Find the ball's acceleration.

GIVEN	WORK	ANSWER
a = ?	$a = (v_f - v_o) / \Delta t$	a = 10.0 cm/s/s or 10.0 cm/s ² forward
v _o = 0 cm/s	$a = (40.0 \text{ cm/s} - 0 \text{ cm/s}) / 4.00 \text{ s}$	
v _f = 40.0 cm/s	$a = 10.0 \text{ cm/s/s or } 10.0 \text{ cm/s}^2$	
t = 4.00 seconds		

PROBLEMS FOR REVIEW

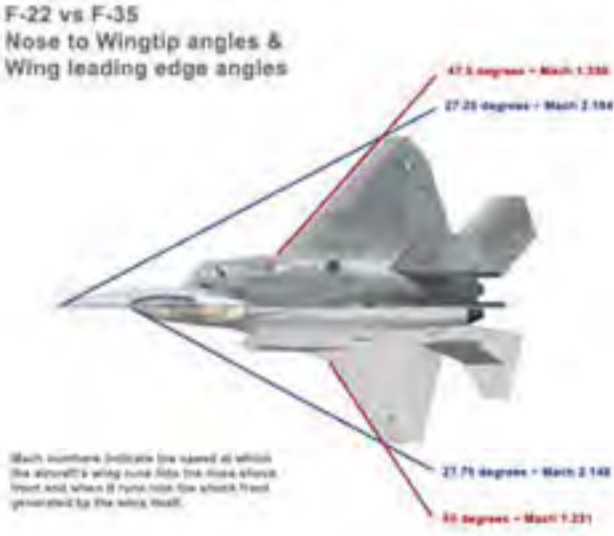



Lockheed-Martin is engineering the new F-22 Joint Strike Fighter (Raptor.) As an engineer on this program, you must calculate the average acceleration of the plane taking off from an aircraft carrier. Starting from rest, the fighter must achieve a lift-off velocity of 52 m/s due east in 16.1 seconds. So--what is the average acceleration?

v_o = 0 m/s
V_f = 52 m/s, East
t = 16.1 s
a = ?
 $a = (v_f - v_o) / t = (52 \text{ m/s} - 0 \text{ m/s}) / 16.1 \text{ s} = 3.2 \text{ m/s}^2, \text{ East}$

An F-22 Raptor coming out of mach flight decelerates uniformly from 34 m/s to a speed of 10.0 m/s in 5.4 seconds. If a pilot is approaching his Naval base from the west, what is his acceleration?


v_o = 34 m/s, West
v_f = 10. m/s, West
t = 5.4 s
a = ?
 $a = (v_f - v_o) / t = (10. \text{ m/s} - 34 \text{ m/s}) / 5.4 \text{ s} = -4.4 \text{ m/s}^2$. The negative sign tells you the acceleration is opposite the direction of the motion; in this case the opposite direction would be East. Therefore, you could say the acceleration was 4.4 m/s², East or - 4.4 m/s².





As you fly along at 40,000 feet, you notice that the "heads-up" display in your helmet shows you are cruising at a constant speed of 2.4 m/s. You notice another aircraft coming up to your rear off your left wing. Given this, you decide to speed up with an acceleration of 0.44 m/s² causing you to travel a distance of 16 m while accelerating. What is your new speed at the end of this acceleration burst?

v_o = 2.4 m/s
d = 16 m
a = 0.44 m/s²
v_f = ?
 $v_f^2 = v_o^2 + 2ad$
solving for v_f you will take the square root of both sides
 $v_f = \text{sqrt}(v_o^2 + 2ad)$
 $v_f = \text{sqrt}[(2.4 \text{ m/s})^2 + (2)(0.44 \text{ m/s}^2)(16\text{m})]$
v_f = 4.5 m/s



Done

- Lessons
- Course Information
- Assessments
- Gradebook
- Email
- Discussion Groups
- ChatRoom
- Whiteboard
- My Folders
- Students
- Technical Support
- Announcements
- Other Courses
- Customize
- Logoff
- Web 2.0 Tools



SUPER HERO PHYSICS!



NOW THAT YOU'VE EXPLORED NON-ACCELERATED AND ACCELERATED MOTION, LET'S TALK IN MORE DETAIL ABOUT ACCELERATION. WE HAVE A SUPER TUTORIAL AND SOME PRACTICE ASSIGNMENTS BELOW. COMPLETE THESE AND YOU'LL BE FLYING HIGH!

LESSON 2.20 ACCELERATION!



[Click Here](#) To Watch A Cool Video From Full Sail University In Orlando, FL To Learn More About Super Hero Physics And How Their Grads Use Them In Today's Blockbuster Movies!



The Acceleration Equation

$$a = (v_f - v_o) / \Delta t$$

uses these symbols:

- "a" is the symbol for acceleration;
- "v_o" is the original or initial velocity;
- "v_f" is the final velocity;
- "t" is the time interval.

ACCELERATION EXPLAINED:

VELOCITY OF AN OBJECT CAN CHANGE IN THREE WAYS. 1) WE CAN CHANGE THE SPEED OF THE OBJECT. 2) WE CAN CHANGE THE DIRECTION IN WHICH THE OBJECT IS MOVING. AND 3) WE CAN CHANGE BOTH THE SPEED AND DIRECTION OF THE OBJECT.

WHEN WE CHANGE THE VELOCITY OF AN OBJECT, THE OBJECT UNDERGOES ACCELERATION. ACCELERATION IS DEFINED AS THE RATE OF CHANGE OF VELOCITY.

Sample Calculation of Acceleration:
A ball starting from rest, rolls forward to 40.0 cm/s in 4.00 seconds. Find the ball's acceleration.

GIVEN	WORK	ANSWER
a = ?	$a = (v_f - v_o) / \Delta t$	$a = 10.0 \text{ cm/s/s or } 10.0 \text{ cm/s}^2 \text{ forward}$
$v_o = 0 \text{ cm/s}$	$a = (40.0 \text{ cm/s} - 0 \text{ cm/s}) / 4.00 \text{ s}$	
$v_f = 40.0 \text{ cm/s}$	$a = 10.0 \text{ cm/s/s or } 10.0 \text{ cm/s}^2$	
$t = 4.00 \text{ seconds}$		



ONCE YOU UNDERSTAND THIS, YOU CAN HELP SOLVE SOME PROBLEMS ON THE NEXT PAGE!

For Concept Only

