

SMArticles

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Science and Mathematics Academy

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What is Dark Matter and What Does it Have to do with Mass Extinctions?

By: Sierra (Freshman)

Dark matter: tiny, subatomic particles that are invisible and detected only by their gravitational effects. Dark matter is known to make up 25% of the Universe, but the composition of dark matter is still unknown. However, the most common theory is that dark matter is made up of Weakly Interacting Massive Particles (WIMPs). Despite the lack of information regarding the mysterious dark matter, there is evidence that the gravitational effects of dark matter have caused some of Earth's major mass extinctions.

As earth rotates, it also travels around the disc-shaped Milky Way Galaxy, known as the Galactic disc. A full trip around the disc is known to take about 250 million years. The Earth's path around the Disc is not a straight line, but rather wavy, with the Sun and the planets bobbing up and down in between about every 30 million years. Michael Rampino, a biology professor at New York University, noticed that the Earth's passages around the Galactic disc align with times of mass extinctions on Earth, such as the extinction of dinosaurs 66 million years ago caused by a comet strike.

It is believed that the gravitational effects of concentrated dark matter change the course of comets as Earth moves through the disc, causing them to strike the Earth on an unusual path. Additionally, as Earth travels through the disc, dark matter can accumulate within the core, and the subatomic particles will eventually annihilate one another, creating excessive heat that can potentially cause volcanic eruptions, sea level rising, and magnetic field reversals, among other geologic events. The understanding of dark matter is still to expand as time goes on.

Why and How do we do Presentations?

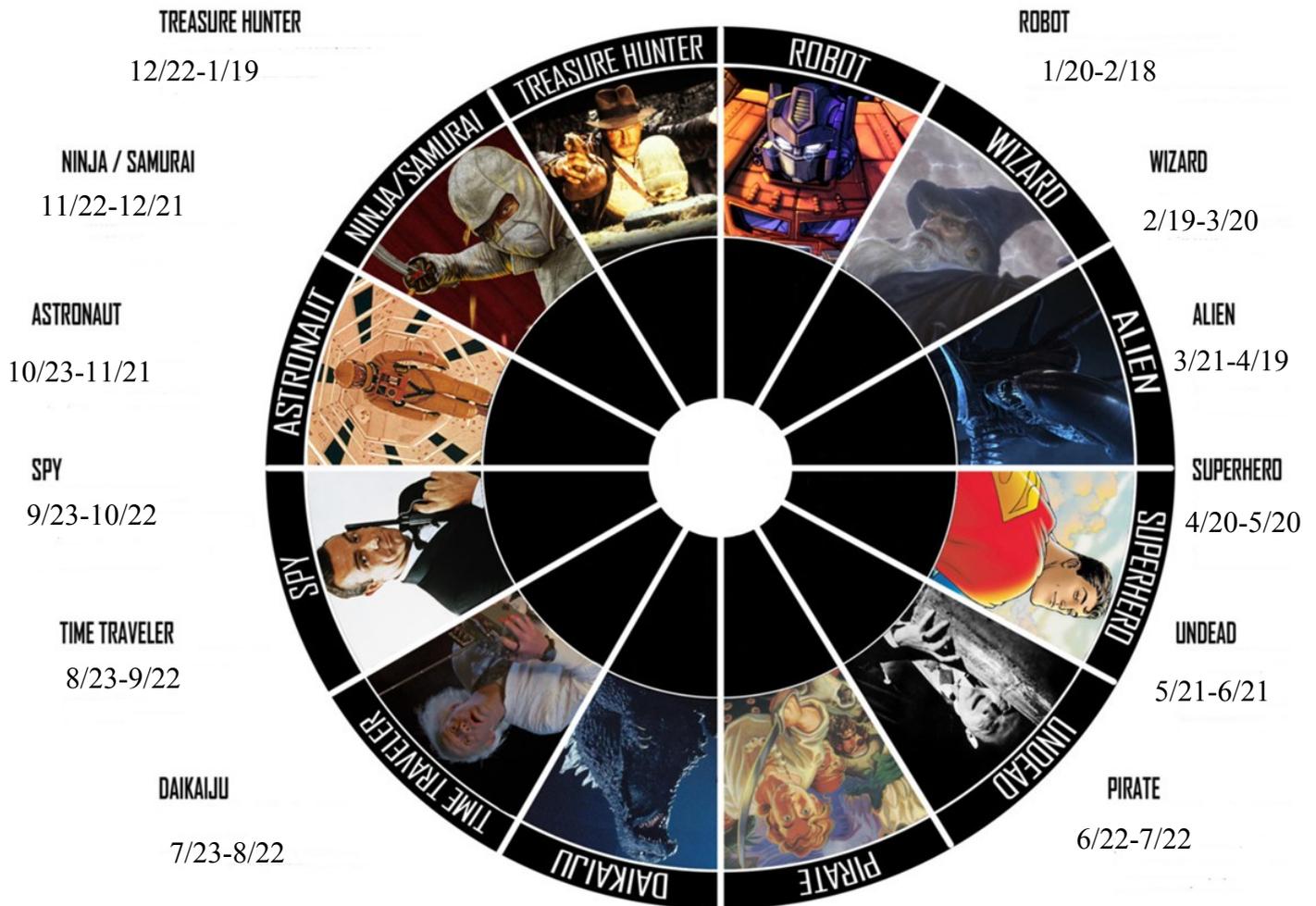
By: Nathan (Junior)

Young SMA students may have been surprised by the emphasis put on presentations in their SRT classes. I mean the class is Science, Research and Technology, not speaking, presentations, and PowerPoints, yet these skills are heavily stressed in class. That's because the main goal of SRT is not only for the student to research and discover things on their own, but also to accurately and efficiently share what they've learned with their peers and teachers. The SMA as a whole, while preparing its students for anything they want to do, specifically caters to those interested in a STEM career. STEM careers not only require you to make your own work and discoveries, but also to propose and present those ideas to your superiors. Your ability to effectively present your ideas can make or break your career or be the difference between you or a colleague receiving the promotion.

A presentation, at its most basics, is a vector in which to communicate to an audience what you are trying to convince them of; the structure of your presentation should fit this. The audience does not want to be lectured to the whole length of your presentation. It is *your* responsibility as the presenter to keep the audience engaged in your words. Common ways to accomplish this are to be concise and interactive or use visuals. A presentation, contrary to the belief of many inexperienced presenters, is not a document and should not be treated as one. Keep the word count low, or if not possible, keep the words *per slide* low. This allows the audience to digest the information carefully. A PowerPoint should not be treated as a standalone presentation. You should always speak more than what the slides simply says. Reading directly from the slide, or even looking at your slide too much shows unprofessionalism and bores the audience. PowerPoints are often used with great success to visually explain an idea where it would

The Geek Horoscope

By: Jeremy (Senior)



Robot:

Your mom will be so touched by the power and beauty of your prose that your dreams of making “Star Wars and the Avengers vs. the Zombies” into a movie will finally be realized. A story that will amaze your grandkids each time the two of you tell it.

Wizard:

Flee the country. Your robots have managed to erase the three laws from their positronic matrix. All mayhem is about to break loose!

Alien:

This is your big chance! The stars have aligned for you. Hurry up and sell your collection of Magic Cards on E-Bay before the rumors of a total movie remake disappear!

Superhero:

You will become deeply depressed this week when you realize your World of Warcraft avatar has way more friends than you do.

Undead:

Lay low for a couple of months and act natural. When you stop seeing black cars parked outside of your house, renew your efforts to purchase plutonium.

Pirate:

As you step into incoming traffic this week, the next to last thing to pass through your mind will be the Klingon proverb: “Today is a good day to die!” The last thing to pass through your mind will be your wire retainer.

Daikaiju:

This is your future self! Don’t give up on your time-travel research. Soon it will pay off big. Speaking of which, go down to the track and put your savings on a horse named Blind Fury.

Time Traveler:

Finishing your Latin translation of the final Harry Potter book will finally culminate 4 years worth of Saturday nights.

Spy:

You are destined to meet the girl of your dreams this week. Keep your distance, she carries mace. For girls, carry mace. There's a weirdo going to meet you.

Astronaut:

Your extensive knowledge of 50s Sci-Fi movies will finally come in handy this week as giant tarantulas and cardboard robots attack your school.

Ninja/Samurai:

Good news! By this time next year, the Nobel committee will recognize your achievements in the area of chemistry. Bad news: outside of the lab you will still have no achievements in the area of chemistry.

Treasure Hunter:

You are about to arrive in a strange parallel universe where you still live in your parents basement, Dungeons and Dragons is no longer cool, and extensive knowledge of Battle Star Galactica is considered a social stigma. Do your best to coexist until the next wormhole opens up.

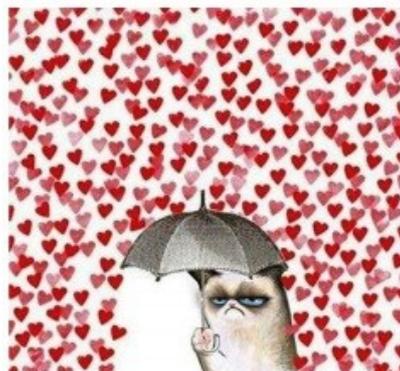
The SMA Social Life

By: Cassie (Freshman)

As a student in the SMA, it might be hard to find time to socialize. With mountains of homework and the need to sleep and eat, there's simply no time to get out anymore. That is until brilliant Mrs. Voskuhl created the monthly SMA social events. These "parties" enable us to see friends, play games, and mingle. Lucky us, right?

A recent survey yielded that about 79% of students have been to at least one SMA event. The other 21% haven't gone because they were busy (which is understandable), don't like to socialize with people, or think the gatherings take too much time. On the contrary, the students that have attended said they went because friends, games, and food (always a plus) would be there, or they had free time to spend. As a participant myself, I can say that these events are surprisingly enjoyable and entertaining. No matter what, I always end up laughing hysterically at something in a game or from a friend's joke.

So if you haven't been to an SMA event, take the next one into consideration. The results may shock you.



**FRIDAY FEB. 6,
2015
ANTI-
VALENTINE'S
DAY PARTY**

SMA's Anti-Valentine's Day Party

6-9 pm in the
SMA
classrooms

How can you miss this? It's an ANTI-VALENTINE'S Day party, and who actually loves Valentine's Day? My point exactly.

For Science and Math Academy students!

No need to dress up! It's a party: wear something RED that you would wear to school.

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The Rough Road to College

By: Peter (Senior)

SATs, APs, GPA, ACT, PSAT. These are acronyms we know so well. The path to college isn't easy, but it shouldn't control your life or make you stress during your sophomore and juniors years. Here are some tips and life lessons to help you though the tough times.

Tip #1: Don't stress.

Life is too short to overcomplicate it over these exams. They are important but not worth pulling your hairs out or sacrificing all your free time studying for them. Go outside! Play a few games! Read a book! Pick up your instrument! Talk to people!

Tip #2: Plan it out and take it bit by bit.

Take time to plan out a timeline and break down the work load. For example,

SAT: 1) Study 5 vocabulary a day

2) Practice 10 problems on the writing section and math daily

3) Do one passage of reading a day or every other day

Starting early is a good thing but don't book everything at the same time! The SATs and PSATs are very similar at the moment so studying for one can cover both! As for AP and other things, work hard and again plan it all out. With two months left before AP tests, find your weakness and strengthen them, go to study sessions if you can, ask teachers for clarification, do practice problems on that chapter you don't understand, but most importantly, don't forget your strengths!

Tip #3: Take breaks and reward yourself.

Work hard when you do but remember to relax sometimes and be human! Knowing how to balance a social life, stress, extracurricular activities, and academics is hard but possible! It is hard to focus on something we don't like or that is not interesting for over an hour or even 45 minutes so plan out breaks. Stretch, get a drink, grab a bite to eat, talk to your family, play with that cute cat or dog of yours.

Tip #4: Make studying interesting.

This isn't easy but try it! Study with a friend, study with music playing, study with flash cards, test each other, make it a friendly competition or race to finish the practice problems. Working hard and having fun are not mutually exclusive.

Tip #5: Find a motivation, drive, purpose.

Having a motivation to do something is the best way to push ourselves. To have bragging rights, to prove parents wrong when they say you don't study enough, to prove to teachers you are a smart kid, to prove to yourself that you can do it, to get that \$100 check, to get that good score to get in the college you want to, to become the very best! Find and thrive off it.

Tip #6: Aim high and be a loaded spring.

Be optimistic. It doesn't hurt to aim high and try, otherwise you will never know what true failure is. Failure is a process in which we learn and evolve; we may fall but bounce back up and try again, change, work harder, and work with what we got.

As a senior who has lived through high school to tell the tale and how I got to where I am, I can only say, you can do it. Yes, you can do it. A lot of these tips are general but take them to heart and work hard. Don't give up in the face of opposition or challenge because "It always seems impossible until it's done." –Nelson Mandela. I never thought I was going to make it but I kept my goal in mind, worked at it, took opportunities, planned ahead, took it step by step, and now I am here awaiting my college admission statuses. Don't wait too long to take action but there is no need to sprint now and be out of energy when you need it most. I hope this helped most of you worrying underclassmen. Don't be afraid to ask for help. Best of luck to all of you and may the odds be ever in your favor.