STEM
PLANNER

STEM
STUDENT PLANNERS
By **SUCCESS** BY DESIGN, INC.

STUDENT IDENTIFICATION

THIS PLANNER BELONGS TO:

ADDRESS: ....

CITY/TOWN: ....

STATE: .... ZIP CODE: ....

SCHOOL NAME: ....

PHONE: ....

EMAIL: ....

HOMEROOM: ....

In Case of Emergency Notify:

CONTACT NAME: ....

CONTACT NUMBER: ....

Please Recycle This Planner

HOW TO PLAN FOR
SUCCESS
AND UNLOCK YOUR FULL POTENTIAL

In addition to giving you insight into career possibilities in the fields of science, technology, engineering, and math, your STEM Student Planner™ will be a valuable tool in keeping you organized and on track to unlock your full potential. Whether you're a student or working professional, efficient time management is vital to achieving both today's goals and lifelong success. Start by recording your daily, intermediate, and long-term tasks. Segment major projects, and prioritize each step. Be sure to tackle the most challenging task first. These two pages have been designed as a guide to the intended use of your STEM Student Planner.

WHILE UTILIZING YOUR PLANNER, you will notice it focuses on a different STEM-related topic each month. During each week of the month, the various sections listed below will teach you more about careers pertaining to the featured topic:

1 CAREER / JOB DESCRIPTION
Careers in science, technology, engineering, and math are vital to our future and key to unraveling many of life's remaining mysteries. In this section, we introduce you to such a career.

2 STEM DESIGNATION(S)
Here we list for you the STEM subjects—science, technology, engineering, and math—that are most closely related to the career of the week. While this may sometimes be just one of the four, in many cases you will find they overlap. In these cases, several are listed.

3 JUST THE FACTS:
This section provides statistical information on the featured career.

4 WHAT'S IT TAKE?
Here we give you a glimpse into the type of high school and/or college courses, along with the eventual degree, required should you decide to pursue the career of the week. We also often touch upon the character traits beneficial to each career.

5 HOW ABOUT THE OUTLOOK?
Want to know how promising each career looks over the next several years? Look here!

6 AN INTERESTING NOTE …
This intriguing and sometimes surprising fact relates to the featured career. A QR code quickly takes readers to the source of the *Interesting Note*. These sources contain images, graphics, charts, activities, and other interactive features.

*Use the **two-page calendar section** located at the beginning of each month to record extracurricular activities, monthly goals, or long-term assignments throughout the year. Read about the STEM-related topic of the month. Doing so will introduce you to the types of careers featured throughout the month.*

ADVANCE YOUR
POSSIBILITIES THROUGH
STEM

Most of the time we take for granted all we have because of STEM – science, technology, engineering, and math. As a matter of fact, you might find it surprising where we would be without them! Just imagine a world with no computers, smartphones, medicines to make you feel better when you are sick, or even numbers!

The many features of our STEM Student Planners are meant to familiarize you with the careers that lead to such innovations and enhance your understanding of the growing importance of science, technology, engineering, and math in our world and your own life. Today it's more necessary than ever to increase your knowledge about these four subjects. In doing so, you will advance the possibilities for your future.

Find help with subjects like English, Math, and Science on the extra resource pages found in the back of your planner!

Sample Planner Spread

CAREER: FORENSIC SCIENCE TECHNICIAN

Job Description: Investigating crimes and collecting and analyzing evidence are the main roles of Forensic Science Technicians. Technicians typically focus on either crime scene investigation or laboratory analysis. In crime scene investigation they take photos/sketch crime scenes, collect evidence, attend autopsies, and write extensive notes. Laboratory techs classify evidence through analysis, reconstruct crime scenes, consult with toxicology or other specialized experts, and discover relationships between suspects and crimes.

JUST THE FACTS!
- Entry-Level Education Typically Required: Bachelor's degree
- Median Annual Salary (2022): $63,740
- Number of Forensic Science Technicians in U.S. (2022): 18,500
- Estimated Job Growth (2022–32): 13%

WHAT'S IT TAKE?
An inquisitive personality and love for problem-solving are essential. Potential candidates should pursue a bachelor's degree in a natural science area (chemistry, biology, forensic science) and plan an extensive on-the-job training and internships. Long and sometimes odd hours could be required for those technicians working out in the field, and the ability to handle stressful situations is necessary. Being detail oriented is also critical due to the sensitive nature of the data being collected.

HOW ABOUT THE OUTLOOK?
Scientific advancements will increase the desire for courts to have solid, impartial, and reliable scientific evidence for use in trials. Governments looking to process their high caseloads are expected to hire additional Forensic Science Technicians in the future. Competition is expected to be strong in this field, so those holding master's degrees may have an advantage.

13 MONDAY

14 TUESDAY
- Start science fair project. ✓

- Geography: Read Chapter 14 (pages 262-287) should take 45 minutes
- ✓ 1:00 p.m. Dentist Appt. musical auditions! Study for test! ✓

- History: Read Pages 145-160 should take 20 minutes ✓

EVENING PLANNING
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EVENING PLANNING
4: Basketball practice.
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Write your daily assignments for each of your classes in the daily columns. Estimate how long they will take to complete. Check each assignment when done. If not finished, use arrow to carry task to the next day.

15 WEDNESDAY
- Calculus test!

- Science: Outline Chapter 20 should take an hour

- Work on book report. →

EVENING PLANNING
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16 THURSDAY
- ✓ Finish book report.

EVENING PLANNING
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Be sure to record your evening planning to keep track of after-school events.

17 FRIDAY
- ✓ Book report due today!

EVENING PLANNING
4:
5:
6: Big game!
7:
8:
9:
10:

18 SATURDAY
- Shop for mom's birthday gift!

WEEKLY GOALS
Be on time for class.
Eat better.
Exercise daily!

It's important to set weekly goals for yourself.

19 SUNDAY

AN INTERESTING NOTE …
The term "CSI effect" was coined in the early 2000s when an influx of crime-solving TV shows hit the airwaves. The quick and unrealistic ability of these shows to collect data, analyze the findings, and solve the crime has been blamed for giving juries in real courtrooms high expectations. Scan the QR code to watch about TV forensics versus real life. Bonus! How well can you match up handwriting samples? Give it a try!

JANUARY 2025

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

→ Transfer unfinished tasks. ✓ Did I accomplish my priorities?

LIFE SCIENCE 2025

ART

\ärt\, noun

something that is created with imagination and skill and that is beautiful or that expresses important ideas or feelings

Art is all around us! The way we experience objects, locations, products, and services is rooted in art. The chairs on which we sit, the smartphones in our hands, and the buildings we spend time inside would not exist without the art-influenced creativity of designers. Art is in the talents of songwriters and musicians who craft songs we enjoy; it's in the direction and acting that brings movies and TV shows to life; and it's evident in every leap and turn of a ballet dancer's routine.

Many STEM careers revolve around art. Jewelers create wearable works of art for people in the form of necklaces, rings, and bracelets. Medical illustrators create visual representations of how the body functions to better educate the public and assist in court proceedings. Recreational therapists use arts and crafts to help those coping with mental, emotional, and physical problems express themselves and heal.

Are you an artistic person? Do you enjoy being creative? Do you like coming up with new ideas to fulfill everyday needs? Maybe a STEM career focusing on art is in your future!

DID YOU KNOW?

August is American Artist Appreciation Month. Regardless of the medium they use, artists enrich our lives through their creative design talents in many ways. The work they create evokes emotion, enhances daily life, entertains, or fulfills practical needs. Take time to look around and appreciate how much of what you see was crafted by the mind of an artist.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SOURCES:
merriam-webster.com
innovationtoolbox.com.au
searchsoa.techtarget.com
businessdictionary.com
creativityatwork.com

MONTHLY GOALS & LONG-TERM ASSIGNMENTS

3D MODELER

Job Description: A 3D Modeler is a multimedia computer artist or animator who brings one-dimensional representations of people, places, and things to life using specialized software. This brings real world imagery into the digital realm. 3D Modelers work in a variety of careers, including but not limited to, the television/motion picture industry, video game design, and science and medical fields.

JUST THE FACTS

- Entry-Level Education Typically Required: bachelor's degree
- Median Annual Salary (2022): $98,950
- Number of Special Effects Artists (including 3D Modelers) in U.S. (2022): 89,300
- Estimated Job Growth (2022–32): 8%

WHAT'S IT TAKE?

3D Modelers must stay current with modeling applications and software and gain additional experience in their chosen field while maintaining an artistic eye toward the work. A science-related degree with a focus on modeling is another option in this field. Individuals that want to create for the entertainment industry should consider animation art or video game design and build their expertise in learning modeling applications.

HOW ABOUT THE OUTLOOK?

The video game industry is highly competitive. However, individuals who study 3D modeling and select a focus area for their desired industry will have increased job prospects and opportunities.

22 MONDAY   23 TUESDAY

EVENING PLANNING
4: ____
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EVENING PLANNING
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➔ Transfer unfinished tasks.   ✓ Did I accomplish my priorities?

24 WEDNESDAY   25 THURSDAY   26 FRIDAY

EVENING PLANNING
4: ____
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EVENING PLANNING
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EVENING PLANNING
4: ____
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7: ____
8: ____
9: ____
10: ____

27 SATURDAY   28 SUNDAY

WEEKLY GOALS

JULY 2024

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	**22**	**23**	**24**	**25**	**26**	**27**
28	29	30	31			

AN INTERESTING NOTE…

(See page 122 for QR code website address.)

Many sites of historical and cultural significance face the threat of human or environmental destruction. Some sites may also be impractical to see in person. However, 3D modeling has made it possible to tour these wonderful locations from home! *Scan the QR code to visit a multitude of amazing sites.*

DEVELOPMENT

\di–ve–lǝp–ment, dē–\, *noun*

1. the state of being developed: 2. the act or process of growing, progressing, or developing: 3. developed tract of land

The degree to which a country has been developed significantly impacts its people. In a nation with a sturdy economy and advanced infrastructure, residents can lead longer and healthier lives, be educated, access resources needed for a decent standard of living, and participate fully in their communities.

STEM-related careers play a critical role in economy and infrastructure. From welders who help keep metal structures intact, to railroad workers who ensure train passengers and freight move smoothly from destination to destination, the progress of a town, city, or nation cannot occur without professionals from various fields of study working together and utilizing the latest technologies.

Progress enables fully developed nations like the United States, Canada, Greece, and the United Kingdom to handle ever-growing populations, and it also aids lesser developed areas such as Bangladesh, Ethiopia, and Haiti in raising their standards of living.

DID YOU KNOW?

Labor Day originated in Canada. It stemmed from 1870s labor disputes in Toronto. A parade was held in 1872 in support of a strike against the then 58-hour workweek. The first Labor Day celebration in the U.S. took place in 1882 in New York City's Union Square. It was held to gain support for reducing the average 12-hour workday to 8 hours.

2024 SEPTEMBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

SOURCES:
merriam-webster.com
thefreedictionary.com
huffingtonpost.com
hdr.undp.org/en/
energy.gov
bls.gov

MONTHLY GOALS & LONG-TERM ASSIGNMENTS

ELEVATOR MECHANIC

Job Description: Elevator Mechanics install and/or maintain and repair elevators, escalators, moving walkways, and more! This industry requires mechanics to have knowledge in electronics, hydraulics, and electrical systems, as well as sharp troubleshooting skills. Many new elevators have computerized control systems, so knowledge of computers is more important now than in previous years.

JUST THE FACTS

- Entry-Level Education Typically Required: apprenticeship
- Median Annual Salary (2022): $99,000
- Number of Elevator Mechanics in U.S. (2022): 25,100
- Estimated Job Growth (2022–32): 1%

WHAT'S IT TAKE?

Elevator Mechanics have a physically demanding job. They may need to stand or sit for long time-periods, lift items weighing 50-200 pounds, and work in small areas and crawl spaces. To start off in this career, interested mechanics need to begin a 4-year apprenticeship program, where they will learn about safety, reading blueprints, mathematics and physics, elevator/escalator parts, and electronics.

HOW ABOUT THE OUTLOOK?

Nonresidential construction is projected to increase in the next few years, which will increase the demand for elevator and escalator installation. The need to keep these items operational in malls, office buildings, hotels, airports, etc. will also contribute to job growth and will experience more consistent, year-round work than some construction careers.

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2 MONDAY

EVENING PLANNING
4: ____
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3 TUESDAY

EVENING PLANNING
4: ____
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4 WEDNESDAY

EVENING PLANNING
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5 THURSDAY

EVENING PLANNING
4: ____
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10: ____

6 FRIDAY

EVENING PLANNING
4: ____
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7: ____
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9: ____
10: ____

7 SATURDAY

8 SUNDAY

WEEKLY GOALS

SEPTEMBER 2024

S	M	T	W	T	F	S
1	**2**	**3**	**4**	**5**	**6**	**7**
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

AN INTERESTING NOTE...

(See page 122 for QR code website address.)

The world's second tallest building, the Shanghai Tower, has the world's fastest elevator. It travels 46 miles an hour! *Scan the QR code to watch the world's fastest elevators in this interactive graphic (scroll to mid-page).*

→ Transfer unfinished tasks.   ✓ Did I accomplish my priorities?

ENERGY

\'e–nər–jë\, *noun*

1. fundamental entity of nature that is transferred between parts of a system in the production of physical change within the system and usually regarded as the capacity for doing work: 2. usable power (as heat or electricity); also: the resources for producing such power

Today, energy is critical to every aspect of our lives, and that isn't going to change. The U.S. Energy Information Administration predicts that from 2015 to 2040 world energy consumption will increase by 28 percent. In America alone, energy use is doubling every 20 years. All of this means that we must learn to use energy more wisely and continue exploring clean and renewable options to reduce our dependency on nonrenewable fossil fuels such as coal, oil, and natural gas, which will one day be depleted. Renewable sources include the sun, wind, and water.

STEM professionals, such as energy engineers, electrical line workers, and fuel cell specialists, for example, are vital to the management and conservation of our current energy sources and the development of better, more diverse ones. It takes numerous people working in concert to ensure the energy sector remains strong.

"No single solution can meet our society's future energy needs," states the Union of Concerned Scientists. "The solution instead will come from a family of diverse energy technologies that share a common thread—they do not deplete our natural resources or destroy our environment."

DID YOU KNOW?

Compared to most people elsewhere, Americans use a lot of energy. The United States, with less than 5% of the global population, uses about a quarter of the world's fossil fuel resources—burning up nearly 25% of the coal, 26% of the oil, and 27% of the world's natural gas. Schools instructing kindergarteners through twelfth graders alone spend over $6 billion on energy use each year. October is National Energy Action Month—a time set aside to urge us to strive toward greater energy security and a healthier environment.

2024 OCTOBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

SOURCES:
merriam-webster.com
whitehouse.gov
scientificamerican.com
needtoknow.nas.edu
ecology.com
ucsusa.org
bls.gov
eia.gov
aceee.org

MONTHLY GOALS & LONG-TERM ASSIGNMENTS

MATERIALS SCIENTIST

Job Description: Materials scientists study and analyze the structure and chemical properties of different natural and man-made materials. They analyze the ways substances interact with each other in order to strengthen existing materials and create brand new ones with certain properties and characteristics. They will experiment with various materials and chemicals to determine how new materials may best serve and improve humanity (careerexplorer.com).

JUST THE FACTS

- Entry-Level Education Typically Required: bachelor's degree
- Median Annual Salary (2022): $81,810
- Number of Materials Scientists in U.S. (2022): 95,000
- Estimated Job Growth (2022–32): 6%

WHAT'S IT TAKE?

Entry level job seekers will need a bachelor's degree in chemistry or related field, but research jobs will require a master's degree or Ph.D. and significant levels of work experience (bls.gov). Many types of chemistry classes will be needed, as well as classes in math, biological sciences, and physics.

HOW ABOUT THE OUTLOOK?

The need for developing cheaper, safer, and better quality materials will keep this career path growing. Pursuing an advanced degree, combined with work experience, will create opportunities in this slower-than-average growing field.

30 MONDAY SEPTEMBER	1 TUESDAY OCTOBER

EVENING PLANNING
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EVENING PLANNING
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2 WEDNESDAY	3 THURSDAY	4 FRIDAY

EVENING PLANNING
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EVENING PLANNING
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EVENING PLANNING
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5 SATURDAY	6 SUNDAY

WEEKLY GOALS

SEPT–OCT 2024

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6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AN INTERESTING NOTE...

(See page 122 for QR code website address.)

Researchers have noted that the ancient Egyptians experimented in Chemistry to create many things—including medicines and makeup. The heavy, black eyeliner that's infamously seen on artwork depicting Egyptian royals may have been the combination of increasing beauty while also doubling as an eye infection fighter. ***Scan the QR code to read more about ancient chemistry.***

➡ Transfer unfinished tasks.   ✓ Did I accomplish my priorities?

WEBSITE REFERENCES

Due to the length of some of the referenced websites, the full links to each source were not printed. Abbreviated references for each week may be found on the corresponding monthly spreads.

For a full list of website references, please see the HSTEM product page on our website, www.successbydesign.com. These references were verified at the time of production, but changes or redirections may occur.

"AN INTERESTING NOTE" QR CODE WEBSITE REFERENCES*

3D Modeler
QR Code: https://artsandculture.google.com/project/cyark

Landscape Architect
QR Code: https://www.greenroofs.com/projects/ford-motor-companys-river-rouge-truck-plant/

Front End Web Developer
QR Code: http://info.cern.ch/hypertext/WWW/TheProject.html

Art Conservator
QR Code: https://www.livescience.com/46099-hidden-beached-whale-revealed-painting.html

Architect
QR Code: https://architectureau.com/articles/when-architecture-was-an-olympic-sport/

Medical Illustrator
QR Code: https://www.ami.org/medical-illustration/learn-about-medical-illustration

Elevator Mechanic
QR Code: https://www.cnn.com/style/article/short-history-of-the-elevator/index.html

Construction Manager
QR Code: https://www.icehotel.com/icehotel-original

Plumber
QR Code: https://www.washingtonpost.com/news/retropolis/wp/2017/05/06/discovered-philadelphias-high-tech-totally-natural-plumbing-of-1812/

HVACR Technician
QR Code: https://www.whitehousehistory.org/keeping-cool-in-the-white-house

Materials Scientist
QR Code: https://www.sciencemag.org/news/2010/01/egyptian-eyeliner-may-have-warded-disease

Petroleum Engineer
QR Code: https://www.coga.org/factsheets/everyday-products-uses

Solar Photovoltaic Installer
QR Code: https://inhabitat.com/brazils-mineirao-is-the-first-world-cup-stadium-completely-powered-by-the-sun/

Solar Site Assessor
QR Code: https://time.com/china-massive-floating-solar-field/

Electrical Line Worker
QR Code: https://www.dkfindout.com/us/science/electricity/moving-electricity

Intelligence Analyst
QR Code: https://vault.fbi.gov

Actuary
QR Code: https://www.britannica.com/topic/insurance/Historical-development-of-insurance

Political Scientist
QR Code: https://www.youtube.com/watch?v=QazmVHAO0os

Supply Chain Manager
QR Code: https://www.youtube.com/watch?time_continue=1&v=SpAHPXNhAwk&feature=youtu.be

Computer and Information Research Scientist
QR Code: http://howoldistheinter.net

Computer Support Specialist
QR Code: https://www.smithsonianmag.com/arts-culture/fact-of-fiction-the-legend-of-the-qwerty-keyboard-49863249/?utm_campaign=20130503&utm_medium=socialmedia&utm_source=twitter.com&utm_content=designdecodedkeyboard1

Software Developer
QR Code: https://www.nationalgeographic.org/thisday/sep9/worlds-first-computer-bug/

Cryptographer
QR Code: https://academy.binance.com/en/articles/history-of-cryptography

Biomedical Engineer
QR Code: https://syncardia.com/total-artificial-heart-timeline/

Epidemiologist
QR Code: https://www.history.com/topics/middle-ages/black-death#section_9

Forensic Science Technician
QR Code: https://www.pbssocal.org/shows/reactions/episodes/tv-forensics-what-do-csis-actually-do-qhyipu

Genetic Counselor
QR Code: https://www.youtube.com/watch?v=eW1TS2tCFDE

Anthropologist
QR Code: https://www.nbcnews.com/science/science-news/dna-links-kennewick-man-skeleton-native-american-tribes-n377291

Marine Engineer
QR Code: https://www.royalcaribbeanpresscenter.com/fact-sheet/35/icon-of-the-seas/

Millwright
QR Code: https://www.thestar.com/life/food-and-drink/oreo-cookie-turns-100-and-opens-its-montreal-factory-for-first-time/article_691c348e-16bc-5789-a56b-cb78cb9fa648.html

Wind Turbine Technician
QR Code: https://eerscmap.usgs.gov/uswtdb/viewer/#3/37.25/-96.25

CNC Machinist
QR Code: https://www.history.com/news/rosie-the-riveter-inspiration

Pediatric Nutritionist
QR Code: https://www.choosemyplate.gov/quiz

Agricultural Engineer
QR Code: https://www.countryliving.com/uk/homes-interiors/gardens/a20120884/most-cost-effective-vegetables-grow-home-garden/

Food Labeling Specialist
QR Code: https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/default.cfm

Food Science Technician
QR Code: http://sciencemeetsfood.org/valentines-day-chemistry/

Geoscientist
QR Code: https://www.earth.ox.ac.uk/~oesis/micro/

Environmental Scientist
QR Code: https://gispub.epa.gov/airnow/?showgreencontours=false

Hydrologist
QR Code: https://climatekids.nasa.gov/water-cycle/

Conservation Scientist
QR Code: https://www.arborday.org/trees/stormwater.cfm

Zoologist
QR Code: https://www.worldatlas.com/articles/10-famous-zoologists-and-their-contributions.html

Pediatrician
QR Code: https://www.youtube.com/watch?v=1nHwQKT_muc

Nurse Practitioner
QR Code: https://www.ushistory.org/birch/plates/plate26.htm

Prosthetist
QR Code: https://www.pbs.org/newshour/show/3-d-printers-put-limb-prosthetics-for-kids-in-reach

Dentist
QR Code: https://www.colgate.com/en-us/oral-health/basics/mouth-and-teeth-anatomy/four-different-types-of-teeth-plus-more-0115

Broadcast & Sound Engineer
QR Code: https://en.wikipedia.org/wiki/The_Horse_in_Motion#/media/File:Muybridge_race_horse_animated.gif

Speech-Language Pathologist
QR Code: https://www.pbs.org/video/sci-tech-central-synchronic-dysphagia-solution/

Public Relations Specialist
QR Code: https://www.prmuseum.org/pr-timeline

* The "An Interesting Note" websites are the only sources listed in their entirety.

BULLET JOURNAL

Use the following journal pages to plan, draw, and dream!

INTEGRATING PRINT & DIGITAL TECHNOLOGIES

Our Brains are Amazing and Complex!

The way the brain learns from paper and printed material/books is different than how it learns from reading on screens such as phones and tablets.[1]

Since books have text that is set in a stationary place, the brain can latch on to that physical space and remember it better. For example, sentences and paragraphs are set in size, shape and location. A book has set left and right pages that give 8 total physical corners that our minds can remember.[1]

Screen Reading: Most reading on a screen is scrolling and moving continuously so your brain doesn't have anything to latch on to and remember as easily![1]

Another reason your teacher may have you read or write with paper (and not review and type on screen) is to help your concentration and focus.[3]

I remember reading about pandas at the bottom of the right-hand page…
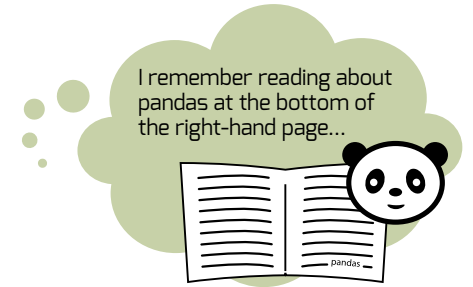
It has been proven that students are most likely to skim, browse and jump around in an article on screen.[1] Most screen devices have many distractions—alerts and notifications, other programs, Internet interests, music, etc.—all of which pull attention away from the reading.[4]

Sources:

1 Jabr, Ferris. "The Reading Brain in the Digital Age: The Science of Paper versus Screens." *Scientific American*, Scientific American, 11 Apr. 2013, https://www.scientificamerican.com/article/reading-paper-screens/.

2 Baron, Naomi S., et al. "Reading in a Digital Age." *Kappanonline.org*, 5 Dec. 2018, https://kappanonline.org/reading-digital-age/.

3 FYILiving. "Why Does Writing Make Us Smarter?" *HuffPost*, HuffPost, 7 Dec. 2017, https://www.huffpost.com/entry/why-does-writing-make-us-_n_900638.

4 Rosenwald, Michael S. "Why Digital Natives Prefer Reading in Print. Yes, You Read That Right." *The Washington Post*, WP Company, 22 Feb. 2015, https://www.washingtonpost.com/local/why-digital-natives-prefer-reading-in-print-yes-you-read-that-right/2015/02/22/8596ca86-b871-11e4-9423-f3d0a1ec335c_story.html.

STUDENTS IN THE U.S. REPORT:[2]

85% multitask when reading **digitally**

only **26%** multitask when reading in **print**

When asked which platform contributes to their best success for reading (print, tablet, e-reader, phone, or computer), **92%** of students said they concentrated best when reading in…

PRINT!

Integration Tips! However, using technology is important for well-rounded growth. Here are two easy steps on how you may integrate your paper planner with technology!

1) In your digital calendar set alerts for events that you will be attending—games, work, family activities, etc. Also, note the time you set aside to do your homework. When you are alerted to do your homework, then you can refer to your Success by Design Student Planner.

2) Your Student Planner may have preprinted subjects, or you may be able to write in your specific subjects. In this paper planner you will have the space to write all the details and information you need to know in order to accomplish your assignments successfully and completely.

For example: Alert yourself digitally, "Do homework from 6–8 p.m.," and then in your planner have written, "Math, pages 76–77, numbers 1–10. Use the new formulas."

⚠️ **Stay Alert!** Texting, checking emails, browsing the internet, messaging, and scrolling social media have become ingrained within our everyday lives. This can be a great way for people to communicate and stay connected online—whether they are within the same household, or across the globe! However, with this amazing ability comes a hefty responsibility. Being connected can be a mix of positive—and sometimes negative outcomes. Learn how to balance online life safely!

📋 Constant updates on what friends and family are doing make it easy to compare our lives to others. Step away from time online when it's bringing you down. Turn notifications off to avoid constant updates.[2]

🧠 Phones, tablets, TVs, and computer screens give off blue light, which is similar to daylight. This confuses the body into a state of daytime alertness. Shut off your devices with plenty of time to unwind before bed, so you can get quality, uninterrupted sleep![3]

👤 Think before you post. **Once something is on the internet, it can be very difficult or impossible to remove completely.** Photos, videos, and words can be seen, shared, and saved by thousands of people, even if unintended.

🤳 While it's easy to stay in touch with your friends and family online, nothing beats in-person contact! Don't forget to set up times to hang out, talk, and do fun activities with your people—phones aside.

What effect does Social Media have on your life?

"A plurality of teens (45%) believe social media has neither a positive nor negative effect on people their age. Meanwhile, roughly three-in-ten teens (31%) say social media has had a mostly positive impact, while 24% describe its effect as mostly negative."[1]

TEEN BELIEFS ON SOCIAL MEDIA EFFECTS:

POSITIVE	NEUTRAL	NEG
31%	45%	24%

Sources:
1 Anderson, Monica, and Jingjing Jiang. "Teens, Social Media & Technology 2018." *Pew Research Center: Internet, Science & Tech*, Pew Research Center, 27 May 2021, https://www.pewresearch.org/internet/2018/05/31/teens-social-media-technology-2018/.

2 "Social Media & Teen Mental Health." *Wellness Every Day*, https://www.wellnesseveryday.org/child-and-teen-mental-health/social-media-teen-mental-health.

3 "How Screen Time May Cause Insomnia in Teens." *Sleep Foundation*, 5 Feb. 2021, https://www.sleepfoundation.org/teens-and-sleep/screen-time-and-insomnia-for-teens.

4 "Quick-Guide to Secure Passwords." *ConnectSafely*, 28 Sept. 2021, https://www.connectsafely.org/passwords/.

PRIVACY AND SECURITY

Passwords: Keeping your passwords secure is important.

✓ don't use the same password for multiple accounts
✓ avoid sharing your passwords
✓ create strong passwords by using more characters

Privacy Settings: Social media apps, web browsers, etc. have various settings you can adjust to maintain security.

✓ make your profile private when possible
✓ turn current location sharing settings off
✓ adjust settings to manually approve photos you are tagged in

Safety: Things are not always the way they seem in an online world. Be vigilant!

✓ If you suspect somebody has hacked your account, change your password or disable the account.
✓ Review the newsfeeds for all social media friend requests before you accept a request.

Password Tip ˅ Create a strong password by using numbers, symbols, and upper and lowercase letters. For example, create a phrase that you can remember, but is random to others, like Sharks24Blue!headphone$.[4]

CANADIAN CAPITALS
⊛ **Ottawa, Ontario – Canadian Capital**
AB Alberta – Edmonton
BC British Columbia – Victoria
MB Manitoba – Winnipeg
NB New Brunswick – Fredericton
NF Newfoundland – St. John's
NT Northwest Territories – Yellowknife
NU Nunavut – Iqaluit
NS Nova Scotia – Halifax
ON Ontario – Toronto
PE Prince Edward Island – Charlottetown
PQ Quebec – Quebec
SK Saskatchewan – Regina
YK Yukon – Whitehorse

MEXICO & CENTRAL AMERICA
Belize – Belmopan
Costa Rica – San José
El Salvador – San Salvador
Guatemala – Guatemala City
Honduras – Tegucigalpa
Mexico – Mexico City

Nicaragua – Managua
Panama – Panama City

CARIBBEAN
(Abbreviated List Based on Map Features)
Bahamas – Nassau
Cuba – Havana
Dominican Republic – Santo Domingo
Haiti – Port-au-Prince
Jamaica – Kingston

UNITED STATES CAPITALS
⊛ **Washington, D.C. – US Capital**
AL Alabama – Montgomery
AK Alaska – Juneau
AZ Arizona – Phoenix
AR Arkansas – Little Rock
CA California – Sacramento
CO Colorado – Denver
CT Connecticut – Hartford
DE Delaware – Dover
FL Florida – Tallahassee
GA Georgia – Atlanta
HI Hawaii – Honolulu
ID Idaho – Boise
IL Illinois – Springfield
IN Indiana – Indianapolis
IA Iowa – Des Moines
KS Kansas – Topeka
KY Kentucky – Frankfort
LA Louisiana – Baton Rouge
ME Maine – Augusta
MD Maryland – Annapolis
MA Massachusetts – Boston
MI Michigan – Lansing
MN Minnesota – St. Paul
MS Mississippi – Jackson
MO Missouri – Jefferson City
MT Montana – Helena
NE Nebraska – Lincoln
NV Nevada – Carson City
NH New Hampshire – Concord
NJ New Jersey – Trenton
NM New Mexico – Santa Fe
NY New York – Albany
NC North Carolina – Raleigh
ND North Dakota – Bismarck
OH Ohio – Columbus
OK Oklahoma – Oklahoma City
OR Oregon – Salem
PA Pennsylvania – Harrisburg
RI Rhode Island – Providence
SC South Carolina – Columbia
SD South Dakota – Pierre
TN Tennessee – Nashville
TX Texas – Austin
UT Utah – Salt Lake City
VT Vermont – Montpelier
VA Virginia – Richmond
WA Washington – Olympia
WV West Virginia – Charleston
WI Wisconsin – Madison
WY Wyoming – Cheyenne

U.S. TERRITORIES
AS American Samoa – Pago Pago⊛
GU Guam – Hagåtña⊛
PR Puerto Rico – San Juan
MP Northern Mariana Islands – Saipan⊛
VI Virgin Islands – Charlotte Amalie

⊛ *not featured on this map*

MAP KEY

- International Boundaries
- Disputed Boundaries
- De Facto Independent Boundaries
- Major Rivers

Europe Inset

THE PERIODIC TABLE OF ELEMENTS

Legend:
- METALLOIDS
- OTHER NONMETALS
- HALOGENS
- NOBLE GASES
- ALKALI METALS
- ALKALINE EARTH METALS
- LANTHANOIDS
- ACTINOIDS
- TRANSITION METALS
- POST-TRANSITION METALS

Key (example cell):
Atomic Number, Symbol, Element Name, Atomic Weight
1 — H — HYDROGEN — 1.00794

GROUP 1–18; PERIOD 1–7
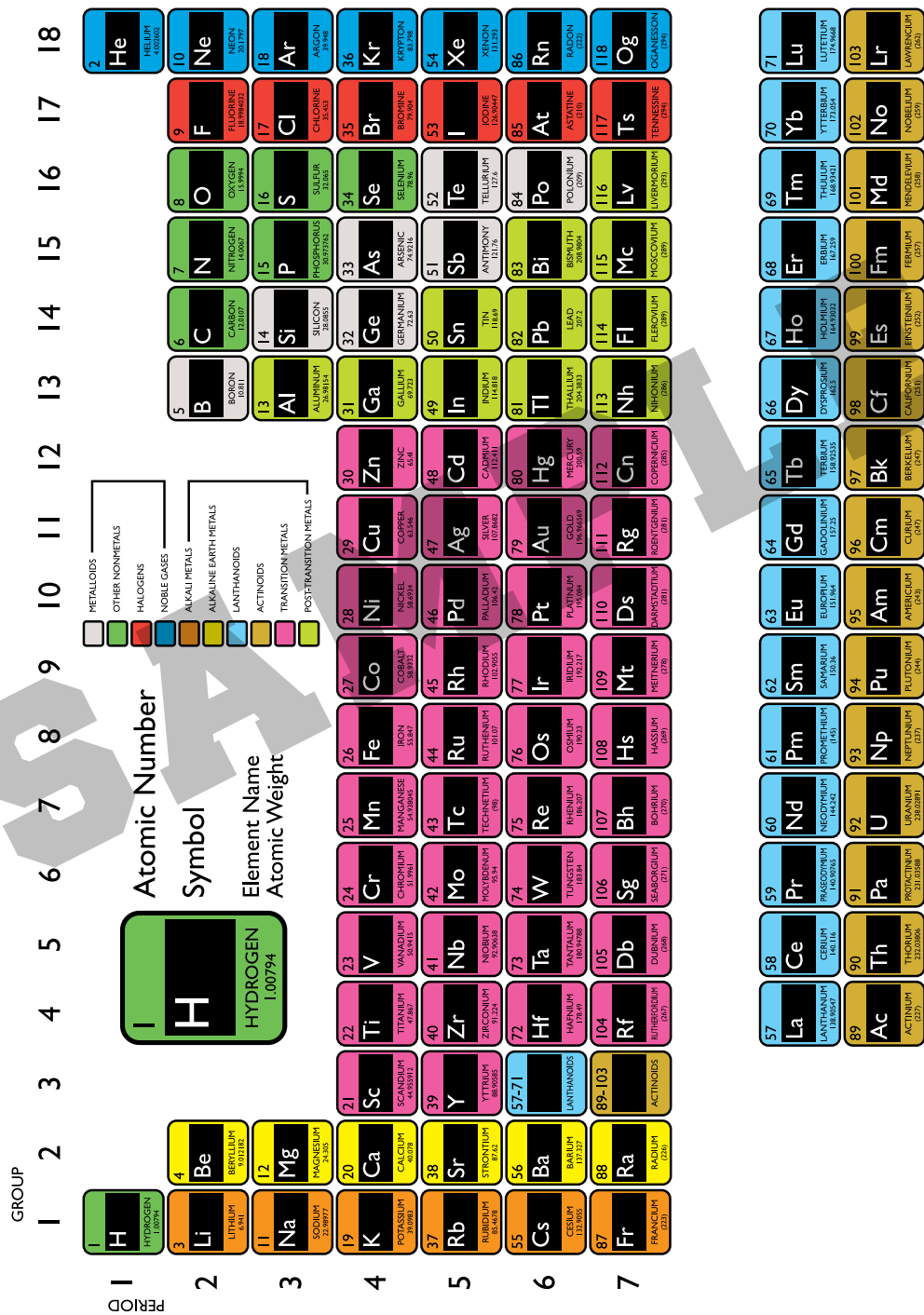
MEASUREMENTS OF ASTRONOMY

Measurement	Earth	Sun	Moon
Mass (m)	5.98×10^{24} kg	1.99×10^{30} kg	7.35×10^{22} kg
Radius (r)	6.37×10^{3} km	6.96×10^{5} km	1.74×10^{3} km
Average Density	5.52 g/cm^3	1.42 g/cm^3	3.34 g/cm^3

SPECIFIC HEAT OF COMMON MATERIALS IN: $\dfrac{J}{kg \cdot k}$

Water	= 4180	Aluminum	= 903	Copper	= 385
Alcohol	= 2450	Carbon	= 710	Brass	= 376
Ice	= 2060	Glass	= 664	Silver	= 235
Steam	= 2020	Iron	= 450	Lead	= 130

PHYSICS EQUATIONS

Acceleration $a = \dfrac{(vf - vi)}{t}$

vf is final velocity;
vi is initial velocity; t is time

Density $D = \dfrac{m}{v}$

m is mass; v is volume

Distance

$d = v \cdot t$

v is velocity; t is time

Distance

$d = vi \cdot t + \tfrac{1}{2} \cdot a \cdot t^2$

vi is initial velocity; t is time;
a is acceleration

Electric Current $I = \dfrac{Q}{t}$

Q is electric charge flowing;
t is time

Electrical Energy

$W = V \cdot I \cdot t$

V is voltage; I is current;
t is time

Electrical Force

$Fe = \dfrac{(k \cdot Q_1 \cdot Q_2)}{d^2}$

Q_1, Q_2 are electrical charges;
d is separation distance;
k is Coulomb's constant
$k = 9.0 \cdot 10^9 \; \dfrac{N \cdot m^2}{c^2}$

Electrical Potential Difference $V = \dfrac{W}{Q}$

V is volts; W is work done;
Q is electric charge moving

Force of Gravity

$Fg = G \dfrac{m_1 \cdot m_2}{r^2}$

G is universal gravitational
constant; m_1, m_2 are masses
of the two objects;
r is separation distance

Heat Energy

$H = c \cdot m \cdot \Delta T$

c is specific heat; m is mass;
ΔT is change in
temperature

Kinetic Energy

$K.E. = \tfrac{1}{2} \cdot m \cdot v^2$

m is mass; v is velocity

Momentum

$p = m \cdot v$

m is mass; v is velocity

Net Force

$F = m \cdot a$

m is mass; a is acceleration

Power $P = \dfrac{W}{t}$

W is work; t is time

Power

$P = V \cdot I$

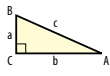V is voltage; I is current

Work

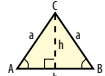$W = F \cdot d$

F is force; d is distance

AREA AND VOLUME

Right Triangle

$Area = \dfrac{ab}{2}$

Pythagorean Theorem: $a^2 + b^2 + c^2$

Isosceles Triangle

$Area = \dfrac{bh}{2}$

Pyramid

$Volume = \dfrac{\text{Are base} \times \text{height}}{3}$

$Area = \dfrac{\text{Base perimeter} \times \text{slant height}}{2} + \text{area base}$
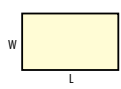
Square
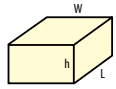
$Area = s^2$
$Perimeter = 4s$

Cube

$Volume = s^3$
$d = (1.732)s$

Rectangle

$Area = LW$
$Perimeter = 2L + 2W$

Rectangular Solid

$Surface\ Area = 2(WL + Lh + Wh)$
$Volume = L \times W \times h$

Circle

$Area = \pi r^2$
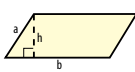$Perimeter = 2\pi r$

Sphere

$Area = 4\pi r^2$
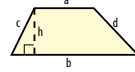$Volume = \dfrac{4\pi r^3}{3}$

Right Circular Cylinder

$Area = \pi r^2 h$
$Total\ Surface\ Area = 2\pi rh + 2\pi r^2$

Parallelogram

$Area = bh$
$Perimeter = 2a + 2b$

Trapezoid

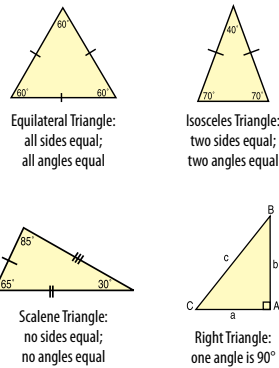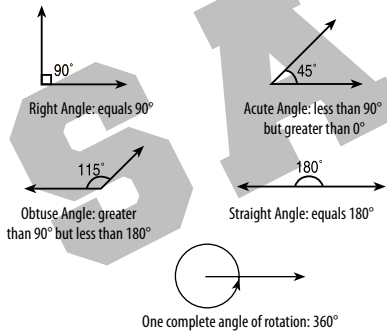$Area = \dfrac{h(a+b)}{2}$
$Perimeter = a + b + c + d$

Rhombus

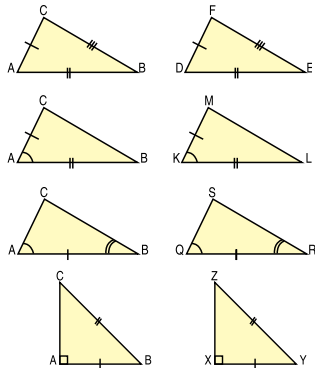$Area = \dfrac{Dd}{2}$
$Perimeter = 4c$

Right Circular Cone

$Volume = \dfrac{\pi r^2 h}{3}$
$Surface\ Area = \pi r^2 + \pi rs$

ANGLES AND TRIANGLES

Right Angle: equals 90° — $90°$

Acute Angle: less than 90° but greater than 0° — $45°$

Obtuse Angle: greater than 90° but less than 180° — $115°$

Straight Angle: equals 180° — $180°$

One complete angle of rotation: 360°

Complementary Angles: two angles add up to 90°

Supplementary Angles: two angles add up to 180°

Equilateral Triangle: all sides equal; all angles equal — $60°$, $60°$, $60°$

Isosceles Triangle: two sides equal; two angles equal — $40°$, $70°$, $70°$

Scalene Triangle: no sides equal; no angles equal — $85°$, $65°$, $30°$
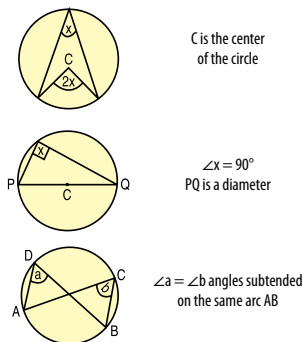
Right Triangle: one angle is 90°

CONGRUENCY CASES

S.S.S. (Side, Side, Side):
$\triangle ABC \cong \triangle DEF$

S.A.S. (Side, Angle, Side):
$\triangle ABC \cong \triangle KLM$

A.S.A. (Angle, Side, Angle):
$\triangle ABC \cong \triangle QRS$

H.S. (Hypotenuse, Side):
$\triangle ABC \cong \triangle XYZ$

CIRCLE THEOREMS

C is the center of the circle — $2x$

$\angle x = 90°$
PQ is a diameter

$\angle a = \angle b$ angles subtended on the same arc AB

FRACTIONS

Numerator (Top Number) $= \dfrac{5}{8}$
Denominator (Bottom Number)

Addition / Subtraction:
find common denominators

$\dfrac{1}{5} {\scriptstyle(\times 2)} = \dfrac{2}{10}$
$\dfrac{1}{2} {\scriptstyle(\times 2)} = \dfrac{5}{10}$
$+ \dfrac{}{} {\scriptstyle(\times 2)} = \dfrac{}{10}$
$= \dfrac{7}{10}$

Multiplication: multiply straight across

$\dfrac{1}{5} \times \dfrac{3}{4} = \dfrac{1 \times 3}{5 \times 4} = \dfrac{3}{20}$

Division: multiply the first fraction by the reciprocal of the second fraction

$\dfrac{1}{5} \div \dfrac{3}{4} = \dfrac{1}{5} \times \dfrac{4}{3} = \dfrac{4}{15}$

Changing Fractions to Decimals:
change the denominator to a power of 10

$\dfrac{4}{5} {\scriptstyle(\times 2)} = \dfrac{8}{10} = .8$

Or divide by the denominator:

$\dfrac{4}{5} = 4 \div 5 = .8$

ALGEBRA

Expanding • example:

$a(b+c) = ab + ac$
$(a-b)^2 = a^2 - 2ab + b^2$

$(a+b)^2 = a^2 + 2ab + b^2$
$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$

$(a+b)(c+d) = ac + ad + bc + bd$
$(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$

Factoring • example:

$a^2 - b^2 = (a+b)(a-b)$
$a^3b - ab = ab(a+1)(a-1)$

$a^2 + 2ab + b^2 = (a+b)^2$
$a^2 - 2ab + b^2 = (a-b)^2$

$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$
$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$

Roots of a Quadratic • example:

The solution for a quadratic equation $ax^2 + bx + c = 0$ is given by the quadratic formula

$$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Law of Exponents: If $a, b \in R$, $a, b \geq 0$, and p, q, r, s are $\in Q$, then:

1. $a^r a^s = a^{r+s}$
2. $a^r/a^s = a^{r-s}$
$\left. \right\}$ $\dfrac{a^p a^q}{a^r} = a^{p+q-r}$

3. $(a^r)^s = a^{rs}$
4. $(ab)^r = a^r b^r$

5. $(a/b)^r = a^r/b^r\ (b \neq 0)$
6. $a^0 = 1\ (a \neq 0)$

7. $a^{-r} = 1/a^r\ (a \neq 0)$
8. $a^{r/s} = \sqrt[s]{a^r} = (\sqrt[s]{a})^r$

$a^{1/2} = \sqrt{a}$
$a^{1/3} = \sqrt[3]{a}$

Logarithms • example:

$Log\ x^r = r\ Log\ x$
$Log\ (xy) = Log\ x + Log\ y$
$Log\ (x/y) = Log\ x - Log\ y$

$Log\ x = n \leftrightarrow x = 10^n$ (common log)
$Log_a x = n \leftrightarrow x = a^n$ (log to the base a)
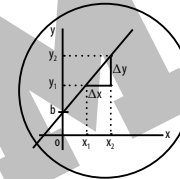$Ln\ x = n \leftrightarrow x = e^n$ (natural log)

$\pi \approx 3.14159265$
$e \approx 2.71828183$
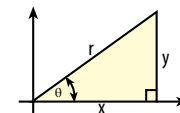
TRIGONOMETRY

SLOPES

Equation of a straight line

$y - y_1 = m(x - x_1)$
where $m = slope = \dfrac{rise}{run} = \dfrac{\Delta y}{\Delta x} = \dfrac{y_2 - y_1}{x_2 - x_1}$
or
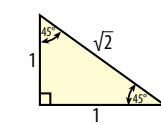$y = mx + b$
where $m = slope$, $b = y\text{-intercept}$

TRIGONOMETRIC RATIOS

$\sin\theta = \dfrac{y}{r}$ (opposite/hypotenuse) $= 1/\csc\theta$

$\cos\theta = \dfrac{x}{r}$ (adjacent/hypotenuse) $= 1/\sec\theta$

$\tan\theta = \dfrac{y}{x}$ (opposite/adjacent) $= 1/\cot\theta$

$\tan\theta = {}^{\sin\theta}/_{\cos\theta}$
$\sin^2\theta + \cos^2\theta = 1$
$1 + \tan^2\theta = \sec^2\theta$

$1 + \cot^2\theta = \csc^2\theta$
$\cos^2\theta - \sin^2\theta = \cos^2\theta$

$\sin 45° = \dfrac{1}{\sqrt{2}}$
$\cos 45° = \dfrac{1}{\sqrt{2}}$
$\tan 45° = 1$
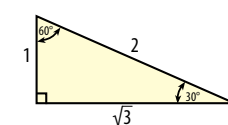
$\sin 30° = \dfrac{1}{2}$
$\cos 30° = \dfrac{\sqrt{3}}{2}$
$\tan 30° = \dfrac{1}{\sqrt{3}}$

$\sin 60° = \dfrac{\sqrt{3}}{2}$
$\cos 60° = \dfrac{1}{2}$
$\tan 60° = \sqrt{3}$

$\sin(A+B) = \sin A \cos B + \cos A \sin B$
$\sin(A-B) = \sin A \cos B - \cos A \sin B$

$\cos(A+B) = \cos A \cos B - \sin A \sin B$
$\cos(A-B) = \cos A \cos B + \sin A \sin B$

$\tan(A+B) = \dfrac{\tan A + \tan B}{1 - \tan A \tan B}$
$\tan(A-B) = \dfrac{\tan A - \tan B}{1 + \tan A \tan B}$

CAST

Quad II sin+	Quad I all ratios+
Quad III tan+	Quad IV cos+
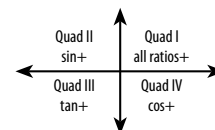
COSINE LAW

$a^2 = b^2 + c^2 - 2bc \cos A$
$b^2 = a^2 + c^2 - 2ac \cos B$
$c^2 = a^2 + b^2 - 2ab \cos C$
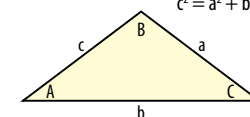
VALUE OF TRIG RATIO

θ	0	$\pi/2$	π	$3\pi/2$	2π
$\sin\theta$	0	1	0	−1	0
$\cos\theta$	1	0	−1	0	1
$\tan\theta$	0	∞	0	$-\infty$	0

$\theta = 1$ radian
2π radians $= 360°$

∞ undefined (infinite)

SINE LAW

$\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$
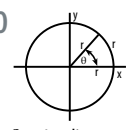
METRIC UNITS

TIME

60 seconds	=	1 minute
60 minutes	=	1 hour
24 hours	=	1 day
7 days	=	1 week
30 days	=	1 month
12 months	=	1 year
365 days	=	1 year
366 days	=	1 leap year
100 years	=	1 century

LINEAR MEASURE

1 millimeter (mm)	=	.001 m
1 centimeter (cm)	=	10 mm
1 centimeter (cm)	=	.01 m
1 decimeter (dm)	=	.1 m
1 meter (m)	=	100 cm
1 decameter (dkm)	=	10 m
1 hectometer (hm)	=	100 m
1 kilometer (km)	=	1,000 m

CAPACITY

1 liter (l)	=	1,000 ml
1 milliliter (ml)	=	.001 l
1 centiliter (cl)	=	.01 l
1 deciliter (dl)	=	.1 l
1 decaliter (dkl)	=	10 l
1 hectoliter (hl)	=	100 l
1 kiloliter (kl)	=	1,000 l

WEIGHT

1 gram (g)	=	1,000 mg
1 milligram (mg)	=	.001 g
1 centigram (cg)	=	.01 g
1 decigram (dg)	=	.1 g
1 decagram (dkg)	=	10 g
1 hectogram (hg)	=	100 g
1 kilogram (kg)	=	1,000 g

STANDARD UNITS

LINEAR MEASURE

1 foot (ft.)	=	12 inches
1 yard (yd.)	=	36 inches
1 yard (yd.)	=	3 feet
1 rod	=	16 ½ feet
1 furlong	=	660 feet
1 mile (mi.)	=	320 rods
1 mile (mi.)	=	5,280 feet

AREA

1 sq. foot (ft.^{2})	=	144 in.^{2}
1 sq. yard (yd.^{2})	=	9 ft.^{2}
1 sq. rod (rod^2)	=	30.25 yd.^{2}
1 acre	=	43,560 ft.^{2}
1 acre	=	4,840 yd.^{2}
1 acre	=	60 rods^2
1 sq. mile	=	640 acres

STANDARD UNITS (CONT.)

VOLUME

1 cubic foot (ft.^{3})	=	1,728 in.^{3}
1 cubic yard (yd.^{3})	=	27 ft.^{3}

CAPACITY - DRY MEASURE

1 quart (qt.)	=	2 pints (pt.)
1 peck (pk.)	=	8 quarts
1 bushel (bu.)	=	4 pecks
128 cu. ft.	=	1 cord

CAPACITY - LIQUID MEASURE

1 tablespoon (T)	=	3 teaspoons (t)
1 cup (c)	=	16 tablespoons
1 pint (pt)	=	2 cups
1 pint	=	4 gills (gi.)
1 quart (qt.)	=	2 pints
1 gallon (gal.)	=	4 quarts
1 U.S. liquid barrel (bbl.)	=	31 ½ gallons
1 U.S. oil barrel (bbl.)	=	42 gallons
1 hogshead (hhd.)	=	2 barrels

WEIGHT (AVOIRDUPOIS)

1 dram (dr)	=	1/16 oz
1 ounce (oz)	=	16 dr
1 pound (lb)	=	16 oz
1 stone	=	14 lb
1 quarter (qtr)	=	2 stones, 28 lb
1 quintal	=	100 lb
1 ton	=	2,000 lb
1 tonne (long ton)	=	2,240 lb

CONVERSIONS

LINEAR MEASURE

1 inch	=	25.4 mm
1 inch	=	2.54 cm
1 foot	=	30.48 cm
1 yard	=	91.44 cm
1 yard	=	.9144 m
1 mile	=	1,609 m
1 mile	=	1.609 km

AREA

1 sq. foot (ft.^{2})	=	.0929 m^2
1 sq. yard (yd.^{2})	=	.8361 m^2
1 sq. rod (rod^2)	=	25.29 m^2
1 acre	=	4,046.72 m^2
1 sq. mile	=	2.59 km^2

VOLUME

1 cubic cm (cm^3)	=	.061 in.^{3}
1 cubic inch (in.^{3})	=	16.39 cm^3
1 cubic foot (ft.^{3})	=	.0283 m^3
1 cubic meter (m^3)	=	1.308 yd.^{3}
1 cubic yard (yd.^{3})	=	.7646 m^3

EQUATIONS

LINEAR MEASURE

centimeters $\times$ .3937	=	inches
inches $\times$ 2.54	=	cm
meters $\times$ 3.2808	=	feet
feet $\times$ .3048	=	meters
kilometers $\times$ .6214	=	miles
miles $\times$ 1.609	=	kilometers

AREA

m^2 $\times$ 10.76	=	ft.^{2}
ft.^{2} $\times$ .0929	=	m^2
km^2 $\times$ .3861	=	mi^2
mi^2 $\times$ 2.59	=	km^2

WEIGHT

grams $\times$ .0353	=	ounces
ounces $\times$ 28.35	=	grams
kilograms $\times$ 2.2	=	pounds
pounds $\times$ .4536	=	kilograms

CAPACITY

milliliters $\times$ .0338	=	fl ounces
fl ounces $\times$ 29.575	=	ml
liters $\times$ .2642	=	gallons
gallons $\times$ 3.785	=	liters

TEMPERATURE

$°C \times 1.8 + 32$	=	°F
$(°F - 32) \times .555$	=	°C

FRACTIONS & PERCENTAGES

1	=	1.0	=	100%
¾	=	.75	=	75%
⅔	=	.667	=	66.7%
½	=	.5	=	50%
⅓	=	.333	=	33.3%
¼	=	.25	=	25%
⅕	=	.2	=	20%
⅙	=	.167	=	16.7%
1/7	=	.143	=	14.3%
⅛	=	.125	=	12.5%
⅑	=	.111	=	11.1%
1/10	=	.1	=	10%
1/11	=	.091	=	9.1%
1/12	=	.083	=	8.3%

THE WRITING PROCESS

Writing involves a number of processes, each of which builds on the step before it. Here are the seven steps of the writing process. There are specific strategies to be implemented at each step.

1. **Pre-Writing:** Writers need a background of material from which to draw words, thoughts, and ideas before they can write. Pre-writing is a brainstorming stage that can be activated through strategies such as semantic webs, word banks, and brainstorming.

2. **First-Draft Writing:** Writers determine a purpose and style of writing to give them a direction for their work. One should write freely without undue concern for spelling or grammatical errors at this stage. The focus should be on writing ideas in a logical manner.

3. **Response:** During this step, the writer is given both verbal and non-verbal feedback to his/her writing from a partner, small group, teacher, or parent. Response provides the writer with information to help him/her clarify ideas and allows for the recognition of strengths in his/her writing.

4. **Revision:** Writers make their work better through revision by adding detail, descriptive words or phrases, and possibly changing sentence order for variety or clarification.

5. **Editing and Rewriting:** In this stage, mechanical errors are corrected. Written works are edited by the writer before rewriting begins. Grammar skills development can be incorporated within this step.

6. **Evaluation:** This step gives the reader a chance to provide feedback to the writer. To make it a maximum growth process, vary the evaluators and the criteria.

7. **Publishing:** Publishing is a way to showcase the author's completed work. Making class books or displaying writing are just two of many publishing activities.

DELIVERING A MEMORABLE SPEECH

Do your knees get weak at the thought of delivering a speech in front of others? Taking the following guidelines into consideration may help you go from being apprehensive to confident when it's time to give that next public speech.

- **Know the room.** Be familiar with the place in which you will speak. Arrive early, walk around the speaking area, and practice using the microphone and any visual aids.

- **Know the audience.** Greet some of the audience members as they arrive. It's easier to speak to a group of friends than to a group of strangers.

- **Know your material.** Practice your speech, and revise it if necessary. If you're not familiar with your material or are uncomfortable with it, your nervousness will increase.

- **Relax.** Ease tension by doing exercises.

- **Visualize yourself giving your speech.** Imagine yourself speaking, your voice loud, clear, and assured. When you visualize yourself as successful, you will be successful.

- **Realize people want you to succeed.** They don't want you to fail. Audiences want you to be interesting, stimulating, informative, and entertaining.

- **Don't apologize.** If you mention your nervousness or apologize for any problems you think you have with your speech, you may be calling the audience's attention to something they hadn't noticed. Keep silent.

- **Concentrate on the message** – not the medium. Focus your attention away from your own anxieties and outwardly toward your message and audience. Your nervousness will dissipate.

- **Turn nervousness into positive energy.** Harness your nervous energy, and transform it into vitality and enthusiasm.

Source: www.iss.stthomas.edu/studyguides/

FIGURATIVE LANGUAGE

Simile: A simile is a comparison between unlike things using the words "like" or "as."

Examples: He was motionless like a statue.
She was quiet as a mouse.

Hyperbole: A hyperbole is an extended exaggeration.

Example: I have a ton of questions to ask.

Metaphor: A metaphor is a comparison between unlike things in which one thing becomes another.

Example: Her eyes were sparkling diamonds.

Personification: Personification is attributing human characteristics to an inanimate object or animal.

Example: The fox begged the hunters to chase him.

PARAGRAPH WRITING

1. Write a topic sentence—The topic sentence tells the main idea of your paragraph.
2. List supporting ideas.
3. Make a rough outline—Eliminate irrelevant items.
4. Write the paragraph.
5. Add the clincher—A clincher sums up the paragraph.
6. Revise and edit—Make sure the sentences flow in an organized fashion.
7. Proofread—Read and correct grammar, spelling, etc.
8. Write the final copy.

GRAMMAR AND USAGE ERRORS

Sentence Fragment: A group of words, either short or long, which does not give a complete thought.

Example: Incorrect—A blue convertible.
Correct—The new car is a blue convertible.

Possessive Nouns: Nouns which show ownership, connection, or possession.

Examples: Tom's book, the band's music, Tanya's mother.

Remember these rules when forming the possessive of common nouns:

1) If the noun does not end in an "s," add an 's.
Example: dog becomes dog's.

2) If the noun is plural and ends in an "s," add an apostrophe.
Example: cars becomes cars'

Misplaced Modifier: The incorrect placement of a word or group of words in a sentence which indicates that it modifies one word, when it is supposed to modify another.

Example: Incorrect—I saw the piano walking into the room.
Correct—Walking into the room, I saw the piano.

Run-on Sentence: Two or more complete sentences written as one, often separated by only a comma.

Example: Incorrect—The time ran out quickly, we did not finish the test.
Correct—The time ran out quickly. We did not finish the test.

Tense Shift: Changing or mixing verb tenses in sentences or paragraphs.

Example: Incorrect—Tom bought the book and reads it quickly.
Correct—Tom bought the book and read it quickly.

Active, Passive Voice:
Active Voice—The subject of a sentence is performing the verb's action.

Example: He reads all the new novels.

Passive Voice—The subject of the sentence receives the action of the verb.

Example: All the new novels are read by him.

The active voice is easier to understand and most often preferred.

Parallel Structure: Writing which uses words, phrases, clauses, and sentences in the same grammatical form.

Example: Incorrect—I enjoy swimming, walking by the pier and also to eat ice cream at the beach.
Correct—I enjoy swimming, walking by the pier and eating ice cream at the beach.

WORDS OFTEN CONFUSED

accept: accept a gift
except: every day except today

advice: listen to good advice
advise: Counselors advise students.

affect: His speech affected the listeners
effect: the effect of the sun

already: He already ate.
all ready: He was all ready to leave.

altar: church's altar
alter: alter the clothes; alter the report

angel: angel in heaven
angle: a right angle

breath: out of breath
breathe: breathe fresh air

capital: nation's capital; a capital idea
capitol: a capitol building

cite: to cite a source
site: a building site
sight: a terrible sight to see

clothes: to wear clothes
cloths: cloths for cleaning

coarse: a coarse fabric; coarse language
course: a race course; a history course

complement: An attractive tie complements the suit.
compliment: He complimented her attitude.

counsel: The teacher gave the student good counsel.
council: The council voted against the action.

desert: a dry, hot desert
dessert: pie for dessert

forth: go forth into the crowd
fourth: fourth in line

hoping: hoping for a good grade
hopping: a hopping rabbit

its: the color of its eyes
It's: It's cloudy outside.

loose: a loose connection; loose clothing
lose: lose a toy

mantel: the fireplace mantel
mantle: (cape or cloak) He put on the mantle.

passed: passed a test; passed a car
past: lived in the past; past errors

peace: live in peace
piece: piece of cake

precede: The National Anthem precedes the game.
proceed: Proceed with your report.

principal: the principal reason; a school's principal
principle: the principle of good manners

quiet: the quiet night
quite: quite handsome

right: the right direction
rite: the rites of passage
write: write a letter

shone: The sun shone on the valley.
shown: He was shown the evidence.

sole: the sole survivor
soul: body, soul, and spirit

stationary: a stationary object
stationery: correspondence written on stationery

steal: to steal money
steel: a bridge made of steel

than: bigger than a bread box
then: We ate lunch, and then it was time for lunch.

there: over there
their: their house
they're: They're not here.

to: to the car; to cheer
too: I want some too; too often
two: two soft drinks

troop: Boy Scout troop
troupe: a theatrical troupe

wander: He wandered aimlessly.
wonder: I wonder what happened.

weak: weak from starvation
week: a week from today

weather: hot, humid weather
whether: It doesn't matter whether we go or stay.

who's: Who's at the door?
whose: Whose house is this?

your: Your feet are dirty.
you're: You're angry.

WORDS OFTEN MISSPELLED

accidentally	choose	eminent	inadvertent	memento	receive	supersede
accommodate	chose	exceed	incidentally	millennium	recommend	their
achievement	compelled	existence	independent	noticeable	repetition	tomorrow
acquitted	congratulations	exhilarate	indispensable	occasion	seize	tyranny
a lot	consensus	experience	insistent	occurrence	separate	weird
anoint	coolly	fiery	irresistible	performance	sergeant	yield
beneficial	definitely	foreign	irritable	permissible	severely	
benefited	despair	grandeur	judgment	perseverance	specifically	
broccoli	desperate	harass	liaison	privilege	subpoena	
cemetery	development	height	judgment	professor	succeed	
changeable	embarrassment	immediately	loneliness	pursue	succession	

MANAGING YOUR TIME

If you're like most people, it probably never seems you have enough time in a day to complete all of your tasks. Below are several tips to help you make the most of the time you do have.

Guidelines for Time Management…

- Monitor your time.
- Reflect on how you spend your time.
- Be aware of when you are wasting your time.
- Know when you are most productive.

Organizing Your Time…

- Have a "To Do" list. Write down things you have to do, then decide what to do at the moment, what to schedule for later, and what to get someone else to do.
- Use your STEM Student Planner™ on a daily basis. Write down appointments, classes, and homework assignments in this planner. Always know what's ahead for the day, and go to sleep knowing you're prepared for tomorrow.
- Make good use of this school agenda as a long-term planner. Use the two-page calendar section located at the beginning of each month to plan ahead. Long-term planning also serves to remind you to plan your free time constructively.

Planning for an Effective Study Schedule…

- Allow sufficient time for sleep, a well-balanced diet, and leisure activities.
- Prioritize assignments.
- Prepare for discussion/recitation sessions before class.
- Schedule time to go over lecture material immediately after class. Remember: the chance of forgetting important information is greatest within 24 hours without review.
- Schedule 50-minute blocks of study.
- Choose a place free from distractions to study.
- Plan to use "dead time."
- Schedule as much study time as possible during daylight hours.
- Schedule a weekly review.
- Be careful not to become a slave to your schedule.

EFFECTIVE HABITS FOR EFFECTIVE STUDY

You can prepare yourself to succeed in your studies. Try to develop and appreciate the following habits:

- Take responsibility for yourself. Realize that in order to succeed you must make decisions about your priorities, time, and resources.
- Center yourself around your values and principles. Don't let friends and acquaintances dictate what you consider important.
- Put first things first. Follow up on the priorities you have set for yourself, and don't let others, or other interests, distract you from your goals.
- Discover your key productivity periods and places. Are you most attentive in the morning, afternoon, or evening? Study in spaces where you can be the most focused and productive.

- First understand others, then attempt to be understood. When you have an issue with an instructor—a questionable grade or an assignment deadline extension, for example—put yourself in the instructor's place. Now ask yourself how you can best make your argument given his/her situation.
- Look for better solutions to problems. If you don't understand the course material, for example, don't just reread the material. Try something else. Consult with your teacher, a tutor, classmate, study group, or your school's study skills center.
- Look to continually challenge yourself.

MAKING YOUR VOICE HEARD

Don't be afraid to voice your opinion at the appropriate time in classroom discussions, even if you think differently than your teacher or classmates. Your opinion can and should be based on the text, other readings, class discussions, library sources, experts on the topic, and your own experiences. Following are some ideas to help you contribute to the discussion of ideas in your classroom.

- Listen carefully to what teachers or other students are saying.
- Mark or make notes of the points you wish to answer, discuss, or question. Remember: a question is as valuable as an opinion in the course of discussion. It shows you are trying to understand others, as well as be understood.
- Introduce your contribution with a quick summary of the discussion or point: "As I understand it…" Restating the discussion or author's main idea also shows you are trying to understand. It is very likely if you have questions or information, others will share them.
- Be certain it is clear to the class and teacher when you are summarizing and when you are giving your opinion.

- Try to keep your comments to the point, and don't hesitate to refer to your notes. Logic is not a speed test.
- In making an argument, begin with examples from the author or teacher (imitation can be a form of flattery), but generally use your own examples to show your agreement with his or her point of view. This demonstrates independent thinking, which should be valued in an academic setting.
- After you have spoken, it is appropriate to ask for feedback if others understand what you have said or agree/disagree with you. Demonstrate openness and dialogue; you should score points with your teacher!

DEALING WITH STRESS

Stress can take a mental, social, and physical toll on a person. Symptoms of stress include exhaustion, loss of or increased appetite, headaches, crying, sleeplessness, and oversleeping. Escape through alcohol, drugs, and other compulsive behavior are often indications. Feelings of alarm, frustration, or apathy may accompany stress. Stress management is the ability to maintain control when situations, people, and events make excessive demands. What can you do to manage your stress? What are some strategies?

- Look around. See if there really is something you can change or control in the situation.
- Learn how to best relax yourself. Meditation and breathing exercises have been proven to be very effective in controlling stress. Practice clearing your mind of disturbing thoughts.
- Remove yourself from the stressful situation. Give yourself a break if only for a few moments daily.
- Set realistic goals for yourself. Reduce the number of events going on in your life, and you should also reduce your feeling of being overwhelmed.
- Don't overwhelm yourself by fretting about your entire workload. Handle each task as it comes, or selectively deal with matters in some priority.
- Selectively change the way you react, but not too much at one time. Focus on one problem, and manage your reactions to it/him/her.
- Change the way you see things. Learn to recognize stress for what it is. Increase your body's feedback, and make stress self-regulating.

- Avoid extreme reactions. Why generate anxiety when you can be nervous? Why rage when anger will do the job? Why be depressed when you can just be sad?
- Do something for others to help get your mind off yourself.
- Get enough sleep. Lack of rest just aggravates stress.
- Work off stress with physical activity.
- Avoid self-medication or escape. Alcohol and drugs can mask stress. They don't help deal with the problems.
- Develop a thick skin. The bottom line of stress management is, "I upset myself."
- Try to "use" stress. If you can't fight what's bothering you and you can't flee from it, flow with it, and try to use it in a productive way.
- Try to be positive. Give yourself messages as to how well you can cope rather than how horrible everything is going to be.
- Most importantly, if stress is putting you in an unmanageable state or interfering with your schoolwork, social, and/or work life, seek professional help at your school counseling center.

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COURSE: **GOAL:**

INSTRUCTOR/TA:

DATE	PROJECT/TEST/ASSIGNMENT	GOAL/AVG.	GRADE

FINAL GRADE: **CREDITS EARNED:**

COURSE: **GOAL:**

INSTRUCTOR/TA:

DATE	PROJECT/TEST/ASSIGNMENT	GOAL/AVG.	GRADE

FINAL GRADE: **CREDITS EARNED:**

COURSE: **GOAL:**

INSTRUCTOR/TA:

DATE	PROJECT/TEST/ASSIGNMENT	GOAL/AVG.	GRADE

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DATE	PROJECT/TEST/ASSIGNMENT	GOAL/AVG.	GRADE

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