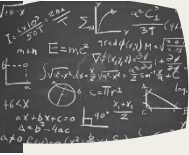


▶ Mechanical engineering is the #1 major chosen by students who want to pursue a career in STEM.



▶ During the next decade, the United States demand for scientists and engineers is expected to increase at four times the rate for all other occupations.



▶ Only 44% of high school grads are ready for college level Math course. Only 36% are ready for college level Science

# J A Stem focus

HELPING OUR JUMOKE ACADEMY STUDENTS AND FAMILIES SUCCEED IN THE COMPLEX WORLD OF THE 21<sup>ST</sup> CENTURY

*You see the words everywhere today – STEM or STE(A)M. But what do they mean? How are they any different than traditional teaching/learning Science, Technology, Engineering, Arts or Math?*

## What is STE(A)M? Why is it important?

STEM stands for Science, Technology, Engineering, and Mathematics. (Sometimes Arts are added) STEM/STE(A)M is important because it pervades every part of our lives. Science is everywhere in the modern world around us. Technology is continuously expanding into every aspect of our lives. Engineering is the basic design of roads and bridges, but also tackles the challenges of changing global weather and environmentally-friendly changes to our home. Mathematics is in every occupation, every activity we do in our lives. By exposing students to STEM and giving them opportunities to explore STEM-related concepts and they will

develop an interest in it and hopefully pursue a job in a STEM field. A curriculum that is STEM-based has real-life problem solving situations to help the student learn. At JAH SMaRT we are beginning the work of creating lessons that integrate multiple classes to provide opportunities to see how concepts relate to life in order to hopefully spark a passion for a future career in a STEM field. STEM activities provide hands-on and minds-on lessons for the student. Making math and science both fun and interesting helps the student to do much more than just learn.

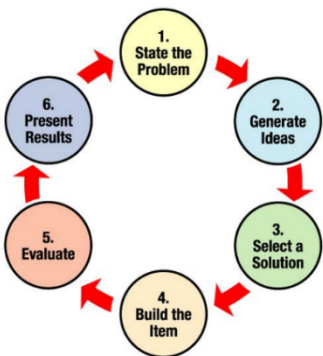


*Seventh Grade students at JAH SMaRT working collaboratively on a STEM focused activity*

STEM education helps to bridge the ethnic and gender gaps often found in math and science fields. To help narrow this gap lessons are being taught to help develop an awareness, skills and comfort with these subjects. The objective is to increase the roles of women and people of color in STEM-related fields. STEM education breaks the traditional gender/racial stereotypes. In order to compete in a global economy, STEM education and careers must be a priority. By learning STEM skills and knowledge our scholars will not only understand the implications for today but will be prepared for the careers of the world of tomorrow.

## Engineering Design Process (EDP)

One of the key aspects of STE(A)M education is an understanding of something called the Engineering Design Process (EDP). The EDP is a series of steps that engineering teams use to guide them as they solve problems. To determine how to create something (skyscraper, amusement park ride, bicycle, or music player), engineers 1) gather information and conduct research to understand the needs of the challenge. Then they 2) brainstorm many imaginative possible solutions. They 3) select the most promising idea and begin a design that includes drawings, and analytical decisions on the materials and construction, manufacturing and fabrication technologies to use. They 4) create and test many prototypes, 5) and evaluate their success making improvements where needed until 6) the product design is good enough to meet their needs and the final results are presented.





# Six Excellent Family Movies That Focus on STEM thinking

*These movies are not only family friendly the heros succeed through the power of STEM*



As the cool weather approaches your family may spend more time inside looking for a movie that's entertaining yet informative to watch together.

This list of six STEM movie recommendations are available online or on DVD

**1) The Lego Movie** – This hilarious adventure tale appeals to the problem solver and builder in all of us. Creative solutions abound!

**2) Big Hero 6** – In this Disney adaptation a 14 year old inventor creates special microbots, He then joins a

group of student heros who use their science strengths to overcome a devious techno-villain.

**4) Dream Big;Engineering Our World** - Meet the next generation of dreamers

who will shape our future. This documentary highlights engineers many of whom are women and people of color, and the amazing projects they are designing.

**4) Hidden Figures (PG)** – This inspiring true story about African American women at NASA shines the light on

the need for humans even as technology continues to advance into space.

**5) Underwater Dreams** – Full of feel good STEM inspiration this documentary film about a group of lower

income teens who

enter a robotics

competition

and end up beating

some big name college

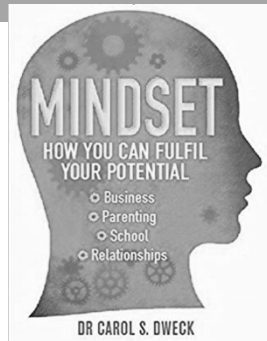
robotics teams.

**6) The Martian (PG-13)**

This science fiction thriller, follows an astronaut who is stuck on Mars and has to problem solve his way to survival. It is based upon real scientific principles, originally a best selling book.

## MINDSET TIP:

### Praise the Effort



DR CAROL S. DWECK

Carol Dweck's book **MINDSET**. Highlights a variety of research on the importance of developing a "growth mindset" in young people.

**Mindset Tip** – Comment on your child's effort and not just on their successes. By praising effort we highlight their ability to "work through obstacles and challenges" to succeed at long term goals .

## STEM WORD SEARCH

Find each of the Science, Technology, Engineering and Math (STEM) words in the word search below. Circle the word when you find it and check it off the list. Can you find all of the words in less than five minutes?

N	A	N	O	B	O	T	S	P	F	U	T	U	R	E
S	C	H	O	L	A	R	S	B	D	B	D	U	S	H
C	F	A	C	A	D	E	M	Y	E	I	E	R	B	D
P	O	E	F	F	O	R	T	F	N	O	S	W	X	V
E	R	L	D	M	S	S	C	F	G	E	I	A	J	G
R	Y	I	L	O	Q	R	R	J	I	N	G	E	R	T
S	P	J	B	E	U	A	E	Q	N	G	N	R	R	E
I	I	E	J	U	G	E	A	J	E	I	V	O	O	C
S	F	A	U	Y	P	E	T	S	E	N	O	S	B	H
T	W	H	M	N	N	G	I	C	R	E	H	P	O	N
E	Y	V	O	N	W	H	V	I	I	E	L	A	T	O
N	W	K	K	L	R	H	I	E	N	R	I	C	S	L
C	S	U	E	B	S	P	T	N	G	I	J	E	Q	O
E	M	A	T	H	C	H	Y	C	I	N	B	V	I	G
G	W	U	P	E	O	P	L	E	X	D	G	J	N	Y

- ACADEMY
- AEROSPACE
- BIOENGINEERING
- COLLEGE
- CREATIVITY
- DESIGN
- EFFORT
- ENGINEERING
- FUTURE
- JUMOKE
- MATH
- NANOBOTS
- PEOPLE
- PERSISTENCE
- ROBOTS
- SCHOLARS
- SCIENCE
- TECHNOLOGY

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