https://www.youtube.com/watch?v=zgB-Diy8imo
Encouraging Your Student in Science, Technology, Engineering & Math (STEM)

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Introduction Activity—“Puff Car”

- Using the following materials, construct a car that can be moved by a “puff” of air (from you):
  - Two Straws
  - One piece of paper
  - Strip of Tape
  - Four Lifesaver Candies
Introductions & Grant Overview

- DeafTEC—National Science Foundation Grant
- Designed to encourage and promote more deaf and hard-of-hearing students to enter STEM careers
- Sub-Awards in Texas, Florida, Illinois and California
Agenda

- WHAT is STEM?
- WHY is it important?
- HOW can you encourage your child?
What is STEM?

- Aside from the words Science, Technology, Engineering and Math, what words/phrases come to mind when you think about STEM?
What is STEM?

- “There is no universally agreed-upon definition of STEM. Experts generally do agree, however, that STEM workers use their knowledge of science, technology, engineering, or math to try to understand how the world works and to solve problems. Their work often involves the use of computers and other tools.”

(Occupational Outlook Quarterly • Spring 2014 • www.bls.gov/ooq)
What is STEM?

- [Science] is more than a school subject, or the periodic table, or the properties of waves. It is an approach to the world, a critical way to understand and explore and engage with the world, and then have the capacity to change that world…"

- — President Barack Obama, March 23, 2015
What is STEM?

- Science Foundation of Arizona says STEM education:
  - “...engages students and equips them with critical thinking, problem solving, creative and collaborative skills, and ultimately establishes connections between the school, work place, community and the global economy. STEM also helps students understand and apply math and science content, the foundations for success in college and careers.”
  
Possible STEM Careers

- Electrical and Electronic Engineering Technicians (Associate’s Degree)
- Electrical and Electronics Drafters (Associate’s Degree)
- Electro-Mechanical Technicians (Associate’s Degree)
- Applications Software Developers (Bachelor’s Degree)
- Dieticians and Nutritionists (Bachelor’s Degree)
- Biological Technicians (Associate’s Degree)

http://www.careerwise.mnscu.edu/careers/viewCareers?id=15
WHY STEM?
Job Opportunities, Job Security, Wages
<table>
<thead>
<tr>
<th>Degree Awarded</th>
<th>STEM</th>
<th>Non-STEM</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate Degree</td>
<td>$42,322</td>
<td>$31,520</td>
<td>26%</td>
</tr>
<tr>
<td>Baccalaureate Degree</td>
<td>$59,409</td>
<td>$44,332</td>
<td>25%</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>$70,169</td>
<td>$52,808</td>
<td>25%</td>
</tr>
<tr>
<td>Ph.D. or Ed.D</td>
<td>$87,155</td>
<td>$56,511</td>
<td>35%</td>
</tr>
<tr>
<td>Other Terminal Degree</td>
<td>$114,394</td>
<td>$71,675</td>
<td>37%</td>
</tr>
<tr>
<td>Average Earning Advantage</td>
<td></td>
<td></td>
<td>30%</td>
</tr>
</tbody>
</table>
Average earnings of deaf/hard-of-hearing workers compared to hearing workers ages 16-64
Average earnings of deaf/hard-of-hearing workers compared to hearing workers ages 16-64 in STEM Careers
PROJECTED PERCENTAGE INCREASES IN STEM JOBS: 2010–2020

- All Occupations: 14%
- Mathematics: 16%
- Computer Systems Analysts: 22%
- Systems Software Developers: 32%
- Medical Scientists: 36%
- Biomedical Engineers: 62%

- All Occupations
- S&E Occupations
- Other Selected Occupations

**S&E Occupations**
- All S&E
- Biological/agricultural/environmental life scientists
- Physical scientists
- Computer/mathematical scientists
- Engineers
- Social scientists/psychologists

**Other Selected Occupations**
- Healthcare practitioners and technicians
- Postsecondary teachers
- Lawyers
- Computer programmers

*Notes:*

- S&E = science and engineering.
- Physical scientists = chemists, physicists, astronomers, and earth/ocean/atmospheric scientists.

*Source: National Science Board, STEM Education Data and Trends*
1/2 of all STEM jobs don't require a four-year degree and pay an average of $53,000, which is 10 percent higher than non-STEM jobs with similar education requirements.
By 2020, the demand for STEM professionals will add OVER 1 MILLION new STEM jobs within the United States workforce.

STEM careers have higher job security and average a higher yearly income than most other fields.

$77,800/YEAR
HOW?

Strategies to Encourage Your Student to Consider or Pursue STEM
The Struggle with STEM...

- [https://www.youtube.com/watch?v=HxuEHhERFIQ](https://www.youtube.com/watch?v=HxuEHhERFIQ)
Encourage CREATIVITY!

- [https://www.ted.com/talks/tom_wujec_build_a_tower?language=en](https://www.ted.com/talks/tom_wujec_build_a_tower?language=en)
Foster CREATIVITY!

- Provide RESOURCES, TIME and SPACE for your child(ren) to be creative!
- Foster a Creative Atmosphere—Encourage your child(ren) to MAKE MISTAKES and FAIL!
- Encourage READING and participation in the ARTS! LIMIT Screen Time!
- Give children the opportunity to express divergent thought and allow them disagree with you.
Foster CREATIVITY!

- Encourage Exploration, Curiosity and Seeking Answers
- Answer your child(ren)’s question with, “I don’t know, how could we find the answer?”
- Limit “manufactured” toys—they stifle the imagination.
- Play imaginative word games and make-believe games.
- Try to stop caring what your child(ren) ACHIEVE—Focus on the PROCESS rather than the PRODUCT! Resist perfectionism 😊.
Activities to Encourage Creativity

- Imaginative Play—Create Your Own Super Hero
  - Discuss with your child(ren) what super hero powers they would want to have. Then, design a super hero logo and use old materials to create a costume if possible.

- Bring Hollywood to Your House—Create a TV Show and Film It!
  - Come up with a name, outline a basic concept, and write a short script. Then assign people in your family to roles, and film your show.

- Future Architect—Design Your Own Playground
  - Visit a local playground and discuss it with your child. Then, go home and design a playground how they would want it. Build a model of it using materials at home if possible.

STEM Opportunities

• Check Local Library and School for Clubs, Workshops, Camps

• Visit nearby museums/centers (if available):
  • Dallas: LEGOLAND Discovery Center; Perot Museum of Nature & Science; River Legacy; The Dallas World Aquarium; The Dallas Zoo; Frontiers of Flight Museum; Sci-Tech Discovery Center
  • Houston: Houston Museum of Natural Science; George Observatory; Moody Gardens; Sea Center Texas; Johnson Space Center; The Health Museum; The Weather Museum; Lone Star Flight Museum
  • Austin: Zilker Botanical Garden; The Thinkery; Lady Bird Johnson Wildflower Center; Austin Zoo and Animal Sanctuary; Texas Museum of Science and Technology
  • San Antonio: San Antonio Zoo; The Witte Museum
STEM Opportunities—Summer Camps

- DeafTEC Summer STEM Camp—June 18-23, 2017—Hosted at Texas School for the Deaf [https://texasdeafed.org/students/programs/stem-camp](https://texasdeafed.org/students/programs/stem-camp)

- RIT Programs: [http://www.rit.edu/~w-k12/programs-interest.php](http://www.rit.edu/~w-k12/programs-interest.php)

- Gallaudet Programs: [http://www.gallaudet.edu/outreach-programs/youth-programs/summer-youth-programs.html](http://www.gallaudet.edu/outreach-programs/youth-programs/summer-youth-programs.html)

- Check Locally Each Summer!
Resources/References

- [http://deaftec.org/stem-careers](http://deaftec.org/stem-careers)
- [http://greatergood.berkeley.edu/raising_happiness/post/7_ways_to_foster_creativity_in_your_kids](http://greatergood.berkeley.edu/raising_happiness/post/7_ways_to_foster_creativity_in_your_kids)
Resources/References

- http://stem-works.com/locations/2-dallasfort-worth/placetogo
- http://stem-works.com/locations/14-houston/placetogo
- http://stem-works.com/locations/12-austin/placetogo
Questions?

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