

### **STEM in the News**

According to [allaboutcircuits.com](http://allaboutcircuits.com), Artificial intelligence is becoming more commonplace in electronic devices, but many of its applications require lots of energy. To try and solve this problem, researchers at Purdue University are developing hardware that is able to learn skills using a type of AI that currently runs on and is typically reserved for software platforms. The researchers think that this approach could reduce the energy needed for advanced AI due to its intelligence features that include software and hardware applications. “Software is taking on most of the challenges in AI. If you could incorporate intelligence into the circuit components in addition to what is happening in software, you could do things that simply cannot be done today,” said Shriram Ramanathan, a professor of materials engineering at Purdue University. Let’s all hope, in the near future, that AI can help lives easier for many in our world.

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### **STEM Career Spotlight**

There are many variations of electrical engineering jobs. Acoustic consultants help control and monitor sound. They evaluate noise levels, noise nuisances, and vibrations in an environment. These consultants make 27 dollars per hour.

Education: 4-year degree in electrical engineering

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*“Before anything else, preparation is the key to success.” - Alexander Graham Bell*

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### **STEM in History**

Electrical engineering plays an essential part in our day to day lives, but did you ever stop to think about how this came to be? Nearly two centuries ago, Alexander Graham Bell invented the telephone, which led to a need for electrical engineers. Then, in 1882, Thomas Edison opened a commercial power plant, which caused an increased interest in electrical engineering. From that point on, electrical engineers would find ways to use electricity in technology. The iPhone, which is used 24/7 by people worldwide, would not have been possible without electrical engineers. Life would surely be different without the technology we now use every day.

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### **STEM Across the Curriculum**

History has played a huge part in the advancement of electricity. A great project would be to research the two giants of the electrical engineering world, Nikola Tesla and Thomas Edison, and compare and contrast them. What inspired them to research electricity? What are their accomplishments? What did they invent? Who utilized DC and who utilized AC? What is each of their legacies?

## STEM Movies

The **Current War** (2017) The dramatic story of the cutthroat race between electricity titans Thomas Edison and George Westinghouse to determine whose electrical system would power the modern world.

Source: <https://www.imdb.com/title/tt2140507/>

*“My own interest developed because I thought it was a fascinating subject and something I wanted to pursue.” - Jack Kilby*

## #STEM@ADM Spotlight

The ADMS drone program is a club where students are able to work with drones to develop skills and knowledge in drone usage and electronics. Students apply their skills in engineering when operating with drone equipment. Electrical engineering is utilized by students when they work with electrical parts of drones to improve or fix them. In this program, students have fun experimenting with the system and usage of drones.

## Famous STEM Person

Alexander Graham Bell was an electrical engineer who is credited for creating the first voice transmitting device with Thomas Watson between 1874 and 1876. He was also credited with inventing the first practical telephone in 1876. He co-founded the American Telephone and Telegraph Company.

## STEM Challenge

### Potato Power Challenge

Materials: 3 potatoes, 3 galvanized nails, 3 US Pennies, 5 dual alligator clip connector, 1 LED clock w/ a battery compartment

1. Insert one nail about 1 inch into the potato end. Write a minus sign next to the nail using a pen.
2. Push one penny into the opposite end of the potato; it should be sticking out; write a plus sign next to penny
3. Repeat steps 1 and 2 with the other two potatoes.
4. Number your potatoes 1, 2 and 3 and connect the potatoes in series:
  - Connect the potatoes so that the penny on potato 1 is attached to the nail in potato 2, then the penny from potato 2 to the nail from potato 3, then the penny from potato 1 to the penny from potato 3
5. Open the battery compartment of the clock and connect the nail from potato 1 to the negative terminal and the penny from potato three into the positive terminal. Now observe!

## STEM Puzzle

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G N T N E R R U C C I R T C E L E C I L A N L I
H O Y G G S C D A E B Z K Y L N S Q F T E K Y Q
R I R L A B E N C E G K V S M B U C J D H N X A
T T X B K Q Q N S G J A U M X O S L Q N W S T S
E C N O E G A B A Q C N W B S D R T Q Z Q G M Y
N I S T A T I C E L E C T R I C I T Y S X D B E
G R C E S P O S I T I V E L E C T R O N S C O S
A F F I L K C S Y P J B G D B P J L R L R C Q L
M Y S Z T E X T I Q A S H X A B W Z E S V Z S W
O E H H N P C F P J N C Z R B T U T F K H B N F
R T B B O Y E T E W F U A L S N O R T U E N K E
T U I N I N Y U R G S L D O J E L O W K E M O F
C S E U T E L V J I L N H E V I T A G E N O Q R
E E L G C G W K W E C M O T H G N A Y S C T T C
L V E K U R Y A L Z S A Y T T U S J D C W X E O
E V C F D M I C L L Q A L A O R H K J J T O Y N
Z W T U N V I C A Z P N P P L R O C A L H H J D
T U R N I R N W T H W D S C O O P T Y F C S J U
M N I Y C F P H I K P R N M B W O X A Y K O F C
C X C U G L M E V R A F Q L S Q E S A L D K K T
C L I F Q S X Y O L V V K E E B G R Y N U V M O
L T T S E R I E S C I R C U I T I A Y G J S I R
V X Y G B M H L N X R F D W Y I F G I V A N Y
K O A D P C N U Q G C S I S K A P K M R C I D I
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negative	positive	electrical power	Electromagnet
Ohms law	parallel circuit	series circuit	resistance
insulator	circuit	neutrons	Electrons
protons	Electric current	induction	electricity
conductor	friction	Static Electricity	

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