

The Daily STEM

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Special-National-STEM-Day-Double-Issue!

STEM from Space

Did you ever wonder why humans explore space? People have always been curious to explore the unknowns. But preparing for space has also made life on Earth better. Water filters, cordless vacuums, and ski goggles are all a result of space research. NASA has an interactive website to see objects like these in our homes and cities. Learn about items designed with space technology at homeandcity.nasa.gov



STEM Career: Cybersecurity

The world is filled with phones and computers. We use them for all sorts of reasons. Cybersecurity analysts help protect those phones and computers from being attacked by harmful viruses or threats. To work in cybersecurity it's important to pay attention to detail,

have good communication and problem solving skills,

and be calm under pressure. Most cybersecurity analysts have a college degree, but all of them start by learning about how computers work and learning the basics of coding. The average person working in cybersecurity makes over \$100,000 per year. And right now there are more jobs available than people to fill them. Do you think it would be fun to help businesses and people protect their data from evil hackers? Learn more about cybersecurity in this article: bit.ly/3zQ8lhA and this video: youtu.be/-AkuKKJ8dN0



Did You Know

Do you know these pumpkin facts? If not, calculate them!

How many seeds in an average pumpkin? $5 \cdot 5 \cdot 5 \cdot 2 \cdot 2$

How many continents are pumpkins grown on? $112 \div 16$

The largest pumpkin ever was how many pounds?

$$63 + 902 + 537 + 846 + 209 + 67$$

The largest pumpkin pie was how many feet in diameter?

$$75 - 10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1$$

More pumpkin facts: bit.ly/3fkG2Rj

STEM Challenge

Did you ever make anything from leaves? Here's a few ideas:

🍂 Put a leaf under a piece of paper and rub over it with a crayon

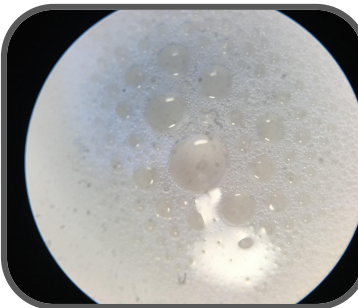
🍂 Glue leaves on a piece of paper in the shape of an animal or bug

🍂 Find as many types of leaves as you can and find ways to sort them

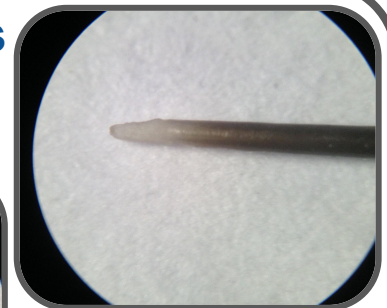


Mystery Photos

Can you identify the mystery items under the microscope?



Decode the answers using $d=a, e=b, f=c, g=d$:
fdw zklvnhu, exeeohv,
vkrhodfh



STEM in the News

Have you ever bought a bottle of Sprite? First made in 1961, Sprite has always been in green bottles. That changed in August. The Coca-Cola company replaced Sprite, Dasani, and other colored bottles to clear plastic. The green and blue plastics used were only able to be recycled into single use items like clothes and carpets. The new clear bottles can be remade over and over into more items, including new bottles. Can you think of other items that could be made with clear plastic? Learn more: nbcnews.to/3DG6PzC



Super STEM Movie

Meet the Robinsons (G, 2007, 95 min)

Ideas for Projects: Inventing, adoption, sleep, journaling, brain science, memories, science fairs, failure, flying vehicles, time travel, robots, teamwork



Top Scenes: 4:10-4:31 The need for everything; 1:16:13-1:17:49 What is your future; 1:26:44-1:27:51 Keep moving forward
Big Question: What is the purpose of inventing? Why do people invent things?
Further Study: Study the history of inventions. How long ago were things we use today invented? Were there conditions that led to more inventing?

The Puzzle

Did you ever try a Magic Square? It's a square filled with numbers where every row, column, and diagonal adds up to the same value. For instance, this magic square adds up to 15.

2	7	6	→15
9	5	1	→15
4	3	8	→15
15	15	15	15

Can you solve the following Magic Squares?

		5
2	4	

=12

8		
		7
		2

=15

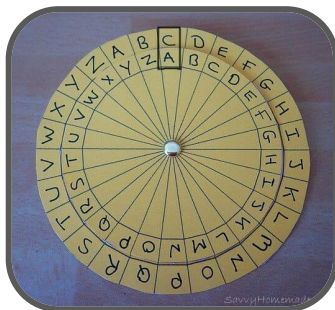
10		
		9
	11	

=21

Now see if you can create your own Magic Square, and learn more about their history at bit.ly/3FJzZAC

STEM Challenge

Secret codes have been used for thousands of years. One of the earliest examples, the Caesar Cipher, was used by Julius Caesar 2000 years ago. By shifting the alphabet, you can create a simple code. For example, a shift of +3 makes D=A, E=B, and F=C. That would turn the word SECRET into VHFUHW. You can even make your own Cipher Wheel by attaching two circles with a brass fastener. Learn how to make one on this website: bit.ly/2oEIsQk (it'll even help you decode the answers to the puzzles in The Daily STEM)



STEM & Clouds

Have you ever looked at the clouds and wondered why they look like that? Or maybe you noticed a cloud shape that you've never seen before? The clouds we see are formed when water that evaporates from lakes, rivers, and oceans rises into the sky. As it travels up through the atmosphere, it cools and condenses as a droplet on dirt, dust, or pollen particles. These droplets of water form the clouds we see. Clouds are given different names based on their shape and how high they are in the sky. Do you know the different types of clouds? Learn more about cloud types and how we can use them to predict the weather: scijinks.gov/clouds or play a cloud matching game: bit.ly/3E7BDed or play a sorting game: bit.ly/3DJB9cu

