

# The Daily STEM

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## STEM in the News

You've probably heard of the platypus, but have you ever heard of the echidna? Both the platypus and echidna are called monotremes, a group of mammals that lay eggs. Although the platypus is fairly common (especially if you watch Phineas & Ferb), the echidna had not been seen in over 60 years. Recently, a team of scientists searched the Cyclops Mountains in Indonesia because locals had reported seeing the elusive creature. For four weeks the researchers set up cameras and hiked the dangerous jungles hoping to catch a glimpse of the echidna. They saw many creatures, some even brand new to scientists. They saw holes in the ground, evidence of the echidna using its long nose to burrow for worms to eat. On the last day of their expedition, while checking their cameras, they found one photo of the echidna. How would you search for unseen animals?



Learn more: [bit.ly/3S3RIah](https://bit.ly/3S3RIah)

## The Puzzle

This puzzle looks tough! Can you fill the empty squares with the letters T, O, U, G, H so that each row, column, and the two diagonals use each letter once?

T	O	U	G	H
	H	T	O	
		G		T
	T	O		
		H	T	

## STEM Challenge

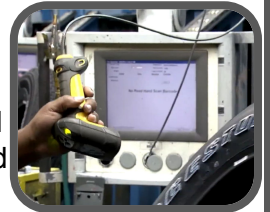
Did you ever try the game 2048? The goal is to combine numbered tiles to get to 2048 before running out of empty squares. Did you also know the numbers in the game are important numbers in our world? All of the numbers are multiples, or powers, of 2 (4 is  $2^2$ , 8 is  $2^3$ , and 2048 is  $2^{11}$ ). Those numbers even have something to do with how computers work! Try playing at [kenkenpuzzle.com/2048](https://kenkenpuzzle.com/2048)



HOW TO PLAY: Use your arrow keys to move the tiles. When two tiles with the same number touch, they merge into one!

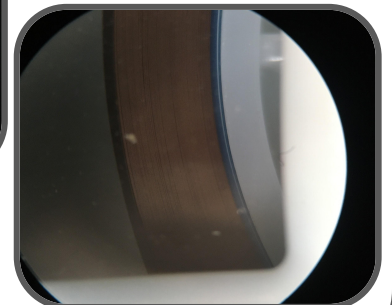
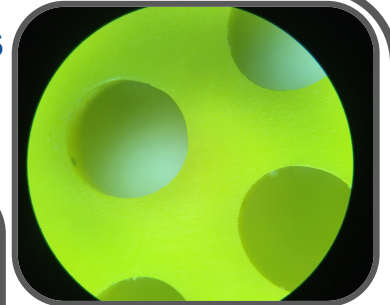
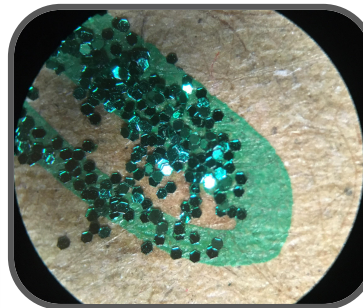
## STEM Career: Tire Engineer

Did you ever wonder how the tires on your car or bus were made? A **Tire Engineer** is someone who develops and tests tires to ensure that they are safe and effective for all types of vehicles. Tires are not just rubber. They are a combination of rubber, steel, and synthetic materials to help them last longer in all types of weather. Tire engineers use computers to design a tire's shape. They design the tread pattern to make sure it will grip the road in wet or snowy conditions. Next, prototypes are developed for testing. The tires are sent to indoor testing labs and outdoor test centers to see how they work on test tracks. Data is collected about how well the tires perform, and improvements may be made to the design. Even after tires are produced in a factory and sold, engineers still collect data to help them improve the designs for future tires. If you think this sounds like an interesting career, learn more: [bit.ly/3tW5Ev0](https://bit.ly/3tW5Ev0), [youtu.be/pyBsUr-3Blc](https://youtu.be/pyBsUr-3Blc) and [ustires.org/how-tire-made](https://ustires.org/how-tire-made) or see how NASA develops tires for space: [youtu.be/oy8DGEQNNtq](https://youtu.be/oy8DGEQNNtq)



## Mystery Photos

Can you identify the mystery items under the microscope?



Decode the answer using  
 $a=b, b=c, c=d, d=e$ :  
 qmbzepi uppm hjgu  
 cbh dbttfuuf ubqf