



# STEAM

# HALLOWEEN



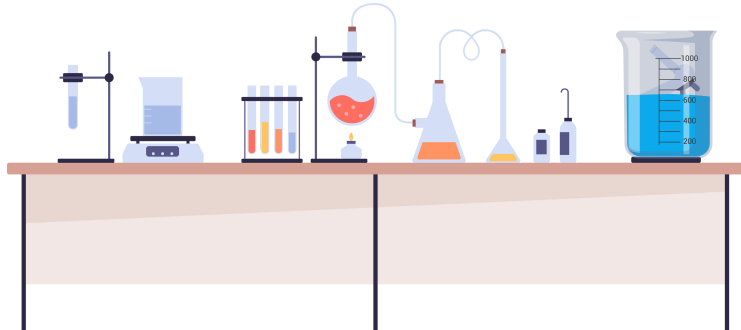
# ONCE UPON A TIME...



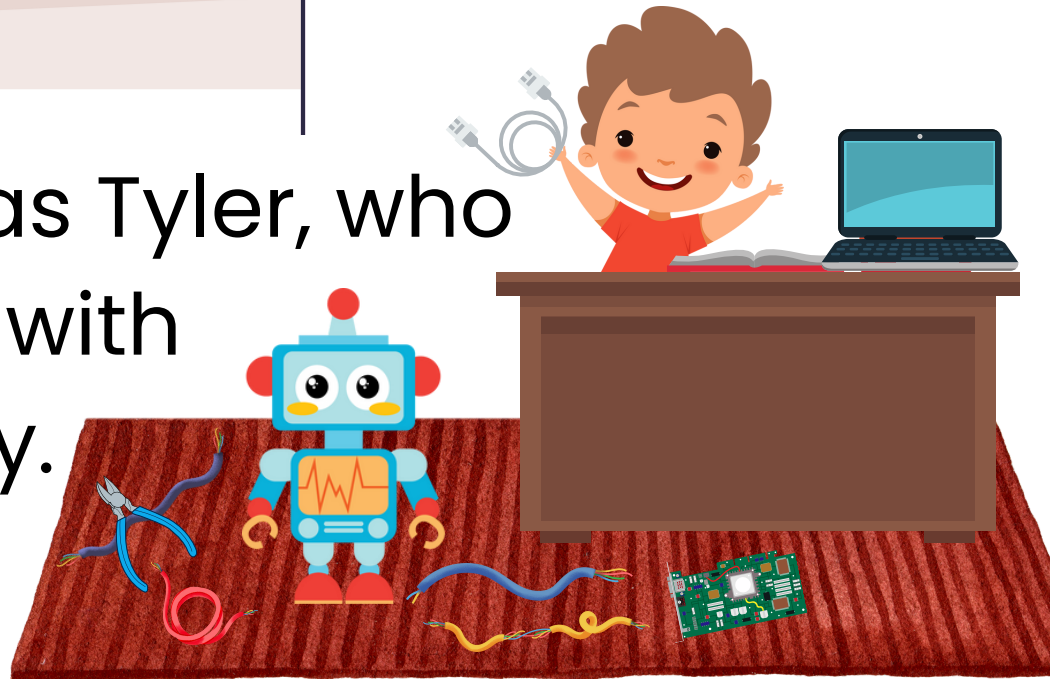
*In a small city called Rome, there was a group of friends who loved Halloween and STEAM more than anything.*

**STEAM** stands for  
**SCIENCE TECHNOLOGY ENGINEERING ARTS MATHEMATICS**

The first was Suzie,  
who loved science.






Second was Tyler, who  
was great with  
technology.



Next was Emma, who  
was an expert in  
engineering.

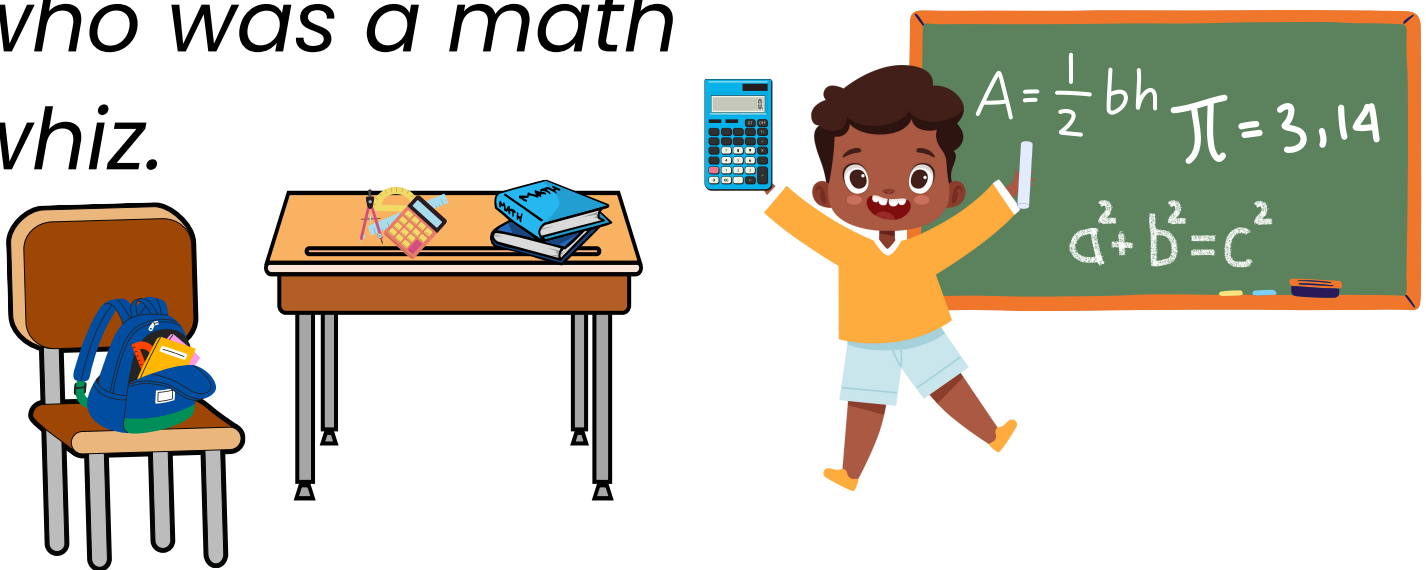


- 👁️ Find a **MICROSCOPE** used in **SCIENCE** 
- 👁️ Find a **COMPUTER** used for **TECHNOLOGY** 
- 👁️ Find a **BLUEPRINT** used by **ENGINEERS** 

*The fourth was Alex,  
who was a talented  
artist.*



*And then finally Max,  
who was a math  
whiz.*



👁️ Find a **PAINT BRUSH** used in **ART** 

👁️ Find a **CALCULATOR** used in **MATH** 

*They were always looking for ways to make their Halloween costumes and decorations even more creative and spooky.*



One year, they decided to use their STEAM skills to make a haunted house like no other.



 Find a **TRAPDOOR** 

 Find a **PUMPKIN** 


 Find the **FOG** 

 Find a **RULER** 

 Find a **MONSTER** 

*First, they used science to create a fog machine that would fill the entire house with mist.*



 **Fog** is created whenever rapid condensation occurs. You can create a small amount of fog in a jar using hot water and ice.

Then, they used technology to program **animatronic** (an-uh-muh-tron-ik) monsters that would jump out and scare people.



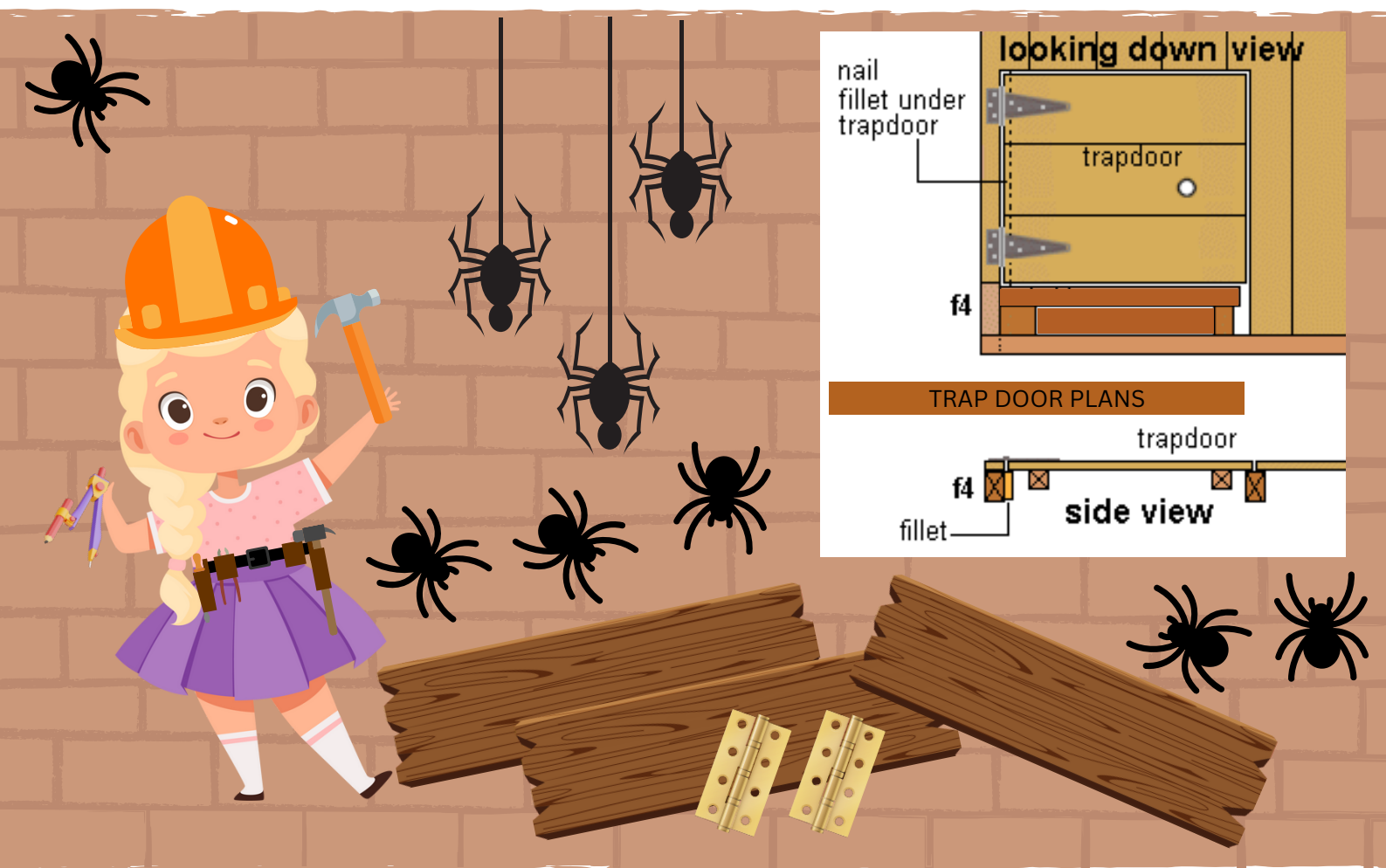
? What does **animatronic** mean?

• Answer

A puppet that is made to move by using technology and electronic devices.



*They even added in some engineering by building a trap door that would drop visitors into a pit of fake spiders!*



**Hinges** are used by engineers to join two parts together while still allowing them to move.

👁️ Can you find 2 hinges in this picture? 🪛

*But they didn't stop there. The friends also used art to create beautiful and creepy decorations, from paper mâché pumpkins to spooky paintings.*



There are many forms of **ART**.  
**Music, Sculpture, Painting, Literature,**  
**Drawing, Theatre, Dance,** and **Photography**  
are some you may know about.

*And of course, they used math to measure and plan out every detail of the haunted house.*



## Measuring Tape



A long, thin piece of plastic, cloth, or metal that is marked with units of length (such as inches or centimeters) and that is used for **measuring things**.

## Triangle Ruler



A triangle ruler is called a 'set square.' They are triangular-shaped and sometimes have a cut-out center.

These are commonly used to **draw angles**.

*On Halloween night, the city was buzzing with excitement as everyone lined up to experience the haunted house.*



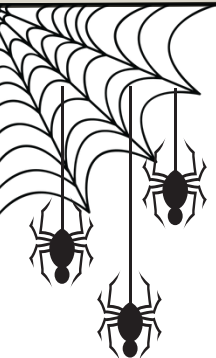
*The friends were nervous, but  
also proud of all their hard  
work.*



Many things in nature contain the  
**Fibonacci Sequence** and **Golden Ratio**.

 Can you find them?

**TREES**  **LEAVES**  **PINECONES**   
**SNAIL SHELL**  **SPIDERWEB** 



*As visitors screamed and laughed their way through the maze of spooky things, the friends knew that their STEAM skills had truly paid off.*



Can you find all of the **STEAM** creations?

**SCIENCE   TECHNOLOGY   ENGINEERING**  
**ARTS   MATHEMATICS**

*From that day on, the friends continued to use their love of Halloween and their STEAM skills to create even more amazing projects.*



What do you think they will create next Halloween?

*Who knows what spooky adventures they'll come up with next?*



What STEAM subject is your favorite?

**SCIENCE TECHNOLOGY ENGINEERING ARTS MATHEMATICS**



## What is The Project Fibonacci Foundation, Inc.?



The **Project Fibonacci® Foundation, Inc.** is a leader in promoting science, technology, engineering, arts and math (STEAM) educational opportunities in New York State. Our mission is to introduce youth to a culture of interdisciplinary STEAM learning, and teach them to become creative, independent leaders of community resurgence. Our emphasis on the arts within the traditional science, technology, engineering and math (STEM) academic discipline plays a critical role in building the confidence, decision-making and problem-solving skills of our future leaders.

## Who was Fibonacci?



**Leonardo Bonacci (Fibonacci)** was an Italian mathematician who is most famous for introducing Fibonacci sequence. He is also known as Leonardo of Pisa. Leonardo was believed to be the most gifted mathematician of the middle Ages. He was born around 1170 in Pisa, Italy.

## What is the Fibonacci sequence?



In mathematics the **Fibonacci sequence** is a sequence in which each number is calculated by adding the previous two numbers.

It goes 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, and so on.

## How can I learn more about the Project Fibonacci Foundation®, Inc.?



To learn more about Project Fibonacci, programs, events and STEAM Education visit **[projectfibonacci.org](http://projectfibonacci.org)** or scan the QR code.

# Fibonacci Fill-In The Blank

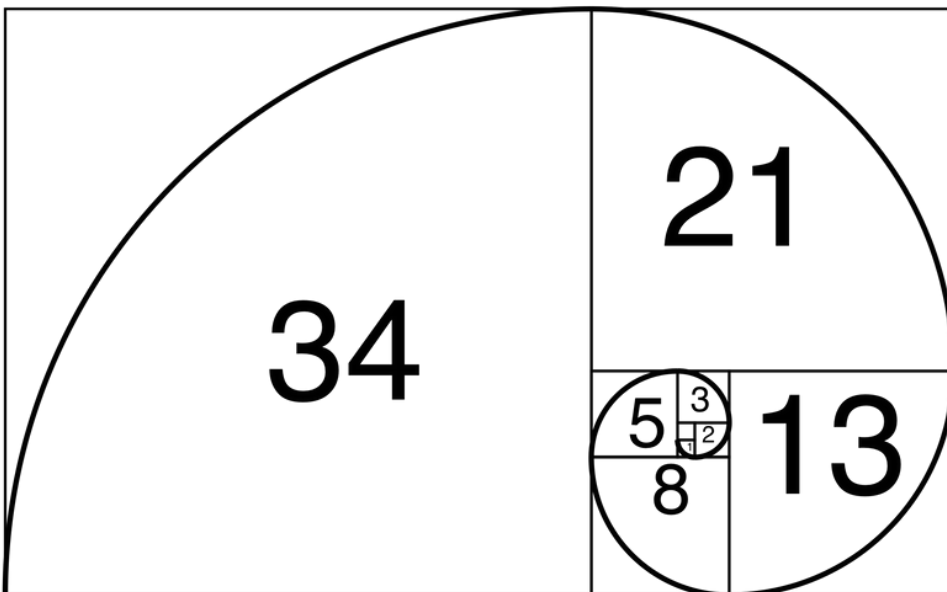
See if you can fill in all of the blanks to complete the Fibonacci Sequence!

0,1,1,\_,3,\_,8,13,\_,34,55\_

Example:  $0+1=1$ ,  $1+1=?$  and so on.

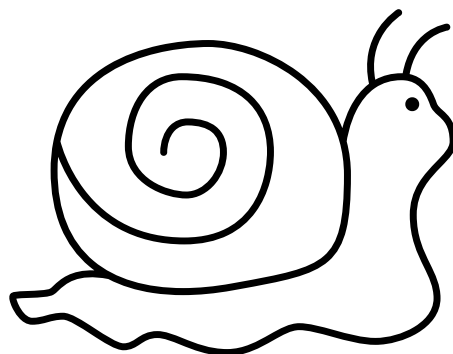
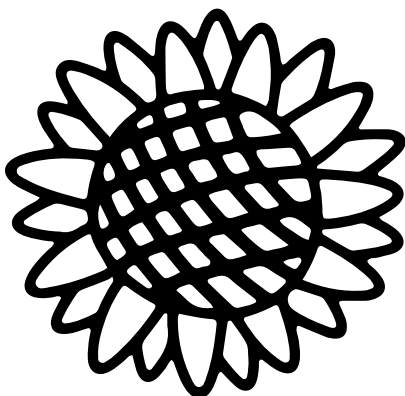
Answer Below

## Color The Golden Ratio



The number **1.61803...** is better known as the **Golden Ratio**, and frequently appears in art, architecture, and natural sciences. It is derived from the Fibonacci series of numbers, where each entry is recursively defined by the entries preceding it.

The Golden Ratio pops up everywhere in nature from sunflower petals to the spiral of a shell.



Answer

0,1,1,2,3,5,8,13,21,34,55,89

# Fibonacci Match-Up

Each STEAM friend has a favorite STEAM subject that used tools while creating their haunted house. See if you can match each STEAM friend to the tool they used in the story.

Draw a line from the friend to their tools.

**MATHEMATICS**



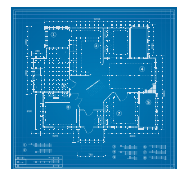
**ARTS**



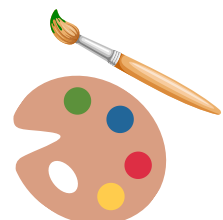
**ENGINEERING**



**SCIENCE**



**TECHNOLOGY**





# What is STEAM?

STEAM is typically an acronym for Science, Technology, Engineering, Arts and Mathematics, but the Project Fibonacci® Foundation believes it encompasses so much more! STEAM recognizes that to be successful in life and fulfill the advancing demands of society, individuals must also be creative and use critical thinking skills which are best developed through a combination of STEM and the **A**rts.

## **SCIENCE**

Science is the process of learning about the natural world through observation and experimentation. Scientists use evidence, along with active thinking, to explain what is happening in the natural world.

## **TECHNOLOGY**

Technology is the application of scientific knowledge to the practical aims of human life.

Throughout history, technology has made people's lives easier.

## **ENGINEERING**

Engineering is the application of science and math to solve problems. While scientists and inventors come up with innovations, it is engineers who apply these discoveries to the real world.

## **ARTS**

Art is the expression of ideas and emotions through a physical medium, like painting, sculpture, film, dance, writing, photography, or theatre.

## **MATHEMATICS**

Mathematics is the study of numbers, shapes, patterns, quantity and space. It comes from the Greek word 'mathema' meaning 'science, knowledge or learning'.

