XIV CONGRESO NACIONAL DE DESARROLLO PROFESIONAL
PARA PROFESORES DE INGLÉS

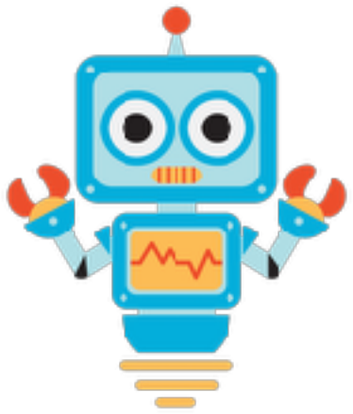
HOW TO...?

THE PRACTICAL SIDE OF ELT.

1ST & 2ND AUGUST 2019

ORGANIZED BY

SHARE EDUCATION


How to create projects that help learners STEAM ahead

Sarah Hillyard (MA TEYL)

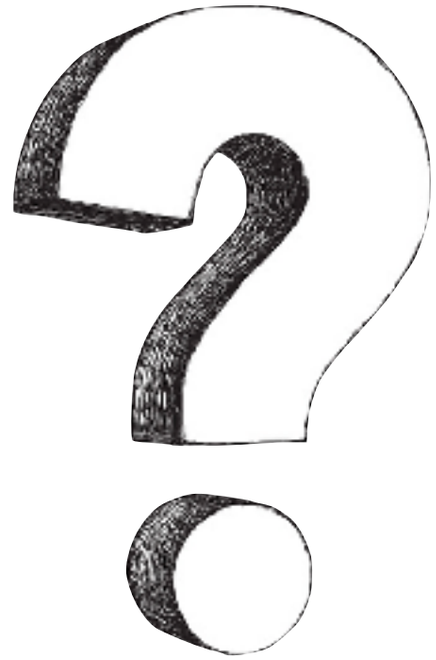
2019 SHARE Convention

The Three Billy Goats Gruff

The Driving Question

How can we design a bridge for
the Three Billy Goats to cross over safely?

Need to Knows...



What type of bridge can we build?
Which is the strongest/best material to build a bridge?
What material can we use in our classroom?
How big/long will we make our bridges?

Beam bridge

Suspension bridge

Truss bridge

Arch bridge

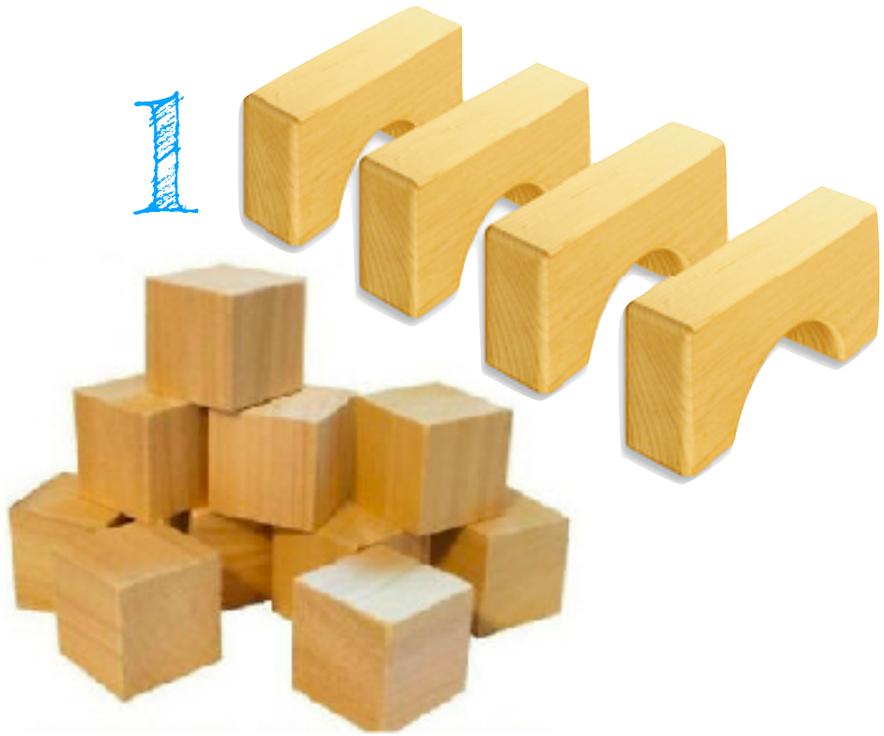
Tower Bridge (London)

London Bridge

Golden Gate Bridge (USA)

http://www.historyofbridges.com/famous-bridges/

1



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4

Plan it!

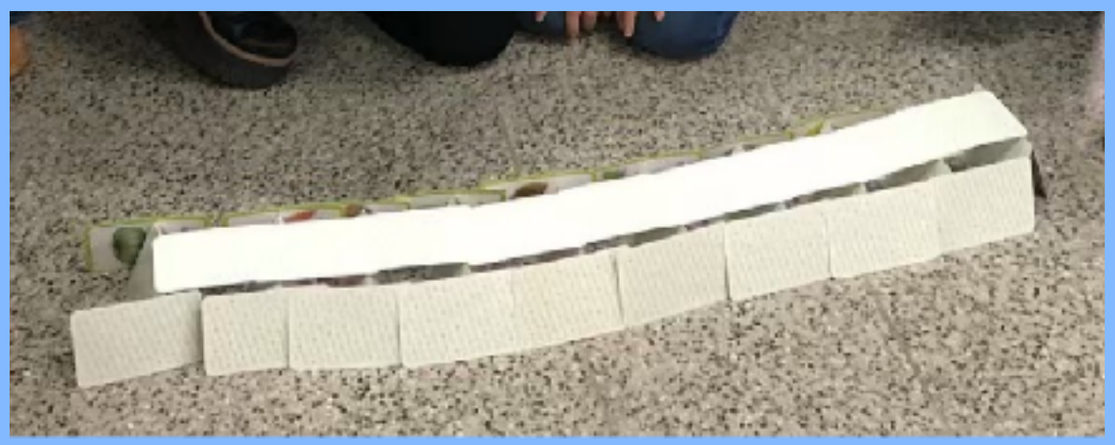
Our Bridge Building Plan

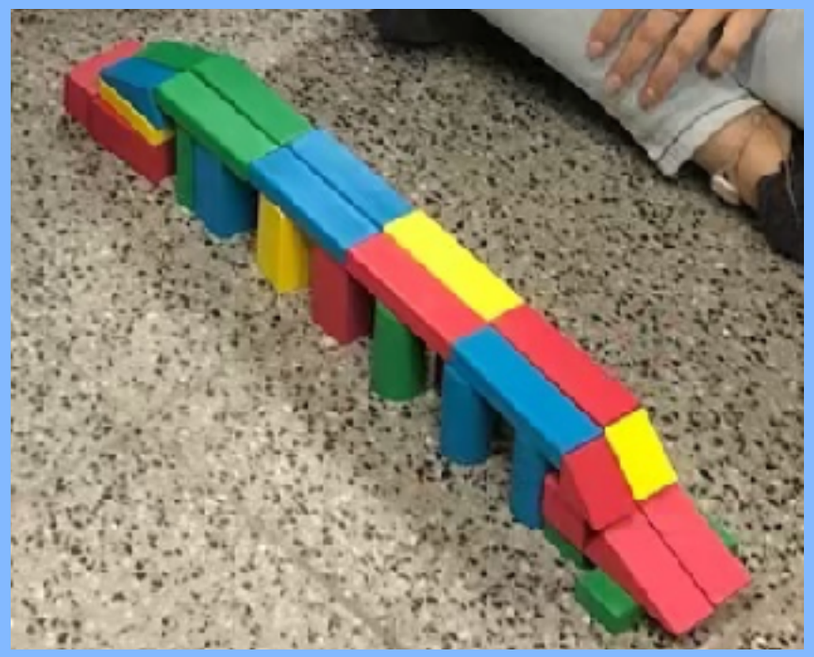
We are going to build a bridge with _____

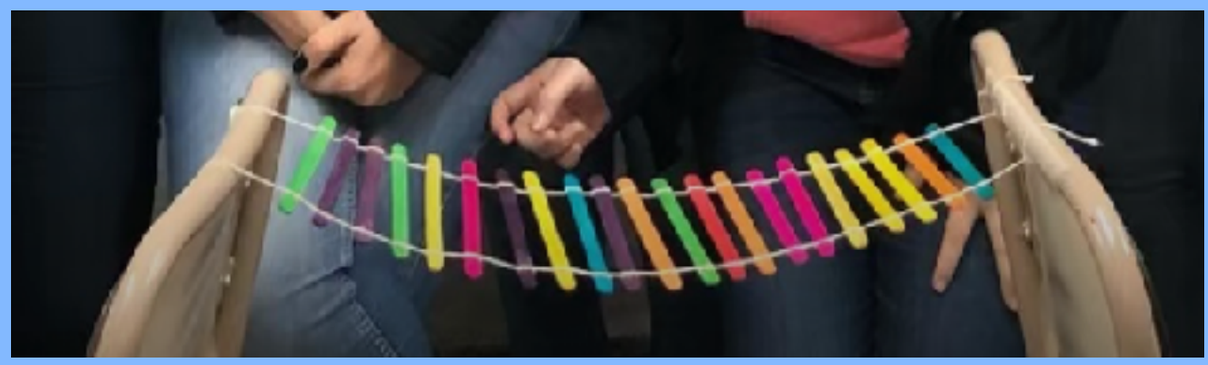
_____.

Here is our plan:

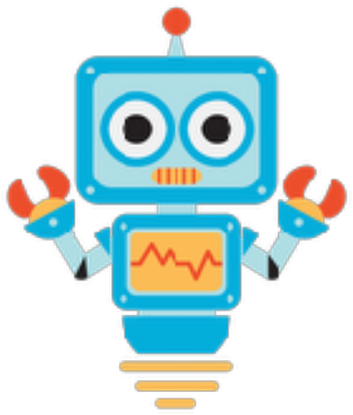
Build it!





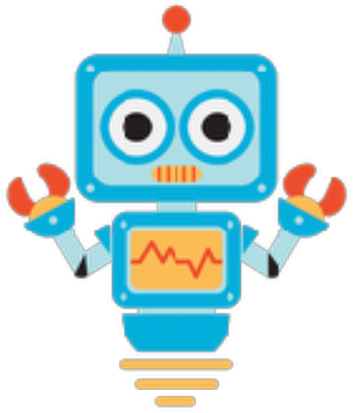


Which bridge do you think will be the strongest/weakest?
How long was your bridge? How many… did you use?
What type of bridge did you build?


STEAM projects

are about encouraging learners to build knowledge about the world around them by observing, asking questions, investigating, collaborating and doing.

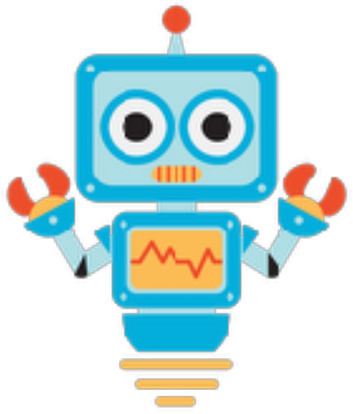




STEM

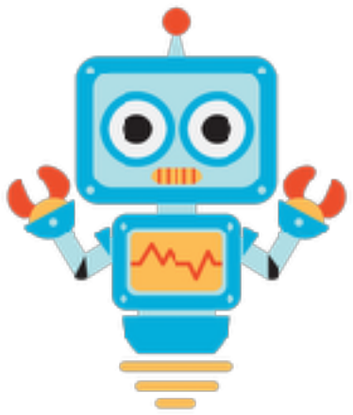
STEAM

STREAM

METALS

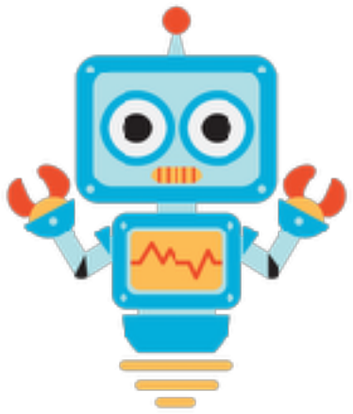

STEM MISCONCEPTIONS

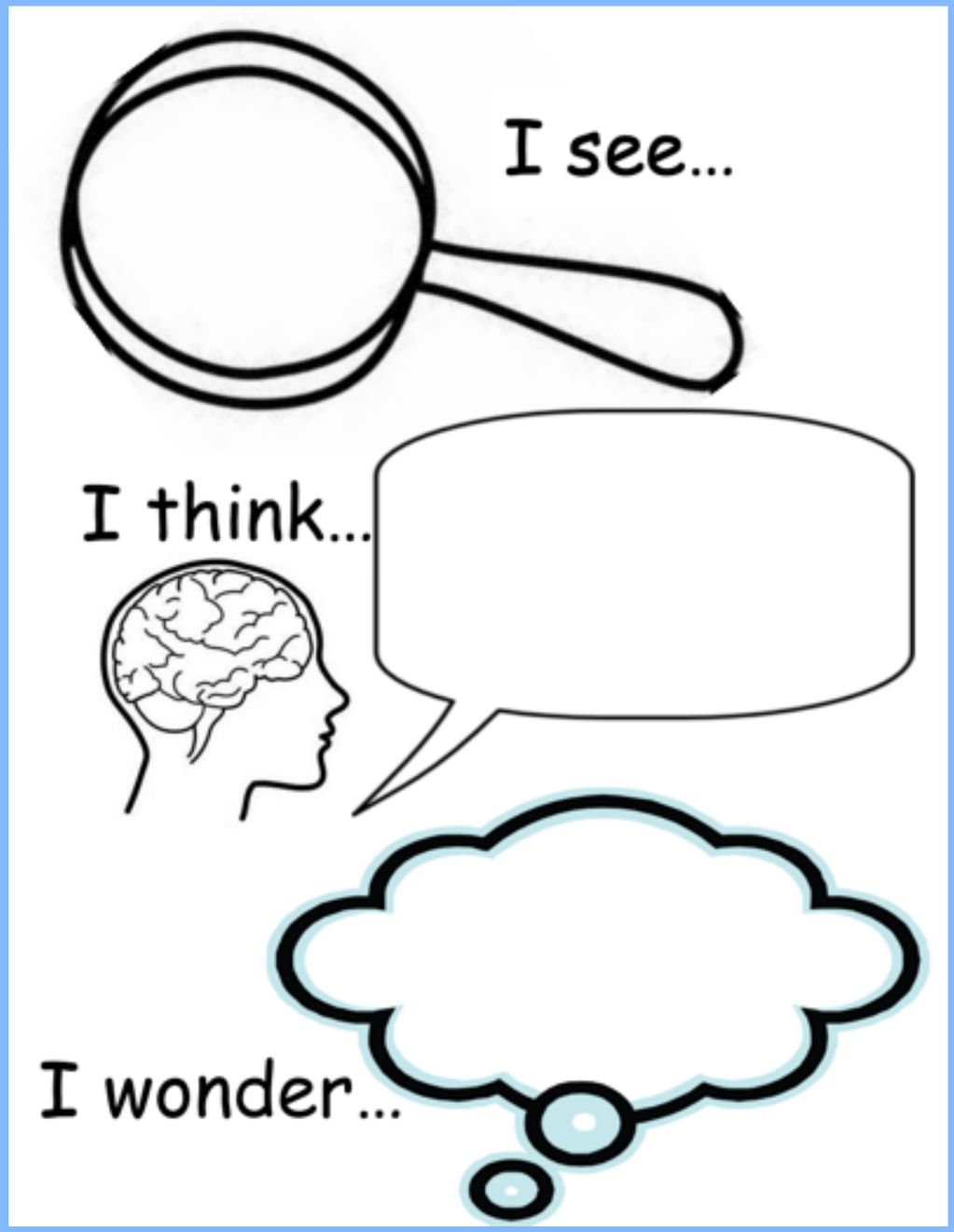




S is for SCIENCE

The process of learning about and understanding the natural world.

Brain-building skills: observing, describing, asking, comparing results, sorting, predicting.

https://thecuriouskindergarten.files.wordpress.com/2014/10/see-think-wonder-images.pdf

Sink or Float? / The Titanic

Literature: “Lost and Found” by Oliver Jeffers or a factual text about The Titanic.

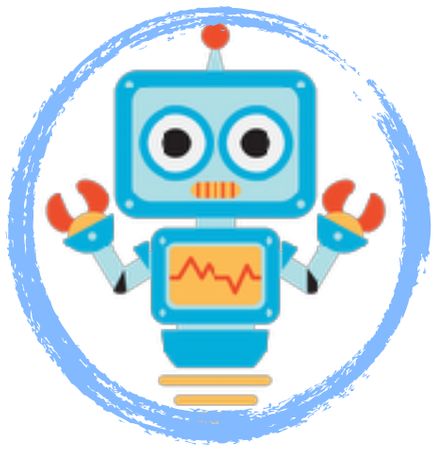
S: Discover objects that sink or float. Discover changes to materials that help them float (ball of plasticine/flat piece of plasticine: density).

T: Google different types of boats. Tools (ice tweezers, kitchen tongs, ice-cream scoops or large spoons) for placing object in water. Weigh objects on weighing scale.

E: Create a boat that floats (aluminium, plasticine, paper) and also supports a passenger (a plastic penguin/person).

A: Create different types of boats by joining bodies (rowing boat, sail boat, cruise ship). Join in pairs and sing “Row Row Row Your Boat”. Play “float/sink, sink/float”.

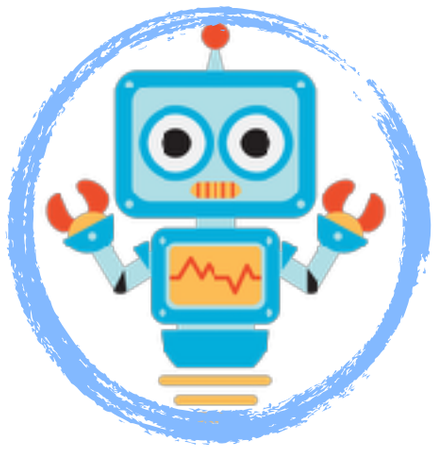
M: Does weight influence whether an object sinks or floats? How many coins can your boat support before it sinks?


T is for TECHNOLOGY

(Simple) Machines/tools help make jobs easier.
Technology is a way of doing.

Brain-building skills: doing, identifying problems and solving problems, creating, using, learning skills

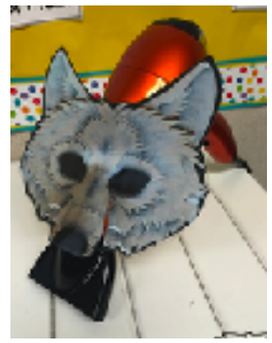

Electronic technology

computers, laptops, cameras, tablets, circuits, electric pianos, electronic scales, hot glue gun, stopwatch, Playstation, battery-powered guitars.

Non-electronic technology

scissors, glue, magnifying glasses, ramp, wheels, pipettes, measuring cups, gears, magformers, wooden blocks, balance scales, paperclips, markers, pencils, crayons, paintbrushes, funnels, rulers, hole-punch, stapler, tape.

The Three Little Pigs



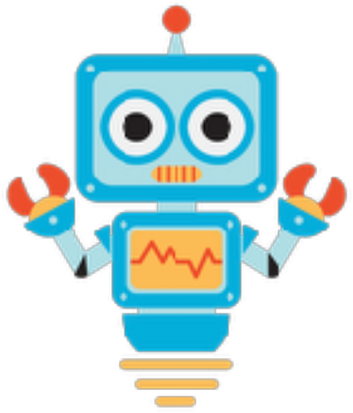
S: Explore different materials used to build houses, their texure and strength. Why do people build houses?

T: Google different types of houses. Explore different play tools: hammer, drill, screwdriver, nuts, bolts, screws. Use a hairdryer to blow the houses down.

E: Build houses with different materials. Examine how bricks are laid.

A: Sing “Who’s afraid of the big bad wolf?”. Create story spoons and dramatize the story.

M: How many windows/doors will your house have? Graph predictions on the strongest house. Graph results “breath” vs. “hairdryer”. Relate the different parts of a house with its shape.


E is for ENGINEERING

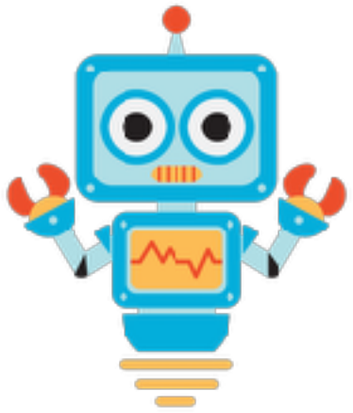
The process of building and designing, often to solve a problem.
Engineering is a way of doing.

Brain-building skills: designing, planning, problem solving, creating, building.

STEM Challenge

Name:_____

My Big Idea


M is for MATHS

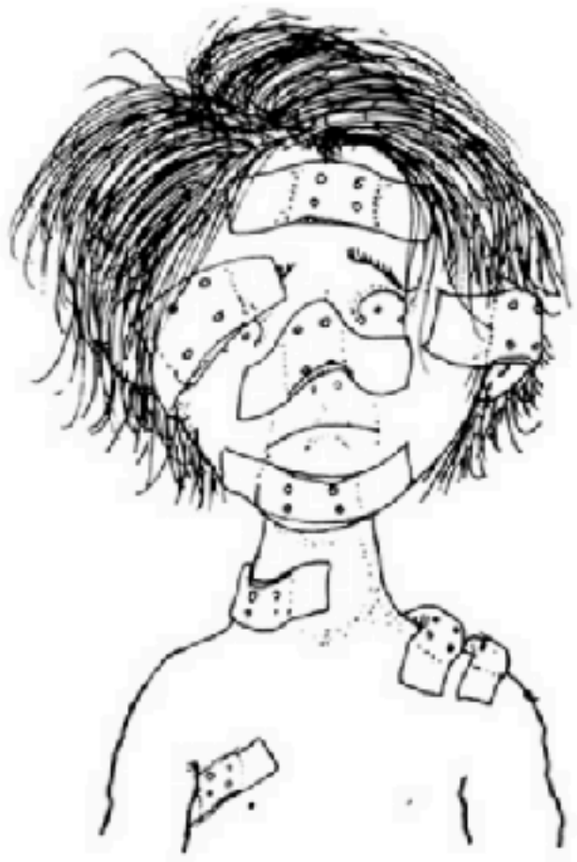
Process of understanding relationships among patterns, numbers and shapes.

<u>Brain-building skills:</u> measuring, comparing, sequencing, patterning, abstract thinking, reasoning.

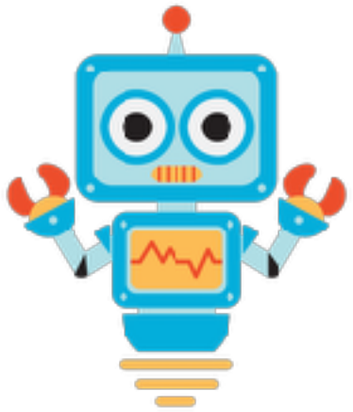
Band-Aids

by Shel Silverstein

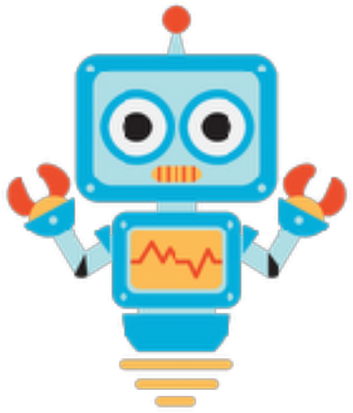
I have a Band-Aid on my finger,
One on my knee, and one on my nose,
One on my heel, and two on my shoulder,
Three on my elbow, and nine on my toes.
Two on my wrist, and one on my ankle,
One on my chin, and one on my thigh,
Four on my belly, and five on my bottom,
One on my forehead, and one on my eye.
One on my neck, and in case I might need 'em
I have a box of thirty-five more.
But oh! I do think it's sort of a pity
I don't have a cut or a sore!



Where the Sidewalk Ends, 1974

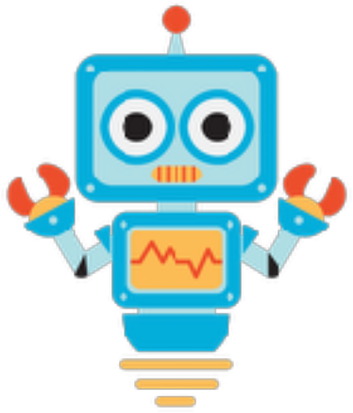




STEM → STEAM


STEAM

is an integrated approach to learning that celebrates creative thinking, experimenting and problem solving.

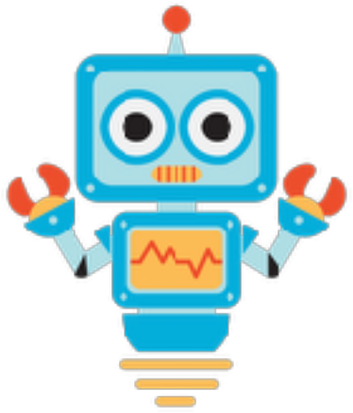

A is for The ARTS

The Arts is a way of expressing.
Makes learning visible and helps communicate ideas.

<u>Brain-building skills:</u> expressing, communicating, creating, creative thinking, making creative decisions.

Journey to Purpose - TEDx Manhattan Beach
Math Dance - Erik Stern and Karl Schaffer


UCATION
GTON COLLEGE
nerhouse.
education
THE SUNDAY TIMES
THE SUNDAY TIMES
festival
OF EDUCATION


STEAM for all!

Any age

Any level

Any ability

Any gender

Billy Goats Gruff: Building Bridges

STEAM Project

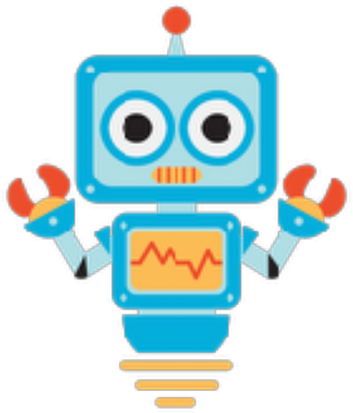
S: Observing, questioning, predicting materials/strength.

T: Using non-electronic tools (scissors, wooden blocks), measuring tools. Taking photographs of the bridges.

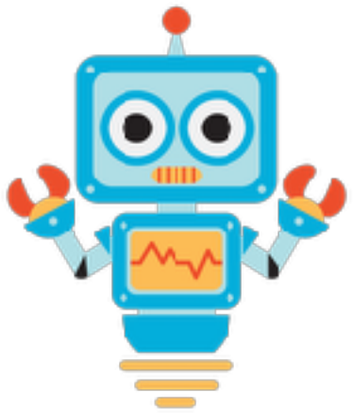
E: Designing and building bridges.

A: Drawing bridges. Creating with the body.

M: Measuring bridges, counting toy goats/coins, sequencing.


You don't have to be an expert!


Teaching STEAM is not an either/or exercise!

The Solar System

Shapes

Story: The Very Hungry Caterpillar

Means of Transport

Animals and their Habitats

Hot & Cold

Houses around the world

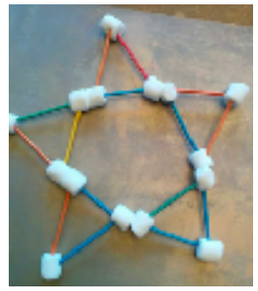
Healthy Living

Natural hazards

Counting to 100

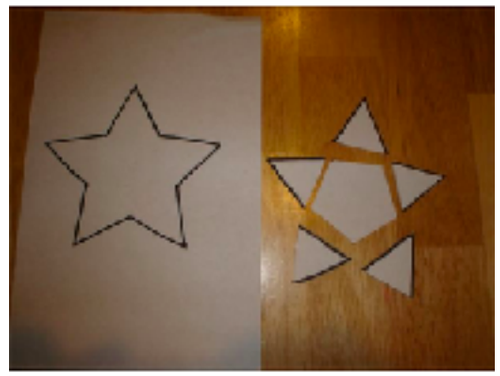
Song: Twinkle Twinkle Little Star

Twinkle Twinkle Little Star



S: Where can we see stars? What time of day can we see stars? Things that are far away look smaller.

T: Use a pin pointer to poke holes in the bottom of paper cups. Darken the room. Put the cup over a flashlight to see the shining stars.



E: Make a star using toothpicks and playdough.

A: Make a star out of a pentagon and 5 triangles. Use actions to sing the song. Lie on the floor making a star shape and take a photograph from above.

M: How can stars look like diamonds? How many sides does a star have? How many points does a star have? What shapes fit inside a star? High/low.

Food for thought...

"The future belongs to a different kind of person with a different kind of mind: designers, inventors, teachers, storytellers: creative and empathic 'right-brain' thinkers whose abilities mark the fault line between who gets ahead and who doesn't."

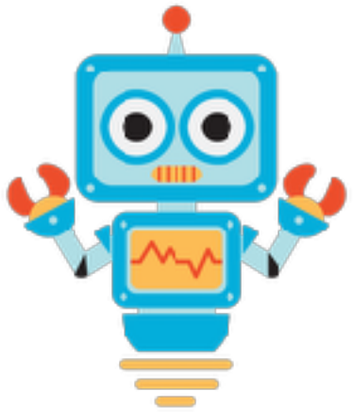
– Daniel Pink

"65 percent of today's grade-school kids may end up doing work that hasn't been invented yet."

– Cathy N. Davidson, Now You See It: How Technology and Brain Science Will Transform Schools and Business for the 21st Century

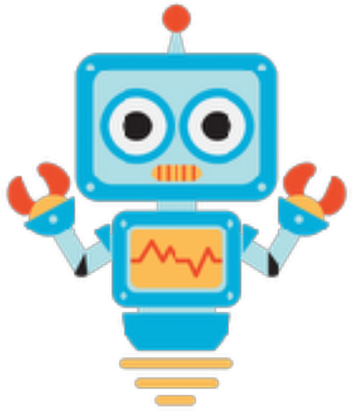
Are you teaching language?

Or are you teaching people?


Need ideas?

- **Fairy tale STEM:** momgineer.blogspot.com/p/stem.html
- **Fairy tale science experiments:** https://www.science-sparks.com/fairy-tale-science-experiments/
- **STEM in Libraries (stories):** https://steminlibraries.com/


Thank you!

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