

Fairy Tale STEM Challenges

Created by Bethany
@ MathGeekMama.com

5 Math &
Engineering
challenges
for K-5!



Thank you for downloading this resource from MathGeekMama.com!

I love providing high quality math teaching resources for parents and educators, but I ask that you please abide by the following terms of use. Thank you for your honesty and support of my work!

Please do:

- Download to your computer for personal use in the home or classroom
- Print copies for your personal use

Please do NOT:

- Link directly to the pdf file
- Save or store the file on your website
- Edit this resource in any way
- Print this resource to sell or distribute to others.

If you would like to share this (or other) resources with friends or colleagues, please direct them to my website to get a copy for themselves. Thank you!



Fairy Tale STEM Challenges:

Fun, Literature-based Math and Engineering

The Three Little Pigs: Can you build a house from straw, sticks and bricks? Which stands the strongest?

- Materials needed: straws, tape, scissors, toothpicks, marshmallows, LEGO bricks of various sizes
- Skills addressed: design a structure, problem solving, cooperative learning

Rapunzel: Can you design a slide for Rapunzel to use to escape the tower?

- Materials Needed: paper towel or toilet paper rolls, masking tape or painters tape, scissors
- Skills addressed: design a structure, problem solving, cooperative learning

Goldilocks and the 3 Bears: Can you design a new bed for baby bear? Will it be strong enough?

- Materials needed: toilet paper rolls, paper or card stock, masking tape or painters tape, aluminum foil, cupcake liners, pennies
- Skills addressed: design a structure, problem solving, cooperative learning

Fairy Tale STEM Challenges:

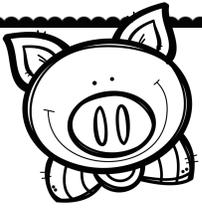
Fun, Literature-based Math and Engineering

Cinderella: Can you build Cinderella's castle out of pattern blocks?

- Materials needed: building mat, laminated, pattern blocks
- Skills addressed: creative thinking and problem solving, shape recognition, counting (fractions for older kids)

The Once Upon a Time Map Book: Can you find all of the people and give their location on the map?

- Materials Needed: *The Once Upon a Time Map Book*, handouts for each group or student (there's one for each of the 6 maps)
- Skills addressed: reading a map, introduction to graphing and reading and writing coordinates



The Three Little Pigs:

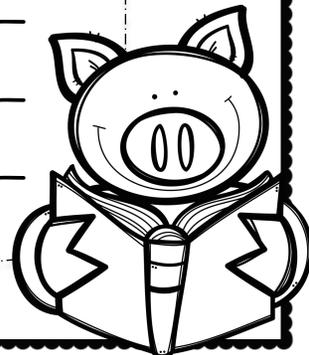
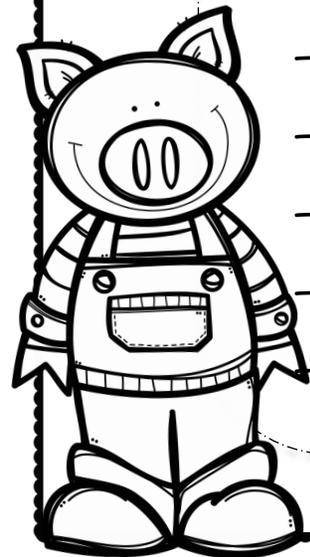
Challenge: Can you build a house for the pigs out of straws?

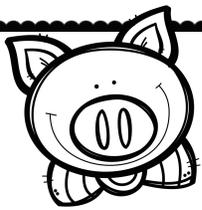
Materials: plastic straws, scissors and tape

Directions: Using your materials, build a house for the pigs. Then answer the questions below.

How strong is your house? Can you blow it over? Can you knock it down?

What could you do to improve your design and make it stronger?





The Three Little Pigs:

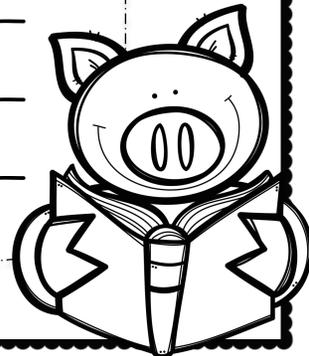
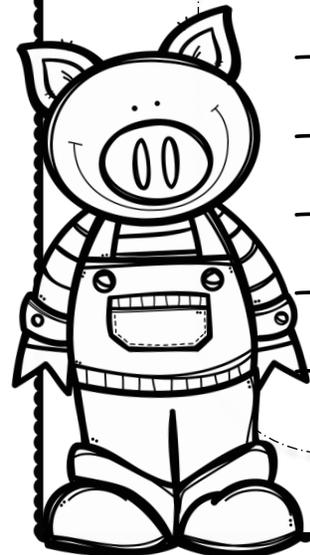
Challenge: Can you build a house for the pigs out of sticks?

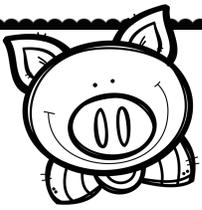
Materials: toothpicks, marshmallows

Directions: Using your materials, build a house for the pigs. Then answer the questions below.

How strong is your house? Can you blow it over? Can you knock it down?

What could you do to improve your design and make it stronger?





The Three Little Pigs:

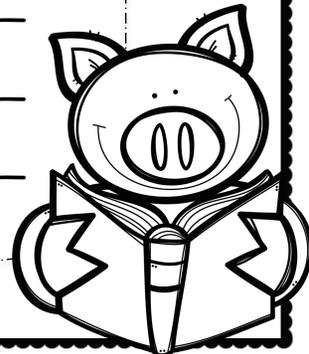
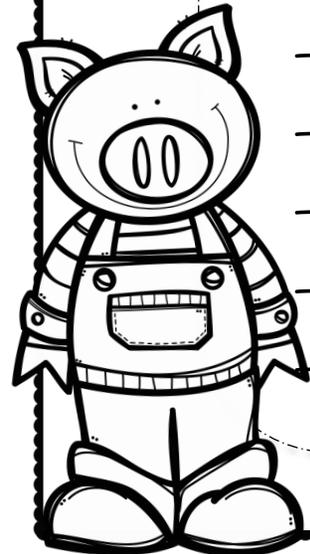
Challenge: Can you build a house for the pigs out of bricks?

Materials: LEGO bricks

Directions: Using your materials, build a house for the pigs. Then answer the questions below.

How strong is your house? Can you blow it over? Can you knock it down?

What could you do to improve your design and make it stronger?



Rescuing Rapunzel:

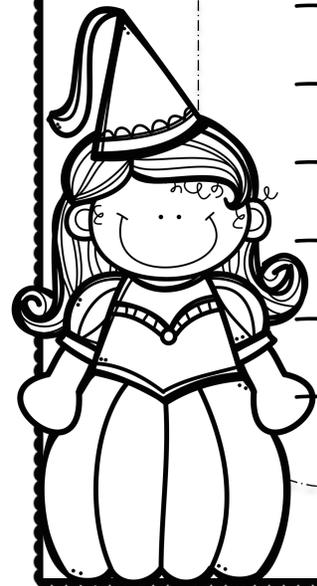
Challenge: Can you build a slide to help her escape?

Materials: paper towel or toilet paper rolls, tape, scissors

Directions: Cut the rolls in half and using your materials, build a slide for Rapunzel. Then answer the questions below.

How did you make sure the slide was strong enough?

What could you do to improve your design and make it stronger? Faster?



Goldilocks and the 3 Bears:

Challenge: Can you help Goldilocks build a new bed?

Materials: paper towel or toilet paper rolls, cupcake liners, paper, card stock, aluminum foil, tape, paper clips, scissors, pennies

Directions: Using your materials, build a bed for baby bear. Then answer the questions below.

What materials did you choose for your bed? Why?

How many pennies did your bed hold?

What could you change to make your bed JUST right?

Cinderella's Castle:

Challenge: Can you build Cinderella's Castle out of pattern blocks?

I used:

_____ squares

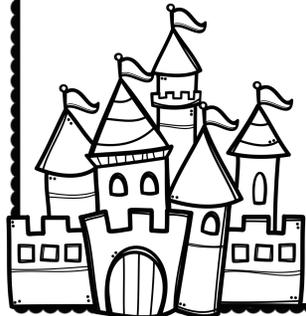
_____ blue rhombuses

_____ hexagons

_____ triangles

_____ white rhombuses

_____ trapezoids



Cinderella's Castle:

Challenge: Can you build Cinderella's Castle out of pattern blocks?

Write a fraction to represent each shape's portion of the whole castle:

_____ squares

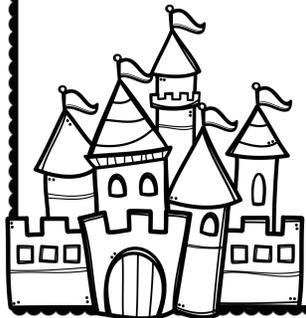
_____ blue rhombuses

_____ hexagons

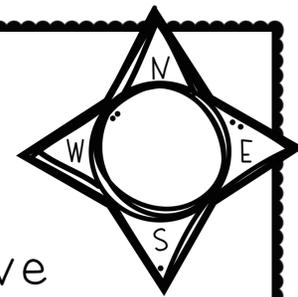
_____ triangles

_____ white rhombuses

_____ trapezoids



The Once Upon a Time Map Book: Neverland



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D3 is the coordinate for a waterfall)

The Jolly Roger:

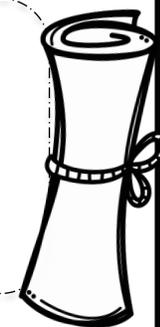
Wendy's
Cottage:

Peter Pan's
Hideout:

The treasure
chest:

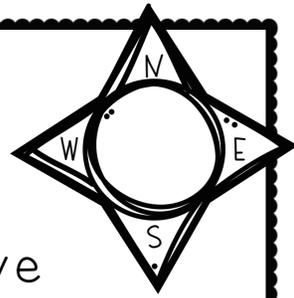
The tick-tock
crock:

A mermaid:



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Oz



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D3 is the coordinate for poppy field)

Glenda the good witch:

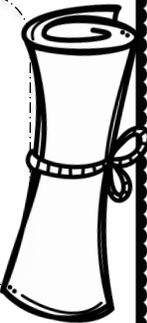
Dorothy's house:

Green and yellow hot air balloon:

Rainbow:

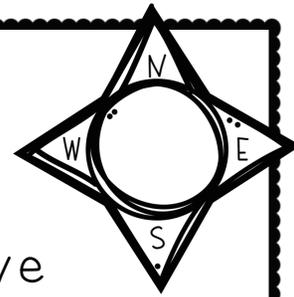
Goat:

Wizard of Oz:



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Wonderland



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D3 is the coordinate for the gardener)

Queen of hearts:

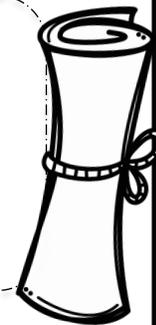
The white rabbit:

Cheshire cat:

Flamingo:

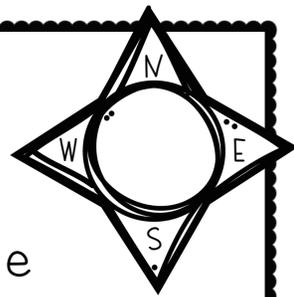
Alice's tea set:

Peacock bush:



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Giant's Kingdom



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D3 is the coordinate for a log bridge)

Rainbow Bridge:

Basket of eggs:

Golden harp:

Jack:

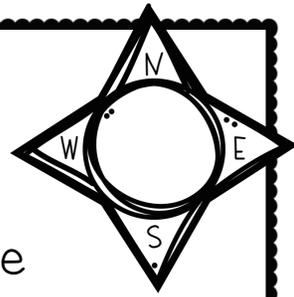
Two-headed
dragon:

Giant's hen:



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Aladdin's Kingdom



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D4 is the coordinate for a man on a camel)

Wishing well:

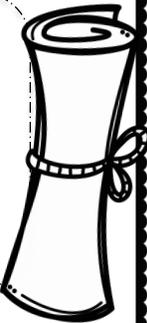
Stork:

Evil magician:

Entrance to
cave:

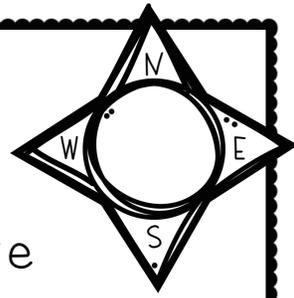
Elephant
fountain:

Genie:



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Enchanted Forest



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, E3 is the coordinate for the dock on the lake)

Basket of poison apples:

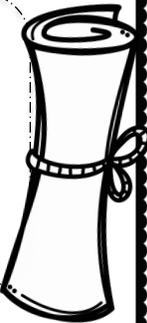
Cart of gold:

Beautiful mirror:

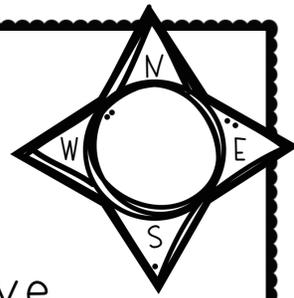
Royal Coach with the King's men:

Top of Emerald's Hill:

Seven dwarfs:



What else do you see on the map? Can you give its location?



The Once Upon a Time Map Book: Neverland

Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D3 is the coordinate for a waterfall)

The Jolly Roger:

A4

Wendy's
Cottage:

C1/D1

Peter Pan's
Hideout:

C2

The treasure
chest:

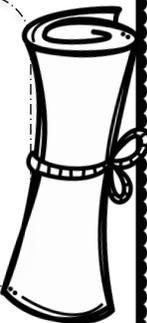
E2

The tick-tock
crock:

E3

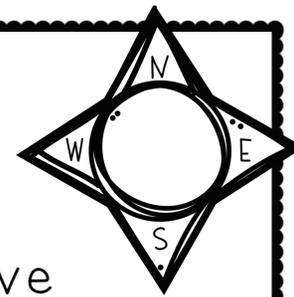
A mermaid:

D1



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Oz



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D3 is the coordinate for poppy field)

Glenda the good witch:

C5

Dorothy's house:

H4

Green and yellow hot air balloon:

B1

Rainbow:

D1

Goat:

A5

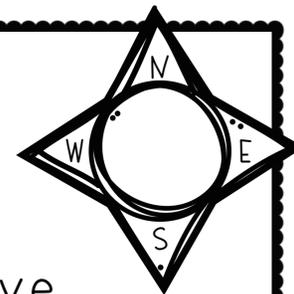
Wizard of Oz:

D1



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Wonderland



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D3 is the coordinate for the gardener)

Queen of hearts:

B3

The white rabbit:

C5

Cheshire cat:

C2, D4, F3, C1

Flamingo:

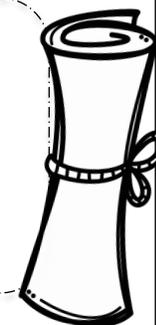
A2

Alice's tea set:

E2/F2

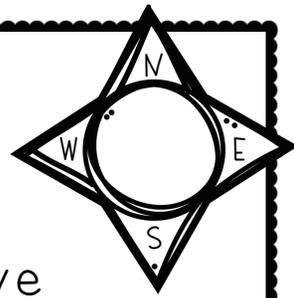
Peacock bush:

E2



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Giant's Kingdom



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D3 is the coordinate for a log bridge)

Rainbow Bridge:

B3

Basket of eggs:

B5

Golden harp:

F3

Jack:

G3

Two-headed dragon:

E4

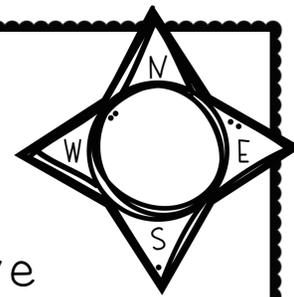
Giant's hen:

E5



What else do you see on the map? Can you give its location?

The Once Upon a Time Map Book: Aladdin's Kingdom



Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, D4 is the coordinate for a man on a camel)

Wishing well:

D5

Stork:

D4

Evil magician:

D5

Entrance to
cave:

E1

Elephant
fountain:

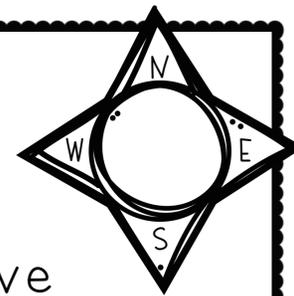
E3

Genie:

E2



What else do you see on the map? Can you give its location?



The Once Upon a Time Map Book: Enchanted Forest

Challenge: Can you find all of the characters listed below and give their location on the map as a coordinate?

(A coordinate lists the east and west direction, as well as the north and south direction. For example, E3 is the coordinate for the dock on the lake)

Basket of poison apples:

G5

Cart of gold:

F2

Beautiful mirror:

E5

Royal Coach with the King's men:

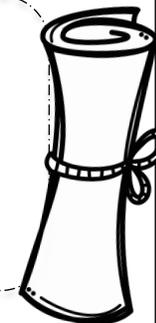
G5

Top of Emerald's Hill:

C1

Seven dwarfs:

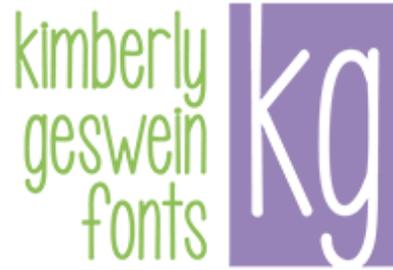
C4



What else do you see on the map? Can you give its location?

Thank You!

This resource was made possible thanks to the clipart and fonts from these shops:



<https://www.teacherspayteachers.com/Store/Krista-Wallden>
<https://www.teacherspayteachers.com/Store/Kimberly-Geswein-Fonts>
<http://brittneymurphydesign.com/>
<https://www.teacherspayteachers.com/Store/A-Little-Peace-Of-Africa>



Connect with Me:

Website: www.MathGeekMama.com

FB: <https://www.facebook.com/mathgeekmama/>

Pin: <https://www.pinterest.com/mathgeekmama/>

T/IG: @mathgeekmama