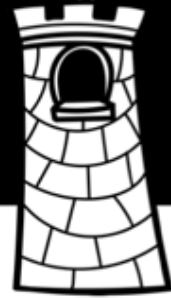
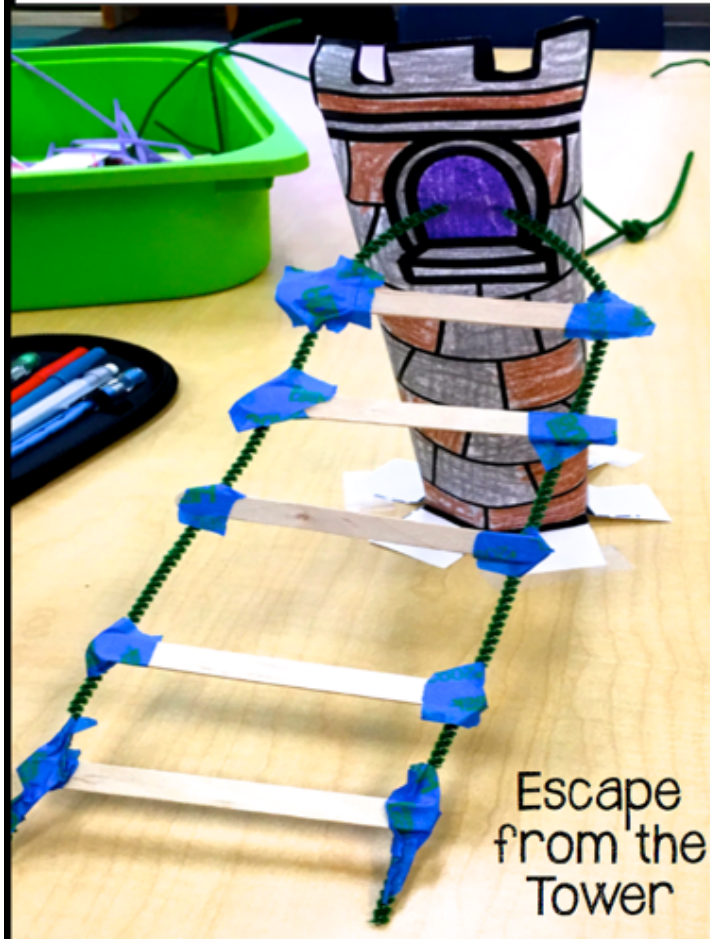


GROWTH MINDSET

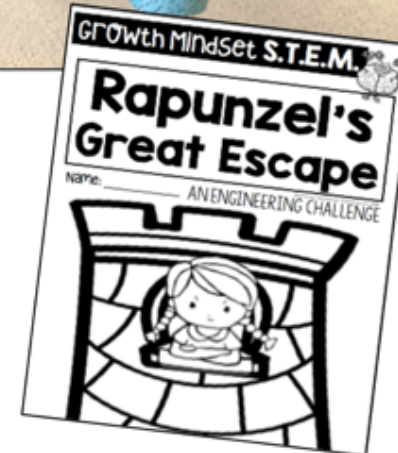
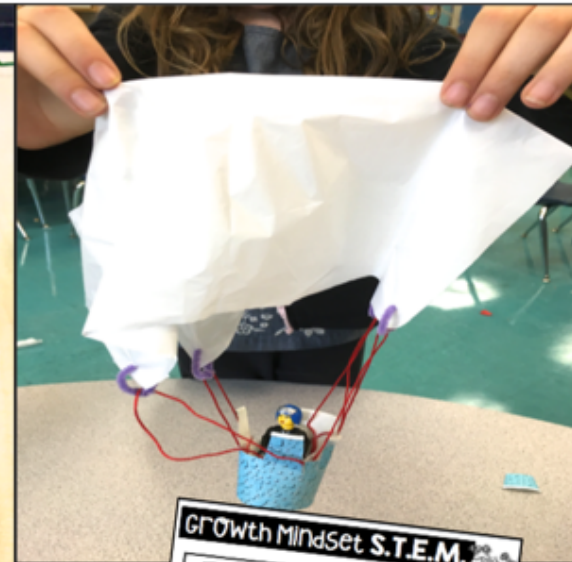


S.T.E.M.

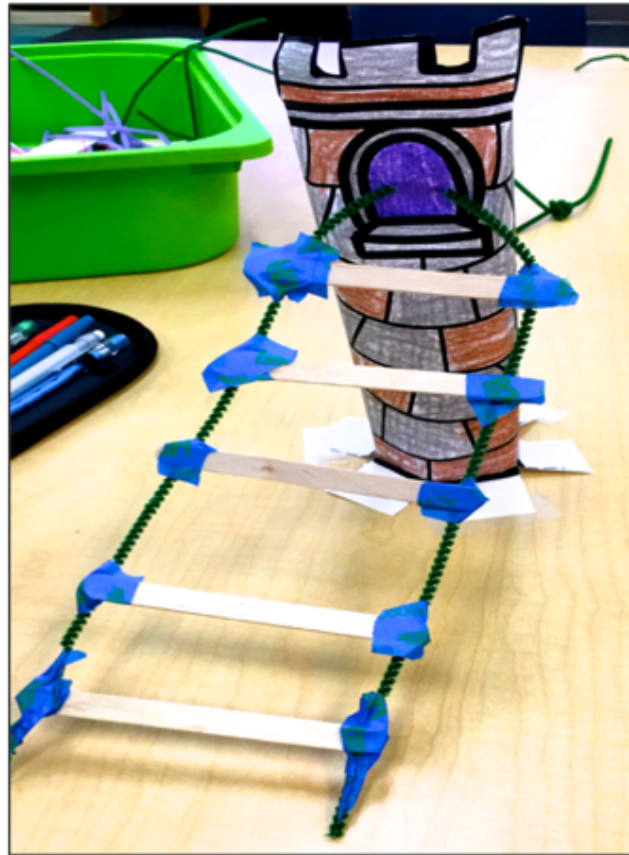
Rapunzel



Escape from the Tower



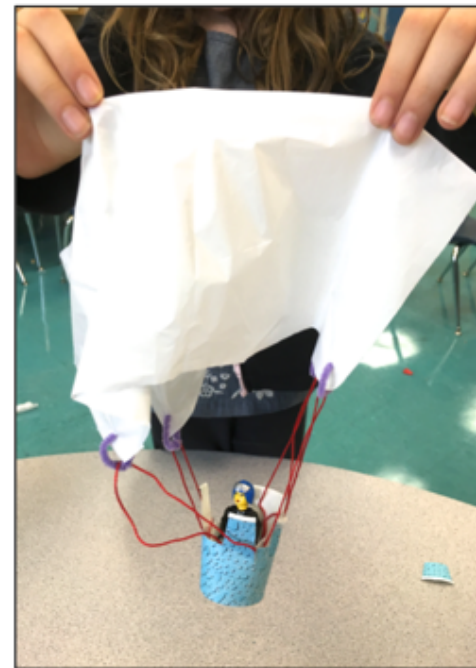
The STEM Challenge:



This STEM challenge involves creating a way to get Rapunzel down from her tower. The task was open to any kind of solution.

Here are two examples from my classroom. First, students used craft sticks, tape and pipe cleaners to create a giant ladder. The paper tower is made from the template included in this set.

In the second example, students made parachute for Rapunzel to float down to the ground. A white plastic bag was used for the parachute, and the paper cut basket was connected with red string. A lego man was used to demonstrate where Rapunzel would ride. Some adjustments were made after the first test to make the parachute land safely on the floor.



Rapunzel

Narrator: Rapunzel has been trapped up in a very high tower. She has been there for years!

Rapunzel: I am so lonely up here in this tower! I have no books to read. I have no t.v. to watch. I have no computer games. I don't even have my phone to call for help!

Narrator: Luckily for Rapunzel, help was on the way. A prince had arrived to rescue her from the tower.

Prince: Oh Rapunzel! Are you there? I have come to rescue you!

Rapunzel: Finally! I've been trapped here forever with no way to get down! How will we solve this problem?

Prince: I have a plan. All you have to do is throw down your long hair. When it reaches the ground, I will climb up and rescue you.

Rapunzel: Oh dear...that will not work.

Prince: Why not?

Rapunzel: Because yesterday I was so bored that I decided to give myself a haircut. I made a long braid that filled the whole room. And then I just chopped it off! So I guess there's no hope for me now.

Partner Play

page 2

Rapunzel

Prince: That's ok. Since our first plan didn't work, I have another idea. Here it is: Oh Rapunzel, Rapunzel, throw down your hair!

Narrator: Even though she was upset and grumpy, Rapunzel threw her long braid out of the window. All of it. The whole thing landed on the ground with a THUNK on the ground beside the prince.

Prince:
Why didn't you hold on to one of the ends? How can I climb this hair if you're not holding the other end?

Rapunzel: What? You didn't say to hold one end. You said "Throw down your hair", and that's what I did!"

Narrator: The prince sighed. He did say that.

Prince: Oopsie. You're right. I will try to be more specific next time.

Narrator: Rapunzel sat down in the corner of her room and cried.

Rapunzel: I give UP! I will NEVER get out of here! NEVER! NEVER!

Partner Play **Rapunzel**

page 3

Prince: Oh Rapunzel. Don't be like that! We just need another plan!

Rapunzel: I don't have another plan! That was the only plan in the world and it's ruined! I will be here forever now!

Prince: Listen, Rapunzel, don't just give up when things are hard. You just have to tell yourself "This may take some time and effort". If plan A didn't work, and plan B didn't work, then you might have to find a plan C.

Rapunzel: You mean there's still a chance I might get out of here?

Prince: Yes, but we're going to have to work hard to think of a solution. What else do you have up there in your room?

Narrator: **Rapunzel looked around her little room for something that might help.**

Rapunzel: There's nothing in here that can help us! All I see is some tape, some string, some wire, some plastic bags and sticks. And a few other things. How can those help?

Prince: Those are useful things! We're going to use those things to get you out of there! Now let's make a plan together.

STEM Challenge: Help Rapunzel get out of her tower using only the supplies given to you.

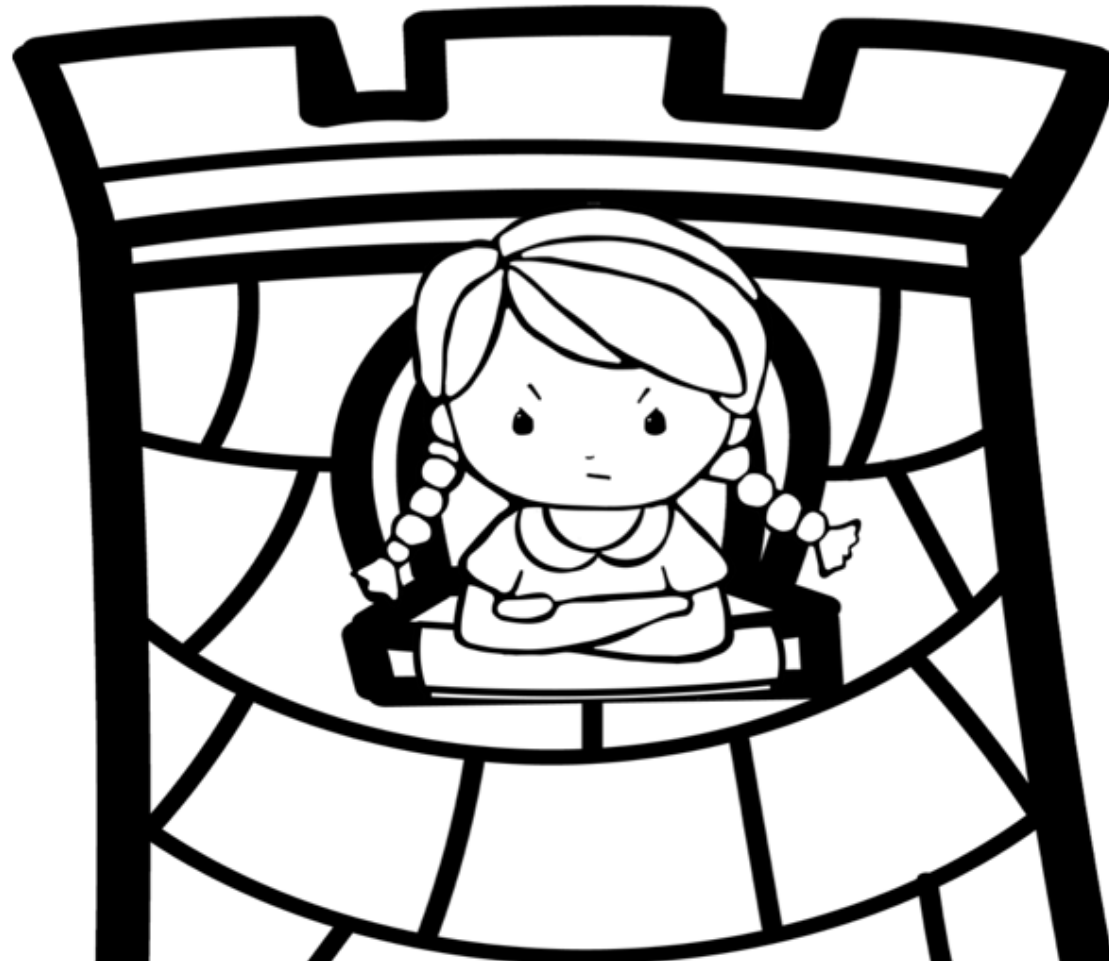
Growth Mindset S.T.E.M.



Rapunzel's Great Escape

Name: _____ AN ENGINEERING CHALLENGE

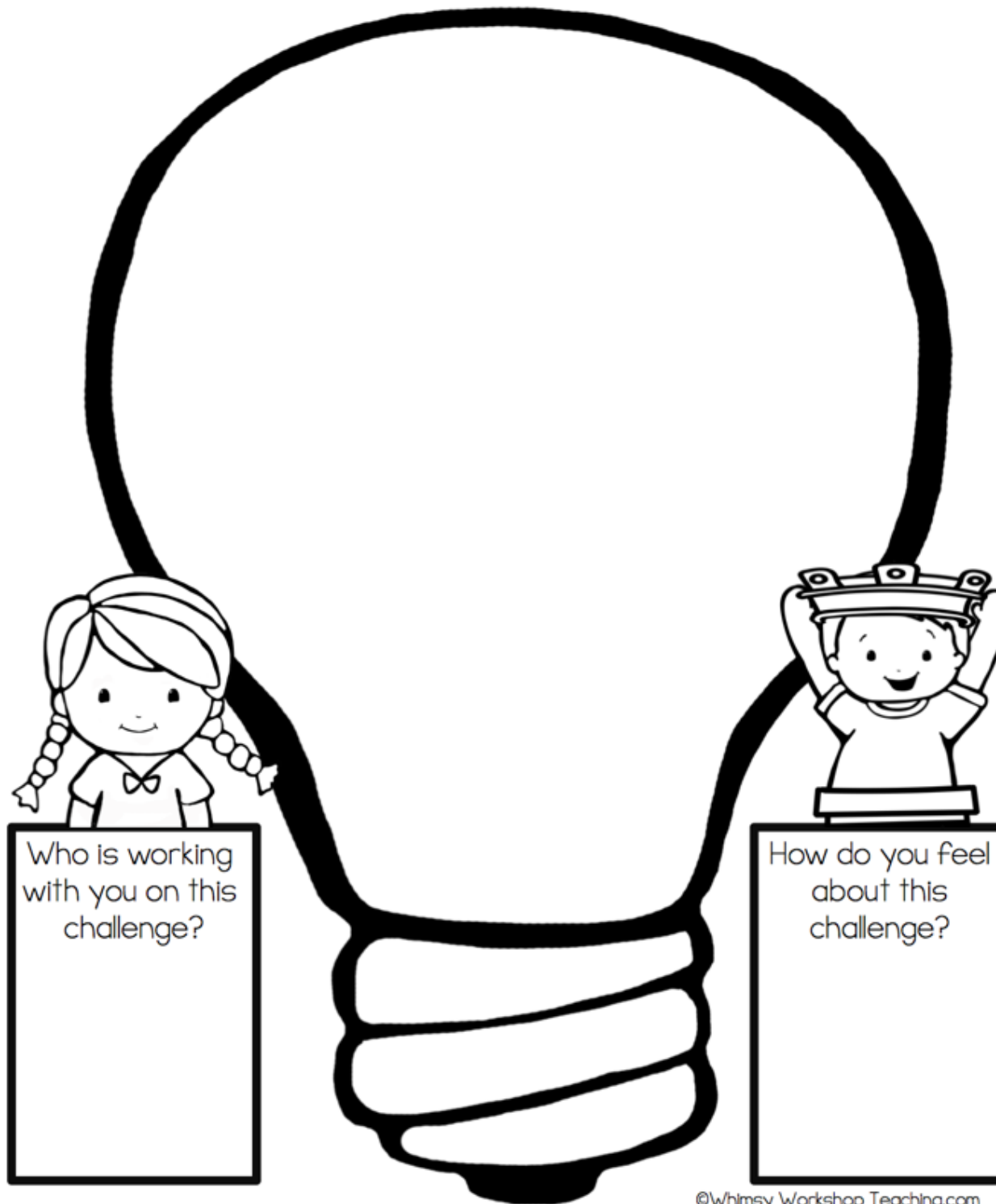
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BRAINSTORM IDEAS



How can Rapunzel get down from the tower safely?
Write and draw all your ideas for this challenge.



MY GROWTH MINDSET STEPS



Write about the steps you took during this challenge.
Did you feel excited or frustrated during some parts?

My STEM challenge was to

MY MATERIALS

The first thing I did was _____

I felt...

The next thing I did was _____

I felt...

The next thing I did was _____

I felt...

I completed my challenge by

I felt...



STEM Challenge Review



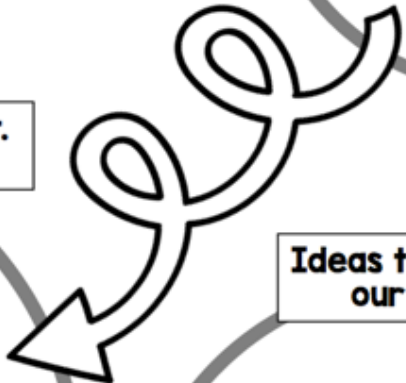
Some of the ideas we had:

We chose this idea:



We made a model and tested it.
Did it work? Why or why not?

Ideas to improve
our model:



I used a growth mindset during my STEM challenge when _____

GrOwth Mindset STEM

Sometimes our first ideas don't work. Write about something that didn't work the first time, and what you did to fix or improve it.



What Didn't Work

What Did You Improve?

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Growth Mindset STEM

Write about this challenge. What worked? What didn't work?
Did you have to change your ideas? What did you learn?



An idea that didn't work:

So here's what I did:

I improved my idea this way:

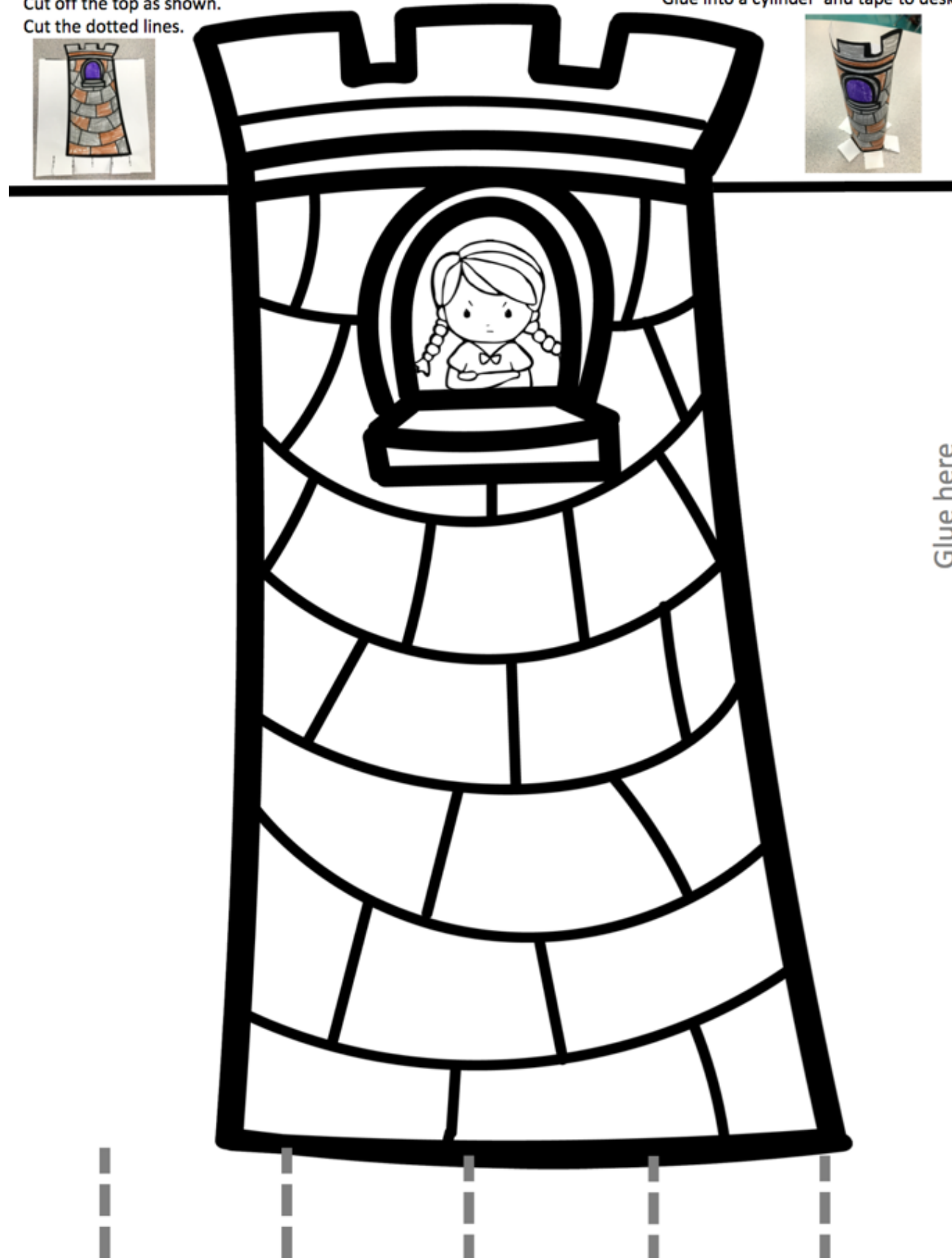
Here's what I learned:



Cut off the top as shown.
Cut the dotted lines.



Glue into a cylinder and tape to desk.



Glue here