Transcript for *Counting on Katherine: How Katherine Johnson Saved Apollo 13* written by Helaine Becker (Henry Holt and Company)

Introduction (approximately 0:00 – 3:38)

Hi everyone! It's Colleen from the KU Natural History Museum, and I'm so excited for today's Story Book Science. We are going to be reading *Counting on Katherine: How Katherine Johnson Saved Apollo 13*.

Now I do want to wait for some people to join us. So while we wait, what I want to do is go over a couple of the words that we're going to be talking about in the story, as well as what we'll discuss after we read the story. And what word we will discuss is gravity. Now gravity is a force that acts on objects. And when we talk about a force, what we're talking about is a push or a pull. Another way to think about forces is an attraction or repulsion. So those are things that we'll discuss a little later after we read the story, but I wanted you to start thinking about them, especially how you may have interacted with gravity before. Maybe you've experienced it, and maybe you have some examples of that. So I want you to think about that while we wait for those other people to join us.

So I think we can go ahead and get started.

The first thing I want to do is welcome you to Story Book Science, and I want to go over expectations for Story Book Science. So we are not in the museum, but museum rules still apply. So that means that anytime you ask a question or write a comment, I do ask that you use kind and considerate words. And if you respond to someone's question or comment, I ask that you also use kind and considerate words. We want to make sure that this space is a welcoming environment just like we would at the museum. So we want to make sure this virtual space is welcoming too.

Alright. So for Story Book Science today we are going to be reading *Counting on Katherine: How Katherine Johnson Saved Apollo 13*. It is written by Helaine Becker, and it's illustrated by Dow Phumiruk. We are reading this book with permission from Henry Holt and Company. So thank you so much to Henry Holt and Company for the permission to read this book. One of the reasons why I love this book is because I think Katherine Johnson is amazing. She was a human computer which meant that she could do all of these math calculations in her head. She didn't need to use a machine to help her. Not only that, Katherine faced a lot of adversity in her life, and that meant that she had a lot of challenges that she had to overcome. But she was able to also make history by working for NASA and many of their space programs.

Now the other thing that I want to mention before we get started is that if you have any questions or comments, please, please, please, please feel free to write those. Um, I will answer them if I have time. Additionally, if you need a partial transcript of this reading it will be available later today on the museum's website, and there is a link to that in the description.

So let's go ahead and get started with our reading.

Counting on Katherine.

Reading from *Counting on Katherine: How Katherine Johnson Saved Apollo 13* (approximately 3:39 – 12:38)

Counting on Katherine: How Katherine Johnson Saved Apollo 13 *includes copyrighted materials, and we do not have permission to include the written text of the book in this transcript.*

Conclusion (approximately 12:39 – 18:29)

The end.

Whoo. I love this story. I love reading about Katherine Johnson, as I mentioned before. I think that her skills and her ability to do math, and under a lot of pressure – it was pretty hard to do the math for Apollo 13, especially knowing the circumstances. She was able to do that and change the course of history for NASA and many of those space missions. But beyond her ability to do math like that, she just loved math. She loved counting. She was so joyous about it. And that makes me so happy because I love math, and I love using it in my everyday life. When I use math I'm counting the number of birds in the tree outside my home, or I'm adding tablespoons and teaspoons and cups of ingredients when I cook. So I use math every single day.

I also use math in ways that I don't necessarily realize that I'm using math. And an example of this is the other day I was carrying the book that I just read to you, and I dropped it. And it fell to the ground, and then it made a really loud noise. Now we can use math to explain what happened. So we're going to do a demonstration to do this.

So this ball right here, it's matter. And what that means is that it has mass, and it takes up space. So this is a very important word, and we are going to put it on the wall. So the ball is matter. Now everything is matter, if we're going to be honest, because everything has mass and takes up space. You are matter, I'm a matter just like this ball. Now bits of matter, they interact within forces. And we talked earlier that a force is a push or a pull. So I'm going to put those words on the board too. So we have force, and we know that it's a push or a pull. Now another way to think about forces is an attraction or a repulsion. So I'm going to put those words on the board as well: attraction and repulsion. And attraction is when things come together, and repulsion is when things go away from each other. So attraction: things come together. Repulsion: things go away.

Now getting back to the ball. We know it's matter. We know bits of matter interact within forces, and we know forces are attractions or repulsions. Now if I were to drop this ball. What do you think's going to happen? Let's see. Now the ball fell. It fell to the ground. And we know that because it's not floating in this area. I let go, and it fell to the ground. And that's because gravity was acting on it. So gravity, which is another important word that we'll put on the board; gravity is a force of attraction. Hopefully you can see that. So gravity, this force of attraction; bits of matter like the ball interact within that force, and the ball was attracted to another bit of matter. Now remember the ball fell to the ground. So that means that the other form of matter that was attracted, it was the Earth, because the Earth is matter. It has mass. It takes up space. And the ball and the Earth are attracted to each other. So that's why the ball falls.

That's why other things fall too, because of gravity which is a force of attraction. So I want you to think about that the next time you accidentally drop something. I want you to think about how gravity is this force of attraction, and those things come together.

Now I want to thank you for spending your time listening to the story about Katherine Johnson. I, again, I just want to say how amazing she was and all of the work she did to help support NASA and its space programs. One of the things that Katherine always talked about, though, was that she never worked alone. There was always a team working together because science is a collaborative approach. And it got me thinking about

teamwork and how we all work together, not just in science, but in other ways too and other aspects of our life.

So that got me thinking about our next story for next week, which is *Izzy Gizmo and the Invention Convention*. So this is Izzy, and Izzy is an inventor. And she's creative, and she's smart. And she makes really amazing inventions, but she has some help. She has a friend, Flicker. Flicker is a crow. Add also her Grandpa helps her. So it just goes to show you how important teamwork is.

So next week we'll read *Izzy Gizmo and the Invention Convention*, and I'll have some specimens to show you from the museum about birds like Flicker: so crows and other members of Family Corvidae. So I hope to see you then on Facebook Live at 10am. I'll see you next week. Bye!