

# CONNECTIONS TO SCIENCE GUIDES

GEORGIA YOUTH SCIENCE & TECHNOLOGY CENTERS, INC.

## THE MAGICAL YET BY: ANGELA DITERLIZZI

CAN'T FIND THE BOOK?  
READ-ALOUDS ARE AVAILABLE  
ON YOUTUBE.



### ASK

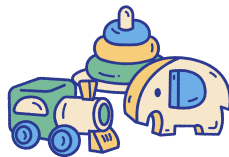
- What is something that you can't do yet?
- Can you ride a bicycle?
- How do bicycles move?
- What are the different ways objects can move?
- Have you ever thought about being a mechanical engineer?

### EXPLORE

#### HOW OBJECTS MOVE

##### Materials:

- A variety of small toys (i.e., balls, cars, trains, spinning tops, etc.)
- Pencil
- Paper

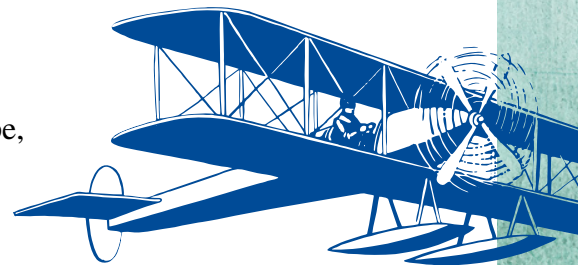
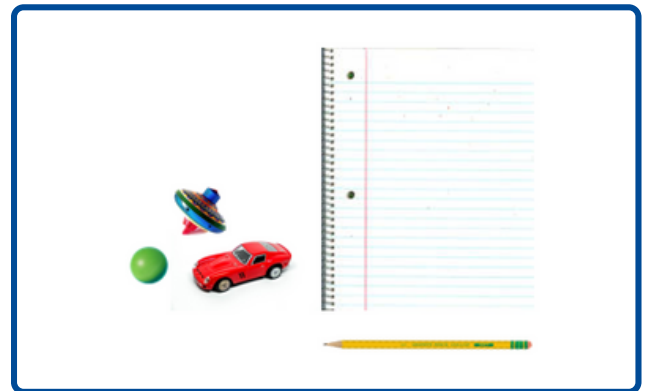


##### Directions:

- Begin by gathering some small toys.
- Predict how each toy will move when a force is applied.
- Push or pull the toy.
- Record how the force affected the toy (i.e., bounce, roll, spin, etc.)
- Repeat for each toy.
- As you are testing each toy, think about:
  - What effect do the toy's physical attributes (i.e., color, size, shape, weight, and texture) have on its motion?
  - What happens when you apply more or less force?

##### Fun Facts:

- About 100 million bicycles are manufactured every year.
- Orville and Wilbur Wright operated a bicycle repair shop. They used their workshop to build their 1903 Wright Flyer.



## EXPLAIN

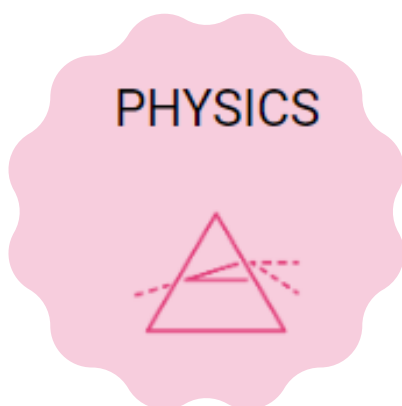
### FORCE AND MOTION

Force and motion are all around us. A force is a push or a pull on an object. These forces make objects move. Objects can move fast or slow. Without forces, nothing would move. Gravity is a pull toward Earth. Without gravity, everything on Earth would fly off into space.



## EXTEND

### PHET FORCES AND MOTION: BASICS



Predict the direction of motion given a combination of forces.

[www.phet.colorado.edu](http://www.phet.colorado.edu)

## STEM CAREER

### MECHANICAL ENGINEER

A mechanical engineer researches, designs, develops, builds, and tests various devices. At work, mechanical engineers need to understand force and motion. If you are interested in building things, like bicycles, being a mechanical engineer might be for you!



## BACKGROUND

The Georgia Youth Science and Technology Centers, Inc. provides quality programs for teachers of STEM subjects that improve the teaching and learning process at the kindergarten through eighth grade levels. We present programs that change students' perceptions and inspire an appreciation for science, technology, engineering, and mathematics subjects.

## ABOUT US

**Amanda Buice**

GYSTC, Inc.

Executive Director

[abuice6@kennesaw.edu](mailto:abuice6@kennesaw.edu)

**Jenna Henkel**

GYSTC, Inc.

STEM Program Manager

[jmp8603@kennesaw.edu](mailto:jmp8603@kennesaw.edu)



Scan QR code or Visit:

for more guides