Dear Educator,

Transport your students to a magnificent amusement park that arises from a special girl's wildly vivid imagination — then inspire them to dream, create, and build a park of their own with this free, standards-aligned teaching kit based on the new Paramount Pictures film **Wonder Park, coming to theatres on March 15, 2019.**

As they explore **Wonder Park**, your students will not only study science concepts and practice STEM skills, but also will stretch their imaginations with easy-to-implement classroom activities developed by the curriculum specialists at Young Minds Inspired in cooperation with Paramount Pictures. The activities align with Next Generation Science Standards for grades 5-8 and should be used before students see the film.

Please share this kit with other teachers in grades 5-8. Although these materials are copyrighted, you may make as many copies as you need for educational purposes. Return the enclosed reply card or comment online at ymiclassroom.com/feedback-wonderpark.

Sincerely,

Dr. Dominic Kinsley
Editor in Chief
Young Minds Inspired

WONDER PARK

WONDER PARK SYNOPSIS

Wonder Park tells the story of a magnificent amusement park where the imagination of a wildly creative girl named June comes alive. One magical day, as June is running through the woods to find her way home, she discovers an old rollercoaster car and climbs inside. She suddenly finds herself in Wonderland, an amusement park she had created in her mind and put aside as a passing daydream. All the rides and characters she imagined are brought to life here, but the park has been falling into disarray since she let her dream slip away. Now, with the help of her fun and lovable park characters, June will have to put the wonder back in Wonderland before it is lost forever.

Target Audience: Students in science classes in grades 5-8

Program Components

- This one-page teacher's guide
- Three reproducible activity sheets
- A colorful classroom wall poster
- A reply card for your comments, or comment online at ymiclassroom.com/feedback-wonderpark
- A standards alignment chart available at ymiclassroom.com/wonderpark

ACTIVITY 1
DREAM BIG

Materials needed: 50 bendy straws, one roll of masking tape, scissors, one piece of cardboard (at least 18" x 18"), ping pong ball, marble for each group.

Explain that in the new film **Wonder Park**, a girl named June dreams big. In fact, as she dreams up, plans, and builds the rides for an amazing miniature amusement park, her dreams come true deep in a magical forest where a full-size Wonderland springs to life without her knowing it.

Tell students that in Part 1, they are going to form small groups and build and test their own bendy straw slides, just like June does in **Wonder Park**.

Give students about 30 minutes to build and test their designs. Then, in Part 2, have them read *Newton's Second Law of Motion* and answer the questions.

ACTIVITY 2
LET YOUR DREAMS SOAR

Materials needed: 8 craft sticks, 6 rubber bands, one plastic spoon, gumdrops or other projectiles for each group.

In **Wonder Park**, June lets her imagination soar when she creates the Skyflinger, a ride where visitors climb into a pod, which is then flung into the air and caught on the other end of the park. This device is similar to a real invention, the catapult.

Tell students that catapults were developed thousands of years ago as weapons of war. They use mechanical energy, stored energy, and gravity to launch a projectile for long distances. The potential, or stored energy, builds up in the catapult until it is released. Then energy transfers to the projectile and becomes kinetic energy. This demonstrates a science principle called the law of *Conservation of Energy*, which states that energy is neither created nor destroyed; it is simply transferred or changes from one form to another. Explain that catapults also demonstrate *Newton's First Law of Motion*, which states that an object at rest tends to stay at rest, and an object in motion tends to stay in motion, with the same direction and speed, until a force acts on it. Ask students what forces act on the pods as they travel across the park. (Gravity is the force that causes the pods to slow and drop out of the air. There is also the force of the machine that catches the pods, which causes them to stop moving.)

Tell students that in Part 1 they are going to build and test their own catapults. Give students about 20 minutes to plan, build, and test their catapult designs. Then, have students read the paragraph in Part 2 and answer the questions. Ask students to demonstrate their catapults and share the answers to their questions with the class.

ACTIVITY 3
BUILD YOUR OWN DREAM!

Materials needed: scissors, access to hot glue guns, masking tape, scraps of cardboard, small plastic containers such as medicine bottles, small baskets or boxes, rubber bands, pipe cleaners, string, small paper cups such as those that hold pills, straws, scraps of fabric, etc., for each group.

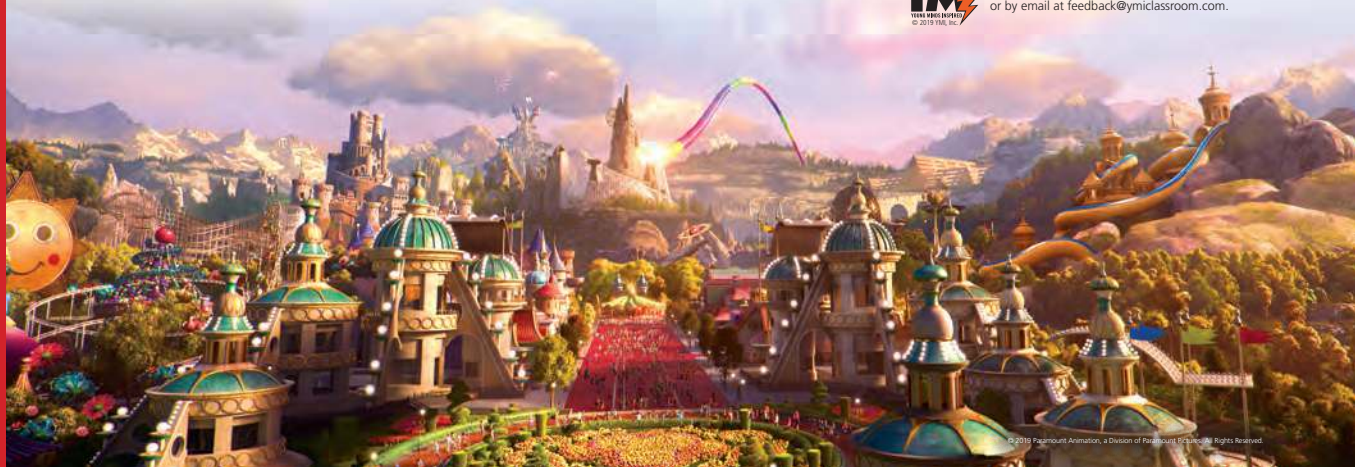
Now that the students have studied the physics of two different types of amusement park rides, they will dream, write about, and design their own fantastical rides — just like June! As a class or on individual computers or tablets, have students visit Amusement Park Physics at www.learner.org/exhibits/parkphysics. Read and discuss the physics behind some of the rides described.

Pass out and go over the instructions on the activity sheet. Remind students that they will need to name and explain the physics behind their rides. Give students at least 30 minutes to complete their designs. Then combine the rides into one fantastic, imaginative amusement park!

RESOURCES

- WonderParkMovie.com
- Amusement Park Physics www.learner.org/exhibits/parkphysics
- ymiclassroom.com

Questions? Contact YMI toll-free at 1-800-859-8005 or by email at feedback@ymiclassroom.com.



ACTIVITY 1

Reproducible Master

DREAM BIG

In the new film **Wonder Park**, coming to theatres on **March 15**, a magnificent amusement park springs to life from the imagination of a wildly creative girl named June. Here's your chance to dream big, just like June. Get together with a group of classmates and make your own Bendy Straw Slide!

PART 1

Your task is to *dream* (discuss with your group), *plan* (sketch out a design), and *build* a slide out of bendy straws, using the materials your teacher provides. Watch the video at https://youtu.be/dklLS9BkwPk for inspiration.

Things to think about:

- You may cut the straws.
- Your slide must change directions two times.
- Your ping pong ball and marble must not fall off the slide before they reach the bottom.
- Your slide must be secured to the cardboard, but it cannot be larger than the cardboard.

Step 1 **Dream:** Talk about your ideas for the slide's design with your group. What problems do you think you might encounter, and how will you solve them?

Step 2 **Plan:** On the back of this sheet, sketch out a plan for your design. See if you can find ways you might improve the design as you sketch.

Step 3 **Build:** Work as a team to build your design.

Step 4 **Test:** Send your ping pong ball, and then the marble, down your slide. Watch how they perform, and then improve your design. Send the ping pong ball and marble down the slide again. Time them to see which one reaches the end of the slide faster.

Ping pong ball: _____

Marble: _____

PART 2

Newton's Second Law of Motion states that the greater the mass of an object, the more force it will take to accelerate it. (This can be written as F=ma.) On your bendy straw slide, gravity is one force acting on the ping pong ball and the marble, speeding them toward the bottom. As they roll down the slide, friction acts as an opposing force, slowing them down. Use this information to answer the questions below:

1. Based on the performance of the ping pong ball and marble, which do you think has the greater mass?

   _____

2. Based on your results, what can you infer about the relationship between mass, friction, and speed when an object is rolling down a ramp?

   _____

   _____

   _____

   _____

SEE HOW JUNE'S IMAGINATION COMES ALIVE IN WONDER PARK AT A THEATRE NEAR YOU ON MARCH 15, 2019

Get a sneak peek at https://youtu.be/VML6rQWssSk

LET YOUR DREAMS SOAR

Amazing things happen when June lets her imagination soar in the new film **Wonder Park** coming to theatres on **March 15, 2019!** Find out what happens when you let your imagination soar by creating a catapult like June's Skyflinger.

PART 1

Your task is to *dream* (discuss with your group), *plan* (sketch out a design), and *build* a catapult using the materials your teacher provides. Watch the video at https://youtu.be/WpLFC_SOpXs for inspiration.

Things to think about:

- Many catapults work by suddenly releasing stored energy. When that happens, potential energy is transferred to the projectile, where it becomes kinetic energy. How can you create tension (stored energy) in your catapult with the materials your teacher gave you?
- What might hold your projectiles before they are launched?

Step 1 **Dream:** Talk about your ideas for your catapult's design with your group. What problems do you think you might encounter, and how will you solve them?

Step 2 **Plan:** On the back of this sheet, sketch out a plan for your design. See if you can find any ways you might improve your design as you sketch it.

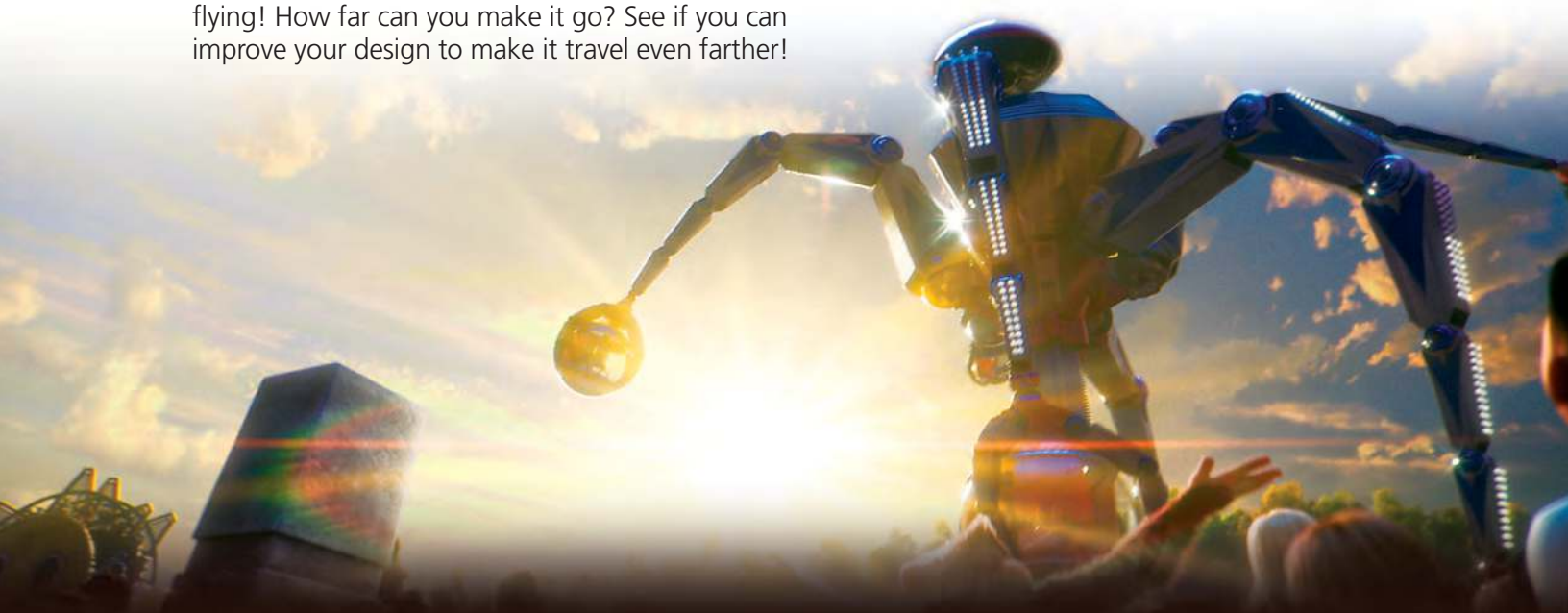
Step 3 **Build:** Use the materials provided by your teacher to build your design.

Step 4 **Test:** Place a projectile into your catapult and send it flying! How far can you make it go? See if you can improve your design to make it travel even farther!

PART 2

Newton's First Law of Motion states that an object at rest will remain at rest unless a force acts on it. The law of *Conservation of Energy* states that energy is neither created nor destroyed; it is simply transferred or changes from one form to another. Use this information to answer these questions on the other side of this sheet.

1. What do you think is the force that acts on the projectile to send it flying into the air?
2. Describe the path of energy as it travels through the catapult and projectile. Use the words *potential* and *kinetic* in your answer. Include how the energy changes and how it affects the path of the projectile depending on the amount of force applied.



SEE HOW JUNE'S IMAGINATION COMES ALIVE IN WONDER PARK AT A THEATRE NEAR YOU ON MARCH 15, 2019

Get a sneak peek at https://youtu.be/VML6rQWssSk

BUILD YOUR OWN DREAM!

As June discovers in the new film **Wonder Park**, dream-power can turn almost anything into a reality. Tap into your dream-power to create a model amusement park ride of your own. Who knows? You might discover that you want to be a real amusement park engineer someday!

PART 1

Your task is to *dream* (discuss with your group), *plan* (sketch out a design), and *build* your own model amusement park ride/attraction.

Things to think about:

- Start by browsing through the Amusement Park Physics glossary at www.learner.org/exhibits/parkphysics/glossary.html to learn how different principles of physics contribute to different types of amusement park rides. Try focusing on just one physics principle to generate ideas for the type of ride you want to build.
- Look through the materials your teacher provides before you decide what to build. If you decide that your ride will rotate or spin, for example, you will need materials to help create centrifugal force.
- Start small, test, and then improve. It's best to start small, make sure your ride works, and then make it better!

Step 1 **Dream:** Talk about your ideas for your attraction's design with your group. What problems do you think you might encounter, and how will you solve them?

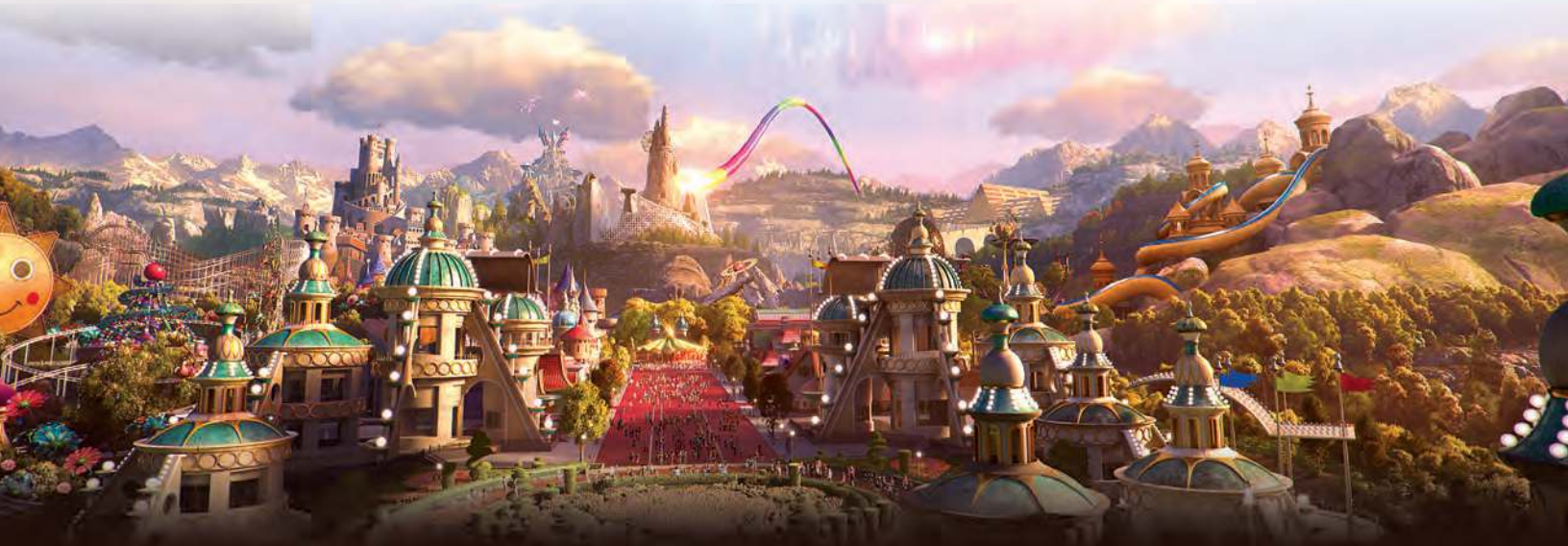
Step 2 **Plan:** On the back of this sheet, sketch out a plan for your design. See if you can find ways to improve your design as you sketch it.

Step 3 **Build:** Use the materials provided by your teacher.

Step 4 **Test:** Test your ride to make sure it works, and then see if you can improve it.

PART 2

Newton's Third Law of Motion states that for every action (force) there is an equal and opposite reaction (force). What are the forces at work in your ride, and how do they act on each other? Describe how your ride works on the lines below. Include a diagram of your ride on the back of this sheet that shows how energy is transformed or transferred throughout the ride. Finally, don't forget to name your ride!



SEE HOW JUNE'S IMAGINATION COMES ALIVE IN WONDER PARK AT A THEATRE NEAR YOU ON MARCH 15, 2019

Get a sneak peek at https://youtu.be/VML6rQWssSk

WONDER PARK

IN THEATRES AND REAL D 3D

MARCH 15

nickelodeon MOVIES

PARENTAL GUIDANCE SUGGESTED
PG
SOME MILD THEMATIC ELEMENTS AND ACTION
Some Material May Not Be Suitable for Children

WonderParkMovie.com