

Teachers, are YOU ready to rev up your STEM curriculum? Fasten your seat belts because *Blaze and the Monster Machines* is coming to your classroom! Nickelodeon's *Blaze and the Monster Machines* is an interactive, adventure-filled series for preschoolers featuring the world's most amazing monster truck, Blaze, his eight-year-old driver, AJ, and their Monster Machine friends.

Prepare to be amazed when you introduce your students (and other teachers) to Blaze with this kit, created by Young Minds Inspired (YMI) and Nickelodeon. It includes a fun poster, a DVD of the *Blaze and the Monster Machines* *Blaze of Glory* movie event, STEM-based creative play activities designed to drive curiosity and learning in class, and additional activities to spark STEM interest at home\*.

Once you've used the kit, we'd love to hear from you! Did *Blaze and the Monster Machines* help rev up your STEM efforts? Please use the enclosed reply card or comment online at [ymiclassroom.com/feedback-blaze](http://ymiclassroom.com/feedback-blaze). Your feedback helps us continue to provide free educational programs that make a difference!

Sincerely,



Dr. Dominic Kinsley  
Editor in Chief  
Young Minds  
Inspired

 For questions, contact us toll-free at 1-800-859-8005 or by e-mail at [feedback@ymiclassroom.com](mailto:feedback@ymiclassroom.com).

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# REV IT UP WITH STEM

## SYNOPSIS

*Blaze and the Monster Machines* is a CG interactive series for preschoolers featuring Blaze, the world's most amazing monster truck, his driver, an eight-year-old boy named AJ, and their adventures in Axle City—a town populated with big-wheeled vehicles known as Monster Machines.

Blaze is Axle City's greatest hero and a champion of the racetrack. Whenever there's trouble, he's the truck everyone turns to for help because he can do things no other truck can! He's the fastest truck in town, using his Blazing Speed to zoom into action, win the race, or save the day. With his knowledge of science and engineering, Blaze can overcome any challenge by transforming into just about anything. All he needs to become a helicopter, snow blower, backhoe, or even a giant monster truck toaster is the right parts! AJ and the home audience help Blaze on his adventures by exploring the physics of how things move, tackling problems through scientific inquiry and mathematics, and discovering the parts needed to make everyday technologies work.

## TARGET AUDIENCE

Kids age 3-5

## OBJECTIVES

- To teach Science, Technology, Engineering, and Math (STEM) through creative play
- To provide a basis for scientific inquiry based on STEM principles
- To encourage learning at home through parent and child interaction

## COMPONENTS

- Five colorful posters that include a teacher's guide and three classroom activities for school and home
- One activity booklet (also available for download at [nickjr.com/printables/blaze-storybook-activity-pack.jhtml](http://nickjr.com/printables/blaze-storybook-activity-pack.jhtml)) and one DVD of *Blaze and the Monster Machines* *Blaze of Glory* movie event to share with your school
- Comment card (or comment online at [ymiclassroom.com/feedback-blaze](http://ymiclassroom.com/feedback-blaze))

## HOW TO USE THIS KIT

**You're in the driver's seat!** To get rolling, review and photocopy the teacher's guide and activity sheets and prepare the BLAZE ESSENTIALS for each activity in advance. Put up the poster and get kids familiar with the characters before playing the DVD. When show time is over, ask students about AJ, Blaze, and the other Monster Machines. What did AJ and Blaze do to rescue their friends, and how? Get them revved up for in-class activities and send them home with a "Let's Blaze" attitude that will get parents and students excited over STEM!

## ACTIVITY 1: RAMP IT UP! TRAJECTORY TEST

In the premiere movie, *Blaze of Glory*, Blaze and AJ rescue Stripes—a tiger truck stuck in some vines—by launching Blaze from a series of ramps to untangle him.

## STEM SPOTLIGHT

**Trajectory** - The path followed by a flying object (or the path of an object that has been launched in some way).

## BLAZE ESSENTIALS

- Small rubber balls—one per person
- Masking tape
- Plywood, corrugated cardboard, wooden blocks, books, and other ramp-making materials
- Blank paper

## LET'S BLAZE!

### RAMP IT UP! DEMO

- Set up several pairs of ramps with different heights and various inclines.
- Gather in front of the ramps and tell kids it's time to "ramp it up" and learn about trajectory—the path an object takes in the air! The trajectory of each ball will be how HIGH and how FAR it goes.
- Ask kids which ramps will launch a ball the highest and where it will land.
- As Blaze says, "Give me some speed!" Roll the balls down the ramps! Talk about the HEIGHT of each ball after it launches. And mark where each ball lands with tape to compare DISTANCES.
- Chat about which ramps boosted the balls highest, which ramps launched the balls farthest, and why.

## PRACTICE & PLAY

- Now it's the students' turn to Ramp It Up! Pair up kids to build their own ramps and have them name their ball after their favorite Blaze character.
- Ask them to set up the ramps just like you did, with one student's ramp facing the other's. See if they can make their ball roll up the second ramp and launch into the air.
- Ask them how the angle (incline) of the ramp changes the trajectory of the ball. Does the ball fly higher into the air if it's pushed down the ramp rather than letting it roll? What happens if they increase the angle of the first ramp and/or decrease the angle of the second ramp?

## ACTIVITY 2: FLOAT IT! BUOYANCY TEST

In the premiere movie, *Blaze of Glory*, Blaze, AJ, Stripes, and stunt truck Darington need to cross a river. They use a large bowl-shaped piece of wood that floats and carries their weight without sinking.

## STEM SPOTLIGHT

**Buoyancy** - The ability of an object to float on water or another fluid.

## BLAZE ESSENTIALS

- Small items such as a crayon, ball, sponge, wooden block, plastic car, or boat; collect a set for you and a set for each pair or small group of students
- A bucket or tub that will hold water for you and bowls for each pair or small group of students
- Shallow plastic cups—one for each pair or small group of students

## LET'S BLAZE!

### FLOAT IT! DEMO

- Fill the tub with water and gather your small objects.
- On the activity sheet, ask students to circle which items they think will float and put an "X" over which ones they think will sink.

- Gather kids around the tub to test their best guesses. As you put each object in the water, talk about whether it will sink or float, and why. Ask kids to find similarities between the objects that float and those that sink. Explain that objects that are denser than the water they displace will sink, while objects that are less dense than the displaced water will float. For example, they might notice many objects that float are all light. Tell the students that light objects, such as sponges and cups, hold a lot of open space, or air. This makes them less dense than the water they push aside, so they float. Mention that even heavy things that hold a lot of air, such as big ships, can float.

## PRACTICE & PLAY

- Pair up students or put them in small groups.
- Give each pair/group a bowl full of water and a set of objects, including the shallow plastic cup.
- Tell them it's time for the Float It! Buoyancy Test, where they will place the objects in the water to see if they float or sink. Then have them put the cup in the water and experiment to see how many objects they can put in the cup before it sinks. Note that the objects are replacing the air when the cup fills up, increasing its density and causing it to sink.

## ACTIVITY 3: LIFT THIS! MASS TEST

In the premiere movie, *Blaze of Glory*, Blaze and AJ rescue the cowgirl truck, Starla, by using a pulley system to lift her up out of a hole.

## STEM SPOTLIGHT

**Mass** - The amount of "stuff" or matter that makes up an object.

## BLAZE ESSENTIALS

- A balance or homemade balance to demonstrate mass (you'll need yarn, two plastic cups, a plastic clothes hanger, and a hole punch)—one for every pair or small group of students
- Small objects such as markers, blocks, balls, toy cars, plastic eggs, wooden blocks, crayons, and stuffed toys small enough to fit on the balance

## LET'S BLAZE!

### LIFT THIS! DEMO

- Punch three holes in each of the two cups, equally spaced around each cup's rim. Run yarn through each hole and attach the yarn to the hooks on the hanger. Suspend the hanger from a doorknob.
- Gather kids to watch as you place a small stuffed toy in one of the cups. Hold up objects and have students guess which objects have enough mass to raise the toy. Tell them that objects with more mass are usually heavier than objects with less mass. Then, hold up two of the objects and ask them to predict which will lift the toy. Do this several times with different objects.

## PRACTICE & PLAY

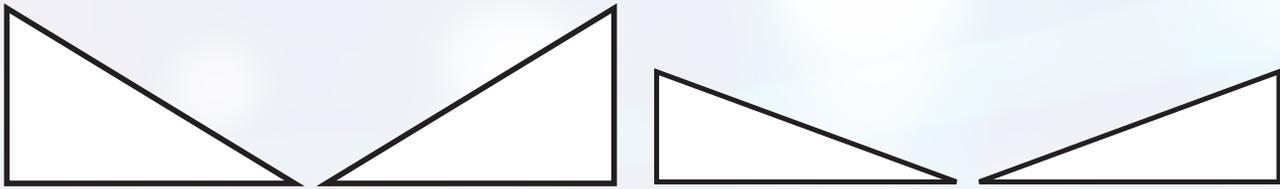
- Time for the kids to play Lift This! Divide students into groups to experiment on the balance with different objects that vary in mass.
- Ask kids to try different combinations of objects (i.e., how many crayons does it take to lift a wooden block?).

Spark kids' curiosity about science with *Blaze and the Monster Machines*, a new preschool series airing weekdays on Nickelodeon.

# RAMP IT UP! TRAJECTORY TEST

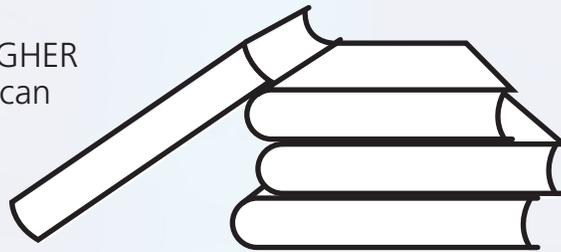


1. In the *Blaze of Glory* movie of **Blaze and the Monster Machines**, Blaze and AJ have to figure out which ramp will launch them the highest. Look at these sets of ramps. Circle the pair that you think will boost your ball the highest. Color the pair that you think will launch your ball the farthest distance. Don't forget to name your ball after your favorite Blaze buddy and cheer it on!



2. Start your engines! Get ready, set, and roll your ball down your ramp. Did it roll up your partner's ramp? What can you do to make it roll up your partner's ramp AND fly off into the air with Blazing Speed?

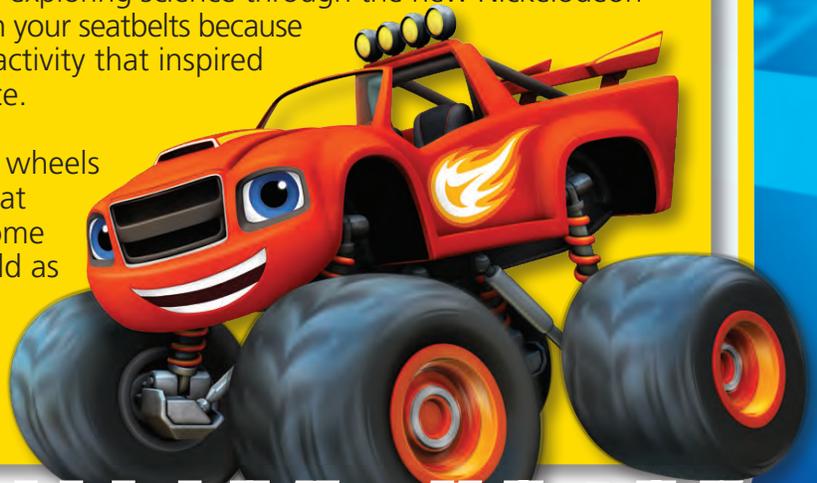
3. How can you make the ball go HIGHER when it flies off your ramp? How can you make it go FARTHER?



## KEEP ROLLING!

**Parent or Guardian**, did you know your child is exploring science through the new Nickelodeon series **Blaze and the Monster Machines**? Fasten your seatbelts because today your child took part in Ramp It Up!—an activity that inspired scientific thinking about **trajectory** and distance.

Now you can Ramp It Up! at home to keep the wheels turning. Chat with your kid about the ramps that were built in class today. Gather materials at home to make ramps of your own. Cheer on your child as he/she rolls objects of various shapes and sizes down the ramps. What happens when he/she tries to roll a block down the ramp, versus a smooth, round object like a ball?



**Spark your child's curiosity about science through play inspired by *Blaze and the Monster Machines*, a new STEM-based preschool series airing weekdays on Nickelodeon.**

# FLOAT IT! BUOYANCY TEST



1. In the *Blaze of Glory* movie of **Blaze and the Monster Machines**, Blaze and AJ have to figure out how to cross a river by floating on something that doesn't sink under their weight. Look at these objects. Which ones do you think will float?
2. Watch your teacher place objects in the water. See which ones sink and which ones float. Now, try to Float It! yourself. Find out just how many objects you can float inside a cup.



## KEEP ROLLING!

**Parent or Guardian**, did you know your child is exploring science through the new Nickelodeon series **Blaze and the Monster Machines**?

Prepare to be amazed because your child participated in Float It!

today—an activity that inspired scientific thinking about

**buoyancy**. Float even more ideas their way

by talking to your kid about the cup

he/she brought home and the

objects that made it sink. Then

Float It! together by building a

raft! Use craft sticks, plastic

straws (sealed on each end),

and twist ties to test how

many pennies or marbles can

be placed inside the cup

atop the raft before it

sinks in a basin

or tub of

water.

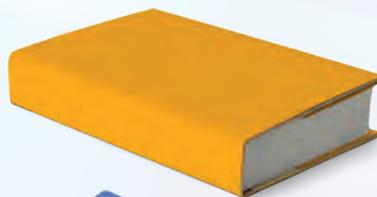


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# LIFT THIS! MASS TEST



1. In the *Blaze of Glory* movie of *Blaze and the Monster Machines*, Blaze and AJ use mass to lift Starla out of a hole. Look at these objects. Which one could Blaze and AJ use to lift this stuffed toy? It has to be an object that has more mass than the stuffed toy.



2. Watch your teacher put the objects on the balance. Which one lifts the stuffed toy? Try your own objects. Which object has the most mass? Which has the least?

## KEEP ROLLING!

**Parent or Guardian**, did you know your child is exploring science through the new Nickelodeon series *Blaze and the Monster Machines*? Get a load of this! Today your child took part in Lift This!—an activity that inspired scientific thinking about **mass**. Weigh in on his/her experience by chatting with your kid about his/her thoughts on mass. Encourage more experimentation by finding various objects at home with different sizes and weights (such as a small wrench that is heavy versus a large piece of cloth, or a whiffle ball versus a golf ball). Ask your child to guess which has more mass. Woah, that's heavy stuff!



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# BLAZE

AND THE MONSTER MACHINES™



# BLAZE INTO STEM!

SCIENCE • TECHNOLOGY • ENGINEERING • MATH

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WEEKDAYS

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