

# Week 1: Take Flight
















June 24-30

From planes and kites to butterflies and birds, discover the fables and physics of things that fly.

Use the sheet below to mark off this week's activities as you complete them. See if you can get a BINGO!



Scan the QR code or visit [www.michiganlearning.org/takeflight](http://www.michiganlearning.org/takeflight) to see the playlist of videos for this week.

Watch Curious About Careers	 60 mins. of activity	 Read for 20 minutes	Make a paper airplane	 Go swimming
 Read for 20 minutes	 Watch Story Pirates	 Look for birds	Spot a plane in the sky	 60 mins. of activity
 60 mins. of activity	Draw a new kind of bird	 HAVE FUN! (Free Space)	Watch InPACT at Home	 Read for 20 minutes
Watch DIY Science Time	Spot a helicopter in the sky	 Ride a bike	 Watch Story Pirates	Build a DIY Science Time hovercraft
Watch InPACT at Home	 Read for 20 minutes	Watch Extra Credit	 60 mins. of activity	 Watch Math Park

# DIY Hovercraft



## FUN FACT

Lee-on-the-Solent in England is where you can find the Hovercraft Museum which holds the world's largest collection of hovercraft designs, including some of the earliest and largest hovercrafts ever created!

## FRICION

Friction is the resistance that one surface or object encounters when moving over another surface or object. Different types of materials create varying amounts of friction. Friction can be found in our everyday lives and allows us to stand without falling, drive our cars safely down the road, and allows us to even grip a racket when playing tennis.

## MATERIALS

- Blank CD
- Balloons
- Glue gun
- Bottle lid (push-up type)
- Adult helper



## DIFFICULTY



***Why are friction jokes hard to tell at school?***

*\*Answer on the next page*

**VISIT**  
**DIYSCIENTIME.ORG**  
FOR MORE SCIENCE FUN!



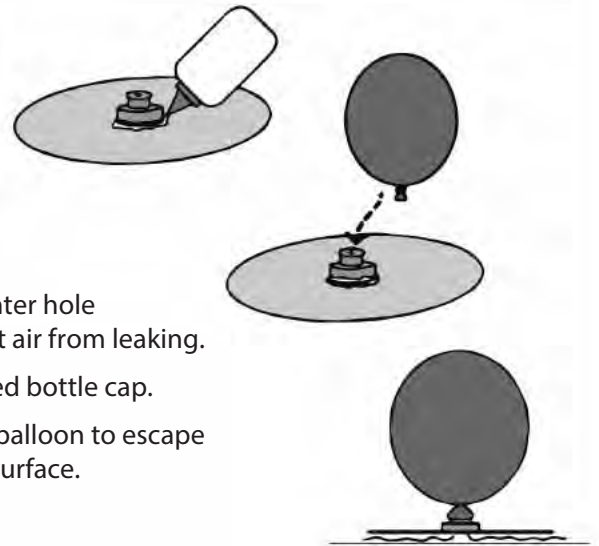
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\*Joke Answer -  
Most teachers won't let them slide!

## DIY Hovercraft

### EXPERIMENT

- Step 1:** Gather materials.
- Step 2:** Use glue to fasten the bottle cap directly over the center hole of the CD. Be sure it is sealed completely to prevent air from leaking.
- Step 3:** Blow up and connect a balloon to the top of the closed bottle cap.
- Step 4:** Open the bottle cap, allowing the air from inside the balloon to escape and observe how the hovercraft behaves on a flat surface.



### WHY IT WORKS

Hovercrafts work by using air to lift the craft off of the surface. As the balloon deflates, the air is pushed out through the bottom of the CD. Because of the weight, shape and texture of the CD, a thin layer of air is formed between the CD and the smooth table top surface. This layer of air reduces the friction between the CD and the surface allowing the CD to move easily and hover over the table.

### EXTEND YOUR LEARNING

- What would happen if you used a different shaped balloon?
- Will it work with a heavy plastic plate, or cardboard instead of the CD?
- How far can you get your hovercraft to go? What adjustments can be made to make it move faster?
- Can your hovercraft glide across any other surfaces? Carpet? Tile? Cement?
- How much weight can your hovercraft carry?

### WORKFORCE CONNECTION

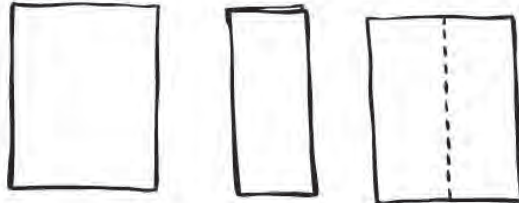
Fire-rescue workers use amphibious hovercraft to rescue people in flooded, muddy or icy areas. The hovercraft can easily go up to people's homes to rescue them right at their front door and works much better than a helicopter for this purpose. Fire and rescue workers also need to understand how to operate and maneuver the craft which means part of their job is to practice these rescue scenarios in the event a real situation arises.



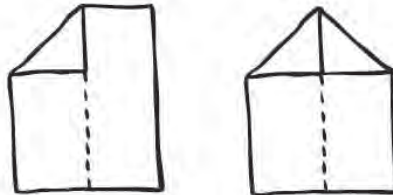


# Paper Airplane

1. Fold paper in half the long way and reopen.



2. Fold the top two corners into the center spine of the paper.



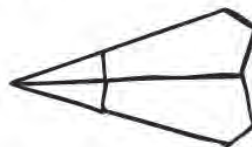
3. Refold lengthwise and rotate the paper to lay on the table like this:



4. Fold the top left corner down to lay parallel to the bottom spine. Repeat this step on the other side.



5. Turn the paper over and repeat the last two steps. Your airplane should look like this!



6. Now, try to fly it to the moon! How far can you make the airplane fly?

For more games and activities, visit [pbskidsforparents.org](http://pbskidsforparents.org)

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# DESIGN A BIRD



## Frankenstein with Feathers!

Birds have many adaptations for the type of lives they have. Species look different from one another depending upon their diet & habitat. Use the ideas below to design your own bird on the next page. Write a few sentences describing the adaptations of your “Frankenbird”. Don’t forget to draw your bird’s habitat too!

### Beaks



*For tearing meat*



*For pulling worms*



*For eating plants under-water*



*For cracking seeds*



*For spearing fish*



### Feet



*To snatch prey*



*For perching*



*For swimming*



*For walking around*

### Feathers



*For flight*



*To keep warm*



*To attract a mate*

### Body Shape & Wings

*Streamlined for flying fast*

*Small and fat for staying warm*

*Midsized with strong muscles for migration*

### Coloring

*Brightly colored to attract a mate (often the male is more brightly colored)*

*Neutral colors to blend in with its habitat*

**Describe your bird's adaptations here:**

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# it's Storytime CHALLENGE

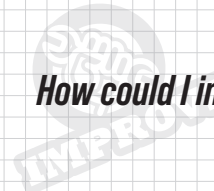
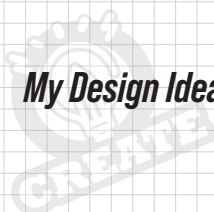
## Bernoulli's Pressure Challenge



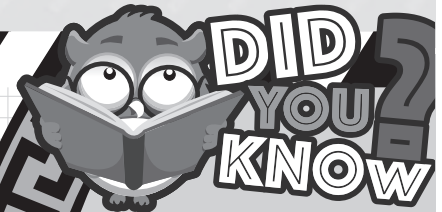
Scan here for instructions from Live From the Opera House Episode 301: Take Flight

- Strip of Paper
- Round Cheese Puff
- String
- Ping Pong Ball
- Thin Garbage Bag
- Clean Funnel
- Bendable Straw
- Aluminum Cans
- Hair Dryer

### My Design Ideas:



How could I improve on my design for next time?



Bernoulli's principle explains the reason why airplanes are able to fly.

Between 1725 and 1749 alone, Daniel Bernoulli received 10 prizes from the Paris Academy of Sciences.

### POWER UP WORDS

- Aviation
- Flight Path
- Cargo

### CAREER LIFTOFF

- ▶ Pilot
- ▶ Air Traffic Controller
- ▶ Aerospace Engineer
- ▶ Avionics Technicians

#### Learning Standards: 3rd grade; Engineering Design

- 3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.



# MATH PARK

## Multiplying by 10

Directions: Scan the QR code to watch the video, and then solve the multiplication problems.



$10 \times 1 = 10$

$3 \times 10 =$

$10 \times 11 =$

$10 \times 8 =$

$10 \times 2 =$

$5 \times 10 =$

$10 \times 3 =$

$0 \times 10 =$

$9 \times 10 =$

$8 \times 10 =$

$10 \times 10 =$

$7 \times 10 =$

$10 \times 9 =$

$11 \times 10 =$

$10 \times 6 =$

$10 \times 5 =$

$4 \times 10 =$

$12 \times 10 =$



# SHOW

# NOT TELL!

# THE STORY PIRATES CREATOR CLUB



## Character Traits

Who is your character?	Choose a character trait to describe them. There are some suggestions below!
SHOW the character trait to the reader! Write about what the character is DOING because of that trait.	

### Other words for "kind"

considerate  
generous  
helpful  
thoughtful

### Other words for "energetic"

exuberant  
lively  
spirited  
vivacious

### Other words for "friendly"

affable  
amiable  
gregarious  
welcoming

### Other words for "funny"

amusing  
comical  
hilarious  
silly

### Other words for "wise"

knowledgable  
perceptive  
prudent  
shrewd

### Other words for "unfriendly"

antisocial  
disagreeable  
hostile  
rude

### Other words for "lazy"

lackadaisical  
lethargic  
passive  
weary

### Other words for "hard-working"

diligent  
industrious  
persevering