

# MeTEOR Performance Task

## Third Grade

English Language Arts  
*Natural Disasters*



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**MeTEOR**  
CONNECTING THE DOTS

***Performance Task Item: Natural Disasters – Before, During and After***

**Part A:**

**Read “Drones Give More Warning for Tornadoes”, take notes and answer questions 1 – 3.**

1. According to the article, what things have been used to get information from tornadoes?
2. According to the text, what is a drone and what could it do to help with tornadoes?
3. What are some reasons that drones weren't able to help before? What date did Congress allow drones to be used?

**Read “Scientists Fly Inside Hurricanes to See What’s Going On” and answer questions 4 and 5.**

4. Who is Frank Marks and what does he do?
5. According to text evidence, how do scientists study hurricanes and get information about it?

6. In both articles, drones are used to study natural disasters. Why are drones a good option? Why do you suppose it would be better to study one of these storms in air rather than on the ground?

## Part B:

**Watch the video “Hurricane vs Tornado” at the following link:**

[https://www.youtube.com/watch?v=W0LskBe\\_QfA](https://www.youtube.com/watch?v=W0LskBe_QfA)

You may want to use a separate piece of paper to take notes.

7. Using your information from the video notes and text evidence, fill out the video worksheet “Hurricanes vs Tornadoes”. You may also use the information from the articles.

**Look at the Infographics “Be Ready! Tornado” and “Hurricane Preparedness” and answer question 8.**

8. Technology has made a lot of advancements in predicting natural disasters but there can always be an element of surprise. Tornadoes and Hurricanes have many differences and similarities. Fill out the attached Graphic Organizer titled “Compare and Contrast- Tornado and Hurricane”. (DOK 2)

**Part C:**

9. Some ways communication has helped with public safety from natural disasters are through warning systems and more people connecting via telephone text and social media. There is also plenty of information on television from weather broadcasts to public service announcements about what to do before, during and after a storm. In a group, you will choose either the tornado or the hurricane. The group will create a commercial about how to be prepared before, during and after the chosen storm. The group will share it with the class. There is a rubric attached. (DOK 3/4)
10. Using the Compare and Contrast Graphic Organizer, write an essay comparing and contrasting tornadoes and hurricanes. You will need to include the warning systems, amount of warning time, safety during the event and what to do after it is over. (DOK 3)

11. Natural disasters happen all over the world. Research a natural disaster that might happen in your area and find out:

- Title (1 Slide)
- What the disaster is and at least 3 basic facts about it (3-4 slides)
- The warning system for the event (for example, NOAA for Hurricanes) (1 slide)
- The amount of time there is between the warning and the possible event (for example, the average time for a tornado is 13 minutes) (1 slide)
- Preparation that can be done in case of this event (for example, a family management plan, flashlights, etc.) (at least 2 slides)
- Safety during the event (at least one slide)
- What to do after the event (at least one slide)
- Conclusion (1 slide)

You will complete a PowerPoint presentation using your research. It should be at least 12 slides. There is a rubric for the presentation.

12. Create a list of supplies needed for an emergency preparation kit for a natural disaster. You will go online and make a list of all of the things that you might need. You will bring a box from home and decorate it for your family so it will be ready for the supplies. Be sure to look at your list to ensure that your box will be big enough for your supplies but small enough to be portable. Research to see if there is a free source for any kits or supplies. Write a letter to someone (for example- family, friend, agency, etc.) requesting their help in getting the supplies for the emergency preparation kit. Be sure to include the reasons it is important, what supplies are needed and any other information you find applicable from your research. (DOK 4)

## ARTICLES/STUDENT MATERIALS

### *“Drones Give More Warning for Tornadoes”*



Amelia Wilson, Nathan Woody and Alyssa Avery prepare their aircraft for flight at Oklahoma State University. Researchers at OSU are designing and building Kevlar-reinforced drones to fly into the worst storms and send back real-time data to forecasters about how fierce they might become. AP Photo/ Oklahoma State University, Gary Lawson

Tornados come with little warning. People may only know a few minutes ahead of time that a storm is on its way. Often, that's not enough time to prepare.

But scientists have worked to get warnings earlier. They use balloons and radar. And they have people watching from the ground.

Now they want to warn people hours ahead of time. They want to send airplanes with no pilots into a storm. These planes are called **drones**.

But first, they need to get permission. Most drones are used by the military and spies. Only the government can decide if a drone can fly.

### **Building a Drone**

Oklahoma wants to use drones for science. It makes sense. Nineteen tornadoes hit the state in just two weeks.

Oklahoma college students and their teachers are building the drone. It will be sturdy enough to survive high winds. Scientists at another Oklahoma university are building weather equipment. The equipment will go into the drone. It will detect tornadoes.

The planes weigh up to 55 pounds. They can cost as much as \$100,000. A pilot flies them from the ground like a toy airplane. They measure the weather in many ways to know if a tornado may strike.

Jamey Jacob used to work with drones. He teaches at Oklahoma State. He used to explore Mars with drones. Now he wants to use them to look at tornadoes.

Jacob wants to figure out tornadoes. His students help design and build the planes.

## **A Safe Way to Watch Tornadoes**

It's a safer way to track tornadoes. That's a big deal for people who study them. Three storm chasers and scientists just died in a tornado.

The governor of Oklahoma set up a group to study drones. It's two years old. It met May 31 just before a storm hit.

The members knew they could get good information with the drones. But it's against the law right now to fly drones in the United States.

Some groups can ask for special permission. But then the government makes them wait two days. And the government says the pilot must keep watching the plane. Those rules don't work with tornadoes. The storms form in hours. And the rain hides the plane so you can't see it.

Scientists are upset by how long it takes. But change is coming. Congress passed a law to let drones fly in the U.S. by 2015.

## **“Scientists Fly Inside Hurricanes to See What’s Going On”**



Dr. Joe Cione, hurricane researcher at NOAA’s Atlantic Oceanographic and Meteorological Laboratory and chief scientist of the Coyote program, holds the Coyote in front of NOAA’s P-3 aircraft at MacDill Air Force Base in Tampa, Florida. NOAA

Frank Marks is an expert on hurricanes. He knows them inside and out. This month, a new hurricane hit the United States. It was called Hurricane Matthew. Marks studied this dangerous storm.

Marks is a meteorologist. He studies the weather at the National Oceanic and Atmospheric Administration (NOAA). It is part of the U.S. government. NOAA scientists study the oceans and atmosphere, the cloud of gases around the earth. Marks is the head of NOAA's Hurricane Research Division.

### **Airplane Is Super Strong**

To study a hurricane, Marks and other scientists fly right into it. They fly in a super-strong airplane. Instruments on the plane help them measure the storm. These tools can see through clouds. They can make a 3-D picture of the winds. Information also comes from tubes attached to the outside of the plane. They take samples of air, salt, dust, ice and water drops.

It is important to fly into the storm, says Marks. It is the best way to find out what is going on inside. The information the plane collects is fed into a computer. Then the computer shows what the hurricane is likely to do next.

### **Scientists Use Many Tools**

Marks used a new drone during Hurricane Matthew. A drone is small flying aircraft. It has no pilot on board. The drone is named Coyote. It is flown by one of the scientists on the airplane, using a laptop. It can reach parts of the storm that the larger plane cannot.

Scientists used many tools to study the storm. While Coyote was flying inside the storm, another drone was flying over it. A NOAA plane flew around the storm. Meanwhile, satellites sent information back to Earth. Satellites are spacecraft that fly around Earth.

## **Storms Can Grow Quickly**

It is hard for scientists to know how strong a hurricane will get. They do not know if a hurricane will suddenly get worse, says Adam Sobel. He is a scientist who studies storms.

Matthew grew very quickly, Sobel said. It started out as a tropical storm. In just over a day, it grew to a Category 5 hurricane. A Category 5 is the strongest hurricane.

The same thing happened last year in the Pacific Ocean. A tropical storm named Patricia also grew very quickly. To Sobel, it's not an accident. He thinks these hurricanes are affected by global warming. Scientists call the heating up of the earth global warming.

## HURRICANE AND TORNADO PREPAREDNESS INFOGRAPHICS

# Be Ready! Tornadoes

[www.cdc.gov/phpr/infographics.htm](http://www.cdc.gov/phpr/infographics.htm)

**Get out!**  
Don't stay in a mobile home during a tornado. Find a sturdy building or seek shelter outside.

**Watch out!**  
Most fatalities and injuries are caused by flying debris.

**Look up!**  
If you see any of these danger signs, take shelter immediately:

- a dark or green colored sky
- large, dark, low-lying cloud
- large hail
- loud roar similar to a freight train

**Stay tuned!**  
Listen to local radio and TV stations for weather updates. Take shelter if a tornado warning is issued.

**Tornado watch:**  
Tornadoes are possible. Be alert to changing conditions.

**Tornado warning:**  
A tornado has been sighted or indicated by weather radar. Take shelter immediately.

**Be cautious!**  
Do not try to outrun a tornado. Find a sturdy building or seek shelter outside.

**Take shelter!**  
The safest place is the interior part of a basement or an inside room, without windows, on the lowest floor.

**Take cover!**  
To shelter outside, lie down flat in a gully, ditch, or low spot on the ground. Protect your head from debris.

**CDC**  
Office of Public Health Preparedness and Response  
Centers for Disease Control and Prevention

CS238713

# HURRICANE PREPAREDNESS TIPS



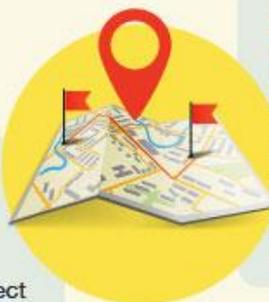
#AreYouReady  
#HurricaneSeason  
#HurricanePreparedness

## Before the Storm



### Update Your Contact Info

Go online or call to make sure we have your correct contact information for faster service after the storm.



### Review Your Emergency Plan

Review your plan with everyone in your household and make sure you all know the safest place in your home. Review where you'll go if there's an evacuation. Don't forget your pets.



### Have a Hurricane Survival Kit

Have enough supplies to be self-sufficient for two weeks.

#### Here are some critical items to have on hand:

Non-perishable food, bottled water, prescription medicines, batteries, pet food, baby supplies, first-aid kit, battery powered flashlight and radio, can opener, fuel, emergency generator.



### Keep Your Landscape Free of Debris

Remove threatening objects that can potentially become projectiles. Prune your plants and trim your trees, make sure there aren't any dead sections and check for signs of damage or disease.



### After the Storm



### Stay Safe

Stay away from downed power lines and avoid floodwaters. Use portable generators safely. Be sure to follow us for restoration updates on [Facebook.com/tampaelectric](https://www.facebook.com/tampaelectric) and [Twitter.com/tampaelectric](https://www.twitter.com/tampaelectric).



## HURRICANES VS TORNADOES VIDEO WORKSHEET

*Disaster 1*

Hurricanes

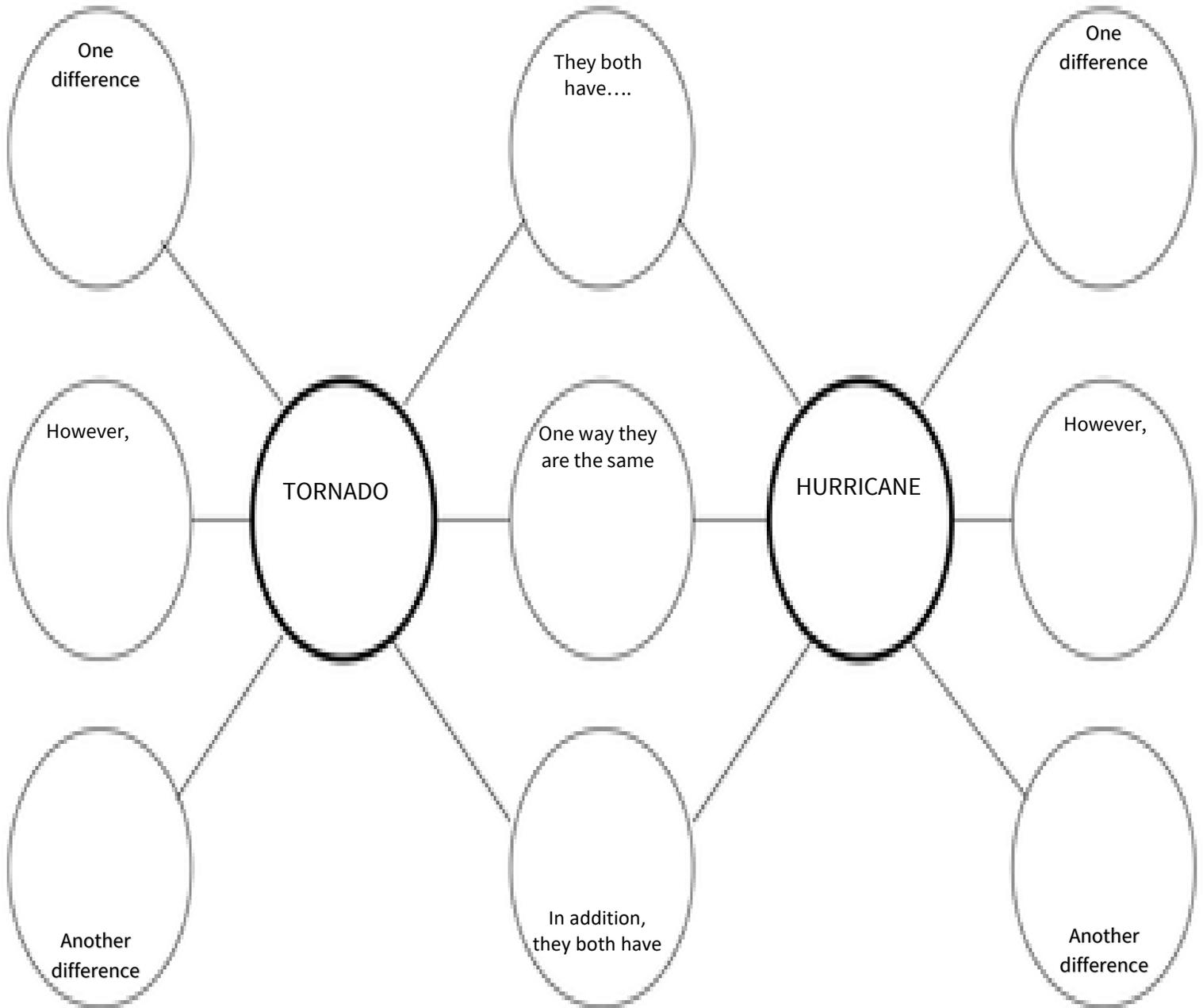
*Disaster 2*

Tornadoes



	What are they?	
	Can they be predicted?	
	Where in the country do they occur?	
	What time of year can they occur?	
1.	List three additional facts about them.	1.
2.		2.
3.		3.

## COMPARE AND CONTRAST- TORNADO AND HURRICANE



### Student Commercial Project Rubric

CATEGORY	4 points	3 points	2 points	1 point
<b>Speaks Clearly</b>	Students speak clearly and distinctly all (100-95%) the time, and mispronounce no words.	Students speak clearly and distinctly all (100-95%) the time, but mispronounce one word.	Students speak clearly and distinctly most (94-85%) of the time. Mispronounce no more than one word.	Students often mumble or cannot be understood OR mispronounce more than one word.
<b>Creativity</b>	Students have a creative jingle or catchy slogan that meets the theme. Students use several props/costumes that show considerable work/creativity and which makes the presentation better.	Students have a creative jingle or catchy slogan that somewhat fits the theme. Students use 1 prop/costume that shows considerable work/creativity and which makes the presentation better.	Students have a jingle or slogan that somewhat fits the theme but lacks creativity. Students use 1 prop/costume which makes the presentation better.	Students do not have a jingle or slogan. Students use no props/costumes OR the props/costumes chosen detract from the presentation.
<b>Preparedness</b>	Students are completely prepared and have obviously rehearsed. Final commercial is polished.	Students seem pretty prepared but might have needed a couple more rehearsals. End product is good, but could be better.	Students are somewhat prepared, but it is clear that rehearsal was lacking. End product struggles to share a clear message.	Students do not seem at all prepared to present. The end product is poor.
<b>Content</b>	Students present a final commercial that includes all of the information about either hurricane or tornado preparedness beginning with what you should do in a warning, before the event and after.	Students present a final commercial that is missing one piece of the information about either hurricane or tornado preparedness beginning with what you should do in a warning, before the event and after.	Students present a final commercial that is missing two pieces of the information about either hurricane or tornado preparedness beginning with what you should do in a warning, before the event and after.	Students present a final commercial that includes none of the information about either hurricane or tornado preparedness beginning with what you should do in a warning, before the event and after.

**TOTAL POINTS EARNED** \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**COMPARE AND CONTRAST ESSAY RUBRIC**

	<b>Excellent/Very Good (5)</b>	<b>Good (4)</b>	<b>Proficient (3)</b>	<b>Needs Work (2-0)</b>
<b>Content</b>	Writing shows understanding throughout, noting at least 3 similarities and at least 3 differences.	Writing shows concrete understanding of the similarities and differences.	Writing shows understanding of similarities and differences.  Broad examples could be better explained.	Writing does not include any examples of similarities and differences.  OR  Content shows several inaccuracies and confusion.
<b>Organization</b>	Essay shows thoughtful, logical, and clear layout of concepts. Transition sentences are smooth. Essay includes an introduction and conclusion.	Writing is logically and clearly organized.  The similarities and differences are readily identifiable.	Writing is somewhat organized.  Points are identifiable with minimal reader confusion.	Writing is disorganized and hard to follow.  OR  Writing does not contain sufficient content for organization.
<b>Conventions</b>	Work has been proofread and has no grammatical errors or spelling mistakes that take away from comprehension.	Work has minor grammatical errors and few spelling mistakes that do not take away from reading comprehension.	Work has several grammar and spelling mistakes that may somewhat interfere with comprehension.	Work has numerous mistakes and grammar and spelling errors, making it difficult to read.

### Grading Rubric for a Power Point Project

	5	4	3	2	1
<b>Content</b>	Content is accurate and information is presented in a logical order.	Content is accurate but some information is not presented in a logical order, but is still generally easy to follow.	Content is accurate but information is not presented in a logical order, making it difficult to follow.	Content is questionable and information is not presented in a logical order, making it difficult to follow.	Content is inaccurate and information is not presented in a logical order, making it difficult to follow.
<b>Slide Creation</b>	Presentation flows well and logically. Presentation reflects extensive use of tools in a creative way. Correct number of slides.	Presentation flows well. Tools used correctly. Correct number of slides. Overall presentation is interesting.	Presentation flows well. Some tools used to show acceptable understanding. Correct number of slides.	Presentation is unorganized. Tools are not used in a relevant manner. Lacking in number of slides.	Presentation has no flow. No tools used. Insufficient number of slides.
<b>Slide Transitions</b>	Transitions are smooth and interesting. Transitions enhance the presentation.	Smooth transitions are used on most slides.	Smooth transitions are used on some slides.	Very few transitions are used and/or they distract from the presentation.	No transitions used.
<b>Pictures, Clip Art &amp; Background</b>	Images are appropriate. Layout of images is pleasing to the eye.	Images are appropriate. Layout is cluttered.	Most images are appropriate.	Images are inappropriate.	No images.
<b>Mechanics</b>	No spelling errors. No grammar errors. Text is in authors' own words.	Few spelling errors. Few grammar errors. Text is in authors' own words.	Some spelling errors. Some grammar errors. Text is in authors' own words.	Some spelling errors. Some grammar errors. Most of text is in authors' own words.	Many spelling errors and/or text is copied.
<b>Technology Connection</b>	Comprehensive use of technology is apparent.	General understanding of technology.	Acceptable understanding of technology.	Little understanding of technology.	No understanding of technology.

NATURAL DISASTER

LETTER WRITING RUBRIC

Category	Excellent - 4	Good - 3	Fair- 2	Minimal-1
<b>Structure</b>	Piece has a well-defined opening statement, body and concluding remarks.	Follows most accepted formatting guidelines but not well-defined.	Piece lacks more than one of the following: defined opening statement, body and concluding remarks.	Piece is uneven and fragmentary.
<b>Business Letter Format</b>	Follows the accepted standard formatting guidelines and is the requested length.	Piece lacks one of the following: defined opening statement, body and concluding remarks.	Does not follow standard formatting guidelines and is over or under the requested length.	Does not follow the accepted formatting guidelines and is significantly over or under requested length.
<b>Topic/Support</b>	Most major points supported with specific details.	Some points supported by specific details.	Most points supported by general statements.	Attempt at support.
<b>Spelling and Conventions</b>	Writing evidences understanding of proper grammar and use of punctuation throughout. All words spelled correctly.	Writing contains one or two consistent grammatical errors or incorrect uses of punctuation. Most words spelled correctly.	Many sentences are characterized by grammatical errors or incorrect uses of punctuation. There are numerous spelling errors.	Writing does not use proper grammar or punctuation and contains numerous errors. The spelling errors distract from the readability of the piece.
<b>Language</b>	Uses vocabulary that is precise with an awareness of the audience and the purpose.	Uses vocabulary that is appropriate with some awareness of the audience and the purpose.	Uses basic vocabulary with little awareness of the audience or the purpose.	Uses vocabulary that is unsuitable for the audience or the purpose.

## MAKE YOUR OWN HURRICANE

### **Things You'll Need:**

- 2 Soda Bottles
- 3 Paper Clips
- 3 Peanuts
- ¼ C. Sand
- Funnel
- Water
- Duct tape

### **Instructions:**

1. Fill one bottle with the paperclip, peanuts and sand. These objects serve as debris to help make the movement of water more visible.
2. Place the funnel in the mouth of the bottle.
3. Pour water into the bottle until it is 3/4 full.
4. Remove the funnel.
5. Turn the second empty bottle upside down and hold it over the first bottle so that the mouths of the bottle are aligned. (The bottles will look like an hourglass.)
6. Tape the seam. Press the duct tape firmly to create a watertight seal.
7. Continue taping 1 to 2 inches above and below the seam.

### **Instructions:**

Hold the bottles by the middle.

Lift the jugs.

Quickly, turn the bottles over so that the water-filled bottle is on top. Set the bottles on the table again.

Observe the water as it drains into the bottle below. The water competes with the air from the empty bottle. You can see air bubbling up as the water drains. Both substances push to pass through the neck, but neither is transported efficiently.

Turn the bottles over against. This time, shake the bottles in a circular motion. Be sure to keep the bottles vertical.

Voila! The water will form a vortex as it drains into the next bottle. The water will flow along the outside of the neck, while air moves quickly up through the center of the vortex. The water will drain much faster.

## MAKE YOUR OWN TORNADO

### **Things You'll Need:**

- Water
- A clear plastic bottle with a cap (that won't leak)
- Glitter
- Dish washing liquid

### **Instructions:**

1. Fill the plastic bottle with water until it reaches around three quarters full.
2. Add a few drops of dish washing liquid.
3. Sprinkle in a few pinches of glitter (this will make your tornado easier to see).
4. Put the cap on tightly.
5. Turn the bottle upside down and hold it by the neck. Quickly spin the bottle in a circular motion for a few seconds, stop and look inside to see if you can see a mini tornado forming in the water. You might need to try it a few times before you get it working properly.

### **What to Do:**

Spinning the bottle in a circular motion creates a water vortex that looks like a mini tornado. The water is rapidly spinning around the center of the vortex due to centripetal force (an inward force directing an object or fluid such as water towards the center of its circular path). Vortexes found in nature include tornadoes, hurricanes and waterspouts (a tornado that forms over water).



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