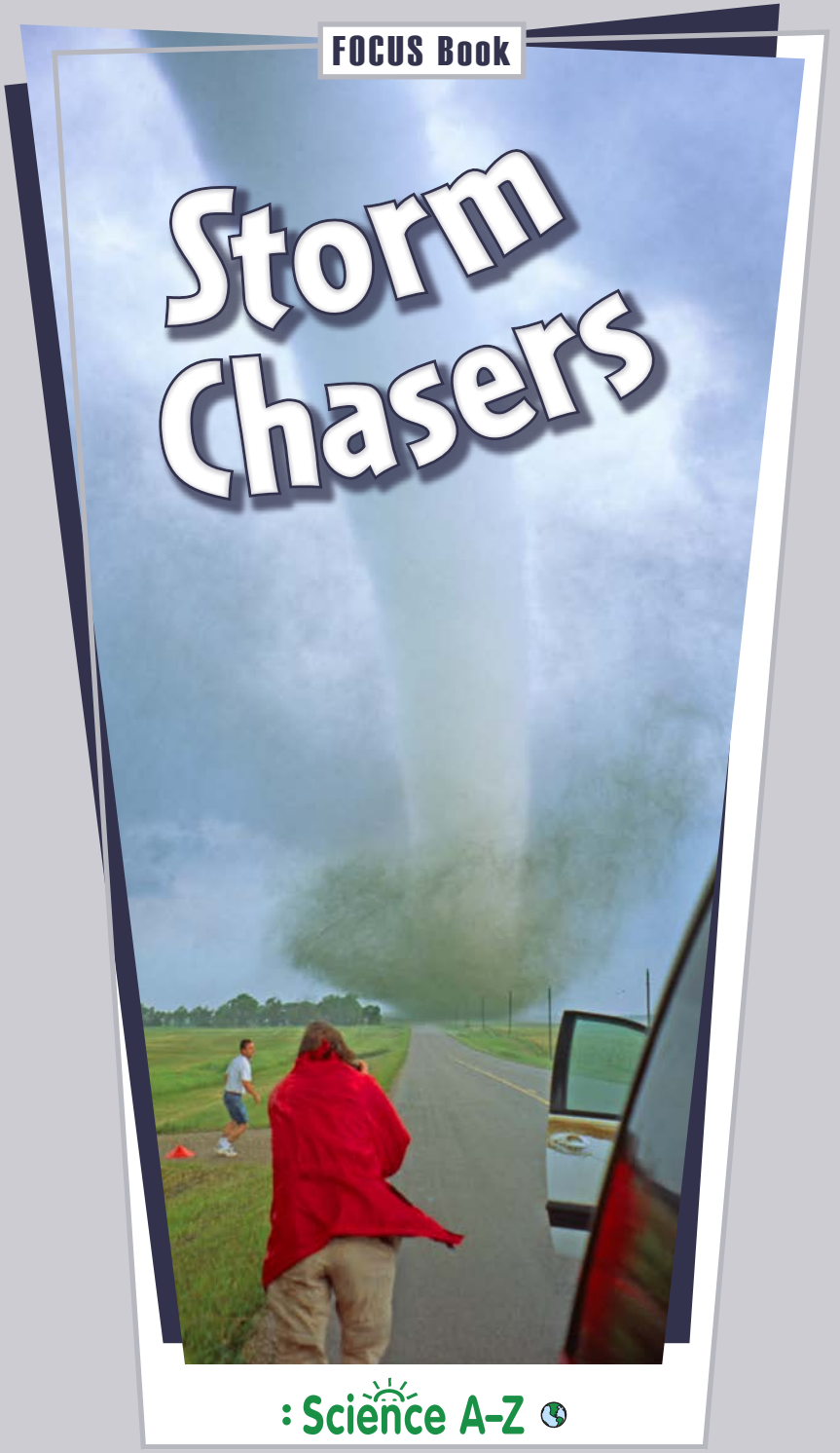
Be an Engineer!

Design a vehicle for storm chasing. What do you think is most important: weight, shape, size, speed, or maybe something else? Also consider what equipment your vehicle will need for predicting storms. Write a design plan describing your vehicle. Then draw a sketch of it. Label the key parts. Discuss your plan with friends and change it if you think you can make it better.

Now construct a model of your vehicle and present your model to the class.

Beyond the Book

Use the Internet to find current radar and satellite weather maps. Can you predict where the next big storm will strike?



Storm Chasers

FOCUS Question

How do storm chasers study weather?

Patterns

Photo Credits:
Front cover: © Gene & Karen Rhoden/Visuals Unlimited, Inc.; icon (tree used throughout): © cat_arch_angel/iStock/Thinkstock; icon (car used throughout): © taoty/iStock/Thinkstock; page 2: © Gerry Broome/AP Images; pages 3, 6 (bottom): © Ryan McGinnis/Alamy; page 4 (top): © Paulo Cruz/iStock/Thinkstock; page 4 (center top): © manfredxy/iStock/Thinkstock; page 4 (center bottom): © Patrick Van Hoecke/123RF; page 4 (bottom): © Science Source; page 5 (top): courtesy of U.S. Weather Bureau/NOAA's National Weather Service Collection; page 5 (center): courtesy of NOAA/NASA GOES Project; page 5 (bottom): courtesy of NOAA's National Weather Service Collection; page 6 (top): Tim Samaras Turtle Probe/Museum of Science and Industry, Chicago, USA/Photo © 2014 J.B. Spector/Bridgeman Images; page 7 (top): © Photo Researchers; page 7 (bottom): courtesy of NCAR/UCAR/NASA; page 9 (left): © Tom Uhlman/Alamy; page 9 (right): courtesy of Lieut. Commander Mark Moran/NOAA Corps/NMAO/AOC

Storm Chasers
© Learning A–Z
Written by Karen de Seve

www.sciencea-z.com

Reading Levels	
Learning A–Z	R
Lexile	840L

Correlations	
Fountas and Pinnell*	N

*Correlated independent reading level

Follow That Storm!

A storm is brewing, and it's a monster! It may be a thunderstorm, hurricane, or tornado. These storms are dangerous. When severe weather heads in your direction, your family probably takes shelter. You may even leave town—anything to get out of the storm's path.

But a few people go toward or even *into* a big storm. Sometimes they are lucky to survive. Who are they? *Storm chasers!*

A hurricane produces fast winds and powerful waves.

What Are Storm Chasers?

Storm chasers are people who track extreme storms. Many storm chasers are weather scientists called *meteorologists.* Getting close to storms helps them collect more information than they could get from far away.

How fast is a tornado moving? Will a hurricane hit the coast? Questions like these are hard to answer without getting close to a storm.

Storm chasers follow storms to help keep people safe. They gather data, take photos, and shoot videos to convince people to prepare for the storm.

Storm chasers in Wyoming watch dark clouds to see if a tornado will form.

Do You Know?

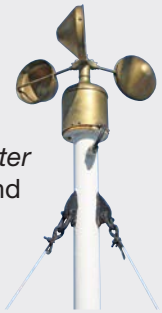
Benjamin Franklin may have been the first storm chaser. In 1752, he flew a kite during a thunderstorm to study electricity.

Finding the Storm

Storm chasers have to find a storm before they can chase it. They watch for weather patterns that usually lead to dangerous storms.

By looking at *wind direction,* storm chasers can tell which way the wind is blowing. *Wind speed* shows how fast the wind is blowing. Quick changes in *air temperature* and *air pressure* can mean a storm is brewing. *Humidity,* the amount of moisture in the air, is usually high near big storms. By looking at all these features of weather, storm chasers can predict when and where a storm might form.

WEATHER TOOLS



An *anemometer* measures wind speed.

A *thermometer* measures air temperature.

A *barometer* measures air pressure.

A *sling psychrometer* measures humidity.

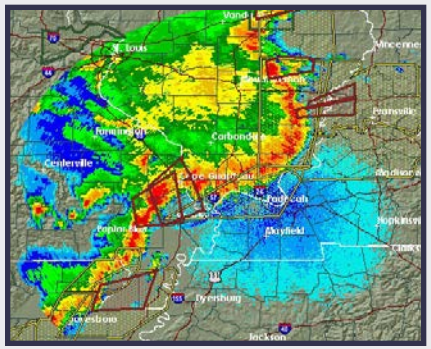
Technology

Some digital weather sensors collect all these measurements at once.

Storm chasers also scan weather maps, satellite pictures, and radar images for clues that bad weather is coming.

Weather Map
Storm reports can show cloud and wind patterns that led to big storms in the past. If the same conditions happen again, a storm may be coming.

Satellite Picture
Satellites high above Earth take pictures of clouds. Storm chasers look at the shape and movement of the clouds to predict extreme weather. A hurricane looks like a spiral from space.



Radar Image
Radar devices send out signals that bounce off raindrops and water droplets inside clouds. Computers turn the data into colorful cloud maps that show the types of clouds, where they are headed, and how fast they are moving. This radar image shows several tornado and thunderstorm warnings.

Inside the Storm

This turtle is 50 cm (20 in.) across and 15 cm (6 in.) high.

The storm chasers have located a forming storm, and it looks like a big one! Radar maps guide the team to the storm's location. They drive in an *armored truck* filled with weather instruments. They place sensors called *turtles* on the ground in the path of the storm. The turtles will gather data from inside the storm.

The truck is equipped with side armor that blocks the wind from getting under the truck and flipping it over. Strong spikes attach the truck to the ground. The storm chasers are inside the tornado, but the truck keeps them safe. The job is dangerous, but storm chasers love the thrill of being inside a storm.

This armored truck can protect storm chasers parked inside a tornado.

Hurricane Hunters

Over the ocean, a hurricane begins to form. The wind blows fast and turns in a spiral. If the storm reaches land, it can cause flooding and destroy homes.

Storm chasers called *hurricane hunters* fly in large airplanes right through these mighty storms. They drop sensors called *dropsondes* through a hurricane. These sensors collect data on air temperature, humidity, air pressure, and wind speed.

Hurricane hunters can warn people that dangerous weather is on the way. The information collected can also help scientists predict future storms.

A dropsonde uses a parachute to slowly fall through a storm and collect data.

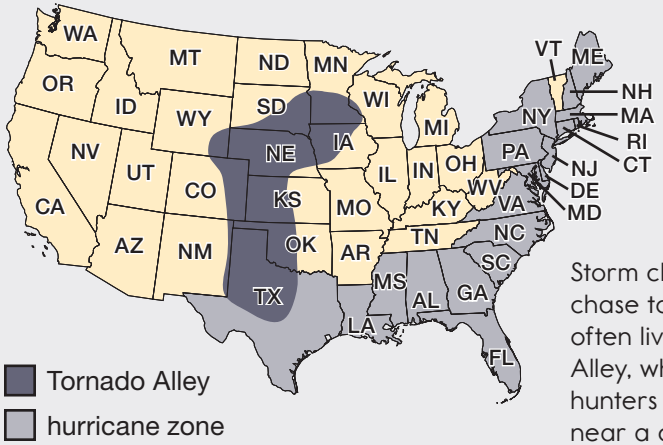
Living with Storms

Some storm chasers travel to find the "best" storms. Others live in places known for big storms.

The central United States is nicknamed *Tornado Alley.* Here, cold, dry air from the north collides with warm, moist air from the south. Large temperature differences create strong winds. This pattern leads to thunderstorms that may become tornadoes.

Storm chasers living in coastal areas often specialize in hurricanes, also called *typhoons* or *cyclones.* Hurricanes form over the open ocean near the equator. They are powered by warm, moist air. Hurricanes become most damaging as they move toward a coast.

WHERE STORMS IN THE U.S. OCCUR MOST OFTEN



Storm chasers who chase tornadoes often live in Tornado Alley, while hurricane hunters often live near a coast.

Staying Safe in a Storm

Even with safety precautions and special vehicles, storm chasing is very dangerous! Tornadoes can quickly change direction and destroy everything in their path. Hurricanes can cause huge waves that wipe out buildings. Experienced storm chasers have been hurt or killed by monster storms.

If you find yourself near a storm, get indoors. Stay safe and listen to the weather report. Sometimes a battery-powered radio will still work if cell phones go out during a bad storm. Most importantly, leave the storm chasing to the experts!

A tornado in Ohio damaged this building.

Hurricane Katrina flooded many areas of New Orleans in 2005.

Read-Think-Write

Write your answers on separate paper. Use details from the text as evidence.

1. What kind of scientist are most storm chasers and why?
2. Name five weather features that storm chasers study to predict storms.
3. Look at the pictures on page 5. How do radar devices help storm chasers study clouds?
4. How do hurricane hunters study hurricanes? Use details from the book.
5. Look at the map on page 8. Identify five states that are part of Tornado Alley.

FOCUS Question

How do storm chasers study weather? Imagine you are a professional storm chaser. A storm capable of producing a tornado is headed toward your hometown. What would you do to study the storm and predict whether people should take shelter? Use details from the book in your answer.