

## Natural Disasters Research Note-catcher: Tornadoes

*(Example, for Teacher Reference)*

How do natural disasters affect the people and places that experience them?

| <b>The natural disaster I am researching is:</b><br><i>Tornadoes</i>   |   |
|--|---|
| Research Question  | Sources   |
| <p><i>Describe the natural disaster. What causes it? What happens during it?</i></p> <ul style="list-style-type: none"> <li><i>big, funnel-shaped clouds</i></li> <li><i>can form in seconds and unpredictably change direction</i></li> <li><i>fast-moving winds move air into a vortex; warm air rises up, forming a funnel that extends to the ground</i></li> <li><i>air spins up to 300 miles per hour</i></li> <li><i>warm, cool, and dry air collide, creating the perfect conditions to form tornadoes</i></li> <li><i>when the streams of air meet they form a thunderstorm</i></li> <li><i>certain weather conditions cause the thunderstorm to rotate which makes tornadoes form</i></li> <li><i>rotating column of air comes down from the base of a thunderstorm to the ground</i></li> <li><i>low-pressure area with wind that spirals around the center</i></li> <li><i>funnel-shaped cloud</i></li> <li><i>high winds</i></li> <li><i>rotating wind speed can be 40-300 miles per hour</i></li> <li><i><b>before they hit, the wind may die down and become still</b></i></li> <li><i><b>most common between March and August, and between 3PM and 9PM, but can occur any time</b></i></li> <li><i><b>danger signs: dark, greenish sky, large hail, large dark low-lying cloud, loud roar</b></i></li> </ul> | <p><i>"Tornadoes 101"</i><br/> <i>"Tornado"</i><br/> <b><i>"Know the Facts: Be Empowered—Tornadoes"</i></b></p> |

| <b>The natural disaster I am researching is:</b><br><i>Tornadoes</i>   |   |
|--|---|
| Research Question  | Sources   |
| <p><i>Describe the effects of the natural disaster. What can happen because of it?</i></p> <ul style="list-style-type: none"> <li>• <i>leave destruction</i></li> <li>• <i>anything in its path can be ripped apart or thrown in the air</i></li> <li>• <i>rip up crops and trees, tear roofs off of houses, destroy buildings</i></li> <li>• <i>flatten everything in its path</i></li> <li>• <i>tear apart buildings, uproot trees, rip pavement from roads, toss cars hundreds of feet</i></li> <li>• <i>damage buildings, depending on how strong, like:</i> <ul style="list-style-type: none"> <li>– <i>tear shingles off of a roof</i></li> <li>– <i>take off entire roofs</i></li> <li>– <i>completely destroy a house</i></li> </ul> </li> </ul> | <p><i>"Tornadoes 101"</i><br/> <i>"Tornado"</i></p>   |
| <p><i>How can we stay safe during it?</i></p> <ul style="list-style-type: none"> <li>• <i>if you hear a tornado warning, seek shelter</i></li> <li>• <i>meteorologists and emergency management officials study the weather and give tornado warnings</i></li> <li>• <i>if you are in an area during a tornado warning, seek shelter at once and follow tornado safety rules</i></li> <li>• <b><i>Before:</i></b> <ul style="list-style-type: none"> <li>– <b><i>build an emergency kit</i></b></li> <li>– <b><i>make a family communications plan</i></b></li> <li>– <b><i>look for danger signs</i></b></li> </ul> </li> </ul>   | <p><i>"Tornadoes 101"</i><br/> <i>"Tornado"</i><br/> <b><i>"Know the Facts: Be Empowered—Tornadoes"</i></b></p> |

| <b>The natural disaster I am researching is:</b><br><i>Tornadoes</i>  |  |
|---|--|
| Research Question   | Sources  |
| <ul style="list-style-type: none"> <li>• <b><i>During:</i></b> <ul style="list-style-type: none"> <li>– <i>go to a safe room like a basement, or an inside room like a closet or hallway</i></li> <li>– <i>stay away from corners, windows, doors, and outside walls</i></li> <li>– <i>do not open windows</i></li> <li>– <i>wear sturdy shoes</i></li> <li>– <i>protect your head</i></li> </ul> </li> <li>• <b><i>After:</i></b> <ul style="list-style-type: none"> <li>– <i>look out for broken glass or nails</i></li> <li>– <i>don't go near or touch dangling or loose power lines</i></li> <li>– <i>text, don't talk, so you don't tie up phone lines</i></li> </ul> </li> </ul> |  |
| Other interesting facts:<br><ul style="list-style-type: none"> <li>• <i>Responses will vary.</i></li> </ul>   | <i>"Tornadoes 101"</i><br><i>"Tornado"</i><br><b><i>"Know the Facts: Be Empowered—Tornadoes"</i></b> |

## Natural Disasters Research Note-catcher: Hurricanes

*(Example, for Teacher Reference)*

How do natural disasters affect the people and places that experience them?

| The natural disaster I am researching is:<br><i>Hurricanes</i>   |   |
|--|---|
| Research Question  | Sources   |
| <p><i>Describe the natural disaster. What causes it? What happens during it?</i></p> <ul style="list-style-type: none"> <li>• <i>form in summer and fall when the sun heats tropical ocean water</i></li> <li>• <i>warm, moist air rises which creates thunderstorms</i></li> <li>• <i>winds come together over the clouds forming a tropical depression</i></li> <li>• <i>storm gets stronger over the ocean</i></li> <li>• <i>tropical cyclones in the Atlantic and eastern Pacific oceans</i></li> <li>• <i>form when unsettled air spins around a pocket of low pressure</i></li> <li>• <i>winds spin rapidly around the center, or the “eye”</i> <ul style="list-style-type: none"> <li>– <i>eye has wind speeds up to 25 miles per hour and light rain</i></li> <li>– <i>eye wall is a ring of clouds around the eye with very strong winds</i></li> <li>– <i>separate bands of clouds beyond the eye wall bring rain and thunderstorms</i></li> </ul> </li> <li>• <i>can reach speeds of over 100 miles per hour</i></li> <li>• <i>the storms get stronger over warm seas and weaken when they move over cold water or onto land</i></li> </ul> | <p><i>“Hurricanes 101”</i><br/><i>“Hurricane”</i></p> |

| <b>The natural disaster I am researching is:</b><br><i>Hurricanes</i>  |   |
|--|---|
| Research Question  | Sources   |
| <p><i>Describe the effects of the natural disaster. What can happen because of it?</i></p> <ul style="list-style-type: none"> <li>• <i>cause storm surges, high rainfall amounts, and high winds that can be very destructive</i></li> <li>• <i>some hurricanes disintegrate while over the ocean</i></li> <li>• <i>if a hurricane hits land, they can destroy cities and communities</i></li> <li>• <i>very destructive storms—high winds, flooding, tornadoes</i></li> <li>• <i>high winds cause destruction like:</i> <ul style="list-style-type: none"> <li>– <i>uproot trees and throw debris through the air</i></li> <li>– <i>pull roofs off buildings</i></li> <li>– <i>flatten buildings</i></li> </ul> </li> <li>• <i>floods cause destruction like:</i> <ul style="list-style-type: none"> <li>– <i>sea surges</i></li> <li>– <i>flooding in coastal areas</i></li> <li>– <i>rainfall worsens flooding</i></li> </ul> </li> </ul> | <p><i>“Hurricanes 101”</i><br/> <i>“Hurricane”</i></p>  |
| <p><i>How can we stay safe during it?</i></p> <ul style="list-style-type: none"> <li>• <i>scientists can track wind, pressure, temperature, and humidity to help predict the path of hurricanes</i></li> <li>• <i>predicting where a storm will hit helps give residents time to evacuate</i></li> <li>• <i>seek shelter in strong buildings with boarded windows</i></li> <li>• <i>evacuate if you live in an area that could be flooded</i></li> </ul>   | <p><i>“Hurricanes 101”</i><br/> <i>“Hurricane”</i><br/> <b><i>“Know the Facts: Be Empowered—Hurricanes”</i></b></p> |

| <b>The natural disaster I am researching is:</b><br><i>Hurricanes</i>   |  |
|---|--|
| Research Question   | Sources  |
| <ul style="list-style-type: none"> <li>• <b>Before:</b> <ul style="list-style-type: none"> <li>– <i>build an emergency kit.</i></li> <li>– <i>make a family communications plan.</i></li> <li>– <i>bring in loose outdoor items that could fly in strong winds</i></li> </ul> </li> <li>• <b>During:</b> <ul style="list-style-type: none"> <li>– <i>stay away from windows and glass doors</i></li> <li>– <i>don't go outside when the rain or winds stop because it is the eye of the storm, or a short "rest," and it will start again</i></li> <li>– <i>stay inside a closet or a room without windows</i></li> <li>– <i>listen to safety authorities for important instructions</i></li> </ul> </li> <li>• <b>After:</b> <ul style="list-style-type: none"> <li>– <i>don't go outside</i></li> <li>– <i>don't go near or touch dangling or loose power lines</i></li> <li>– <i>tell someone if you smell gas</i></li> <li>– <i>don't drink water from the faucet until you know it's safe</i></li> <li>– <i>text, don't talk, so you don't tie up phone lines</i></li> </ul> </li> </ul> | <i>"Hurricanes 101"</i><br><i>"Hurricane"</i><br><b><i>"Know the Facts: Be Empowered—Hurricanes"</i></b> |
| Other interesting facts:<br><ul style="list-style-type: none"> <li>• <i>Responses will vary.</i></li> </ul>   | <i>"Hurricanes 101"</i><br><i>"Hurricane"</i><br><b><i>"Know the Facts: Be Empowered—Hurricanes"</i></b> |

# Natural Disasters Research

## Note-catcher: Tsunamis

(Example, for Teacher Reference)

How do natural disasters affect the people and places that experience them?

| <b>The natural disaster I am researching is:</b><br><i>Tsunamis</i>  |   |
|--|---|
| Research Question  | Sources                                   |
| <i>Describe the natural disaster. What causes it? What happens during it?</i> <ul style="list-style-type: none"><li>• <i>giant wave triggered by sudden displacement of ocean water</i></li><li>• <i>caused by volcanic eruptions, landslides, meteorites, earthquakes</i></li><li>• <i>not noticeable or a threat when in the deep-ocean, but very destructive as the water reaches the shore</i></li><li>• <i>wave can be 100 feet tall</i></li><li>• <i>giant wall of water</i></li><li>• <i>two plates of Earth’s crust press together causing an earthquake in the ocean floor</i></li><li>• <i>the water above the earthquake moves, creating waves</i></li><li>• <i>when the waves approach land they rise up to form huge walls of water</i></li></ul> | <i>“Tsunamis 101”</i><br><i>“Tsunami”</i> |

| <b>The natural disaster I am researching is:</b><br><i>Tsunamis</i>   |   |
|---|---|
| Research Question   | Sources   |
| <p><i>Describe the effects of the natural disaster. What can happen because of it?</i></p> <ul style="list-style-type: none"> <li>• <i>destroys everything in its path, then drags everything back into the ocean</i></li> <li>• <i>flooding</i></li> <li>• <i>buildings, cars, people swept away</i></li> <li>• <i>they result in terrible destruction because they cause water to rush inland</i></li> <li>• <i>they are most destructive near the source of the earthquake because the wave is bigger</i></li> </ul>   | <p><i>"Tsunamis 101"</i><br/> <i>"Tsunami"</i></p>  |
| <p><i>How can we stay safe during it?</i></p> <ul style="list-style-type: none"> <li>• <i>Tsunami Warning Centers monitor underwater earthquakes that might trigger tsunamis</i></li> <li>• <i>centers alert people living on the coast so they can get to higher ground before the tsunami hits</i></li> <li>• <i>when a tsunami is approaching, move inland away from the water as fast as you can</i></li> <li>• <b>Before:</b> <ul style="list-style-type: none"> <li>– <i>build an emergency kit</i></li> <li>– <i>make a family communication plan</i></li> </ul> </li> <li>• <b>During:</b> <ul style="list-style-type: none"> <li>– <i>listen to evacuation orders</i></li> <li>– <i>take pets with you</i></li> <li>– <i>move inland, away from the ocean</i></li> <li>– <i>move towards higher ground</i></li> <li>– <i>stay away from the beach</i></li> </ul> </li> </ul> | <p><i>"Tsunamis 101"</i><br/> <i>"Tsunami"</i><br/> <b><i>"Know the Facts: Be Empowered—Tsunamis"</i></b></p> |



| <b>The natural disaster I am researching is:</b><br><i>Tsunamis</i>   |  |
|---|--|
| Research Question   | Sources  |
| <ul style="list-style-type: none"><li>• <b><i>After:</i></b><ul style="list-style-type: none"><li>– <i>don't go home until officials say it's safe to go back</i></li><li>– <i>stay away from debris</i></li><li>– <i>stay out of buildings with water around them</i></li><li>– <i>text, don't talk, so you don't tie up phone lines</i></li></ul></li></ul> |  |
| Other interesting facts: <ul style="list-style-type: none"><li>• <i>Responses will vary.</i></li></ul>  | <i>"Tsunamis 101"</i><br><i>"Tsunami"</i><br><b><i>"Know the Facts: Be Empowered—Tsunamis"</i></b> |

## Natural Disasters Research Note-catcher: Earthquakes

*(Example, for Teacher Reference)*

How do natural disasters affect the people and places that experience them?

| The natural disaster I am researching is:<br><i>Earthquakes</i>  |   |
|--|---|
| Research Question  | Sources   |
| <p><i>Describe the natural disaster. What causes it? What happens during it?</i></p> <ul style="list-style-type: none"> <li><i>ground shakes, things rattle</i></li> <li><i>Earth's crust is broken into tectonic plates, or huge slabs of land</i></li> <li><i>plates float on magma, or melted rock, and are always moving against one another</i></li> <li><i>earthquakes happen along the seams where the plates meet</i></li> <li><i>natural events that form Earth's mountains, oceans, valleys, and plains</i></li> <li><i>Earth's plates rub together or stretch apart, which causes huge areas of rocks to break and slip, causing an earthquake</i></li> </ul> | <p><i>"Earthquakes 101"</i><br/><i>"Earthquake"</i></p> |
| <p><i>Describe the effects of the natural disaster. What can happen because of it?</i></p> <ul style="list-style-type: none"> <li><i>buildings shake and collapse</i></li> <li><i>destroy buildings and other structures</i></li> <li><i>can be deadly</i></li> <li><i>the stronger the earthquake, the worse the destruction</i></li> <li><i>destroy roads</i></li> <li><i>can cause landslides and tsunamis</i></li> </ul>   | <p><i>"Earthquakes 101"</i><br/><i>"Earthquake"</i></p> |
| <p><i>How can we stay safe during it?</i></p>  | <p><i>"Earthquakes 101"</i></p>                         |

The natural disaster I am researching is:

*Earthquakes*

| Research Question   | Sources  |
|---|--|
| <ul style="list-style-type: none"> <li>• <i>can't predict</i></li> <li>• <i>engineers design buildings that are strong enough to withstand earthquakes</i></li> <li>• <i>scientists study them to try to anticipate when and where they are going to happen</i></li> <li>• <i>earthquakes are impossible to predict so people have learned to live with them</i></li> <li>• <i>engineers have figured out how to build buildings and bridges that won't crumble during an earthquake</i></li> <li>• <i>emergency teams help during earthquakes</i></li> <li>• <b>Before:</b> <ul style="list-style-type: none"> <li>– <i>build an emergency kit</i></li> <li>– <i>make a family communications plan</i></li> <li>– <i>know the safe spots in every room</i></li> <li>– <i>hold earthquake drills</i></li> </ul> </li> <li>• <b>During:</b> <ul style="list-style-type: none"> <li>– <i>if inside: drop to the ground, take cover under a sturdy table or other heavy furniture, hold on until the shaking stops, stay away from windows or other things that could fall, stay inside</i></li> <li>– <i>if outside: stay outside, move away from buildings, streetlights, or wires, stay in the open until the shaking stops</i></li> <li>– <i>cover your face and head with your arms</i></li> </ul> </li> <li>• <b>After:</b></li> </ul> | <p><i>"Earthquake"</i><br/> <b><i>"Know the Facts: Be Empowered—Earthquakes"</i></b></p> |

The natural disaster I am researching is:

*Earthquakes*

| Research Question   | Sources  |
|---|--|
| <ul style="list-style-type: none"><li>– <i>expect aftershocks</i></li><li>– <i>open cabinets carefully because things inside may have moved around</i></li><li>– <i>wear clothes that protect your skin from getting scratched by broken objects</i></li><li>– <i>text, don't talk, so you don't tie up phone lines</i></li></ul> |  |
| Other interesting facts: <ul style="list-style-type: none"><li>• <i>Responses will vary.</i></li></ul>  | <i>"Earthquakes 101"</i><br><i>"Earthquake"</i><br><i>"Know the Facts: Be Empowered—Earthquakes"</i> |

## Natural Disasters Research Note-catcher: Volcanoes

*(Example, for Teacher Reference)*

How do natural disasters affect the people and places that experience them?

| <b>The natural disaster I am researching is:</b><br><i>Volcanoes</i>   |  |
|--|--|
| Research Question  | Sources                                    |
| <i>Describe the natural disaster. What causes it? What happens during it?</i> <ul style="list-style-type: none"> <li>• <i>lava, smoke, ash fly up into the sky</i></li> <li>• <i>Earth's crust is made up of plates, or slabs of land</i></li> <li>• <i>plates float on magma, or melted rock</i></li> <li>• <i>volcanoes form where magma bursts through the crust</i></li> <li>• <i>we call magma that comes to the surface lava</i></li> <li>• <i>melted rock moves to the Earth's surface and forms magma chambers</i></li> <li>• <i>steam and hot gases force the magma up through cracks in the rock and erupts through openings, forming a volcano</i></li> <li>• <i>volcanoes occur when Earth's plates push against each other, causing the lower plate to melt and magma to rise up</i></li> </ul> | <i>"Volcanoes 101"</i><br><i>"Volcano"</i> |
| <i>Describe the effects of the natural disaster. What can happen because of it?</i> <ul style="list-style-type: none"> <li>• <i>lava comes out; lava is not that deadly because it moves so slow</i></li> <li>• <i>ash and gas come out; this is what makes volcanoes dangerous because it is poisonous and moves very quickly</i></li> <li>• <i>lava creates new land</i></li> </ul>  | <i>"Volcanoes 101"</i><br><i>"Volcano"</i> |

| <b>The natural disaster I am researching is:</b><br><i>Volcanoes</i>  |   |
|---|---|
| Research Question   | Sources   |
| <ul style="list-style-type: none"> <li>• <i>destroy mountains</i></li> <li>• <i>send tons of ash into the air, causing airplane engines to fail</i></li> <li>• <i>volcanoes make a lot of lava, ash, and steam</i></li> <li>• <i>ash can fly up miles into the air during an eruption</i></li> <li>• <i>send rocks into the air</i></li> </ul>  |   |
| <p><i>How can we stay safe during it?</i></p> <ul style="list-style-type: none"> <li>• <i>scientists can't predict when a volcano will erupt</i></li> <li>• <b>Before:</b> <ul style="list-style-type: none"> <li>– <i>build an emergency kit</i></li> <li>– <i>make a family communications plan</i></li> </ul> </li> <li>• <b>During:</b> <ul style="list-style-type: none"> <li>– <i>follow evacuation orders</i></li> <li>– <i>watch out for mudflows; look upstream before crossing any bridges to make sure a mudflow isn't coming</i></li> </ul> </li> <li>• <b>After:</b> <ul style="list-style-type: none"> <li>– <i>listen to safety officials</i></li> <li>– <i>text, don't talk, so you don't tie up phone lines</i></li> </ul> </li> </ul> | <p><i>"Volcano"</i></p> <p><b><i>"Know the Facts: Be Empowered—Volcanoes"</i></b></p>                               |
| <p>Other interesting facts:</p> <ul style="list-style-type: none"> <li>• <i>Responses will vary.</i></li> </ul>   | <p><i>"Volcanoes 101"</i></p> <p><i>"Volcano"</i></p> <p><b><i>"Know the Facts: Be Empowered—Volcanoes"</i></b></p> |