STEP UP with 4-H

The 4-H Guide to Implementing FEMA's STEP Program

Illinois Extension
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

EDEN
EXTENSION DISASTER EDUCATION NETWORK

Overview

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This guide is designed to partner with FEMA's Student Tools for Emergency Planning (STEP) Curriculum and encourages program delivery that matches the 4-H model. With anywhere from 1.5 to 7 hours of instruction, this program can be delivered to individual classrooms or as its own 4-H Special Interest (SPIN) Club. If all STEP activities are used (optional) as well as the supplemental 4-H activities, you should add 15-30 minutes to each lesson. The high quality modular emergency preparedness curriculum has been developed by FEMA in partnership with other experts on disaster preparedness ensuring a high quality educational experience for youth in 4th and 5th grade. Youth Development and Disaster Preparedness professionals from University of Illinois Extension have added to this experience to ensure all principles of positive youth development and elements of BIG-M will be prioritized in this program.

STEP up with 4-H is designed to help 4-H professionals to deliver the high quality STEP curriculum developed by FEMA. Both 4-H activities and those proposed in the STEP curriculum can be adjusted to meet time constraints and the needs of the program audience. After reviewing *STEP up with 4-H*, please consult the full STEP curriculum.

Upon the successful completion of lesson, participants can earn a badge (available for order at https://bit.ly/3kHefJz). When a participant has completed all three core lessons or all three core lessons and hazard units, they can earn a certificate declaring them "Emergency Prepared".

All materials can be accessed free of charge digitally at https://bit.ly/2V5JZPE or hard copies can be requested at https://bit.ly/3kHefJz. Please allow 2-3 weeks for delivery of materials.

Structure

Total time: 1.5-7 hours (without 4-H partner activities)
Adaptable to fit Classroom and Special Interest (SPIN) Club models.

3 Core Lessons
These lessons are considered "required" lessons

- Intro to Emergency Preparedness (30-60 minutes)
- Creating an Emergency Kit (30-60 minutes)
- Design a Family Communication Plan (30-60 minutes)

Hazard Units
These lessons are "ala carte" and can be selected to meet local needs and time constraints

- Fire
- Severe Weather
- Earthquakes
- Flood

4-H Suggested Structure

Classroom

- Intro to Emergency Preparedness
- Creating an Emergency Kit
- Design a Family Communication
- Optional Hazard Units as seen appropriate and time allows

SPIN Club

- Intro to Emergency Preparedness
- Creating an Emergency Kit
- Design a Family Communication
- Hazard Unit
- Hazard Unit
- Culminating Event

Getting Started with STEP

Review “Background” and “Using STEP” on pages 5-13 in the Instructor Guide as well as the entirety of *STEP up with 4-H*. It is encouraged to review complete STEP curriculum prior to determining delivery mode and content.

Required Resources

Available for Download at: https://bit.ly/2V5JZPE
* Please indicate participation in 4-H program
Available for Order at: https://bit.ly/3kHefJz
* Please low 2-3 weeks for delivery

- Instructor Guide
- Student Activity Guide
- Individual Hazard Unit Instructor Guide
- Individual Hazard Unit Student Activity Guide
- Badges for each lesson delivered

Core Lesson: Intro to Emergency Preparedness

Location in STEP Curriculum	Instructor Guide page 14
Focus/Objective Per STEP Curriculum	The Introduction to Emergency Preparedness lesson will help students… • Identify examples of when preparedness had a positive outcome • Differentiate between hazards, emergencies, and disasters • Describe possible disasters where they live
Time	30-60 Minutes
Materials Needed	• AV and internet for video • Copies • Pencils • Markers, crayons, colored pencils and/or other art materials • *Student Activity Book*

4-H Partner Activity: Watch, Warning, All Clear

Resources	National Oceanic and Atmospheric Administration . (n.d.). Understand Severe Weather Alerts . National Weather Service . https://www.weather.gov/safety/thunderstorm-ww.
Goal	To familiarize youth with terms they may frequently hear cases of severe weather, get them thinking quickly, and get the energy going for the first lesson.
Materials Needed	Space for youth to run (not needed if using modification)
Directions	1. This is the severe weather version of “Red Light, Green Light”. 2. Share with students the definition of the terms we will be using *Watch:* Weather conditions favor severe weather. Ex. A tornado watch means conditions favor formation of a tornado *Warning:* Severe weather has been spotted *All Clear:* Risk of severe weather emergency has ended 3. For each term used, there will be a “Red light, Green light” comparison. *Watch:* Yellow light, walk forward as though a storm is possible and you are moving towards safety. *Warning:* Green lights, run forward as though storm as has been spotted and you need to find safety immediately. *All Clear:* red light, stop moving as though there is no longer a risk of severe weather. 4. Establish a starting point and an ending point. Share with kids that just in like “Red light, Green Light” this is a race. The key to success will be who can distinguish the terms the fastest. This is also important in real life in a severe weather emergency. 5. Offer the students a practice try before getting started. 6. Use “watch”, “warning”, or “all clear” in any order. If a child uses the wrong speed, tell them that they have to go back to the starting line. You may do this a few times depending on the amount of space and time. **Modification: This activity may involve children running. If mobility is a concern for any youth or space is limited, please ask all children to complete this task at their desks with a fully raised hand as the warning, hand on their head for watch, and on the desk for all clear. There will be no race but small comments of encouragement can foster competition between youth.*

Core Lesson: Creating an Emergency Kit

Location in STEP Curriculum	Instructor Guide page 24
Focus/Objective Per STEP Curriculum	The Creating an Emergency Kit lesson will help students… • Describe the need to have and emergency kit • Identify the components of an emergency kits • Be ready to build their own kits at home
Time	30-60 Minutes
Materials Needed	• AV and internet for video • Copies • Pencils • Markers, crayons, colored pencils and/or other art materials • Rulers • *Student Activity Book*

Core Lesson: Creating an Emergency Kit

4-H Partner Activity: Emergency Hunt

Goal	To demonstrate the importance of having an emergency kit with all supplies in one place.
Materials Needed	Backpack or Bag Stopwatch or timer Items that would go in an emergency kit. Aim for 5-10 items Examples… • Water bottle • Phone charger • Fake Money • Canned food • First aid kit • Flash light • Can opener • Clothes • Notebook • Toothbrush • Umbrella • Map • Pet food
Directions	1. Place emergency kit items around the room. Feel free to place them in barriers as they might be in a home. For example, clothes are often in a dresser or closet. A cabinet might represent this. 2. Create a “checklist” of all items 3. Walk the youth through the room and share the location of each item if they cannot easily be seen. 4. Explain to youth that they will have to retrieve the backpack or bag and begin to pack their emergency kit from the items around the room. They will be timed during this activity. 5. Keep record of each child’s time as they gather each item. Using the checklist, remind them if they have missed an item. End the time when all items are gathered and the child has reached the finish line. 6. Place all items in the bag and place it across the room. Repeat timing each child as they retrieve their supplies and return. 7. Debrief how this activity demonstrated the how much time is saved in an emergency by having an emergency kit prepared. *Modification: This activity may involve children running. If mobility is a concern for any youth, please ask all children to complete this task at a walk or remove the time aspect and challenge them to see who can remember the most items to gather.

Core Lesson: Design a Family Communication Plan

Location in STEP Curriculum	Instructor Guide page 32
Focus/Objective Per STEP Curriculum	The Family Communication Plan lesson will help students... • Describe the importance of having a communication plan • Identify the different parts of a communication plan • Practice the plan
Time	30-60 Minutes
Materials Needed	• AV and internet for video • Copies • Pencils • Markers, crayons, colored pencils and/or other art materials • *Student Activity Book*

4-H Partner Activity: Communication Relay

Goal	To demonstrate the importance of clear communication directly from the source.
Materials Needed	Story found in Appendix
Directions	1. Invite 5 kids to stand outside the room where they can't hear. If your group is small, consider sending only 4 out. 2. Share with the audience… "I am going to share the story with you and one person from outside the room. That person will then be asked to relay the story to the next person who has been waited. You and the person who has previously repeated the story will listen quietly. When the story has been shared with the last person from outside the room, we will ask them to share the story with the room one final time." 3. Invite one student back into the room from the hallway. Share… "I am going to read to you a short story. You will need to remember as many details as you can. When I have finished the story, I will ask that you retell it to the next person to come into the room." 4. Invite the next student in and brief them on the directions… "Student is going to tell you a story. Please listen carefully. I will ask you to tell the story to the next person to come in." 5. Repeat Step 4 as many times as you can. 6. Ask the final student to repeat the story. 7. Reread the situation to the whole room. 8. Reflect with the group: What changed about the story as each person told it? What do you think caused the story to change so much? How do you think this relates to family communication plans in an emergency? Invite youth to share other lessons and thoughts from this experience. 9. Transition to the Communication Plan lesson. You should find opportunities to refer back to the experience that allow you to demonstrate the importance.

Hazard Lesson: Fire

Location in STEP Curriculum	Supplemental Hazard Unit: Fires
Focus/Objective Per STEP Curriculum	The STEP Fire Supplemental Hazard Lesson will help students to... • Identify ways to prevent fires in their homes • Understand what to do if a fire occurs and how to escape safely • Practice fire safety drills as preparation
Time	30-60 Minutes
Materials Needed	• AV and internet for video • Copies • Pencils • Markers, crayons, colored pencils and/or other art materials • *Student Fire Activity Book*

4-H Partner Activity:

Goal	Help students identify fire safety priorities and practice skills needed to safely escape in the event of a fire.
Materials Needed	Bubbles
Directions	1. Lead students around the room to count the… • Exit signs • Exits • Smoke Detectors • Fire Hazards 2. Have students practice “Stop, Drop, and Roll” if space allows. 3. Explain to students that they will be practicing leaving a room while staying low to the ground. Blow bubbles and have them practice trying to leave the space without bubbles blowing to land on their back. 4. If there is a large number of students in the room, consider splitting these activities into two or three stations with each group working on one of the three parts of the activity. If in two groups, complete step one as a large group before breaking down into smaller groups.

Hazard Lesson: Severe Weather

Location in STEP Curriculum	Supplemental Hazard Unit: Severe Weather
Focus/Objective Per STEP Curriculum	The STEP Severe Weather Supplemental Hazard Lesson will help students to... • Identify different kinds of severe weather in their community • Understand the dangers caused by various types of severe weather • Pinpoint what kinds of severe weather they are most likely to encounter in their community • Learn what steps to take to stay safe no matter what weather conditions impact them
Time	30-60 Minutes
Materials Needed	• AV and internet for video • Copies • Pencils • *Student Severe Weather Activity Book*

4-H Partner Activity: Severe Weather Trivia

Goal	Increase youth understanding and interest in severe weather.
Materials Needed	Questions- Found in Appendix Scratch paper Writing utensil per participant
Directions	1. Divide the group into two teams. 2. The group leader will go back and forth between teams, asking the team a question with 3 choices. They must work together as a team to decide which answer is correct. The group leader should also select a team spokesperson that will give the teams answer, but emphasize that the spokesperson is giving what the team has decided. 3. The team with the most correct answers wins. Some questions will involve math, and the leader may allow extra time for the team to do calculations. 4. Each question is worth 1 point. Correct answers are in bold. 5. At the end of the questions, a Final Question will be given. No choices will be provided, so each team will need to determine the correct answer on their own. It is worth 5 points.

Hazard Lesson: Earthquakes

Location in STEP Curriculum	Supplemental Hazard Unit: Earthquakes
Focus/Objective Per STEP Curriculum	The STEP Earthquakes Supplemental Hazard Lesson will help students to... • Understand how to protect themselves if an earthquake occurs • Learn where earthquakes are likeliest to occur • Prepare ahead of time with earthquake drills, a family communications plan, and extra food, water, and other supplies
Time	30-60 Minutes
Materials Needed	• AV and internet for video • Copies • Pencils • *Student Earthquakes Activity Book*

4-H Partner Activity: Earthquake in a Cup

Goal	Demonstrate how earthquakes can cause damage.
Materials Needed	Coarse sand (enough to partially fill as many foam cups as needed) Foam cups Water Small rocks
Directions	1. Fill the foam cups with coarse sand to about ¾ full. 2. Add water to each cup until the water is at the same level as the sand. 3. Place a rock on top of the sand for each cup. 4. Holding on to the cup with one hand, use your other hand to lightly flick the cup with a finger, to represent earthquake waves. 5. Guide youth through these questions. • What happens to the rock? (It should start to sink) • What does the rock do when the earthquake stops? (The rock stops sinking) • Why does the rock sink during the earthquake? (The soil acts more like a liquid as long as the earthquake is occurring) • What would this do to buildings that are sitting on this type of soil? (There will be a lot of damage in these areas)

Hazard Lesson: Flood

Location in STEP Curriculum	Supplemental Hazard Unit: Floods
Focus/Objective Per STEP Curriculum	The STEP Floods Supplemental Hazard Lesson will help students to: • Learn what causes flooding and why floods can be so dangerous • Understand how watches and warnings can help keep them safe • Understand what kind of damage flooding can cause
Time	30-60 Minutes
Materials Needed	• AV and internet for video and podcast • Copies • Pencils • Markers, crayons, colored pencils and/or other art materials • Severe Weather Activities • Materials for 4-H activity
Additional Video	https://bit.ly/3t5SYNi *If time is short, skip to 10:45-for flood and flooding content only

Hazard Lesson: Flood

4-H Partner Activity: Design a River

Adapted From	**Teach Engineering STEM Curriculum for K-12** **University of Colorado Boulder Engineering** Nicklas , T., Schaefer Zarske, M., Ekern , K., & Carlson, D. W. (2021, July 9). Floodplain Modeling. Teach Engineering. https://www.teachengineering.org/activities/view/cub_natdis_lesson07_activity1.
Goal	Demonstrate to youth how river shape and formation can effect flooding .
Materials Needed	• Model house template printed on cardstock-Found in Appendix • Tape • Scissors • Markers • 5lb box of modeling clay • Aluminum baking pan • Large flat plastic tub(waterproof), will not need if doing activity outside • Book or two to prop up plastic tub • Wire cutters • Cup • Water
Directions	1. Make 3 copies of model house template and assemble houses by following direction on the template. 2. Using wire cutters, cut off one short end of the baking pan. 3. Pack baking pan with clay (at least ½ in thick). 4. Place baking pan in plastic tub, situated towards the top, and prop the tub up on the book. 5. Form a “river” in the clay. You will modify the river in the demonstration several times to observe the differences. 6. Place house along the river. 7. Slowly pour water into the river demonstrating normal conditions. Ask youth for observations. 8. Pour water more quickly to replicate flooding situations. As youth for observations. 9. Study houses and observe where water damaged them. 10. Reform river and repeat steps 7, 8, and 9 as many times as you would like and time allows. 11. Debrief how the changes you made to the river represented the factors you learned about.

4-H Addition: First Aid

Objective	Consider wrapping up your emergency preparedness lessons with a first aid lesson lead by yourself or a local instructor. A great suggestion for those new to teaching first aid is the lesson from Progressive Agr.
Suggested Resource	*Progressive agriculture Foundation - progressive Agriculture Safety Day.* Progressive Agriculture Foundation - Progressive Agriculture Safety Day. (n.d.). https://www.progressiveag.org/.
Pilot Evaluation	https://go.illinois.edu/StepUpEval

SPIN Club Culminating Event Ideas

- Table Top Event
- Emergency Kit Drive
- Emergency Kit Education Fair

Resources

National Oceanic and Atmospheric Administration . (n.d.). Understand Severe Weather Alerts . National Weather Service. https://www.weather.gov/safety/thunderstorm-ww.

Nicklas, T., Schaefer Zarske, M., Ekern , K., & Carlson, D. W. (2021, July 9). Floodplain Modeling Teach Engineering . https://www.teachengineering.org/activities/view/cub_natdis_lesson07_activity1.

United States, Congress, Federal Emergency Management Agency. Ready.gov, FEMA, 2020. www.ready.gov/kids/student-tools-emergency-planning-step.

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Appendix

Family Communication Plan Stories

Story Option One	A dog and a cat are friends but don't want anyone to know so they only speak to each other in a secret language. One day, the dog and cat's owners bring home a new pet hamster. While trying to decide if they want to be friends with the hamster, they decide to ask it a series of questions. Because the hamster does not speak their secret language, they wait until the family leaves for the day and start their questions. In case they don't like the hamster, they don't want it to know that they are friends so they ask the questions one at a time. The dog wants to know what the hamster's favorite food is to eat when the humans aren't home. The hamster says that it is sunflower seeds. The cat later asks the hamster if he likes to talk to the humans to trick them and the hamster seems shocked. The cat and dog later meet and in their secret language agree to invite the hamster into their club, but now they had to start teaching the language.
Story Option Two	Three elf sisters live in a tree. Trina, Nina, and Deena have to share a branch for a bedroom and can't agree how to decorate. Trina wants to paint the walls teal, but her sisters disagree. Nina wants to paint the room navy and neon green. Dark yellow in Deena's pick. When the three sisters can't decide, they agree to a scavenger hunt to pick the winning color. They have to gather an oak leaf, a piece of moss, snow from the top of the mountain, and rain drops from a spring rain. The sister who collects these items the fastest is the winner. Nina raced around and won. The room will be navy and neon green.
Story Option Three	One summer day, there was a rain shower than never seemed to end. When it finally did, the sun came out and there was rainbow that seemed to disappear behind a mountain. One curious boy followed the rainbow and was so excited by what he found. At the first stop, a small goat drank from the stream. The goat was black with white spots and was bleating to his friends. The boy continued along the way and then found a bird carrying a worm to her nest. Finally, the boy found a pond full of the clearest water he had ever seen. Fish swam around and plants grew from the bottom. He took off his shoes and waded into the water for a while. After a long day, the boy followed the rainbow home and told his little sister all about his day.

Appendix

Severe Weather Questions

1. Thunder is caused by:
   - Air being split apart and slamming back together from lightning
   - **A shock wave from the intense heating of air by lightning**
   - Trees exploding from being hit by lightning
2. The Earth's temperature has been doing this since the 1980's
   - **Increasing**
   - Decreasing
   - Staying the same
3. A tornado watch means this:
   - **There is no tornado spotted but they may form**
   - There has been a tornado spotted by people or radar
   - A tornado is heading your way
4. Hail is formed from this:
   - A combination of snow and sleet
   - A combination of rain and dirt
   - **A combination of rain and ice**
5. Heat lightning is formed from heat at night.
   - True
   - Sometimes
   - **False** (it is lightning that is coming from a thunderstorm too far away to be seen or heard)
6. The safest place to be during lightning is:
   - Inside a car with the windows up
   - Under a roof of a picnic shelter
   - In a baseball dugout
7. Thunder travels at 1/5 mile per second. If you see a lightning bolt and hear the sound 5 seconds later, how far away is the lightning?
   - 2 miles
   - **1 mile**
   - 3/5 mile
8. If rain is falling at the rate of 6 inches per hour, how much rain falls in 20 minutes?
   - 1/6 inch
   - 1/3 inch
   - **2 inches**
9. Lightning can form during a snow storm
   - **Yes, usually when the temperature is at or slightly above 32 degrees**
   - No
   - Yes, usually when the temperature is below 20 degrees
10. The official highest temperature recording in the United States is:
    - 117 degrees
    - 121 degrees
    - **134 degrees** (Death Valley, CA)
11. The official lowest temperature recording in the United States is:
    - -15 degrees
    - **-80 degrees** (Alaska)
    - -65 degrees
12. What is the rhyme used to warn people not to drive through high water?
    - High water, don't bother
    - Drive if you wish, but you'll play with the fish
    - **Turn around, don't drown**

Appendix

Severe Weather Questions

13. What is the rhyme used to warn people to go indoors if lightning is near?
    Lightning is near, be safe with no fear
    When thunder roars, go indoors
    If you see a flash, make a dash
14. Thunder can be heard up to this far away from a lightning bolt
    10 miles
    3 miles
    5 miles
15. Lightning can strike up to this far away from a thunderstorm
    10 to 15 miles (so don't just thunder as the only guide of when to go indoors)
    1 mile
    ½ mile
16. The force of tornado winds increases or decreases by the square of the speed (faster winds = more force, slower winds = less force). How much more force is exerted by a 200 mph wind compared to a 100 mph wind?
    4 times more (a 200 mph wind is twice as fast as a 100 mph wind- 22 = 4)
    2 times more
    3 times more
17. The force of moving water increases or decreases with velocity by the power of 6. A stream moving twice as fast as another stream would have how much more force?
    64 times (26 = 64 or 2x2x2x2x2x2 = 64)
    12 times
    32 times
18. Since 1980 there have been over 290 extreme weather events in the United States. What was the total cost of these events?
    1.9 million dollars
    1.9 billion dollars
    1.9 trillion dollars
19. What extreme weather event causes the most damage each year in the United States?
    Hurricanes
    Winter storms
    Flooding
20. A blizzard, besides being a tasty treat, is when this occurs:
    Wind speeds or gusts of 35 mph with snow reducing visibility to ¼ mile or less
    Snow accumulating at the rate of 3 or more inches per hour
    Freezing rain occurs for over 12 hours
21. During the last decade, there have been twice as many _____ records broken as compared to _____ records in the United States
    High temperature, cold temperature
    Low precipitation, high precipitation
    Cold temperature, high temperature
22. The largest recorded hailstone in the United States had a circumference of :
    5 inches
    18 inches
    36 inches
23. The highest wind speed ever recorded for a tornado in the United States is:
    257 mph
    273 mph
    302 mph (Oklahoma, 1999)

Appendix

Severe Weather Questions

24. The highest wind speed ever recorded for a hurricane that hit the United States is:
    155 mph
    173 mph
    190 mph (Allen, 1980)
25. If a tornado is approaching, you should do this:
    Watch it and take video until it is ready to hit your house
    Open all the windows
    Immediately go to a small interior room on a lower level of the house, with several walls between you and outside
26. The part of a hurricane that causes the most damage is:
    Wind
    The storm surge
    Flying squirrels
27. A widespread, long lived wind storm that has winds of 58 mph or greater is called a:
    Dust devil
    Chinook wind
    Derecho
28. How deep does fast moving water have to be to move a car or truck off of the road?
    6 feet
    6 inches
    3 feet
29. To be ready for any severe weather event, families should
    Have a family plan
    Have emergency supplies like water, food and medical supplies
    Both a and b
30. If someone is struck by lightning you should
    Not touch them because you might get shocked
    Call 911
    Wait to see if they are turned into a superhero

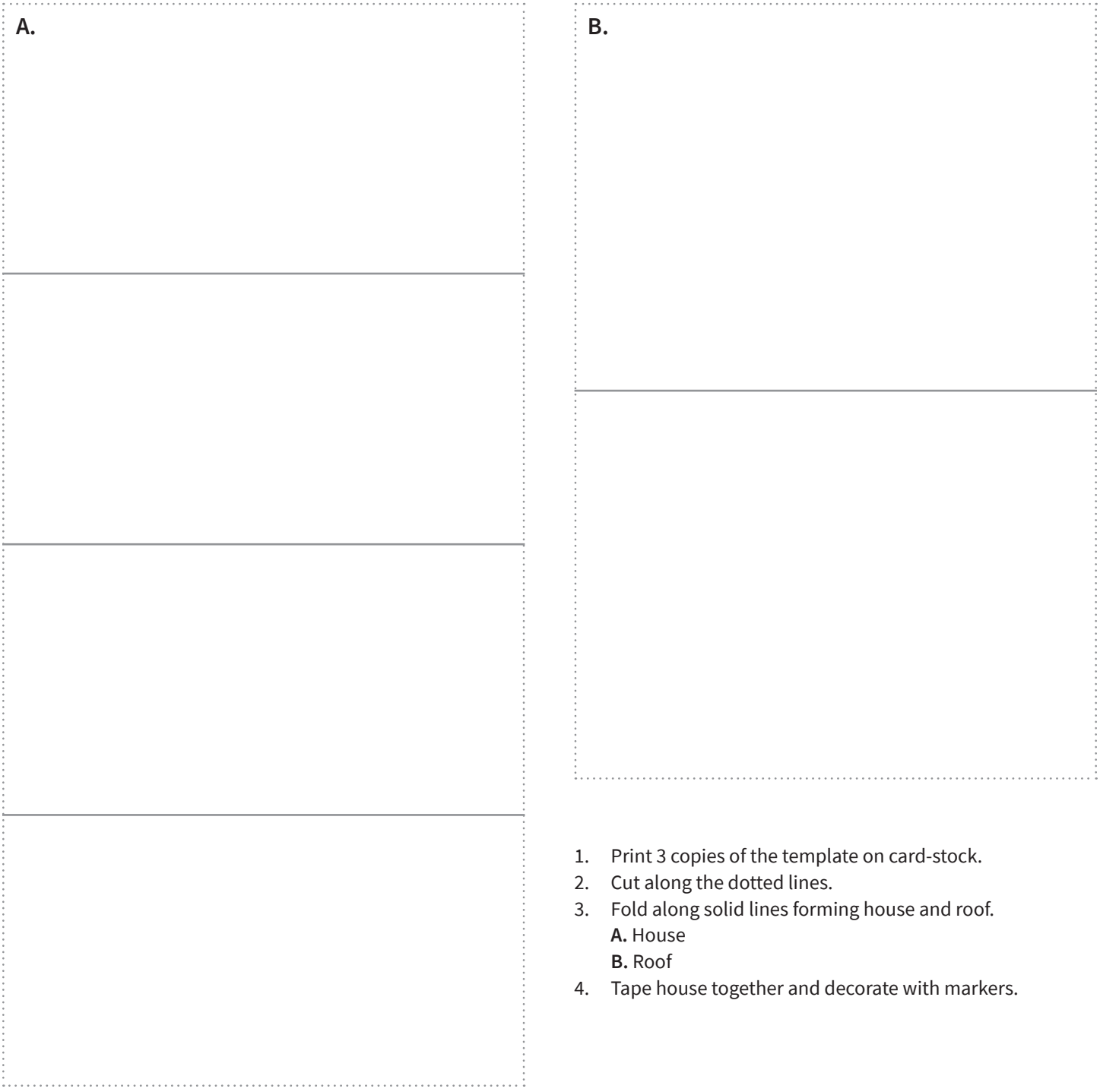
For the final question (worth 5 points), both team will be given the same question. Both should be given 30 seconds to talk in their teams. When the leader is ready to get their answers, just have the spokesperson for each team give the answer. Once both have answered, let them know the correct answer.

Final question: This is the name of a region in the United States where a large number of tornadoes occur.

ANSWER: TORNADO ALLEY

Appendix

Flooding Activity House Template



1. Print 3 copies of the template on card-stock.
2. Cut along the dotted lines.
3. Fold along solid lines forming house and roof.
   A. House
   B. Roof
4. Tape house together and decorate with markers.

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