

## Forecast Future Tornadoes! **Answer Key**

If you were an engineer and you were planning to build a school in the middle of Oklahoma, do you think it would be important for you to understand the likelihood that a tornado could occur in that area? Definitely! How would you go about figuring this out? The National Oceanic and Atmospheric Administration (NOAA) is a government agency that monitors climate and weather through their National Centers For Environmental Information (NCEI). They have a lot of valuable information that could be of use.

### Directions:

- Go to: <https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology>.
- Look at the first figure entitled, 'Average Annual Number of Tornadoes,' and answer the following questions:
  - Name the six states that experience the most tornadoes, on average, per year:
    - Texas
    - Oklahoma
    - Kansas
    - Colorado
    - Nebraska
    - Florida
  - Most of these states comprise a region called Tornado Alley. What is Tornado Alley and why does it exist? Tornadoes are formed from violent thunderstorms. Thunderstorms are common over areas that heat up a lot. The first five listed in part (a) are part of the Middle of the US, which gets extremely hot during the day. Heating causes a lot of air to rise very quickly, which is conducive to violent thunderstorms, during which tornadoes form.
- Imagine you are an engineer that has been contracted to build a school in Oklahoma City, OK. Is this part of tornado alley? During which season (winter, spring, summer or fall) will this city most likely experience tornadoes? During what time of day would a tornado most likely hit? (Hint: look under the 'Timing' section).
  - Is Oklahoma City, OK part of Tornado Alley? **Yes** No
  - Season with most tornadoes: summer
  - Time of day with most tornadoes: early evening (4-5 pm)
- Now knowing what you know about the likelihood of a tornado in this region, explain how you would consider this in your design of the school.

There can be many answers for this. For example:

- During the summer, summer school could be in session, and therefore we would need some kind of storm shelter.
- Alarm systems
- Easy access from all rooms in the building to the storm shelter