



# Scenario Selection Sheet

## Field Projects: Science in Action

### Hurricanes: Why some storms turn into hurricanes and other don't

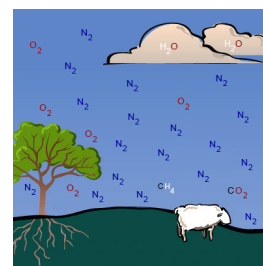
You are visiting your grandmother at her house in Florida, which means you can spend time on the beach just before you go back to school for the new year. You see a report on the news that there is a tropical storm developing in the Atlantic Ocean. This storm is heading your way and it has potential to develop into a hurricane. This means you have to cut your vacation short, evacuate from the coast, and head inland (bummer!). Before leaving you have to board up the window and door to protect the house from the damaging winds.



Two days after you leave, you find out the storm fizzled out and only caused a slightly windy day with some rain. It looks like you didn't need to evacuate after all! If only the hurricane predictions were more accurate, you'd still be on vacation!

### Greenhouse gases: What are really up there?

Skeptics argue climate change is not caused by human activities, such as emissions from engines. You are a climate scientist and you know that the skeptics are wrong, and you know the research you (and other scientists) conduct, shows this. You want to monitor changes in the amounts of greenhouse gases and particles in the atmosphere during the next 15 years. What kind of research can you conduct in order to know what changes are happening in the Earth's atmosphere? You know that in the future, scientists can use the baseline data you collect to look for new changes in the Earth system.



### Thunderstorms: Earth's vacuum cleaners

You have been a wheat farmer for the last 25 years. You are very attuned to the weather and are concerned about the amount rain your crops get each season. Your livelihood depends on a good crop year after year. Over the years, you have noticed that there has been a change in how many storms that produce rain come through your region each season.



Through the years, you have also seen an increase in the amount of cars and trucks on the roads. You have also heard that many oil refineries have been built nearby. You can't help but wonder if all this added pollution near the ground has something to do with the rain producing clouds that are usually are up around 40,000 feet.

### Global climate & weather: The domino effect

When the cold water flows from the south along the Pacific Coast, it brings with it nutrients that fish eat. As a fisherman, you rely on climate forecasts to predict if those cold waters will flow and bring a bountiful fishing season or not. If scientists could more efficiently forecast seasonal climate fluctuations, you would know if you need to plan on hiring extra crew for your fishing boat this year.



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