



Kutz Science Fair 2020: Choosing a Project

In order to figure out which kind of project is right for you, you should start by thinking about things in the world that make you curious. What would you like to learn more about for your science fair project? As long as you choose something of interest to you, this project will be a lot of fun. To get you thinking, take a look at some of the questions kids have asked at science fairs in the past.

There are three main types of projects: Experiment, Demonstration, and Collection.

Some sample questions for a project are below:

- What causes thunder and lightning? (*Demonstration*)
- Which brand of chewing gum has the longest lasting flavor? (*Experiment*)
- What butterflies, beetles, etc. are in my backyard? (*Collection*)
- What behaviors does my pet exhibit most frequently? (*Experiment*)
- Which brand tennis ball will last the longest, bounce highest, etc.? (*Experiment*)
- Does the type of food fed change the type of birds that visit my feeder? (*Experiment*)
- What planets are in our solar system? (*Demonstration*)
- What is the life cycle of a frog, butterfly, etc.? (*Demonstration*)
- How does solar/wind power work? (*Demonstration*)
- How does a seed turn into a plant? (*Demonstration*)
- Does light, heat, etc. affect plant growth? (*Experiment*)
- What kinds of soil, rocks, etc. can we find in Pennsylvania? (*Collection*)
- How can I make my seed germinate (start growing) more quickly? (*Experiment*)
- What is cancer, diabetes, the flu, etc.? (*Demonstration*)
- Does Gatorade make you run faster? (*Experiment*)
- What is global warming? (*Demonstration*)
- How do different baseball bat materials affect performance? (*Experiment*)
- Do different kinds of music (rap, classical, pop) affect test performance? (*Experiment*)

Overview of types of projects:

Experiment: A student asking a research question would do an experiment. If you choose to do an experiment, please follow the Scientific Method.

Student A is interested in sports drinks and wants to know if they actually improve your performance. Student A will conduct an experiment and follow all the steps in the scientific method:

- Ask the question.* "Do sports drinks make you run faster?"
- Research* about sports drinks like Gatorade.
- Create a hypothesis* (an educated guess based on book research); predict the answer to the question. Hypothesize that "Drinking Gatorade will make you run faster than drinking water."
- Complete an experiment.* Ask subjects to drink 2 ounces of water and then time them running a specified course. Ask subjects to take a break and then drank 2 ounces of Gatorade. Time again running the same course.
- Collect and analyze data.* Make a bar graph showing how many people ran faster, the same or slower after drinking the Gatorade.
- Draw Conclusions* the hypothesis was correct and then provides some additional information about the conclusion and the experiment.

Collection: Create a display with various collected items or photographs of items.

Student B loves gems and rocks and has a collection to share at the science fair. Here are the steps to follow to show a collection as a science fair project:

- *Read books about gems and rocks. Find something of interest and focus upon it or keep it general.*
- *Older students are encouraged to choose a specific question such as, "How are gems formed?" or "What makes gems and rocks look different?" to focus their project.*
- *Find an interesting way to display the collection and put together information for the display board.*

Demonstration: If you are interested in learning more about a particular topic (but do not want to conduct an experiment and do not have a collection), you would do a demonstration project.

Student C loves frogs and thinks their life cycle is fascinating. Create a project about a frog's life cycle. Here are the steps to follow:

- *Read books about a frog's life cycle.*
- *Find or draw pictures of each of the stages of the frog's life cycle. Look for frogs and tadpoles in the wild or visit a zoo or nature center to see frogs and take photographs.*
- *Put the information together on the display board.*
- *A more advanced option would involve actually growing the frogs in a tank and observing the life cycle and taking notes about how many days it takes to complete each stage of the life cycle from egg to tadpole to frog.*

Online sites to help you with ideas for projects:

- <https://sciencebob.com/science-fair-ideas/ideas/>
- <https://www.education.com/science-fair/>
- <http://sciencefair.math.iit.edu/projects/>
- <https://www.thoughtco.com/great-science-fair-ideas-609054>