SCIENCE FAIR CENTRAL

ELEMENTARY SCIENCE FAIR PROJECTS

The most challenging part of bringing a science fair to life can often be coming up with a project idea. If your young scientists are struggling with finding the best questions to ask or the right problems to solve, the process and ideas below can help.

It All Starts with an Investigation

Scientists plan and carry out investigations. Scientific investigations help us describe a phenomenon or test a theory for how the world works.

Table 1 outlines how to plan and implement investigations with elementary students. Starting in kindergarten, students will explore a question with their class. In grades 1-2, students will work together in smaller groups to explore a topic while also considering how to collect data. In grades 3-5, students will use variables and trials in their investigations to support their evidence based conclusions. Capture sheets are included to help students document their work. It can also serve as a template for how to display student investigations for a community night.

Also listed are some project ideas that are age appropriate in their progression of content learning. Looking for some ideas to help guide your students to design their investigations?

- Go outside! Ask students to make observations about what they are sensing.
- Share images that might probe questions
- Provide students with materials that they might want to explore in different ways
- Encourage students to ask questions at the end of science units
- Read a science story book to spark questions

Kindergarten	Grades 1-2	Grades 3-5
With guidance, plan and conduct an investigation in collaboration with peers.	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using far tests in which variables are controlled and the number of trials is considered.
Experiment with: Heating and cooling *How does temperature affect dissolving powdered hot chocolate?* Sounds *How well does sound travel through a gas? A solid? A liquid?* Senses *Does smell affect taste?* Needs of plants *Why do plants wilt?* Pollination *Do bees prefer certain colors?* Seed dispersal *How do animals help seeds travel?* Local species *How does soil impact the animal tracks in my yard?* Patterns of movement of the sun, moon, and stars *What causes the phases of the moon?* Wind and water *Does hot water boil faster than cold?* Weather *Where do raindrops come from?* Needs of living things *Do plants need soil?* Actions to reduce human impacts on environment *How long will it take for a trash bag to decompose?*		**Experiment with:** Chemical reactions *What happens to Alka-Seltzer when it is put it different temperatures of water?* Light *How does light make color?* Needs of Plants *Why do plants turn brown?* Decomposition *What do worms eat?* Soil *How does moisture affect the color of soil?* Food webs *Are earthworms and plant grow related?* Habitats *What shape bird house to birds prefer?* Rainfall impacting shape of the land *Does the same amount of rain fall each time?* Water and ice *How does frost form?* Renewable and nonrenewable resources *How can hydropower be used to lift an object?* Actions to reduce human impacts on environment *How does acid rain effect plant growth?*

NGSS Lead States. 2013. Next Generation Science Standards: For States, By tates. Washington, DC: The National Academies Press.

Capture Sheets and Display Templates

Kindergarten

Title			
Question		**Prediction** *(based on prior experiences)*	
Materials	Procedure	Observations/Pictures	Conclusion

Grades 1-2

Title			
Question		**Prediction** *(based on prior experiences)*	
Materials	Procedure	Observations/Data/ Pictures	Conclusion

Grades 3-5

Title			
Question	**Prediction** *(based on prior experiences)*		**Variables**
Materials	Procedure *(including trials)*	Observations/Data/ Pictures	Conclusionv