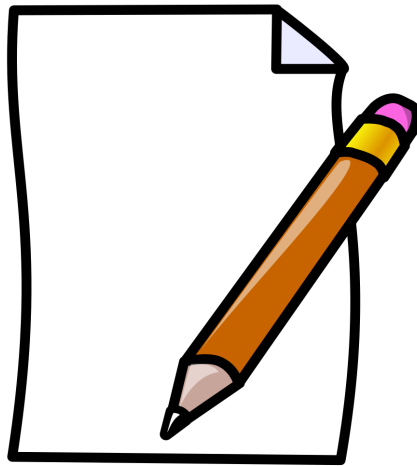


# Elementary STEM Fair Notebook for K-4 Students



Name: \_\_\_\_\_

Project Due Date: \_\_\_\_\_

# STEM Fair Checklist

- ☐ Choose a question to answer or problem to solve.
- ☐ Research to learn more about your topic.
- ☐ Make a prediction or set a design goal.
- ☐ Plan your experiment or brainstorm your design.
- ☐ Do it! Collect data and make observations
- ☐ Record your results.
- ☐ Write a conclusion to share what you learned.
- ☐ Create your STEM fair board or slideshow.

# Choose Your Question or Problem

A good question will lead you to something that you can investigate. A good problem will lead you to something that you can design, build and test. If you can only answer your question by reading a book or watching a video, it is probably not the best STEM fair question or problem. Instead think about things you can change to see what will happen.

Write your question or problem.

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# Research to Learn More

Before starting new projects scientists and engineers do research. This research helps them learn more about their topic and helps them to design their investigation or think about their solution. Share your question or problem with an adult. Ask them for ideas about what you should learn about before you begin. You can talk to experts, read books or articles online, and watch videos to gather more information about your topic.

Write down three or more things that you learned about your topic.

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What sources did you use?

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# Make a Prediction or Design Goal

What do you think will happen in your investigation? If you are solving a problem, what is your goal, what do you hope to create?

Before you start, you need to think about what you already know and make a prediction for what will happen. You also want to explain why you made that prediction. If you are doing an engineering project you need to set a design goal. Making a prediction or setting a design goal will help you decide how to set up your investigation.

Here is an example of a prediction:

*The plants that are given sugar water will grow taller because plants make sugar when they do photosynthesis.*

Here is an example of a design goal:

*My design will automatically fill up my cat's bowl with water when it is empty.*

Write your prediction or design goal.

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# Make A Plan

Before you gather your supplies and begin, you need to make a plan. Think about these questions:

- How will you set up your experiment or build your device?
- What materials will you need?
- What will you measure or observe?
- How will you record your data or observations?

In the space below draw or write your plan. If you are doing a science experiment, explain what you will test. If you are doing an engineering project, explain what you plan to build.

# Collect Your Data

Scientists and engineers record observations and data as they are investigating or building. If you are doing a science experiment, record your observations and the measurements that you make. If you are doing an engineering project record how you tested your device and how you changed your device to make it better.

The more data that you have the better. Be sure to test things out more than once! This is called doing multiple trials.

Use this space below and on the next page record observations and data.

## Collect Your Data (cont'd)

# State Your Results

Now that you have recorded your observations and data it is time to think about what you learned. What does your data tell you? How does your data help you answer your question?

Scientists and engineers make visuals to help show their results. Could you make a graph of your most important data? Could you use pictures to show your results?

In the space below make a table, graph or add pictures to show your results.

If you need help, this is a good website for creating graphs: <https://nces.ed.gov/nceskids/createagraph/>.

# Write A Conclusion

The conclusion is a paragraph or two that summarizes what you learned in your project and shares why your project is important for others.

Try to answer these questions in your paragraph.

- What is the answer to your question?
- What observations or data helped you to answer your question?
- Why do you think your project turned out this way?
- Why is your project important or what does it help others to learn?
- What new questions do you have now?

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## Make Your STEM Fair Board or Slideshow

Now is your chance to share what you have learned with others. Be sure to spend time on this section because you want others to learn from you and recognize your hard work.

Be sure that your board or slideshow includes these parts:

- ☐ Question or Problem
- ☐ Research
- ☐ Prediction or Design Goal
- ☐ Experimental Design or Design Process
- ☐ Data, Observations, or Results
- ☐ Conclusion

You can use pictures and photographs to help explain your project on your board or in your slideshow.

Here is an example of a STEM Fair board. Yours doesn't need to look the same. Make it your own!

