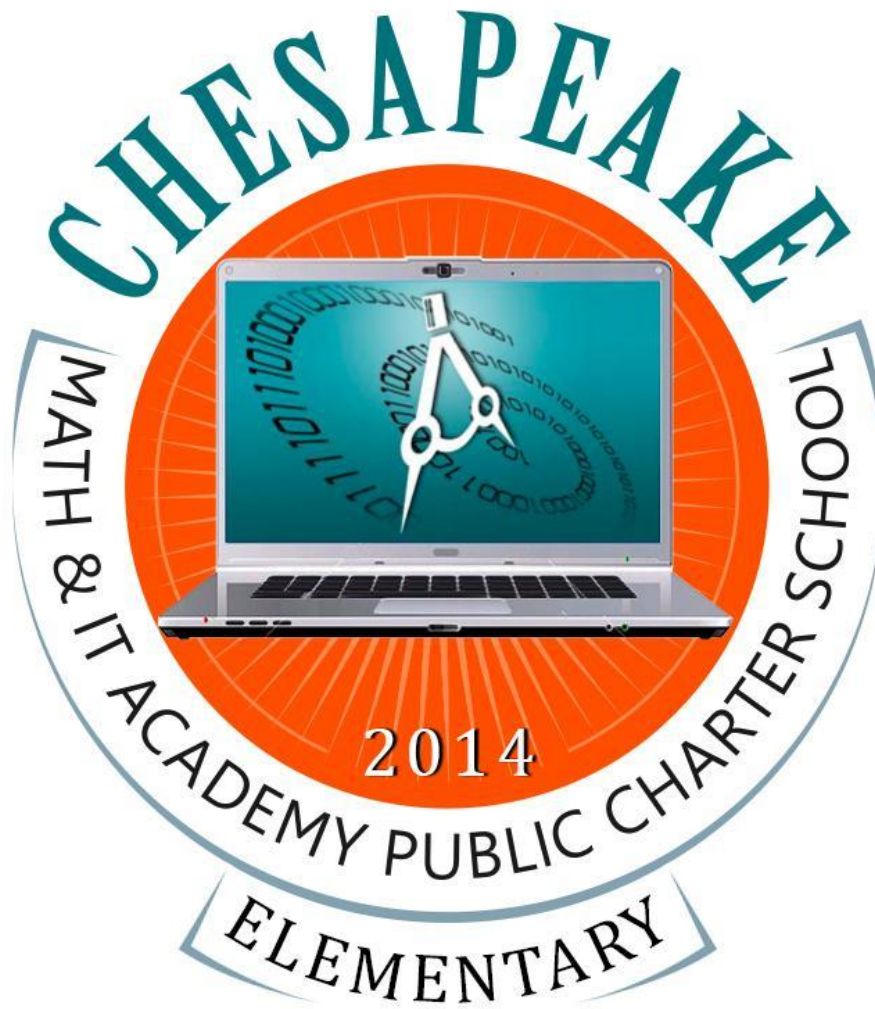




**2021-2022**

**Chesapeake Math & IT Elementary**

**Kindergarten - Fifth grade**

**STEM Fair packet (1st semester)**

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## WHAT IS CMIT STEM FAIR?

*STEM Fair is a school wide project that includes the topics related to Science, Technology, Engineering, and Mathematics. It is **required for all** CMIT students. All teachers will be involved in supporting and evaluating parts of your project. This project will make a difference in your report card. In addition, upper elementary STEM Fair category winners will win amazing prizes.*

## WHAT IS THE PROCESS AND WHAT SHOULD THE END PRODUCT LOOK LIKE?

*Decide which of the following you will create:*

- Science Experiment (Mandatory)

| Experiment ( K-5th grade)                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"><li>1. Focus on a question/problem for your topic.</li><li>2. Use the Scientific Method to complete your investigation.</li><li>3. Collect Data</li></ol> |

You will record your presentation by creating a Google Presentation with voice over, iMovie, FlipGrid, Screen-cast-o-matic, screen-castify, or video recording. Creating a STEM Fair board is optional.

\*NOTE: Students should be able to explain projects independently.\*

### EXPERIMENT TIMELINE Upper Elementary 3rd-5th

| Component                                                                                                                                                                                     |                      | Suggested-Due Date                                                                                                                                                                                                                                    | Expectations                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| STEAM Night                                                                                                                                                                                   |                      | October 13, 2021                                                                                                                                                                                                                                      | Parent University                                                                          |
| Virtual STEAM Day for in school.                                                                                                                                                              |                      | November 19, 2021                                                                                                                                                                                                                                     | Learn about STEAM Fair expectations and complete STEAM challenges!                         |
| Topic due to the teacher.                                                                                                                                                                     |                      | December 3, 2021                                                                                                                                                                                                                                      | Parents will help students select a STEAM topic.                                           |
| Students should formulate a good experiment question and begin their experiment and research.                                                                                                 |                      | December 20, 2021                                                                                                                                                                                                                                     | Parents should help the students create a good question.                                   |
| Students should begin research papers and experiments.                                                                                                                                        |                      | January 7, 2022                                                                                                                                                                                                                                       | 3rd, 4th, and 5th graders are expected to complete a research paper.                       |
| Students should have written their title, question, hypothesis, materials, and procedures.                                                                                                    |                      | January 14, 2022                                                                                                                                                                                                                                      | Parents should help students work on their STEAM Fair project.                             |
| Students should be finished with experiments and write results and conclusions. Students should also take pictures, create a data chart/graph. Students should complete their research paper. |                      | January 21, 2022                                                                                                                                                                                                                                      | Students should type up the results of their STEAM Fair projects.                          |
| Students should prepare a video presentation.                                                                                                                                                 |                      | January 21, 2021                                                                                                                                                                                                                                      | Parents should help students create a video presentation.                                  |
| Students should turn in the COMPLETED project to the teachers.                                                                                                                                |                      | <b>January 24, 2021</b>                                                                                                                                                                                                                               | Parents should ensure that the project is turned in.                                       |
| Projects will be presented in science classes..                                                                                                                                               |                      | <b>January 27-29, 2022</b>                                                                                                                                                                                                                            | NO LATE PROJECTS!                                                                          |
| Top projects will earn students an invitation to the CMIT Elementary STEM fair (Upper Elementary only).                                                                                       |                      | <b>February 12th</b>                                                                                                                                                                                                                                  | All participants will receive a certificate. Prizes will be awarded to the top categories. |
| <b>Upper Elementary Virtual STEM Fair</b>                                                                                                                                                     | <b>February 12th</b> | Students should be present for judging and be ready to present their 2-5 minute presentation on their STEM fair project. Parents should help students practice discussing their project. However, no parents will not be allowed in the judging area. |                                                                                            |

### **TIMELINE Lower elementary (K-2ND)**

| Component                                                                                                                             |                                                  | Due Date                                            | Expectations                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------|
| STEAM Night                                                                                                                           |                                                  | October 13, 2021                                    | Parent University                                                        |
| Virtual STEAM Day for in school.                                                                                                      |                                                  | November 16, 2021                                   | Learn about STEAM Fair expectations and complete STEAM challenges!       |
| Topic due to the teacher.                                                                                                             |                                                  | December 3, 2021                                    | Parents will help students select a STEAM topic.                         |
| Students should formulate a good experiment question and begin their experiment and research.                                         |                                                  | December 11 , 2021                                  | Parents should help the students create a good question.                 |
| Students should have written their title, question, hypothesis, materials, and procedures. Students should complete their experiment. |                                                  | December 20, 2021                                   | Parents should help students work on their STEAM Fair project.           |
| Students should take pictures, and create a data chart/graph.                                                                         |                                                  | January 7, 2022                                     | Parents should support students as they work on their STEM Fair project. |
| Students should prepare a video presentation.                                                                                         |                                                  | January 21, 2022                                    | Parents should help students create a video presentation.                |
| Completed projects are due.                                                                                                           |                                                  | <b>January 24, 2022</b>                             | Parents should ensure projects are submitted on time.                    |
| Projects will be presented in science class.                                                                                          |                                                  | <b>January 27-29, 2022</b>                          | <b>Late projects will not enter the STEM virtual gallery display!</b>    |
| Completed student projects will earn students an invitation to the CMIT Elementary Virtual STEM fair gallery display.                 |                                                  | February 12, 2022<br><b>Virtual Gallery Display</b> | All participants will receive a certificate                              |
| <b>CMIT Elementary Gallery Walk</b>                                                                                                   | February 12, 2022<br><b>Virtual Gallery Walk</b> | Virtual Gallery walk for the school and parents.    |                                                                          |

## STEM Fair Categories

| Category                        | Topic                                              | STEM Occupation                            | Famous STEM Person                        |
|---------------------------------|----------------------------------------------------|--------------------------------------------|-------------------------------------------|
| Behavioral Science              | The Human Brain, Exercise                          | Psychologist<br>Family Therapist           | Sigmund Freud                             |
| Botany and Zoology              | Plant (i.e. fern), Animal (i.e. koala bear)        | Veterinarian                               | George Washington Carver<br>Rachel Carson |
| Chemistry                       | Chemicals in the household<br>(i.e. toothpaste)    | Lab Researcher<br>Cosmetology              | Marie Curie<br>Lloyd Hall                 |
| Earth and Environmental Science | Recycling                                          | Astronaut<br>Land Surveyor                 | Ronald McNair<br>Wangari Maathai          |
| Engineering                     | Lego, Bridges                                      | Civil Engineer<br>Software Engineer        | Elijah McCoy<br>Cynthia Maxwell           |
| Math and Computer Science       | Fractions, Adding,<br>Subtracting, Coding, Scratch | Computer Programmer<br>Statistician        | Mark Zuckerberg<br>Christine Darden       |
| Medicine and Health             | Vitamins, cancer                                   | Pharmacists<br>Surgeon                     | Dr. Ben Carson                            |
| Physics                         | Force, Roller Coasters                             | Material Scientists<br>Structural Engineer | Albert Einstein<br>Chien-Shiung Wu        |

## **STEM Fair Project Parts to include in Video Presentation!**

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

**Teacher/Grade:** \_\_\_\_\_

**Project Title:** \_\_\_\_\_

### **Content (90 points total)**

\_\_\_\_\_ Creative Title (10 points)

\_\_\_\_\_ Testable Question/Purpose/Problem (10 points) What problem will you solve?

\_\_\_\_\_ Hypothesis (10 points) Your educated guess of what the results will be.

\_\_\_\_\_ Procedures (10 points)- Include the steps to complete the entire project.

\_\_\_\_\_ Materials Used (10 points) -List them with quantities

\_\_\_\_\_ Variables (10 points) (Independent, dependent, and constant)

\_\_\_\_\_ Data (10 points) Graph and chart explaining results of fair test.

\_\_\_\_\_ Results (10 points) Written explanation of the data

\_\_\_\_\_ Conclusions (10 points) Reflection of the project, what was learned, and if your hypothesis was correct.

Notes:

\_\_\_\_\_

### **Video Presentation (10 points total)**

Should be Creative in the form of Google presentation, Prezi, video, animation, or iMovie.

**Total Points Earned** \_\_\_\_\_

Total Points Available 100 Percentage \_\_\_\_\_

## Resources

Websites that may help you pick a topic

<https://www.sciencebuddies.org/>

<https://sciencebob.com/science-fair-ideas/ideas/>

<https://www.winter.k12.wi.us/community/sciencefair/sciencefairideas.pdf>

[Http://www.education.com/science-fair/elementary-school/](http://www.education.com/science-fair/elementary-school/)

Check to see if your project is safe: <https://ruleswizard.societyforscience.org/>

Ideas for lower elementary: <https://www.icanteachmychild.com/science-fair-projects/>  
<https://learning-center.homesciencetools.com/article/science-fair-projects-for-elementary/>

### Examples

#### *Experiments*

- What color light allows plants to grow fastest?
- Does salt impact how fast water freezes?
- Which liquid freezes faster?
- How does the compression and expansion of a ball affect the bounce height.

#### *Model/Occupation/Person*

- Mastermind - The Human Brain
- Gifted Hands - Ben Carson

### **PROHIBITED TOPICS**

- **No** Projects involving **VERTEBRATES** (NO Fishes, amphibians, reptiles, birds, or mammals/humans).
- **No** Bacteria Projects/No Mold
- No household cleaners
- Please focus on kid-friendly and age appropriate topic

1. **QUESTION / PROBLEM** (In a sentence, phrase the question or the problem of your investigation.)

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2. **HYPOTHESIS** (After doing some research and what is your predicted answer/solution to above question/problem?):

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3. **MATERIALS** (What materials will you need to test your hypothesis? Include the quantities.)

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## 4. PROCEDURES

a) **DETAILED PROCEDURE:** (How are you planning to test your hypothesis? Explain your experimental design step by step.)

[illegible]

b) **VARIABLES** ***Independent Variable:*** The quantity that you vary systematically. This variable is plotted on the x-axis. The successive increments in the independent variable are often consistent. In physics projects, time is frequently the independent variable. Example: When measuring the speed of a runner over time, time is the independent variable. Speed is the dependent variable. ***Dependent Variable:*** This quantity changes as a result of your manipulations and depends on the independent variable. The dependent variable is plotted on the y-axis. **CONSTANT VARIABLE (CONTROL VARIABLE).** The control set-up as well as an experimental set-up are the things that must be constant. These things must be constant to get accurate results. Example: The location where you would put a plant if you wanted to see if worms impacted the growth of plants. The location should be the same (ex. Window).

INDEPENDENT

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DEPENDENT

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CONSTANT (CONTROL)

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6. **RESOURCES:** (What are the book, magazine, and internet resources that you used and/or planning to use?)

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7. **DATA**

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## 8. RESULTS

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## 9. CONCLUSION

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## 10. ACKNOWLEDGEMENTS

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# STEM Fair Research Paper Rubric (Reading classes Upper elementary)

\_\_\_\_\_ Cover Page (5 points) \_\_\_\_\_

Table of Contents (5 points)

Notes: \_\_\_\_\_

Brief introduction with overview of project includes problem statement, materials, and variables.

\_\_\_\_\_ Introduction (10 points)

Notes: \_\_\_\_\_

Explanation of problem and rationale for hypothesis, procedures, includes background research.

\_\_\_\_\_ Body of research (10 points)

Notes: \_\_\_\_\_

Analysis of results: Raw data, Charts/Tables with labels.

\_\_\_\_\_ Discussion (10 points)

Reflection of whether your hypothesis was correct and explain why the project is important, real world-applications.

\_\_\_\_\_ Conclusion (5 points)

Notes: \_\_\_\_\_

\_\_\_\_\_ References (MLA format)/Acknowledgements (5 points)

Notes: \_\_\_\_\_

Total Points Earned: \_\_\_\_\_ Total Points

Available: \_\_\_\_ 50 \_\_\_\_ Grade (Percentage): \_\_\_\_\_



CMIT Science Fair Packet revised by  
Benora McCain'Wigfall, STEM Fair Coordinator  
2021-2022 STEAM Committee (reviewed)  
Last modified October 10, 2021.