2016-2017

Chesapeake Math & IT Elementary

Kindergarten - Fifth grade

STEM Fair packet

Link to entire packet:
https://docs.google.com/document/d/1kXZrB4lL3v-TE9mCMLG2D44gTZylA4jluIVoNmbAuNA/edit?usp=sharing

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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. STEM Fair category winners will win amazing prizes.*

Kindergarten, First, and Second Grade students will have the option to complete an experiment using the scientific method, create a model, research a STEM occupation, or a person who has made significant contributions to the STEM field.

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

Decide which of the following you will create:

- Science Experiment (Mandatory 3-5)
- Model (K-2 only)
- STEM Occupation (K-2 only)
- STEM Person (K-2 only)

Based on your choice, follow the following general steps:

Experiment (mandatory for 3rd-5th grade)	**Model/Occupation/Person (Kindergarten-2nd)**
1. Focus on a question/problem on your topic. 2. Use the Scientific Method to complete your investigation. 3. Collect Data	1. Focus on a reason for your selection. 2. Make a diorama or model to represent your topic. 3. Draw and take pictures of building the model.

You will complete the project by creating a STEM Fair Board.

NOTE: Students should be able to carry their projects <u>independently</u>.

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EXPERIMENT TIMELINE

Component		Suggested-Due Date	Expectations
Topic due to teacher.		**October 14th or 17th, 2016**	Parents will help students pick a STEM topic.
Students should formulate a good experiment question and begin their experiment and research.		October 21, 2016	Parents should help the students create a good question.
Students should begin research papers.		October 30, 2016	Third, Fourth, and Fifth graders are expected to complete a research paper.
Students should have written their title, question, hypothesis, materials, and procedures. Students should start their experiment.		November 10, 2016	Parents should help students work on their STEM Fair project.
Students should be finished with experiments and write results and conclusions. Students should also take pictures, create a data chart/graph.		December 22, 2016	Students should write (or parents can help type) up the results of their STEM Fair projects.
Students should put together a neat display board and turn in to their teacher.		**January 3, 2017**	Parents should help students put together their projects.
Projects will be presented in science class.		January 4-5, 2017	NO LATE PROJECTS WILL BE ENTERED INTO THE STEM FAIR!
Top projects will earn students an invitation to the CMIT Elementary STEM fair.		January 7, 2017	All participants will receive an certificate.
CMIT Elementary STEM Fair	January 7, 2016 Invitations will have specific time slots.	Students should be present for judging and be ready to give a 2-5 minute presentation on their STEM fair project. Parents should help students practice discussing their project. However, parents will not be allowed in the judging area.	

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MODEL/OCCUPATION/PERSON TIMELINE

Component	Due Date	Expectations
Topic, STEM Fair occupation or famous STEM person due to teacher.	**October 14th or 17th, 2016**	Parents will help students pick a STEM topic.
Students should be guided through reading books and online resources on their topic to create a creative title.	October 21, 2016	Parents should help the students explain reason for choice.
Students should begin research on history, interesting facts, a model or diorama and pictures. All pictures should include a caption. (ex.: This is a volcano and it erupts.)	November 10, 2016	Students can draw pictures and use sentences to represent facts learned about their topic.
Students should have written their title, new vocabulary learned, materials, and procedure for building diorama or model.	December 22, 2016	Parents should help students work on their STEM Fair project.
Students should practice reading and spelling new vocabulary. Students should also take pictures, create a data chart/graph.	December 23-31, 2016	Students should write (or parents can help type) up the results of their STEM Fair projects.
Students should put together a neat display board and turn in to their teacher.	**January 3, 2017**	Parents should help students put together their projects.
Projects will be presented in science class.	January 4-5, 2017	**NO LATE PROJECTS WILL BE ENTERED INTO THE STEM FAIR!**
Top projects will earn students an invitation to the CMIT Elementary STEM fair.	January 7, 2017	All participants will receive a certificate.
CMIT Elementary STEM Fair	January 7, 2017	Students should be present for judging and be ready to give a 2-5 minute presentation on their STEM fair project.

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STEM Fair Categories

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

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STEM Fair Display Board Rubric

Name:_____

Teacher/Grade:_____

Project Title:_____

Content (45 points total)

_____ Creative Title (5points)

_____Purpose (5 points)

_____Hypothesis | History/Timeline or Geographical Location (5 points)

_____Procedures | Description of project (5 points)

_____Materials Used (5 points)

_____ Variables | Person Similar in the community (5 points)

_____ Data | Current News (5 points)

_____Results | Favorite or Fun Fact (5 points)

_____Conclusions (5 points)

Notes:

_____

_____

Appearance (5 points total)

_____Neatness _____Colors/Presentation_____Pictures

Total Points Earned_____ Total Points Available__50_ **Percentage**

_____

Acknowledgements can be posted on back of display board with references.

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Topic Suggestions

Topics you may also consider

- Invertebrates
- Vitamins
- Water
- Magnets

Websites that may help you pick a topic

Experiments

- http://www.education.com/science-fair/elementary-school/
- http://www.sciencebob.com/sciencefair/ideas.php
- www.sciencebuddies.com

Model/Occupation/Person

- http://www.nationalgeographic.com/
- http://www.timeforkids.com/

Examples

Experiments

- Which fruit juice has the most Vitamin C?
- Does salt impact how fast water freezes?
- Which liquid freezes faster?
- How can worms impact plant growth?

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
- Mold projects must have teacher approval for safety reasons.
- No household cleaners
- Please focus on kid-friendly and age appropriate topics

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Experiment Journal Entry Pages

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

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

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

4. **PROCEDURES**

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

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b) <u>*VARIABLES*</u> ***Independent Variable***: The quantity that you vary systematically. This variable is plotted on the x-axis. The successive increments in the

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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 but a plant if you wanted to see if worms impacted the growth of plants. The location should be the same (ex. Window).

INDEPENDENT

DEPENDENT

CONSTANT (CONTROL)

---

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

7. DATA

8. RESULTS

9. CONCLUSION

10. ACKNOWLEDGEMENTS

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Model/Occupation/Person Journal Entry Pages

1. **PURPOSE** (List the reason for choosing this topic, person, or occupation.)

2. **HISTORY/TIMELINE/GEOGRAPHIC LOCATION** (What did you learn about the history of the topic, person, or occupation? Explain. Describe the geographical location if applicable):

3. **MATERIALS** (What materials will you need to build your model or conduct your research? Include the quantities.)

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4. **PROCEDURES** (Describe the model built. If you researched an occupation or person, discuss how you were able to find information. Did you have any difficulties? Why?)

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

6. **FACTS** (Discuss any fun or interesting facts you learned. If you chose an occupation, what other different types are there in the same field? If you chose a person, connect the person to someone in your family or community. Do you know an engineer or computer specialist?)

8. **CURRENT NEWS** (Refer to Time for Kids or Washington Post for Kids. What is new about this topic?)

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9. **CONCLUSION** (What did you like learning about most?)

10. **ACKNOWLEDGEMENTS** (I would like to thank…)

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The CLF Awards ceremony TBD. This event will be an invite only event. If you receive an invitation please plan to attend this event. We have a special day planned for our 1st and grand prize students and families. We have amazing awards to present to our hard working and dedicated students. We look forward to seeing you there.

CMIT Science Fair Packet revised by
Benora McCain, STEM Fair Coordinator,
Jaymie Lynn Santiago and Dana Weaver
Last modified September 2016.

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