Science Inquiry Competition and Discovery Day

(Hosted at Crane Elementary School)

March 9, 2016 *Science Inquiry Competition/Discovery Day in Crane at Crane Elementary School*

Prior to the event, teachers are encouraged to facilitate students completing their science projects within the classroom setting, not at home.

On the day of the event, all rural schools, K-8 meet at Crane Elementary School to set up their projects in preparation for judging. Grades K-2 will be exhibition only. Grades 3-8 will compete for prizes. While projects are being evaluated, students will attend classroom presentations in science, put on by OMSI. Prizes at the individual levels will be given following classroom presentations and general assembly. Science Discovery Day t-shirts are available for purchase for $12. Pre-order is preferred so that we have enough on hand for everyone. Lunch will be graciously provided for all students, teachers, and judges by Crane Schools in the Crane Cafeteria. Other chaperones, parents and preschoolers will need to bring a sack lunch for the day. We also suggest bringing snacks and water for your students.

Please read on for details:

Included in the information you will find:

- The entry requirements for projects.
- Benchmark 1, 2, and 3 guides/worksheets to aid in the development of projects
- Sample inquiry questions

Reminders to Students and Teachers

1. During each session, there will be students pulled out to present to judges beginning with students in Grades 3-5, then K-2, then 6-8. Please listen for your name when the runner enters the classroom to request your presence before the judges.
2. Please try to be as quiet as possible when leaving and re-entering your session after presenting to the judges.
3. The stage in the multi-purpose room is off limits.
4. During the public viewing session, students with projects in the science competition are expected to stay with their projects and present to members of the public. There may also still be judging going on during this time and students may be called to present again to the judges.
5. During the public viewing session, students who do not have projects in the science competition are expected to complete an activity sheet. These activity sheets are available at the front table in the elementary gymnasium. Once your activity sheet is completed you can turn it in there and your name will be entered in a drawing for a gift certificate.
6. Teachers- It is a good idea to bring water and snacks for your students during the day.

Schedule for Science Competition and Science Discovery Day
March 9, 2016, at Crane Elementary School & Elementary Gym

8:00-9:30-Setup: Students participating in the Science Competition will set up their projects in the Gymnasium to be ready for viewing.

9:30-9:45- Group session in Multi Purpose Room conducted by Keynote presenter for students. Judges will walk through student projects in Gymnasium.

9:50-10:30

First session of project presentations to judges: exhibition presenters K-2 will be pulled out of activity session in Classroom 2 in small groups to make presentations to judges. Concurrently, 40 min Science Discovery sessions for Grades 3-5 & 6-8.

Classroom 1: Grade K-2: Marvelous Magnets by OMSI. Project presentations to judges, kids will be pulled out in small groups (40 min).

Classroom 2: Grade 3-5: Energy Options by OMSI (40 min)

Classroom 3: Grade 6-8: Hunters by OMSI (40 min)

10:35-11:15

Second session of project presentations to judges: exhibition presenters 3-5 will be pulled out of activity session in Classroom 1 in small groups to make presentations to judges. Concurrently 40 min Science Discovery sessions for Grades K-2 & 6-8.

Classroom 1: Grade 3-5: Identity (40 min). Project presentations to judges, kids will be pulled out in small groups. (40 min)

Classroom 2: Grade 6-8: Make It Yourself by OMSI (40 min)

Classroom 5: Grade K-2: Cowabunga Chemistry by OMSI (40 min)

11:15-11:45-Lunch generously provided by Crane in the Crane Cafeteria for students, teachers and judges.

11:50-12:30

Third session of project presentations to judges: exhibition presenters 6-8 will be pulled out of activity session in Classroom 1 in small groups to make presentations to judges. Concurrently, 40 min Science Discovery sessions for Grades K-2 & 3-5.

Classroom 1: Grade 6-8: Identity by OMSI (40 min). Project presentations to judges, kids will be pulled out in small groups (40 min)

Classroom 2: Grade K-2: Prehistoric Dinosaurs by OMSI (40 min)

Classroom 5: Grade 3-5: Cowabunga Chemistry Presentation by OMSI (40 min)

12:35-1:35-Gymnasium: All project participants will present projects to visiting public, answer any final questions for judges, etc.

1:35-1:45-Break

1:45-2:40-Gymnasium: Final assembly, Altered States presentation by OMSI

2:40-3:00-Present prizes.

3:00-End

Harney County Rural School Science Competition 2016

Science Inquiry Entry Form & Scoring Guide Cover Sheet

Entry Level: Individual____ Team_____

Science Area: Life____Physical____ Earth____

Project Title:_____

Student Name_____ Grade_____
Student Name_____ Grade_____
Student Name_____ Grade_____

(For team entry, please list each student's name above. For individual entries, please list just the individual's name once.)

School_____ or

Home School Provider_____

Science Inquiry Scoring Guide-----Point Summary Name:_____

A. Framing a Question/Hypothesis **POINTS**

Student poses a testable, open-ended question (cannot be a yes/no question).

0 1 2 3 4 5 6 7 8 9 10 _____

Weak **Strong**

B. Designing an Investigation

A procedure with properly sequenced steps will effectively test the hypothesis.

0 1 2 3 4 5 6 7 8 9 10 _____

Weak **Strong**

Student identifies the experiment's variables and control(s).

0 1 2 3 4 5 6 7 8 9 10 _____

Inaccurate **Accurate**

C. Collecting and Presenting Data

A data table and visual aid or graph is included that makes the collected data easy to understand.

0 1 2 3 4 5 6 7 8 9 10 _____

Ineffective **Effective**

D. Analyzing and Interpreting Results

Student describes the data, and forms a conclusion related to the question/hypothesis based upon the results.

0 1 2 3 4 5 6 7 8 9 10 _____

Weak **Strong**

E. Overall score reflecting the quality of the presentation

Communication to judges:

0 1 2 3 4 5 6 7 8 9 10 _____

Not there yet **Appropriate for age/grade** **Above expectation**

Organization of project display and materials:

0 1 2 3 4 5 6 7 8 9 10 _____

Not there yet **Appropriate for age/grade** **Above expectation**

Total points out of 70 possible: _____

Comments:_____

_____

_____

Steps to the Scientific Inquiry Process
Working toward Benchmark 2

SECTION 1

FORMING A QUESTION OR HYPOTHESIS

TITLE

Gives a descriptive name to your experiment

RESEARCH QUESTION

Tells the reader what you are going to do or what you are trying to figure out

- In your own words, explain the question you want to answer.

HYPOTHESIS

Explains to the reader what you think will happen
Your hypothesis must answer the question!
(It is ok if your hypothesis is not correct)

BACKGROUND INFO/OBSERVATIONS

Previous knowledge or observations

- Tell what led you to your question or hypothesis—mention your science knowledge, observations you have made, and/or other things that interest you

SECTION 2

DESIGNING AN INVESTIGATION

VARIABLES AND CONTROLS

Identify variables
Identify controls

- Decide what must be done to have a fair test of your question or hypothesis.

MATERIALS

List the materials you will be using in the experiment

PROCEDURE

List detailed steps so anyone could follow your procedure
Illustrate and label your setup

SECTION 3

COLLECTING AND PRESENTING DATA

OBSERVE, COLLECT AND RECORD DATA

Record data that describes characteristics using the appropriate senses

Quantitative data or observations: Data that requires measurement or numerical calculation. You need numbers for quantitative data.

- Design a data table or other format for your measurements and/or observations
- Carry out your investigation, recording the measurements and observations you need to answer your question or test your hypothesis.

PRESENT DATA

Transform your measurements or observations (by doing calculations, reorganizing, making graphs, etc.) to make them easier to understand.

SECTION 4

ANALYZING AND INTERPRETING RESULTS

ANALYZING

CONCLUSION

Summary of Data

Relate back to your hypothesis

INTERPRETING

CONCLUSION

Does your data support your hypothesis or not support it?

Discuss any sources of error

- Report the results of your investigation and identify patterns that you find
- Use your results to answer your question (or tell if your hypothesis was correct). If you cannot answer your question (or tell if your hypothesis was correct), tell why.
- Form a new hypothesis if your first one was incorrect
- What might you do differently next time?

Steps to the Scientific Inquiry Process
Working toward Benchmark 2
Work Pages

SECTION 1

FORMING A QUESTION OR HYPOTHESIS

TITLE

_____

RESEARCH QUESTION

_____

_____

HYPOTHESIS

_____

_____

BACKGROUND INFO/OBSERVATIONS

_____

_____

_____

_____

_____

_____

SECTION 2

DESIGNING AN INVESTIGATION

VARIABLES

CONTROLS

MATERIALS

PROCEDURE

SECTION 3

COLLECTING AND PRESENTING DATA

OBSERVE, COLLECT AND RECORD DATA

Create Data Table

PRESENT DATA

Convert recorded data into a graph, table or chart

SECTION 4

ANALYZING AND INTERPRETING RESULTS

ANALYZING

CONCLUSION

INTERPRETING

CONCLUSION

Steps to the Scientific Inquiry Process
Working toward Benchmark 3

SECTION 1

FORMING A QUESTION OR HYPOTHESIS

TITLE

Gives a descriptive name to your experiment

RESEARCH QUESTION

Tells the reader what you are going to do or what you are trying to figure out

- ❖ Write your idea as a question you want to answer and a hypothesis you want to test

HYPOTHESIS

Explains to the reader what you think will happen
Your hypothesis must answer the question!
(It is ok if your hypothesis is not correct)

- ❖ Clearly explain your hypothesis

BACKGROUND INFO/OBSERVATIONS

Previous knowledge or observations

- ❖ Describe the background knowledge or preliminary observations that helped you frame your question/hypothesis

SECTION 2

DESIGNING AN INVESTIGATION

VARIABLES AND CONTROLS

Identify variables
Identify controls

- ❖ Decide what must be done to have a fair test of your question or hypothesis.

MATERIALS

List the materials you will be using in the experiment

PROCEDURE

List detailed steps so anyone could follow your procedure
Illustrate and label your setup

SECTION 3

COLLECTING AND PRESENTING DATA

OBSERVE, COLLECT AND RECORD DATA

Record data that describes characteristics using the appropriate senses

Quantitative data or observations: Data that requires measurement or numerical calculation. You need numbers for quantitative data.

- ❖ Design a data table or other format for your measurements and/or observations
- ❖ Carry out your investigation, recording the measurements and observations you need to answer your question or test your hypothesis.

PRESENT DATA

Transform your measurements or observations (by doing calculations, reorganizing, making graphs, etc.) to make them easier to understand.

SECTION 4

ANALYZING AND INTERPRETING RESULTS

ANALYZING

CONCLUSION

Summary of Data

Relate back to your hypothesis

INTERPRETING

CONCLUSION

Does your data support your hypothesis or not support it?

Discuss any sources of error

- ❖ Report the results of your investigation, identify patterns and propose explanations. Use science concepts, models and terminology in your explanations.
- ❖ Address your question (answer it or explain why you cannot) and/or explain how the test of your hypothesis came out—use your results to support your conclusions.
- ❖ Review your investigation for possible errors in the measurements or observations. Explain the limitations of your conclusions.
- ❖ Form a new hypothesis if your first one was incorrect
- ❖ What might you do differently next time?

Steps to the Scientific Inquiry Process
Working toward Benchmark 3
Work Pages

SECTION 1

FORMING A QUESTION OR HYPOTHESIS

TITLE

_____

RESEARCH QUESTION

_____

_____

HYPOTHESIS

_____

_____

BACKGROUND INFO/OBSERVATIONS

_____

_____

_____

_____

_____

_____

SECTION 2

DESIGNING AN INVESTIGATION

VARIABLES

CONTROLS

MATERIALS

PROCEDURE

SECTION 3

COLLECTING AND PRESENTING DATA

OBSERVE, COLLECT AND RECORD DATA

Create Data Table

PRESENT DATA

Convert recorded data into a graph, table or chart

SECTION 4

ANALYZING AND INTERPRETING RESULTS

ANALYZING

CONCLUSION

INTERPRETING

CONCLUSION

For your presentation you must be prepared to present a walk-through of your project including all of the areas in your plan using your props (board and other materials) and answer questions from the people viewing the project.

Steps to the Scientific Inquiry Process
Early Primary (K-2)

SECTION 1

FORMING A QUESTION OR HYPOTHESIS

TITLE

Name of your experiment

QUESTION

What are you trying to find out?

HYPOTHESIS

What you predict will happen?

BACKGROUND

Tell why you think your hypothesis is true.

SECTION 2

DESIGNING AN INVESTIGATION

VARIABLES AND CONTROLS

Tell the things that change.(variables)

Tell the things that stay the same. (controls)

- ❖ How do you know that the test is fair?

MATERIALS

What things (materials) will you need for this experiment?

PROCEDURE

Tell how to do your experiment.

Illustrate and label your setup.

SECTION 3

COLLECTING AND PRESENTING DATA

OBSERVE, COLLECT AND RECORD DATA

Tell what you notice about your experiment. (smell, hear, see, feel)
Measure how things change

- ❖ Use a table to record your data.
- ❖ Do your experiment and write down what you learn.

PRESENT DATA

Make a graph of your data

SECTION 4

ANALYZING AND INTERPRETING RESULTS

ANALYZING

CONCLUSION

Tell what happened in your experiment.
Make sure that you talk about your hypothesis.

INTERPRETING

CONCLUSION

Did your experiment prove your hypothesis or not?
Did everything work the way you thought it would? If not, tell about it.

Steps to the Scientific Inquiry Process
Early Primary (K-2)
Work Pages

SECTION 1

FORMING A QUESTION OR HYPOTHESIS

TITLE

_____

QUESTION

_____

_____

_____

HYPOTHESIS

_____

_____

_____

BACKGROUND

SECTION 2

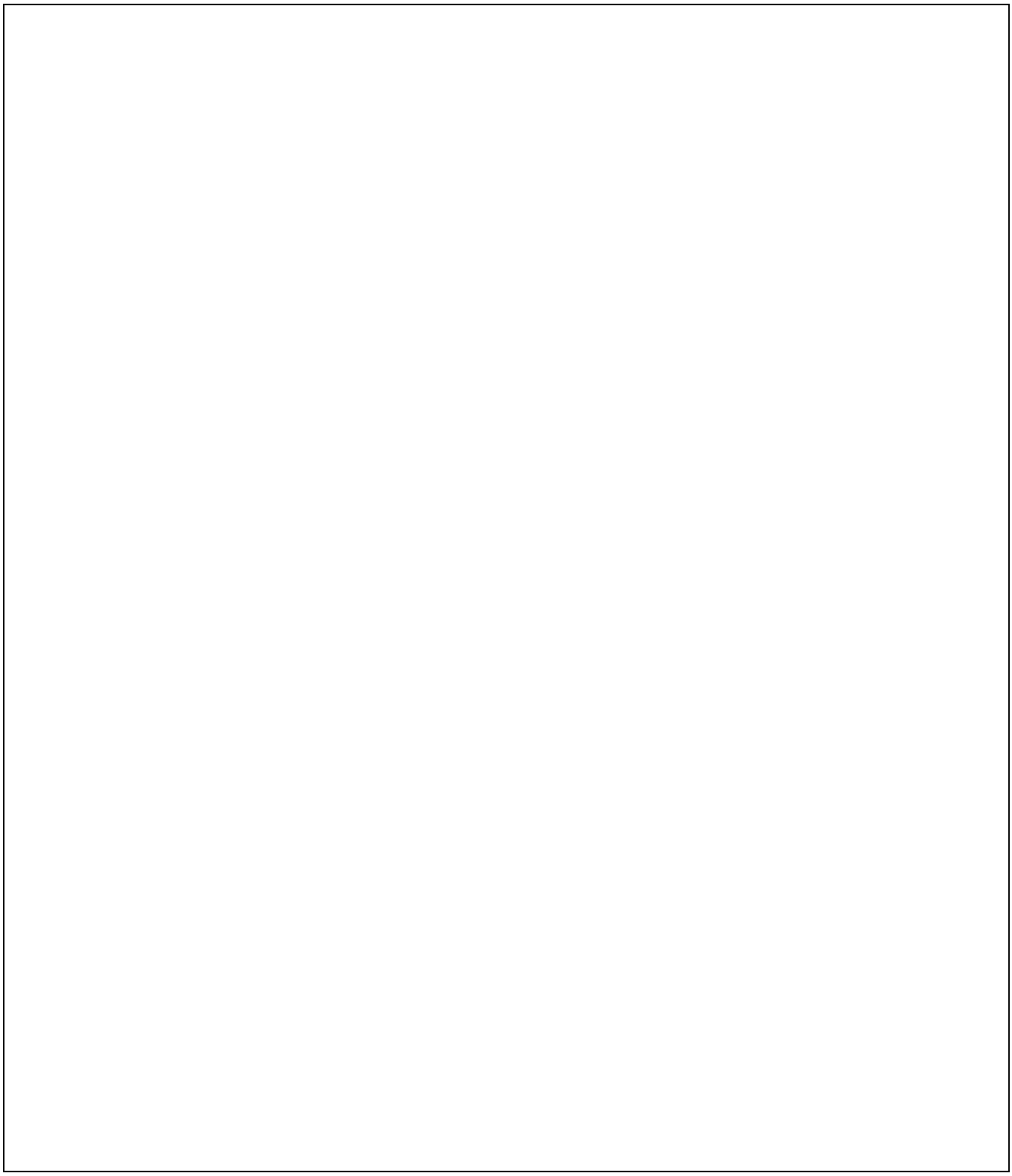
DESIGNING AN INVESTIGATION

VARIABLES

CONTROLS

MATERIALS

PROCEDURE



SECTION 3

COLLECTING AND PRESENTING DATA

OBSERVE, COLLECT AND RECORD DATA

Use the Data Table provided for you

PRESENT DATA

Make a graph, table or chart that shows what you learned

SECTION 4

ANALYZING AND INTERPRETING RESULTS

ANALYZING

CONCLUSION

INTERPRETING

CONCLUSION

Please complete and return by February 18, 2016

Science Competition and Science Day T-Shirt Order 2016

T-Shirt Cost $12.00

Name_____

School _____

	Size:
Youth Small	_____
Youth Medium	_____
Youth Large	_____
Youth X-Large	_____
Adult Small	_____
Adult Medium	_____
Adult Large	_____
Adult X-Large	_____

Please make sure all of this information gets to Earlyna Hammond, frglen16@harneyesd.k12.or.us, or Cindy Lofts, info@frenchgleneducationfoundation.org , 541-589-1965