### Rockburn Elementary School's Science Fair

March 16, 2017



"Science is a special method of finding things out" Richard Feynman Nobel Prize Winner

#### **SPECIAL THANKS TO THE**

#### Rockburn Elementary School PTA for sponsoring the 2017 Science Fair

## Let the Fun Begin...

#### **Scientific Method:**

Just as it does for a professional scientist, the scientific method will help you to focus your science fair testable question, construct a hypothesis or prediction, design, execute, and evaluate your experiment



## Before you begin

- Read through your science fair booklet with your parents
  - Decide if you are flying solo or working with a partner



## Choose a Topic

#### Choose a topic that interests you



# Choosing your testable question...



- Use your Science Fair Packet to find your testable question or come up with your own.
- Think about:
  - Your interests
  - What scientific ideas are you curious about?
  - What are you special skills or talents?
- Search the internet (with a parent's permission).

#### Testing your Question

- What is your testable question?
- How many trials will you need?
- How does \_\_\_\_\_ affect \_\_\_\_\_?



#### Question

- Specific & interesting
- Materials easy to find
- The effect of one thing upon another
- Data (measurements or observations) not opinions

#### Question Example

• List possible questions :



Does salt water boil faster than plain water?



Does the amount of air in a ball affect how high it bounces?

How does a volcano erupt? Why does a tornado form?

#### Title of Your Board

• Words must be related to your testable question.

✓ For instance, "Cleaning Copper Pennies"

#### Hypothesis or Prediction

- What do you think the outcome of your testable question will be?
- Prior knowledge of the subject, if any
- Focus on relationship between independent & dependent variables
- Reason you made your hypothesis

#### Materials

#### • List all materials

- Grocery-like list
- Specific amount or size



#### Procedure

- Step by step (numerically)
- Thorough & complete
  - Someone else could repeat
- Minimum of 3 trials/Maximum of 5
- Show that variables were controlled



#### **Procedure Variables**

- Control
  - Part of the experiment that will stay the same
- Independent
  - Part of the experiment that will change
- Dependent
  - Part you will measure or test

#### Experiment

- Collect your data
- Record observations
- At least 3 times/maximum of 5 times
- Data chart represents all data



#### Results

- Data charts
- Graphs
- Pictures
- Photos



#### Results Data Chart

- Before you begin experiment
- A title that tells about the data
- Independent vs. dependent variable
- How many trials -- at least 3 trials/maximum of 5 trials

|           | Trials      |         |        |         |        |         |
|-----------|-------------|---------|--------|---------|--------|---------|
| Ball Type |             | 1       | 2      | 3       | 4      | 5       |
|           | Full of Air | 3′, 2″  | 3′, 3″ | 3', 1"  | 3′, 3″ | 3′, 2″  |
|           | Less Air    | 2′, 10″ | 2′, 9″ | 2′, 10″ | 2′, 8″ | 2', 10" |
|           |             |         |        |         |        |         |

#### Ball Bounce Test

#### Conclusion

- Answer your testable question
- Was your prediction correct or incorrect
  - Explain why your prediction was right or wrong using the data you collected.
- What did you learn
  - Support with data and observations.

## Display Boards



Science is the systematic study of the natural world that is verifiable.

If done correctly, science is FUN!