Written for about a **Grade 4 level** – Older Students' projects can be more complex

Displaying a Science Experiment

Traditionally, the most common "Science Fair Project"

Title

What happened / what you observed; charts, tables, graphs, etc.

What you wanted to find out

What you thought would happen

What you learned before you started library research, etc.

What you did

What materials and equipment you used

What did your observations tell you? Discuss anything interesting or unexpected that happened.

What you have shown

Where you found your information

People and associations who helped you

What you kept the same, and the one thing you changed

Purpose

To study the relationship between hours of light and plant growth.

Hypothesis

Bean plants grown with 24 hours of light a day will grow two times taller than plants given 12 hours of light a day.

Background Information

Plants need light to grow etc.

Procedure

- I planted 8 bush bean seeds (give details how you did this)
- I arranged the 8 pots under a grow light …

Materials

- A grow light
- 8 bean plants
- 8 pots with soil
- water

To Bean or not to Bean

Results

Height of Plants

12h light **24h light**

	A	B	C	D	E	F	G	H
7 days								
10 days								
21 days								
28 days								

Photos of the two groups of plants during the experiment

Constants

Planting conditions
Growing conditions (except for light): water, temperature

Variable

Hours of light given each day

Discussion of the Results

I found that the amount of light did make a difference in how tall my plants grew, but not as much as I expected. …

Conclusion

The number of hours of light does affect plant growth. More hours of light results in …

References

(Books and other resources)

Acknowledgements

I would like to thank ….

Clare Brooks '00

The student designs an experiment to test a specific hypothesis which links "A" to "B". The student recognizes and controls variables, and collects, analyses, and presents data. Note: the following are worthwhile projects but are not experiments and do not require a hypothesis: a demonstration, a model, a report, a study, an innovation/invention.

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Displaying an Innovation/Invention

Not an experiment - no hypothesis is needed

Title

Describe how your invention works. Draw a detailed picture / diagram / flow chart / schematic etc.

What you wanted to invent or innovate

How was there a need for this invention? How is your project original or innovative?

How you went about designing your innovation

How you went about designing your innovation

Purpose

To design electric gloves so cyclists can signal turns at night.

Significance of my Invention

Many people use bicycles to travel to and from work or school. At night … etc.

Product Development

1. I did background research to see if there is such a product already on the market.
2. I talked to 5 cyclists
3. I drew detailed plans
4. I made my gloves

Materials

- a pair of gloves
- 10 m electrical wire
- 2 20 watt halogen bulbs
- A 12 volt battery … etc.

Light Up Your Night

Description

The cyclist wears a wire harness connected to a battery mounted in the bottle cage, etc.

Diagram

Testing and Evaluation

1. I ran three sets of tests with 1 cyclist and 3 drivers.
2. (Describe procedure …)

	Trial 1	Trial 2	Trial 3
Driver A			
Driver B			
Driver C			
Average Distance			

Improvements

1. Systems should have a brighter bulb for increased safety
2. My system was too expensive: it cost $180

Conclusion

My electric gloves work. They can be worn by cyclists at night and be seen by car drivers. They contribute to safety on the road.

What did your observations tell you? Discuss anything interesting or unexpected that happened.

References

(Books and other resources)

Where you found your information

Acknowledgements

I would like to thank ….

People and associations who helped you

Clare Brooks '00

To display an original innovation or invention developed and evaluated by the student: devices, models, techniques, or approaches in technology, engineering, or computers

Written for about a **Grade 4 level** – Older Students' projects can be more complex

Displaying a Science Study (including product testing)

Not an experiment - no hypothesis is needed

What you wanted to find out

Title

What you found out: "The Data"

What did your observations tell you? Discuss anything interesting or unexpected that happened.

What you know already based on your previous experiences or your library or internet research. Include definitions if appropriate. What did you think would happen? Why did this topic interest you?

What you did

What you learned

What supplies or equipment you used

Where you found your information

People and associations who helped you

Purpose

To find out if it really does rain all winter long in the Fraser Valley like people say.

Background Information and My Expectations

I thought it would rain every day in January because I walk to school and it seems like it's always raining!

Procedure

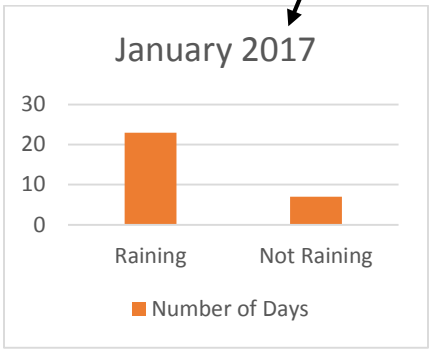
1. I observed and recorded (etc.) every day for a month.
2. I analysed my data.
3. I graphed my results and found a pattern

Materials

- a clipboard
- a record sheet

Rainy Or Not?

Results



It was raining on 23 days out of 30 days, or 77% of the time.

Photo of a rainy day

Photo of a not-rainy day

Discussion of the Results

1. I made my observations only at noon, but sometimes it rained earlier or later in the day.
2. On two of the days, it was snowing. I counted these days as "raining".
3. I found out that it did rain on more days than it didn't, but that it did not rain every day as I expected.

Conclusion

Even though people in the Fraser Valley complain all the time about rainy winters, it did not rain every day, only 77% of the time in January.

References

(Books and other resources)

Acknowledgements

I would like to thank …

Clare Brooks '00

A study involves the collection and analysis of data to reveal evidence of a fact, situation, or pattern of scientific interest. The data should be original, the methods should be sound, and the analysis should be insightful. The study might investigate a cause and effect relationship; if so, then the student might include an hypothesis, but is not always necessary. NOTE: Product testing is usually a study, not an experiment.

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Displaying a Science Model

Not an experiment - no hypothesis is needed

Title

What you found out from talking to people, or from the library or internet search

What you want to show

Why this topic interests you and how your display informs the view

What you did

The materials you used to make your model

What does your model teach the viewer? Is it a working model?

Where you found your information

People and associations who helped you

Purpose

To show how hovercraft work and describe where they are used.

Hovercraft: A Way to Go!

Uses for Hovercraft

My electric gloves work. They can be worn by cyclists at night and be seen by car drivers. They contribute to safety on the road.

Significance of my Topic

A hovercraft is an excellent Search and Rescue vehicle because it can go fast where other vehicles cannot: in low, marshy, muddy areas, or … etc.

Description

Hovercraft ride on a cushion of air. This actually makes them an aircraft. The cushion of air is created by a fan … etc.

Diagram of how a Hovercraft works

Photo

Photo

History of Hovercraft Design

(Include a timeline)

Conclusion

My model of a hovercraft works. When the fan is running, my hovercraft glides over a surface in the same way a real hovercraft works by riding on a cushion of air which supports its weight. This reduces friction between the surface and the craft

Model Construction

1. I visited the Search and Rescue station at the Vancouver airport. I talked to the pilot.
2. I researched hovercraft at the library and on the internet.
3. I built the model: (describe how …)

Plans for your model

Materials

- a plastic Frisbee
- a cooling fan from a computer
- 2m electrical wire
- 3 AA (1.5 volt) batteries
- a switch
- red Green tape

References

(Books and other resources)

Acknowledgements

I would like to thank ….

Clare Brooks '00

To show how something works by using a model. The model should clearly illustrate the function of the various parts of the mechanism, or natural object or event. The model may be working or static and, if appropriate, the model should be in scale.

Written for about a **Grade 4 level** – Older Students' projects can be more complex

Displaying a Science Demonstration

Note: Kids' science books often call such demonstrations "experiments" but they are not experiments, according to Science Fair guidelines; no hypothesis is needed.

Title

What happened / what you observed; charts, tables, graphs etc.

To demonstrate … (some interesting science phenomenon or concept)

A scientific explanation (what you learned before you started). Include definitions if appropriate.

What you did

Purpose

To demonstrate magnetic attraction.

Background Information

In a piece of magnetised metal, the atoms are arranged … etc. In non-metals, the atoms … etc.

Procedure

1. I found 10 items in my kitchen drawer.
2. I tested each one to see if a magnet would attract it.
3. I recorded my results on a chart.

Materials

- a bar magnet
- a cork
- a paper clip
- a nickel
- a penny
- Aluminum foil … etc.

Magnetic Attraction

Results

	Attracted ?	
	Yes	No
Cork		√
Foil		√
Fork	√	
~~ ~~~~~~~		

Diagram of magnetic forces

Discussion of the Results

I was surprised that some metallic things like aluminum foil were not attracted by the magnet. I noticed that some really heavy metal objects were attracted by the magnet, but the magnet was not strong enough to pick them up.
Non-metallic objects were not attracted to the magnet at all – not even a little bit!
… etc.

What did your observations tell you? Discuss anything interesting or unexpected that happened.

Conclusion

A magnet will attract some metals but not others. It will not attract non-metals.

What you have shown

References

(Books and other resources)

Where you found your information

Acknowledgements

I would like to thank ….

People and associations who helped you

Clare Brooks '00

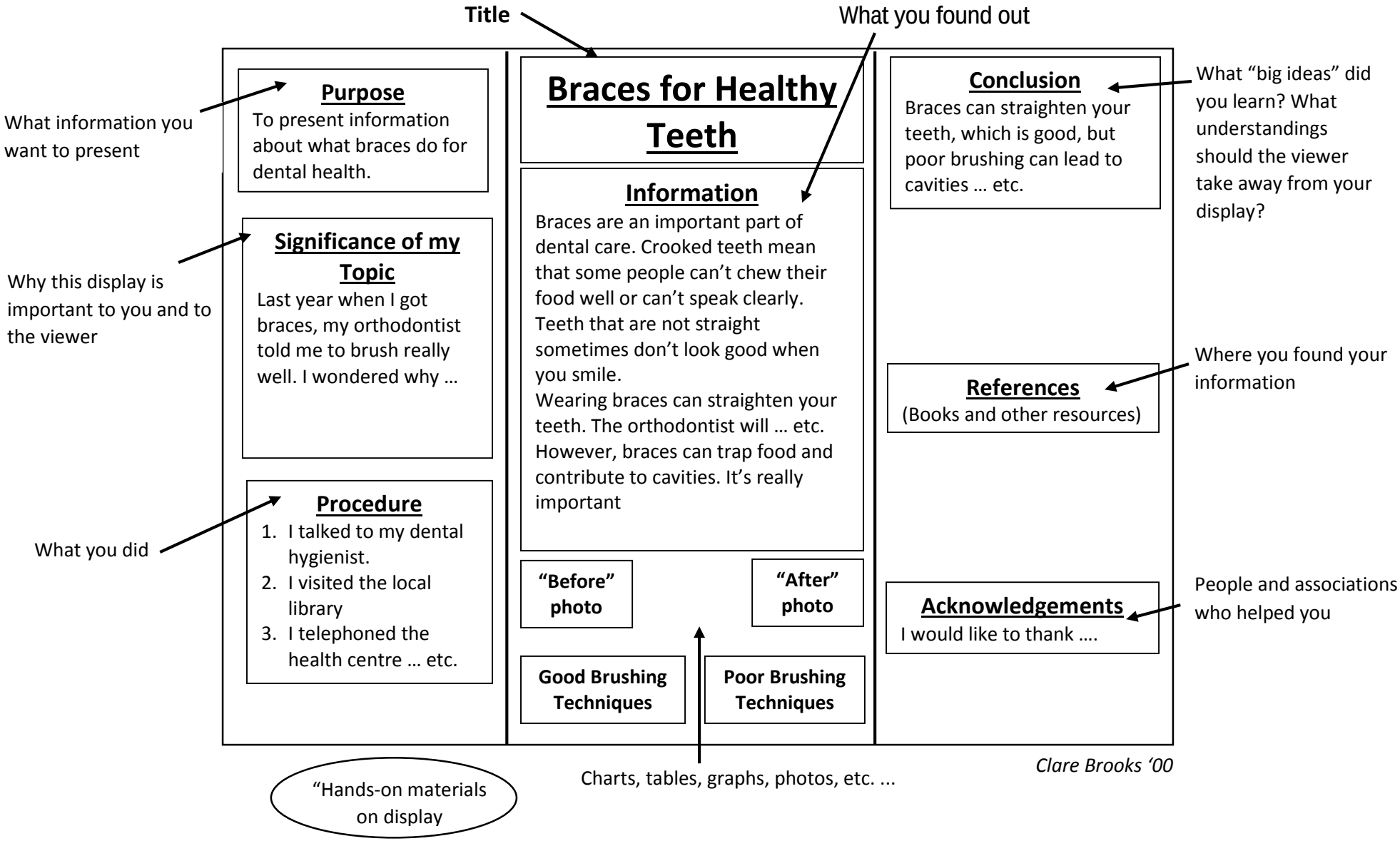
"Hands-on" materials on display

To demonstrate a science phenomenon or concept that is interesting but already well known and understood (even if not by the student). The demonstration shows how it works and why.

Written for about a **Grade 4 level** – Older Students' projects can be more complex

Displaying a Science Report

Not an experiment - no hypothesis is needed



A report displays information about a topic. It "informs" the viewer. It can be similar to an information poster, and can include photos and illustrations, and "hands-on material". A report can overlap with a model.