

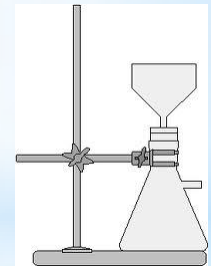
* So you have to do a science project !

* Getting Started

- * The main purpose of the science project is to encourage you to think critically and creatively. You will also increase your knowledge about a particular area in science and become an expert in your field of research.

First - you must choose a field of interest

Second- you must research your field to find a research question



*First quarter (9 weeks)

Turn - in days

Late August or early Sept.

White binder (1.5 - 2 inches)

Dividers labeled 1 - 17

- 1) Information (Teacher handouts)
- 2) Grading sheets (from teacher)
- 3) General Research Topic
- 4) Research Article 1 and notes
- 5) Research Article 2 and notes
- 6) Research Article 3 and notes



- * 7) Research Article 4 and notes
- 8) Research Article 5 and notes
- 9) Problem or question
- 10) Hypothesis
- 11) Materials
- 12) Procedure
- 13) Data (tables, charts, graphs)
- 14) Data Analysis and conclusions
- 15) Abstract
- 16) Bibliography
- 17) Science Fair forms



*Where to find ideas?

Internet Searches

Science Project Books

Magazines (online or hard copy)

* Chemical and Engineering News

* Science News

* The Science Teacher

* The Physics Teacher

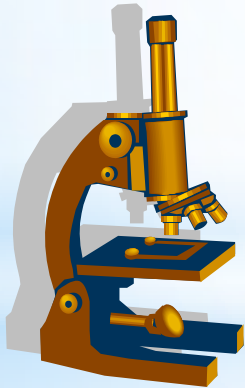
* Journal of Chemical Education

* Popular Science

* Discover Magazine



***Science
Fair
Project
Ideas***



* One of the most difficult parts of doing a science project is trying to decide what to do. Here are some ideas of other projects from past science fairs and some projects from various library books. The references given are listed in the bibliography at the end with call numbers from the downtown Dallas Public Library and from the Bishop Lynch Library.

*

* z Are dandelions effective as antibiotics? Bochinski, Juliane (2004) p. 138
{Dandelion

* capsules are available at health food stores.}

*

* z Does stomata density differ from plant to plant? How much? Why?

* Gardner, Robert (1993) p. 126

*

* z Can you improve the antibacterial effects of garlic? Bochinski, Juliane (2004)

* p. 160

*

* z The effects of Air Pressure on Blood Clots. Rosner, Marc Alan (2006)

*

* z Is there a statistical advantage to winning in baseball (football, basketball, volleyball, etc) for the team the scores first in the game?
Rosner, Marc Alan (2006)

*

* z Growing microbes in ice. Bochinski, Julianne (2004) p. 200

*

- * z Can sow bugs smell? See? Hear? Learn? Gardner, Robert (1993) p. 138
- *
- * z Use the technique of polarization to determine the stress on car windows, plastic windshields in boats, motorcycles, helmets, etc. Bochinski, Juliane (1991) p. 153
- *
- * z What is the effect of heating oil (gasoline, motor oil, soap suds, etc) on *Elodea densa* in an aquatic environment? Bochinski, Juliane (1991) p. 128
- *
- * z Experiments with apples for moisture, sugar content, and starch content. Seixas (1987)
- *
- * z Tire pressure and auto efficiency. Gardner, Robert Experimenting with Energy Conservation (1993)
- *
- * z Using salt and vinegar as preservatives to inhibit bacterial growth. Van Cleave, Janice (1993)

* BIBLIOGRAPHY

*

* Bardhan-Quallen, Sudipta. (2004) Championship Science Fair Projects: 100

* Sure-to-Win Experiments. New York: Sterling Publishing Co.

* Dallas Public Library - Downtown - 5th Floor 507.8 B245 C 2004

*

* Bardhan-Quallen, Sudipta (2006) Last Minute Science Projects New York:

* Sterling Publishing co.

* Dallas Public Library - Downtown - 5th Floor 507/8 B245 L 2006

*

* Barr, George (1958) Research Ideas for Young Scientists. McGraw-Hill Book Co.

* BLHS 507.2 BAR

*

* Blaine, John (2002) Rick Brant's Science Projects Bedford MA: Applewood Books

* Dallas Public Library - Downtown - 5th Floor 507.8 B 634 R 2002

*

* Bleifeld, Maurice (1992) Botany Projects for Young Scientists New York: Franklin

* Watts.

* Dallas Public Library Downtown -5th Floor 581.078 B646B 1992

* BLHS 581 BLE

*

* Sample Web Sites

* For topics on

* Acoustics --- www.gbcasa.org

* Agriculture -- www.grc.nasa.gov

* Air -- www.arl.noaa.gov

* Antibiotics - [www. Ama-assn.org](http://www.Ama-assn.org)

* Building - effects of weather, earthquakes -
www.asce.org

* Water quality analysis - www.esa.org

* Radio interference elimination - www.arrl.org

*

*

* Good search words for your search engine

* California State Science Fair

* Science fair

* Science project

* Science topic

* Research



* You will need at least five references

- * -- Wikipedia may be the place to start but cannot be used as an actual reference
- * -- Books are also a good starting place (Dallas Public Library - Fifth floor) or school library.
- * -- Notes must be taken on the articles and the article copied or printed out for the binder.
 - Full bibliographic information must be given, for internet sources: URL and date you visited the site
 - Scientific Journals (on line or hard copy) are the best after the topic is narrowed down.

*Binder turn in (early-September)

Graded on color, size, identification on cover sheet, # of dividers, labels on dividers

Research Article turn in: (mid- late Sept)

Topic and Articles 1 and 2 + notes

Tabs (3,4,5)

Articles 3,4,5 due two weeks later.

Tabs (6,7,8)

Graded on merit of source, bib info complete, quantity and merit of notes



* ***Science Fair Grading Sheet***

* First Quarter

Name _____

*

Topic Included: Yes No

* Grade _____

* Comments

*

* Article 1 and notes:

* Grade _____

Comments: Book Internet Scientific Journal

* Well done Notes too short: % of page _____

*

* Bibliography not included or not complete

* Notes not organized enough to be helpful

* Source is inadequate; not enough information to be helpful

* Other:

* October - November - December (2nd Quarter)

* October

* Procedure for project is approved

* Problem, Hypothesis, Materials, and procedure are submitted for approval. Science Fair forms- (Student Checklist, Approval Form, Adult Sponsor) are presented for approval.

(Tabs 9,10,11,12)



* **SCIENCE PROJECT**

Name _____

* Second Quarter

Section _____

*

*

* 1) Statement of the Problem (20 points)

* The statement should identify your research question(s) and be at least 30 words long. It will be judged on: Creativity of the project. Is the problem unique or a unique approach to an old problem?

10 pts

*

* Is the topic of appropriate difficulty for an Honors high school student?

5 pts

*

* Does it show depth of study, research, and effort?

5 pts

*2) Hypothesis (10 points)

* This is an educated guess concerning the outcome of your experiment. It must be clearly stated and the expected results should be predicted. 10 pts.

*

*3) Materials Needed (10 points)

* A complete list should be provided.

10 pts.

*

* 4) Procedure to be followed (30 points)

* This is a fairly detailed outline of your procedure should be given. For an example of lab procedures, see some of your previous experiments. It will be judged on:

* Are the equipment and materials appropriately used?
5 pts

* Are sample techniques, data collection, or testing techniques appropriate, organized, and workable?
5 pts

*

* Are measures being taken to control all variables?
5 pts

* Are measures being provided for **repeating** the experiment several times to establish validity and/or is the **sample size** sufficient?
5 pts

*

* Is the metric system being used?
5 pts

* Do the procedures provide for orderly recording and analysis of data?
5 pts

*

- * 5) Research Plan and Forms (30 points)
- * Research Plan (1A) with all signatures
5 pts
- * Research Plan attachment copies (Question, Hypothesis, Procedure)
10 pts
- *
* Bibliography
5 pts
- * Approval Form (1B) with signatures
5 pts
- * Checklist for Adult Sponsor completed with signatures
5 pts

- * If project is approved, notebook is returned to student with Adult Sponsor form signed, and student is allowed to begin.
- * If modifications needed, they must be made, and procedure resubmitted before experiment can begin. Also if additional forms are required (Human subjects, Vertebrate animals) they are distributed and must be turned in before the experiment can begin.



* Progress Reports

- * Two progress reports are required (50 points each) (November and December)
- * Graded on - the experiment has been started,
Data is furnished
Further research has been done if needed

Note: all modifications of procedure have to be approved by sponsor.



*Permission from SRC and IRB

Some projects will require permission from the IRB (eg. Human subject projects) or the SRC before beginning (microbiology projects or vertebrates). The forms and Research Plan must be submitted and approved before the student can begin. As this may take many weeks, these projects must be submitted early enough for the project to be completed.



* Sample Science Project Progress Report

*

* November 16, 2010

*

* Name: Billy Botanist

*

* Project: The effect of soap suds on *Elodea densa* in an aquatic environment.

*

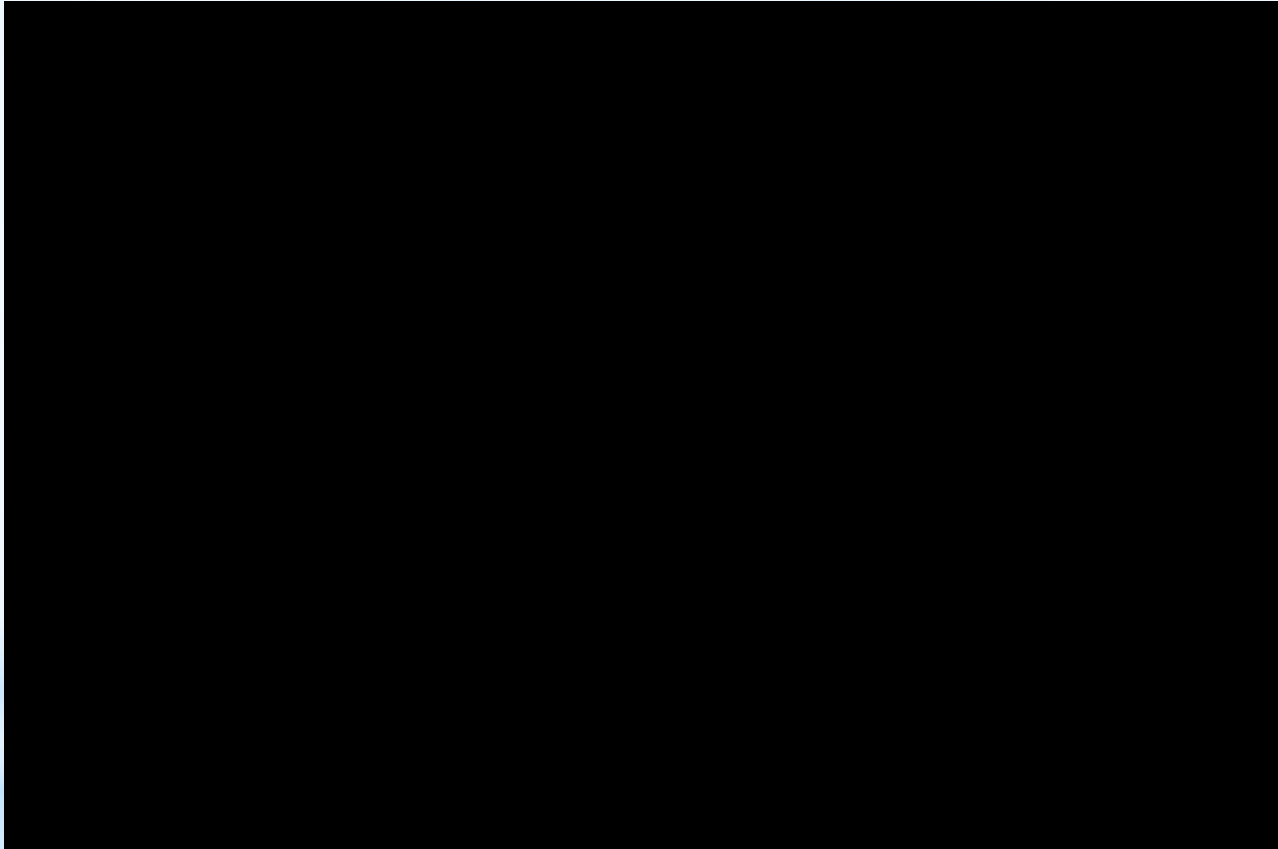
* Progress:

* I have obtained four aquaria (70 cm x 40 cm x 50 cm), *Elodea densa* from a pet shop, and three different types of soap (Dove bath soap, Dawn Detergent, Tide detergent). I filled the aquaria with 12 liters of room temperature water, and put three *Elodea* in each one. (Pictures are attached). One tank will serve as a control and I added 5 ml, 10 ml, and 15 ml of Dawn Detergent to the other three tanks.

*

* To be done: I will observe the tanks daily and record changes in color, length, cell structure of the *Elodea*. I will do this for two weeks and then empty the tanks and repeat the experiment with the other two soaps (Dove and Tide). I will observe the cell structure of the *Elodea* under a microscope (obtained from BL) and make sketches or take pictures of the cells.

Some students need help in overcoming
obstacles



Sometimes they must be helped to interpret their data.

DOCTOR FUN

27 July 94



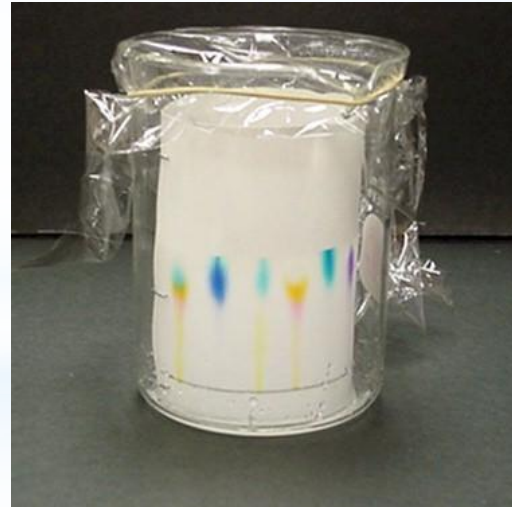
Recent excitement in the microbiology lab ended abruptly when Dr. Roscoe's "giant amoeba" turned out to be a fried egg.

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dgfl@midway.uchicago.edu
Opinions expressed herein are not those of the University of Chicago
or the University of North Carolina.

*Some students may need help with calculations



- * Most students will have completed project by December vacation
- * Some will continue until mid-January
- * Another project report is due to teacher in mid-January





Final projects (notebook and board) are presented to peers in the week before the Bishop Lynch Science Fair.

Presentation to peers (class) is graded on:

- * Oral skills (speaks loudly and clearly maintains eye contact, shows self confidence)
- * Presentation (states purpose, hypothesis, procedure, summarizes data, conclusion is meaningful, exhibits mastery of understanding)
- * Board (attractive and colorful, all information is present, free of grammatical errors, display of tables, graphs, and photographs)

* Teacher Final Grading of Project

* (Based on original evaluation in October)

* 1) Statement of the Problem

* The statement should identify your research question(s) and was at least 30 words long. It is judged on: Creativity of the project. Is the problem unique or a unique approach to an old problem?

*

* Was the topic of appropriate difficulty for an Honors high school student?

*

* Did it show depth of study, research, and effort?

- * 2) Hypothesis

- * This is an educated guess concerning the outcome of your experiment. It was clearly stated and the expected results were predicted.

- *

- * 3) Materials Needed

- * A complete list was provided.



* 4) Procedure followed

* This is a fairly detailed outline of your procedure.

Were the equipment and materials appropriately used?

* Were sample techniques, data collection, or testing techniques appropriate, organized, and workable?

*

* Were measures being taken to control all variables?

* Were measures provided for **repeating** the experiment several times to establish validity and/or was the **sample size** sufficient?

*

* Was the metric system being used?

* Did the procedures provide for orderly recording and analysis of data?

*

*School Science Fair

- *Our Science Fair is usually the last week of January. Judges are the science teachers and volunteer parents. The sponsor teacher usually does not judge her own projects. Comments are made on each project and shared with the sponsor teacher and students.
- *A parent Open House (with refreshments) is held during the week during an evening. Students are available to discuss their projects.

902

QUESTION

HYPOTHESIS

Purpose

Currently, flood control is a major issue concerning rural water values and resources. With the global warming causing more rainfall throughout the world, what would be the local effect rainfall be on a small creek and stream such as North and South Mosquito Creek.

Hypothesis

I expect that the creek of more rainfall on local streams will be that the stream flow and depth will increase rapidly after a period of rainfall. For every two centimeters of rain on a stream, there will be a period the water level in the creek will rise two centimeters and the flow of the water will increase one meter a second.

Materials

1. One stream stick
2. Six white PVC pipes
3. One plastic one liter bottle
4. Three red ping-pong
5. A stopwatch
6. Netas to keep record

Procedure

1. Check how fast stream flow rate with a stream stick and record.

2. When possible, check how fast the stream flow rate with a stream stick.

3. When possible, check how fast the stream flow rate with a stream stick.

4. When possible, check how fast the stream flow rate with a stream stick.

5. When possible, check how fast the stream flow rate with a stream stick.

6. When possible, check how fast the stream flow rate with a stream stick.

7. When possible, check how fast the stream flow rate with a stream stick.

8. When possible, check how fast the stream flow rate with a stream stick.

9. When possible, check how fast the stream flow rate with a stream stick.

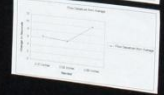
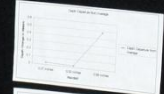
10. When possible, check how fast the stream flow rate with a stream stick.

Flow-motion

A Scientific Comparison of Rainfall, Stream-flow, and Depth

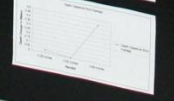
Location A

| Date | Rainfall | Depth | Flow Rate | Flow Rate 2 |
|----------|----------|-------|-----------|-------------|
| 11/15/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/16/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/17/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/18/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/19/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/20/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/21/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/22/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/23/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/24/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/25/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/26/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/27/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/28/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/29/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/30/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/1/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/2/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/3/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/4/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/5/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/6/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/7/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/8/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/9/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/10/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/11/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/12/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/13/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/14/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/15/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/16/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/17/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/18/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/19/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/20/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/21/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/22/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/23/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/24/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/25/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/26/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/27/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/28/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/29/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/30/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/31/10 | 0.0 | 0.0 | 0.0 | 0.0 |



Location B

| Date | Rainfall | Depth | Flow Rate | Flow Rate 2 |
|----------|----------|-------|-----------|-------------|
| 11/15/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/16/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/17/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/18/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/19/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/20/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/21/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/22/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/23/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/24/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/25/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/26/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/27/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/28/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/29/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/30/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/1/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/2/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/3/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/4/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/5/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/6/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/7/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/8/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/9/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/10/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/11/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/12/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/13/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/14/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/15/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/16/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/17/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/18/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/19/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/20/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/21/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/22/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/23/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/24/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/25/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/26/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/27/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/28/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/29/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/30/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/31/10 | 0.0 | 0.0 | 0.0 | 0.0 |



Location C

| Date | Rainfall | Depth | Flow Rate | Flow Rate 2 |
|----------|----------|-------|-----------|-------------|
| 11/15/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/16/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/17/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/18/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/19/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/20/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/21/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/22/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/23/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/24/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/25/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/26/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/27/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/28/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/29/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11/30/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/1/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/2/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/3/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/4/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/5/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/6/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/7/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/8/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/9/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/10/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/11/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/12/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/13/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/14/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/15/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/16/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/17/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/18/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/19/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/20/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/21/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/22/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/23/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/24/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/25/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/26/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/27/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/28/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/29/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/30/10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12/31/10 | 0.0 | 0.0 | 0.0 | 0.0 |



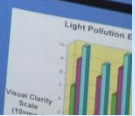
Light Pollution

Light pollution is the excessive use of artificial light that interferes with the natural light cycle.



Astronomical Objects

| Object Name | Distance (light years) | Size (km) | Temperature (K) | Age (years) |
|------------------|------------------------|---------------|-----------------|-------------|
| Alpha Centauri A | 4.2 | 150,000 | 5,800 | 4.35 |
| Alpha Centauri B | 4.2 | 150,000 | 5,300 | 4.35 |
| Alpha Centauri C | 4.2 | 100,000 | 3,700 | 4.35 |
| Sirius | 8.6 | 200,000 | 9,900 | 200,000,000 |
| Proxima Centauri | 4.2 | 150,000 | 3,000 | 4.35 |
| Altair | 17.3 | 500,000 | 7,800 | 10,000,000 |
| Vega | 25.3 | 1,000,000 | 8,000 | 400,000,000 |
| Deneb | 2,600 | 200,000,000 | 35,000 | 100,000,000 |
| Rigel | 24,000 | 1,000,000,000 | 11,000 | 100,000,000 |
| Betelgeuse | 640 | 100,000,000 | 35,000 | 100,000,000 |
| Antares | 550 | 100,000,000 | 3,500 | 100,000,000 |
| Arcturus | 37 | 150,000 | 4,300 | 70,000,000 |
| Aldebaran | 68 | 430,000 | 4,400 | 60,000,000 |
| Sirius | 8.6 | 200,000 | 9,900 | 200,000,000 |
| Proxima Centauri | 4.2 | 150,000 | 3,000 | 4.35 |
| Alpha Centauri A | 4.2 | 150,000 | 5,800 | 4.35 |
| Alpha Centauri B | 4.2 | 150,000 | 5,300 | 4.35 |
| Alpha Centauri C | 4.2 | 100,000 | 3,700 | 4.35 |
| Sirius | 8.6 | 200,000 | 9,900 | 200,000,000 |
| Proxima Centauri | 4.2 | 150,000 | 3,000 | 4.35 |
| Altair | 17.3 | 500,000 | 7,800 | 10,000,000 |
| Vega | 25.3 | 1,000,000 | 8,000 | 400,000,000 |
| Deneb | 2,600 | 200,000,000 | 35,000 | 100,000,000 |
| Rigel | 24,000 | 1,000,000,000 | 11,000 | 100,000,000 |
| Betelgeuse | 640 | 100,000,000 | 35,000 | 100,000,000 |
| Antares | 550 | 100,000,000 | 3,500 | 100,000,000 |
| Arcturus | 37 | 150,000 | 4,300 | 70,000,000 |
| Aldebaran | 68 | 430,000 | 4,400 | 60,000,000 |





Displo

- Panneau d'isolation
- Carton ondulé
- Longue durée
- Intérieur et extérieur

PURPOSE
 The purpose of this experiment is to determine if the use of different materials in a container will affect the amount of heat that is lost or gained. This is a science experiment.

HYPOTHESIS
 I think that the use of different materials in a container will affect the amount of heat that is lost or gained. This is a science experiment.

MATERIALS
 1. Water
 2. Thermometer
 3. Insulation
 4. Container
 5. Heat source

THE CURIE

RESEARCH

DOYO

The first try:
 Low- 750
 Med- 860
 High- 925

The second try:
 Low- 770
 Med- 870
 High- 945

INSUL

WIND?



* Winners of BL Science Fair are invited to attend the Dallas Regional Fair

- Any changes to board are made with reference to suggestions by BL Judges.
- Abstract is written and checked.
- Paper work is verified and re-checked for errors and omissions.
- Copies of paperwork to bring to Fair
- Practice presentation for Judges

*Enjoy Science Fair



*Enjoy the Victories

