

Science Fair



Directions and Information

Dear Parents,

We will be hosting our annual *Science Fair* on Thursday April 21, 2011. Fourth and fifth graders will work on individual projects at home. In anticipation of this important program, we are sending home this packet with your fourth or fifth grader, which explains the scientific process and includes ideas for projects. Please help your child select a project. Participating students will need to purchase a display board from the office. We anticipate the cost to be 2 dollars.

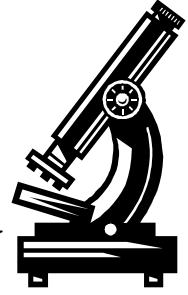
Our Science Program is very important because it allows the children to have a hands-on opportunity to engage in scientific thinking and research. Please do your best to support your child's efforts and encourage him/her to do their personal best on this project.

We are looking forward to seeing the wonderful, creative projects our South Elementary students can produce! Thank you in advance for your support.

Sincerely,
The Science Fair Committee
Dave Wikstrom, Brian Hausig, and
Jerry Koning

COOPERSVILLE SOUTH ELEMENTARY

THE SCIENTIFIC METHOD



Problem/Question

- Clearly state the problem you are investigating. Remember, a demonstration is *not* an investigation.
- Research your topic. Is it something you can investigate yourself?

Hypothesis

- Predict the answer to your question. It is OK to be wrong!

Materials

- List all of the materials you need to do the investigation.

Procedure

- Keep a notebook of everything you do in your experiment. Do not forget dates and times, measurements, and materials. Accuracy is very important. You must follow the same procedure for every trial, and someone else must be able to duplicate what you have done. Do not take shortcuts! (Many investigations will need to be done more than once to get results.)
- Neatly display your work on the science board. The attached sheet will be helpful. On the board, give step-by-step directions for your investigation. Make sure you number your steps; it will be easier to follow.

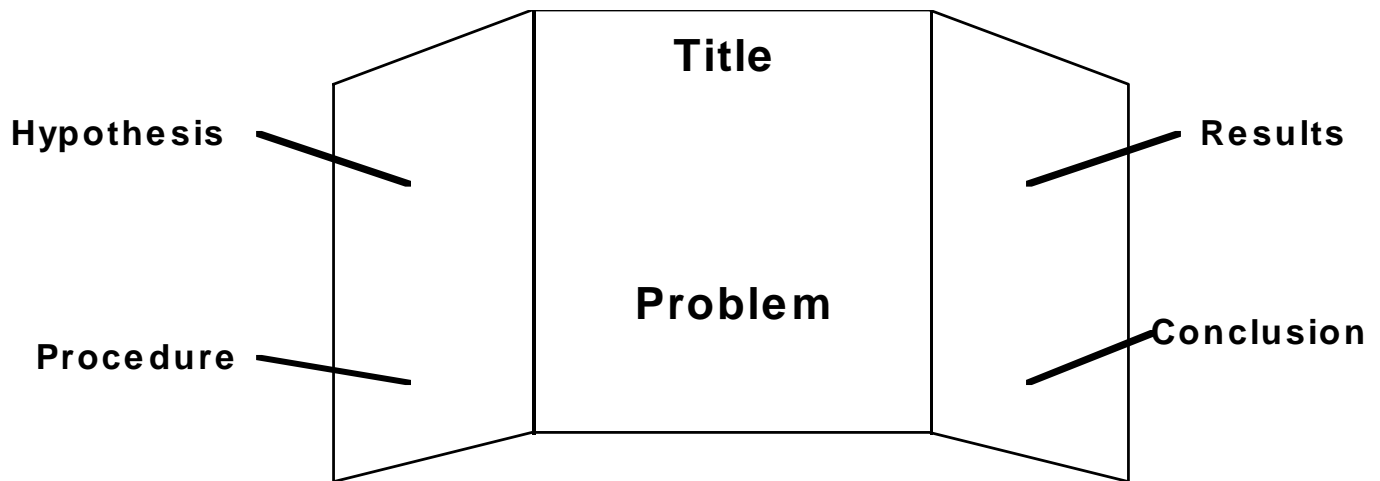
Results

- Collect data from your experiment.
- Record your results neatly on charts, graphs, or pictures. Do not forget to label your data. This will also be displayed on the science board.
- Do not be fooled by drawing conclusions based on one observation or test. Many tests should be made until you are certain of your results.

Conclusion

- The conclusion answers the question you asked in your problem.
- Be sure the conclusion relates to the purpose of the experiment. It is possible you will discover other new information. Stay focused.

The Display Board



TITLE

Choose an interesting title for your project.

PROBLEM or QUESTION

Write the problem that you are going to investigate in question form. Example: How much salt does it take to float an egg?

HYPOTHESIS or PREDICTION

What do you think the answer to your problem will be?

MATERIALS/PROCEDURE

List everything you used in your investigation. Write clear directions for performing your investigation. Think about it as a recipe.

RESULTS

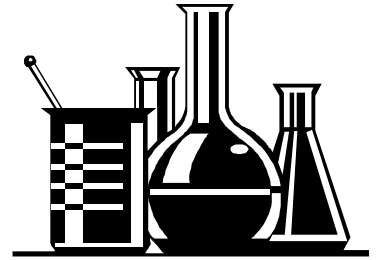
Include your charts, drawings, and photographs. You will not necessarily have all of these.

CONCLUSION

The conclusion answers the question you asked at the beginning of the investigation. Your conclusion is based on what you found out in your results.

Coopersville South Elementary School

SCIENCE PROJECT EVALUATION FORM



STUDENT'S NAME _____

PROJECT TITLE _____

DATE _____

The Investigation	Clearly Stated	Stated	Not Stated
• Problem or question is well defined.			
• Hypothesis is based on the problem.			
• Procedures are clear. States steps followed, materials used, measurements made.			
• Results are clearly stated and supported with adequate data.			
• Conclusion is based on the results.			
• The investigation is self-directed.			
The Display	Quality Work	Acceptable	Unacceptable
• Visual appeal. Color is used to enhance the board.			
• Well organized; follows logical sequence.			
• Neatness and clarity. Text is typed; written materials are easy to understand.			
• Creativity and originality in title and the use of materials.			
• Project turned in on time.			
Total Score			



**Coopersville South Elementary
SCIENCE FAIR PROJECT
SCORING RUBRIC**

4 POINTS (*All or most of criteria met*)

The problem is well defined and the hypothesis is based on the problem. Procedures are clear and measurements are accurate. The results are clearly stated and supported with adequate data. The conclusion is based on the results. The display has visual appeal, is logically sequenced, and easily read.

3 POINTS (*Significant number of criteria met*)

The problem and hypothesis are stated. The procedures are not clear, some steps are missing. Measurements are accurate. The results are stated, but data is limited. The conclusion is inferred from the existing data. The display has the project outline. The project needs some organization.

2 POINTS (*Some criteria met*)

The problem and hypothesis are stated. The procedure is limited; many steps are missing. Measurements are missing or not stated. Results are based on insufficient data. The conclusion is not based on the results. The display has the project outline.

1 POINT (*Few or no criteria met*)

The problem and hypothesis are stated. The procedure cannot be followed. Measurements are missing. Results are not based on data. The conclusion does not answer the problem. The display has a project outline.

NAME _____

PROJECT _____

TEACHER _____

GRADE LEVEL _____

SCORE _____

Science Fair Web Sites

These sites offer many ideas and examples of the scientific process.



<http://school.discovery.com/sciencefaircentral/> - The Discovery web site includes many good ideas, including a guide for the scientific method.

<http://www.halcyon.com/sciclub/cgi-pvt/scifair/guestbook.html#new> - [Science Fair Idea Exchange](#)

<http://www.ipl.org/div/kidspace/projectguide/> - Kidspace's informational guide. This site includes a little of everything, including other great links.

<http://www.isd77.k12.mn.us/resources/cf/> Cyberfair is a page for elementary students that include ideas and examples of sample projects.

These are just a few of the many great links available! A search of the net will offer a large number of great science fair sites to visit.

COOPERSVILLE AREA PUBLIC SCHOOLS SCIENCE FAIR

The science project ideas listed below are grouped by difficulty with group A being the least difficult projects.

Project Ideas - Level A

- How much salt does it take to float an egg?
- What kind of juice cleans pennies best?
- Which dish soap makes the most bubbles?
- Do watches keep time the same?
- On which surface can a snail move faster – dirt or cement?
- What brand of raisin cereal has the most raisins?
- How can you measure the strength of a magnet?
- Do ants like cheese or sugar better?
- Can the design of a paper airplane make it fly farther?
- Do roots of a plant always grow downward?
- Can you tell what something is just by touching it?
- What kinds of things do magnets attract?
- What foods do mealworms prefer?
- How long will it take a drop of food dye to color a glass of still water?
- Does a bath take less water than a shower?
- Can you tell where sound comes from when you are blindfolded?
- Can plants grow without soil?
- Does warm water freeze faster than cool water?
- In my class who is taller...boys or girls?
- Do different types of apples have the same number of seeds?
- Do bigger seeds produce bigger plants?
- Which materials absorb the most water?
- Do wheels reduce friction?
- What materials dissolve in water?
- What is the soil in my schoolyard made of?
- Does holding a mirror in front of a fish change what fish does?
- What color of birdseed do birds like best?
- What holds two boards together better – a nail or screw?
- Will bananas brown faster on the counter or in the refrigerator?
- Does temperature affect the growth of plants?
- Do mint leaves repel ants?
- Does a ball roll farther on grass or dirt?
- Do all objects fall to the ground at the same speed?
- Does anyone in my class have the same fingerprints?
- Which travels faster – a snail or a worm?
- Which paper towel is the strongest?
- Can plants grow from leaves?

- Which dissolves better in water – salt or baking soda?
- Can things be identified by just their smell?
- With which type of battery do toys run longest?

Project Ideas - Level B

- How far does a snail travel in one minute?
- Do different types of soil hold different amounts of water?
- Will adding bleach to the water of a plant reduce fungus growth?
- Does water with salt boil faster than plain water?
- How far can a person lean without falling?
- Can you tell time without a watch or clock?
- How far can a water balloon be tossed to someone before it breaks?
- Does the shape of kite affect its flight?
- Does an ice cube melt faster in air or water?
- Does sugar prolong the life of cut flowers?
- How much of an orange is water?
- Which liquid has the highest viscosity?
- Will more air inside a basketball make it bounce higher?
- Does the color light affect the plant growth?
- Does baking soda lower the temperature of water?
- Which brand of popcorn pops the most kernels?
- Which brand of popcorn pops the fastest?
- How much can a caterpillar eat in one day?
- In my class, who has the biggest feet -- boys or girls?
- Do plants grow bigger in soil or water?
- Does the color of water affect its evaporation?
- Can you separate salt from water by freezing?
- How does omitting an ingredient affect the taste of a cookie?
- Do suction cups stick equally well to different surfaces?
- Which student in class has the greatest lung capacity?
- How much weight can a growing plant lift?
- Will water with salt evaporate faster than water without salt?
- Does it matter in which direction seeds are planted?
- Which cheese grows mold the fastest?
- Do all colors fade at the same rate?
- Which brand of diaper holds the most water?
- In my class, who has the smallest hands – boys or girls?
- Which kinds of cleaner removes ink stains best?
- Does a plant grow bigger if watered by milk or water?
- Which brand of soap makes the most suds?
- Does a baseball go farther when hit by a wood or metal bat?
- Do living plants give off moisture?
- Using a lever, can one student lift another student who is bigger?
- What gets warmer – sand or dirt?

Project Ideas - Level C

- What type of line carries sound waves best?
- Can the sun's energy be used to clean water?
- Does a green plant add oxygen to its environment?
- Which metal conducts heat best?
- What percentage of corn seeds in a package will germinate?
- Does an earthworm react to light and darkness?
- Does the human tongue have definite areas for certain tastes?
- Can same-type balloons withstand the same amount of pressure?
- Does the viscosity of a liquid affect its boiling point?
- Does surrounding color affect an insect's eating habits?
- Do children's heart rates increase as they get older?
- Can you use a strand of human hair to measure air moisture?
- What materials provide the best insulation?
- Is using two eyes to judge distance more accurate than using one eye?
- Do different kinds of caterpillars eat different amounts of food?
- What plant foods contain starch?
- What keeps things colder – plastic wrap or aluminum foil?
- Does heart rate increase with increasing sound volume?
- Do boys or girls have a higher resting heart rate?
- Do liquids cool as they evaporate?
- Which way does the wind blow most frequently?
- Does the size of a light bulb affect its energy use?
- For how long a distance can speech be transmitted through a tube?
- Which grows molds faster – moist bread or dry bread?
- What type of soil filters water best?
- Does the color of a material affect its absorption of heat?
- Does sound travel best through solids, liquids, or gasses?
- Do sugar crystals grow faster in tap water or distilled water?
- Can you see better if you limit the light that gets to your eye?
- How much of an apple is water?
- What common liquids are acid, base, or neutral?
- Do taller people run faster than shorter people?
- Does the length of a vibrating object affect sound?
- Does a plant need some darkness to grow?
- Who can balance better on the balls of their feet – boys or girls?
- Does exercise affect heart rate?
- Which dish soap makes the longest lasting suds?
- What are the effects of chlorine on plant growth?
- Which type of oil has the greatest density?
- How accurately do people judge temperatures?

Coopersville South Elementary School
SCIENCE FAIR
General Ideas

- Do organic or inorganic fertilizers produce the best results?
- What are the effects of salt on seed germination?
- Do bigger seeds produce bigger plants?
- What is the effect of microwaving on plant seeds?
- What is the effect of age on reaction time?
- What is the effect of age on short-term memory?
- What type of mitten provides the best insulation?
- Is my dominant hand stronger?
- Who can reproduce a picture from blocks faster -- males or females?
- Who can put together a 12-piece puzzle the fastest, right or left-handed individuals?
- What is the effect of television viewing on pulse rate?
- Will caffeine improve reflexes?
- Which pan will heat the fastest? Which will stay hot the longest?
- Do frozen liquids melt in the same amount of time?
- What material makes the best insulator?
- Which bridge design is the strongest?
- Is there a difference in the life of different brands of batteries?
- Which facial tissue is the strongest?
- Is there a difference in brand name and generic foods?
- How many raisins are in a box of cereal?
- How often will my favorite flavor or color appear in a box or bag of assorted candy?
- What is the best soil type for seed germination?
- What is the effect of colored light on plant growth?
- What is the effect of acid rain on plant growth?
- What type of sugar do ants prefer?
- Do ants prefer sugar or fat for their diet?
- Do crickets prefer houses with two doors or one door?
- Do earthworms prefer damp or dry conditions?
- Do plants grow differently in salt water?
- Is it best to fertilize plants with each watering, or on a schedule?
- Does the pH of soil effect plant growth?
- Does seed size determine plant size?
- What environment encourages most growth on bread?
- What percentage of food is water?
- Do plants grow under colored cellophane?
- What is the effect of acid rain on seed germination?
- Which liquids reduce friction?
- What happens to a pendulum as the mass increases?
- What happens when the length of the pendulum increases?
- Are brown eggshells stronger than white shells?

- What determines if an object sinks or floats?
- How strong are paper towels?
- What conditions increase static electricity?
- Does the density of a liquid effect its freezing point?
- What colors are easiest to see in the daylight? Night?
- Do people remember best when they see something or hear something?
- Does music interfere with concentration?
- How much of a piece of food is edible?
- Is praise or food a better reinforcement for my pet?
- Does the mass of an object effect the time it takes to fall a measured distance?
- How much stronger is a wood dowel if you double the diameter?
- Does the amount of fat in ice cream effect its melting rate?
- How does the amount of fat in foods you select compare to each other?
- What happens when the position of the fulcrum on a first-class level is changed?

Primary Level Ideas

- Do we need both ears to locate where a sound is coming from?
- How does the shape of ears make a difference in how we hear?
- What senses do we use to find out what is inside a sealed box?
- How long can you smell potpourri?
- Where on our tongues do we taste sweet, sour, and salty flavors?
- What senses do you use when you pick up an object?
- How does a seed grow?
- Do all large fruits and vegetables have large seeds?
- Can plants be grown from cuttings?
- Which soils are good for growing plants?
- Can plants grow with out water?
- Do plants need sunlight to grow?
- Do plants need space to develop?
- How do plants react to temperature extremes?
- What is the function of a plant stem?
- Which color of eyes is found more than any other in the classroom?
- How tall are my classmates? Compare boys and girls
- How can you change the pitch in a glass or water?
- How many kinds of animals are in a box of animal cookies?
- Does fruit float?
- What objects float? Sink?
- How many times does your heart beat when you are at rest? During exercise?
- Does water evaporate at the same rate from different containers?
- Does sound travel through a liquid?
- Will a sugar cube dissolve faster in cold water or hot water?
- Can you grow seeds on a sponge?
- What is the shape of a snowflake? What materials do magnets attract?
- How many ways can I make a complete circuit?

- What is the effect of acid rain on plants?
- Are knit or not knit gloves warmer?
- What kind of tools makes the best bubble machines?
- Do heavier objects fall faster than lighter objects?
- Does the mass of water increase when frozen?
- Which popsicles lasts the longest at room temperature?
- Does the height of the ramp change the distance my toy car travels?
- How can we use our own breath (air) to move a feather in a relay?
- Do mealworms usually move to a corner, to an edge, climb the walls, or stay in the middle of a box?
- How many mealworms seek shelter under a colored lid compared to a clear lid?
- Do mealworms prefer a white or black surface?
- How many cups of snow does it take to make Snowflake Soup?
- How many different ways can Valentine (Christmas) cards be sorted?
- How do you know if something is a solid or a liquid?
- What can we learn about pennies?
- How much water is in snow?
- How does the size and material from which a drum is made change the sound it makes?