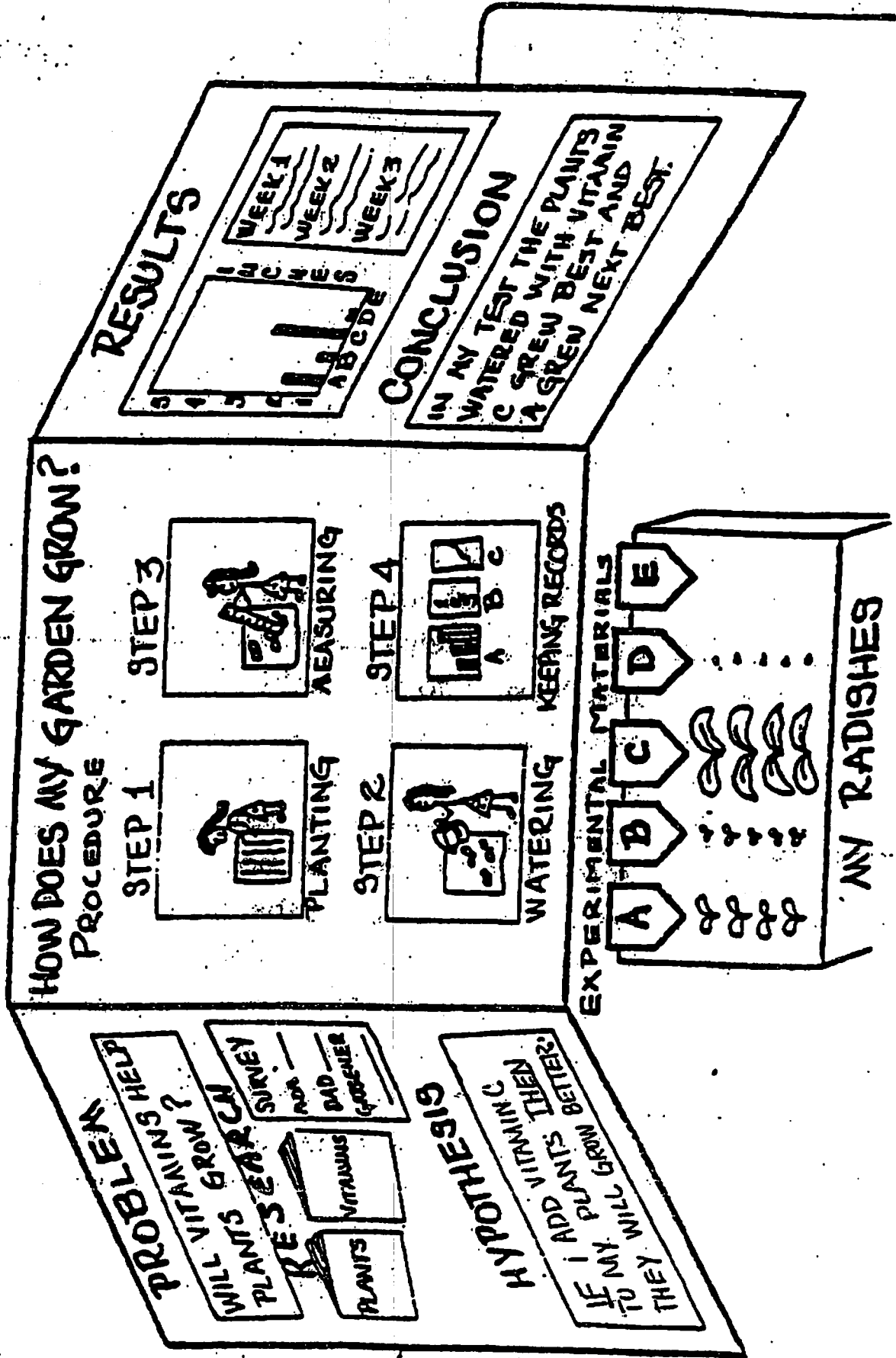


Science Fair Handbook



Although the project may seem overwhelming at first, it is really quite simple when broken down into the steps of the scientific process. Below is an example of how the project may be presented.



Science Project Guidelines

Completing a Science Fair Project is a fun way to get children excited about what a Scientist does. In grades K-4, the students may either display a Science related activity or complete a Science project using the Scientific method. In either case, it is important that the project presents scientific findings and/or research.

Please present all science projects on a backboard. These may be purchased through the Science Fair Committee (see order form) or at an office supply store. You may be creative in your presentation of a Science related activity. If you are completing a project using the scientific method, please refer to page 1 for guidance on presenting your science project backboard.

Following are suggestions for completing a Science project.

Presenting a Science Related Activity

(Recommended for K-2nd grade participants)

1. Select a project topic
2. Do research on the topic and write a brief report on the topic.
3. If possible, complete an activity related to the topic.
4. Present the research or activity creatively on the backboard (pictures, materials, etc.)

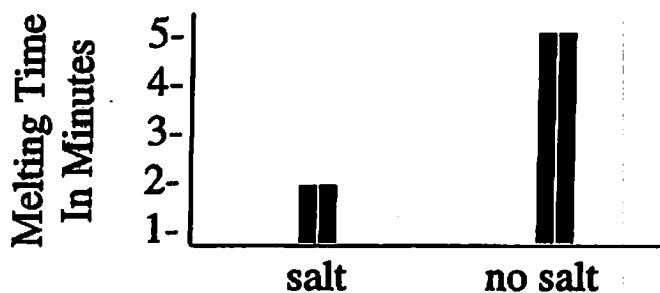
Presenting the Scientific Method

(Recommended for 3rd-5th grade participants)

1. Write a topic question: (please see attached list of suggested topics)
The topic question asks what we want to find out. For example, "Will salt help ice to melt?" or "Do plants need sunlight to grow?"
2. Do Research: Before a scientist can make a guess (hypothesis) about the answer to the question, s/he must do research. This may include reading books, making observations (see, hear, smell, etc.), or interviewing people. Research should be noted in the scientist's journal.
3. Form a Hypothesis: A hypothesis is an educated guess. This is what the experimenter predicts will happen in the experiment. It is written as an if, then statement. For example:
 If I put salt on ice, then it will melt faster.
 If I take sunlight away from a plant, then it will not grow.

4. **Conduct the Experiment (Procedure/Materials):** A scientist must record what s/he needs to do the experiment and how s/he does the experiment. For example:
Step 1: Place 2 equal sized (1/4 cup) ice cubes on 2 separate paper plates
Step 2: Sprinkle 1/2 tsp. salt on 1 ice cube.
Step 3: Record the time right after the salt is sprinkled.
and so on....

5. **Results:** After the experiment is completed, a scientist must record the results of the experiment. This may be done with a graph (bar, line or pie).
For example:



6. **Conclusion:** After analyzing the results, a scientist makes a conclusion about the experiment. For example, In my experiment, I found that ice cubes with salt melted faster than ice cubes without salt. I now understand why in places with snow, they put salt on the roads after a storm. My next experiment might be to see which amount of salt per cup of ice is best for melting the ice quickly.

Have fun!!!

The Science Fair Committee

The Scientific Method

A scientist is constantly asking questions. The first step of the scientific method is for a scientist to formulate a

QUESTION

After coming up with a question, a scientist makes an educated guess about the answer to the question. In order to make a good guess, a scientist must do

RESEARCH

A scientist must look up information on the topic. A scientist will make observations and read about the topic. After the research is completed, a scientist then writes an educated guess to answer the question. A scientist will write this as an If___ Then___ statement. For example, if you touch a hot stove, then you will burn your hand. A scientist calls this educated guess a

HYPOTHESIS

A hypothesis may be correct or it may be wrong. A scientist must test the hypothesis to find out if it is right by conducting an

EXPERIMENT

It is important that the

PROCEDURE (STEPS)

of the experiment are carefully thought out. The steps of the experiment must be written out clearly. After completing the experiment, a scientist must carefully record the

RESULTS

This can be done as a graph or a table to clearly show what the experiment found out. After looking over the results, a scientist can make a

CONCLUSION

about the findings. A scientist will decide if the hypothesis is correct. A scientist will decide what other experiments need to be done.

Throughout the entire process, a scientist must keep a

JOURNAL

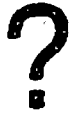
The journal documents each step of the scientific method.

Helpful Planning Sheet

Name(s) _____

Title of Experiment _____

Question



What do we want to find out?

Hypothesis

What do we think we will find out?

Procedure

How will we find out? (List step by step)

1. _____

2. _____

3. _____

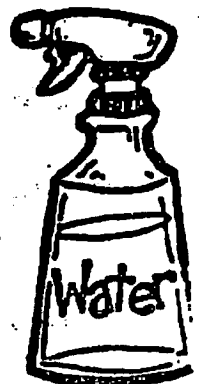
4. _____

Results

What actually happened?

Conclusions

What did we learn?



SCIENCE PROJECT IDEAS - LEVEL 1

1. How much salt does it take to float an egg?	21. Do bigger seeds produce bigger plants?
2. What kind of juice cleans pennies best?	22. Which materials absorb the most water?
3. Which dish soap makes the most bubbles?	23. Do wheels reduce friction?
4. Do watches keep time the same?	24. What materials dissolve in water?
5. On which surface can a snail move faster — dirt or cement?	25. What is the soil in my schoolyard made of?
6. What brand of raisin cereal has the most raisins?	26. Does holding a mirror in front of a fish change what a fish does?
7. How can you measure the strength of a magnet?	27. What color of birdseed do birds like best?
8. Do ants like cheese or sugar better?	28. What holds two boards together better — a nail or a screw?
9. Can the design of a paper airplane make it fly farther?	29. Will bananas brown faster on the counter or in the refrigerator?
10. Do roots of a plant always grow downward?	30. Does temperature affect the growth of plants?
11. Can you tell what something is just by touching it?	31. Do mint leaves repel ants?
12. What kind of things do magnets attract?	32. Does a ball roll farther on grass or dirt?
13. What foods do mealworms prefer?	33. Do all objects fall to the ground at the same speed?
14. How long will it take a drop of food dye to color a glass of still water?	34. Does anyone in my class have the same fingerprints?
15. Does a bath take less water than a shower?	35. Which travels faster — a snail or a worm?
16. Can you tell where sound comes from when you are blindfolded?	36. Which paper towel is the strongest?
17. Can plants grow without soil?	37. Can plants grow from leaves?
18. Does warm water freeze faster than cool water?	38. Which dissolves better in water — salt or baking soda?
19. In my class who is taller — boys or girls?	39. Can things be identified by just their smell?
20. Do different types of apples have the same number of seeds?	40. With which type of battery do toys run longest?

SCIENCE PROJECT IDEAS - LEVEL 2

1. How far does a snail travel in one minute?	21. Does the color of water affect its evaporation?
2. Do different types of soil hold different amounts of water?	22. Can you separate salt from water by freezing?
3. Will adding bleach to the water of a plant reduce fungus growth?	23. How does omitting an ingredient affect the taste of a cookie?
4. Does water with salt boil faster than plain water?	24. Do suction cups stick equally well to different surfaces?
5. How far can a person lean without falling?	25. Which student in class has the greatest lung capacity?
6. Can you tell time without a watch or clock?	26. How much weight can a growing plant lift?
7. How far can a water balloon be tossed to someone before it breaks?	27. Will water with salt evaporate faster than water without salt?
8. Does the shape of a kite affect its flight?	28. Does it matter in which direction seeds are planted?
9. Does an ice cube melt faster in air or water?	29. Which cheese grows mold the fastest?
10. Does sugar prolong the life of cut flowers?	30. Do all colors fade at the same rate?
11. How much of an orange is water?	31. Which brand of diaper holds the most water?
12. Which liquid has the highest viscosity?	32. In my class, who has the smallest hands — boys or girls?
13. Will more air inside a basketball make it bounce higher?	33. Which kind of cleaner removes ink stains best?
14. Does the color of light affect plant growth?	34. Does a plant grow bigger if watered by milk or water?
15. Does baking soda lower the temperature of water?	35. Which brand of soap makes the most suds?
16. Which brand of popcorn pops the most kernels?	36. Does a baseball go farther when hit by a wood or metal bat?
17. Which brand of popcorn pops the fastest?	37. Do living plants give off moisture?
18. How much can a caterpillar eat in one day?	38. Using a lever, can one student lift another student who is bigger?
19. In my class, who has the biggest feet — boys or girls?	39. What gets warmer — sand or dirt?
20. Do plants grow bigger in soil or water?	40. Which kind of glue holds two boards together better?