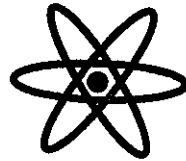


# Science In Action

Leader Guide  
For Brownie Girl Scouts



*Set I*



**BRIDGING**  
T H E  
**GAP**

A collaboration  
Between  
Discovery Place, Inc.  
and Hornets' Nest Girl Scout Council.

# **BRIDGING** **T H E** **GAP**

A collaboration between Discovery Place, Inc.  
and Hornets' Nest Girl Scout Council.  
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**The activities described in this Leader Guide are intended to be used under the direct supervision of adults. Discovery Place, Inc. and Hornets' Nest Girl Scout Council cannot be responsible for any accidents or injuries that may result from conducting the activities without proper supervision, from failing to follow the supplied directions, or from ignoring the cautions contained in the text.**

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## Science In Action

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These activities are designed to simplify the activities found on pages 255-257 in the "Brownie Girl Scout" handbook. They are designed to be fun, easy, and inexpensive. The layout of each activity contains simple instructions for preparation, as well as for sampling the activity before presenting with the Girl Scouts. All GSUSA guidelines should be followed when doing these activities.



## Introduction

As Girl Scout leaders and professionals, it is our goal to provide quality programs designed to enable girls to meet the many challenges of the future. Bridging the Gap (BTG) does that by providing easy, fun, and inexpensive activities that build confidence, both in the girls who do them, and in the leaders who guide them. All BTG activities are designed to be hands-on explorations of science, engineering, and mathematics (SEM), where the only limits are the boundaries of the imagination. Here, there is rarely a right or wrong answer. Instead, there is a sense of accomplishment in discovering something new in every effort.

As leaders, BTG gives **you** the opportunity to provide a more successful SEM program for your girls. By providing simple activities in an easy-to-follow format, BTG will enable you to guide your troops with confidence in both the execution and the success of your SEM programming.

With the increasing importance of science and mathematics in our everyday lives, from balancing a checkbook, to surfing the Internet, as well as in the professional world of the future, building confidence and excitement in exploring SEM activities is essential to the success of our girls in the world of tomorrow. But beyond the immediate challenge of these specific activities, there is even a greater importance attached to motivating our girls to explore science, engineering, and mathematics.

## Gender Equity and SEM

Girl Scout Councils across the country have done extensive research in the area of gender bias and how girls are affected by it, with a particular view toward science, engineering, and mathematics. In developing materials to be used by troop leaders, special attention has been given to the teaching methods and attitudes that our girls have been exposed to in the conventional classroom.

We know that in formal classroom settings, girls are not always encouraged to develop an interest in advanced science and mathematics studies. Research shows that both male and female teachers tend to expect more from boys, especially in the areas of science, engineering, and math, and, as a result, often unconsciously promote a learning bias. Sometimes this bias is a result of lower expectations for girls, and often reflects the teacher's personal lack of confidence in their own command of the material.

As Girl Scout adults, we need to encourage girls to explore their interests in science, not only for those who seek to become scientists, but also for those who want to become good parents, homemakers, businesswomen, and/or political leaders. Science and math are part of everyday life, from managing the household budget (accounting), to rearranging the furniture (geometry), and even while cooking dinner (chemistry).

The only way that we, as Girl Scout leaders and professionals, can implement a successful SEM program with our girls, is to motivate their natural excitement and curiosity, while reexamining our own perceptions as to what science is, and the role it plays in our lives.

We need to project an enthusiasm for the subject matter, a confidence in using the materials and in teaching the activity. We, the role models, must be *excited* at the opportunity to expand our knowledge through hands-on experiences in science, engineering and math, so that our girls will feed off that enthusiasm, and actively seek to gain the experiences that all of the data suggests they have been missing.

Bridging the Gap lets **you and your girls** explore, ask questions, take risks, and stretch your interests as far as your enthusiasm will allow. After all....

***Learning is directly proportional to the amount of fun you have!!!***

## Why SEM is essential for your Girl Scouts

According to data from the Departments of Education and Labor:

- While girls score higher than boys in reading from the 4th grade on, they fall behind boys in science and math test scores as they move further through high school.
- Over the past few years women were awarded fewer than 25% of the degrees in chemistry, less than 20% of the degrees in physics and math, and less than 1 of every 10 degrees awarded in engineering.

This happens despite research that indicates:

- Engineering will be among the highest paying and fastest growing occupations over the next decade.
- Women with good math skills earn more than women without good math skills.
- The fastest growing occupations - computer technology, engineering, and statistical analysis - all require strong backgrounds in science, technology, math, and/or engineering.

## Tips for Leaders Beginning SEM Activities

- Examine your own attitude about science and math before attempting the following activities.
- Practice the activities yourself.
- Take risks, get messy, explore, and observe.
- Have fun doing the activities.
- Develop a sense of confidence knowing that it works. It's easy, it's fun, and you can do it.
- Hold high expectations for the girls.
- Encourage the girls to take risks, get messy, explore, and observe.
- Invite the girls to have fun doing the activities.
- Don't readily give the girls answers. Instead, encourage them to discover on their own.
- Help the girls achieve a sense of accomplishment and confidence knowing they can do it.
- Whenever possible invite real role models, female engineers and scientists, to talk with your troop about their careers, and how the girls can start planning a career of their own.



## How To Use This Guide

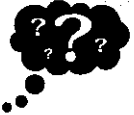
The activities in this guide are intended to be as user-friendly as possible. They were developed to be easy to do, easy to set up, and virtually always successful. Each refers to a corresponding section from an official Girl Scout Leader handbook, and that is noted on the 'Contents' page as well as in each activity. For your convenience, we have included an overview, the estimated amount of time you'll need in doing the activity with the troops, the materials needed, safety and clean-up suggestions, and planning suggestions in order to better prepare to do the activity with your girls.

The step-by-step instructions include tips, cautions, questions to challenge your girls, and explanations. Since trying the activities yourself before the troop meeting is strongly encouraged, we have included instructions with most of the activities on how to do it by yourself first. Please read all sections of the activity before trying with your girls. With many of the activities we have included references and resources at the end of the section, or in the back of the Leader Guide, to direct you to areas where your girls may explore further, or where specialty items might be purchased.

You will also find various icons throughout the guide which are placed to draw special attention for the following reasons:



When you see this **pay close attention** to the instructions.



These are questions you may wish to use to challenge your girls.



Look here for an explanation of what is happening and why.



This icon indicates a more in-depth explanation of what is happening.



Here you will find hints on making an activity easier.



**NOTES**

**How to Do It**



**Before the Meeting**

**Doing the Activity With the Girls**

1. Make a copy of each worksheet for yourself. Color in the dotted squares with a pencil or pen. Notice that the star and the heart patterns become much easier to see when they are colored in. Note that the small squares make the most accurate picture.

The pictures on TV screens, computer screens, hand-held games, even in the Sunday comics are made up of small squares, or dots of color, called **pixels**. The logic used to draw a picture on a computer screen is the same logic used to produce a picture in needlepoint or cross-stitch.

In this activity, you have a certain size and number of squares to work with. By coloring or not coloring each square, you make a picture. If you use smaller squares on your grid, you will get more squares within a designated area, meaning that you can make a higher quality picture.

This is similar to the way a finer canvas with smaller squares gives you a more detailed piece of needlework, or the way a more expensive computer screen will give you a better quality picture. Better quality monitors (with higher definition) have more pixels, and, as a result, will give you more accurate picture detail.

2. With a magnifying glass, look closely at your TV, computer monitor, or the Sunday comics. Can you see the pixels?

Make photocopies of the two worksheets, one set for each girl, and 2-3 copies of the "Large Squares" and "Small Squares" sheets for each girl if you wish to give them the chance to create, and possibly exchange, their own pixel pictures.

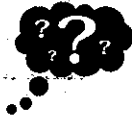
1. Begin this activity by asking the girls if they have ever played with toys such as a "Lite Brite", that used lighted pegs or dots to make pictures. Encourage them to discuss what they liked or didn't like about making pictures that way.







NOTES



Ask them: **What shapes do you have?** They have the same two shapes as in the previous worksheet--a heart and a star. **Which size squares resulted in a better picture?** They will usually choose the page with small squares. **Why?** The easiest way to figure out why is to have them compare the sheets. Since the paper is the same size, the difference is what's on the paper—the squares. In addition, two things are different about the squares—one sheet has smaller squares, and with smaller squares, that same sheet has more squares. More squares or pixels produce a better image. **If you were shopping for a computer screen, would you want to buy one that had a few pixels or lots of pixels on its screen?** More pixels.

Ask them: **Is the better computer picture worth paying a lot of money for, or would you enjoy watching an older model that is a lot cheaper?**

**What do you think makes a good video game or game system? Do the number of pixels and the quality of the screen really make a big difference to you?** Let the girls discuss this and explore their own ideas.

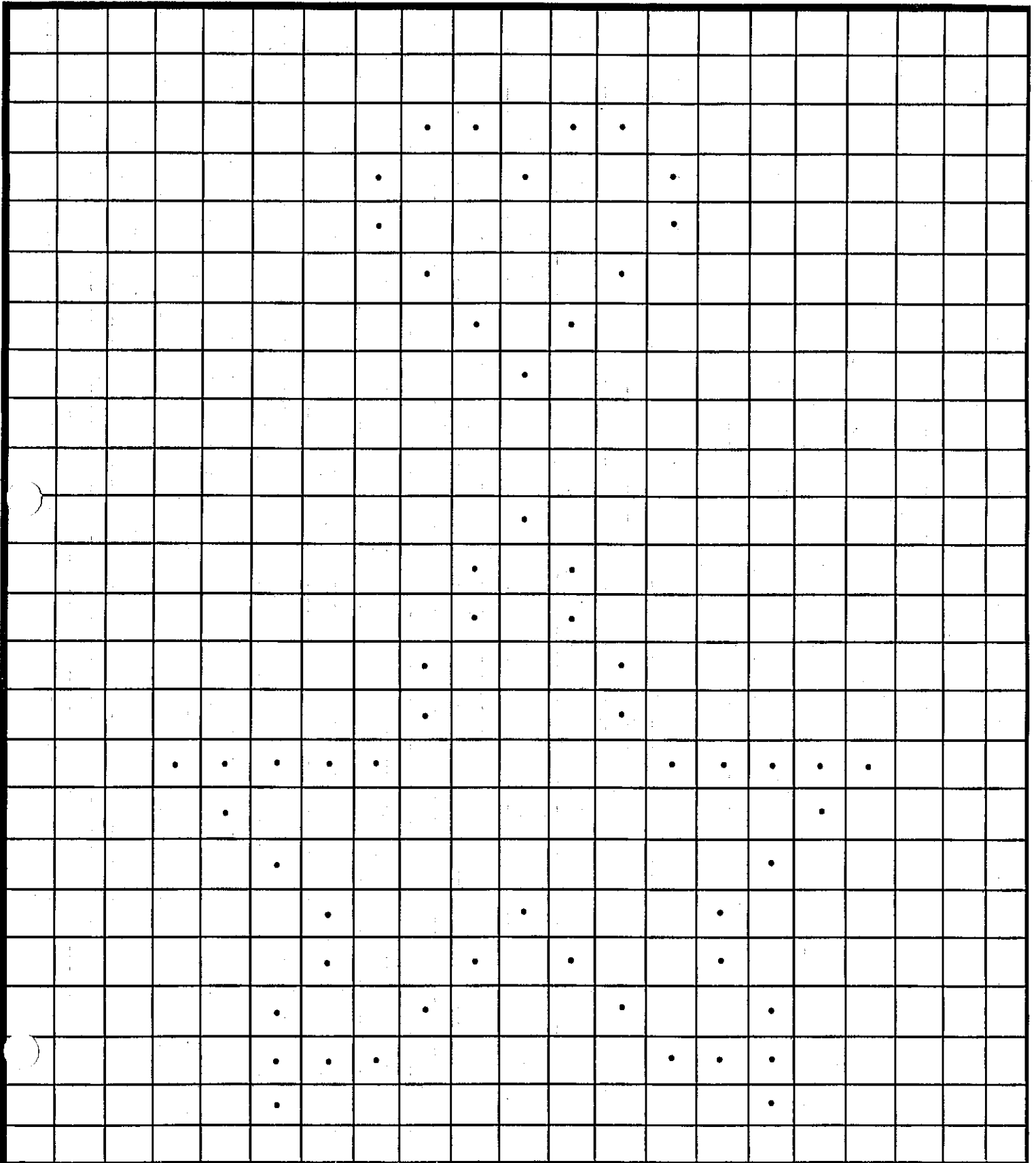
Also, older girls may want to try making different patterns on the blank sheets. Allow them to explore making their own pixel pictures, which they can keep themselves, share with their parents, or challenge their fellow Brownies to color and solve.

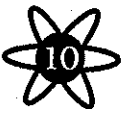
Very young Brownies may have difficulty with this.



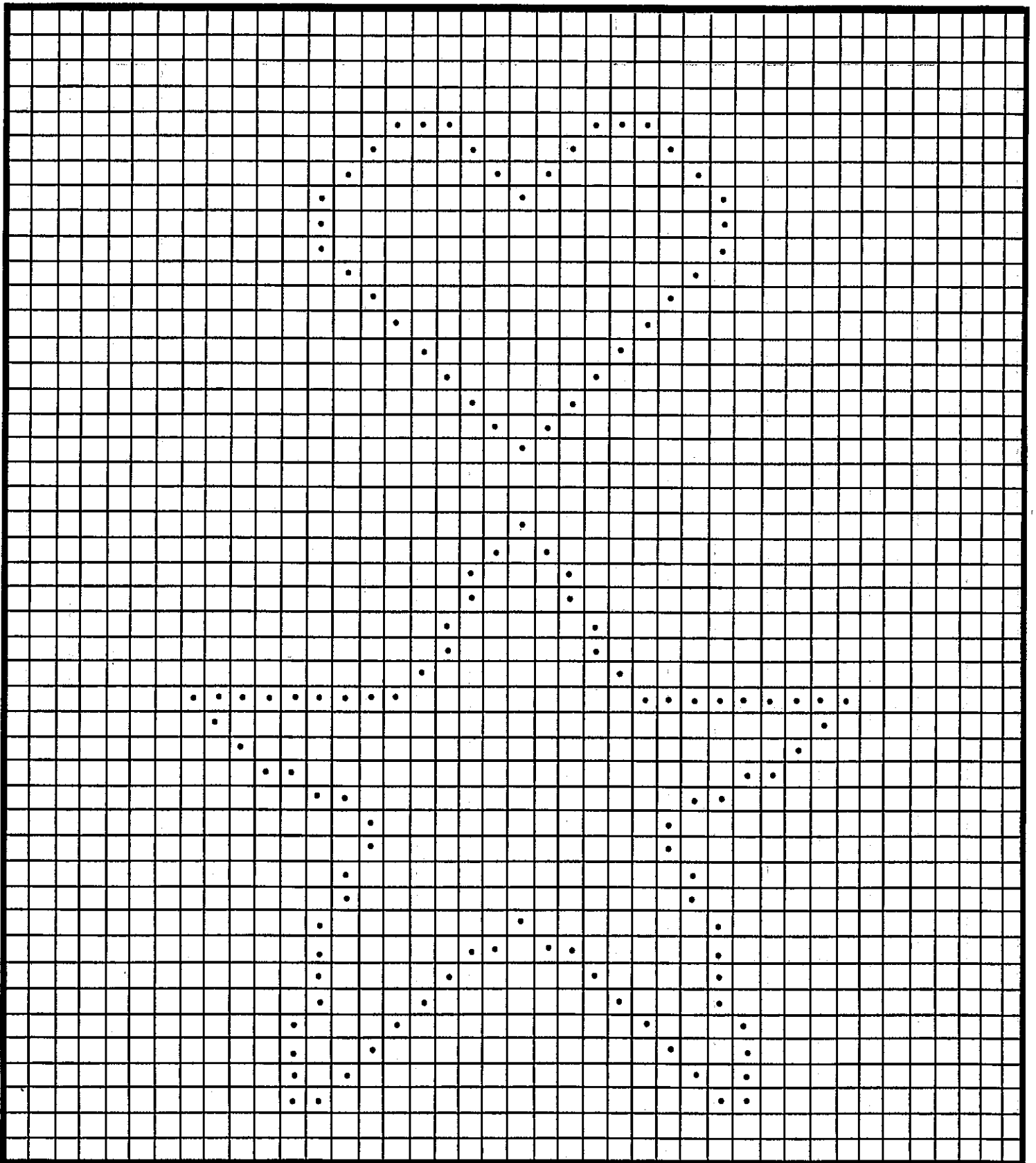


# Large Square Worksheet



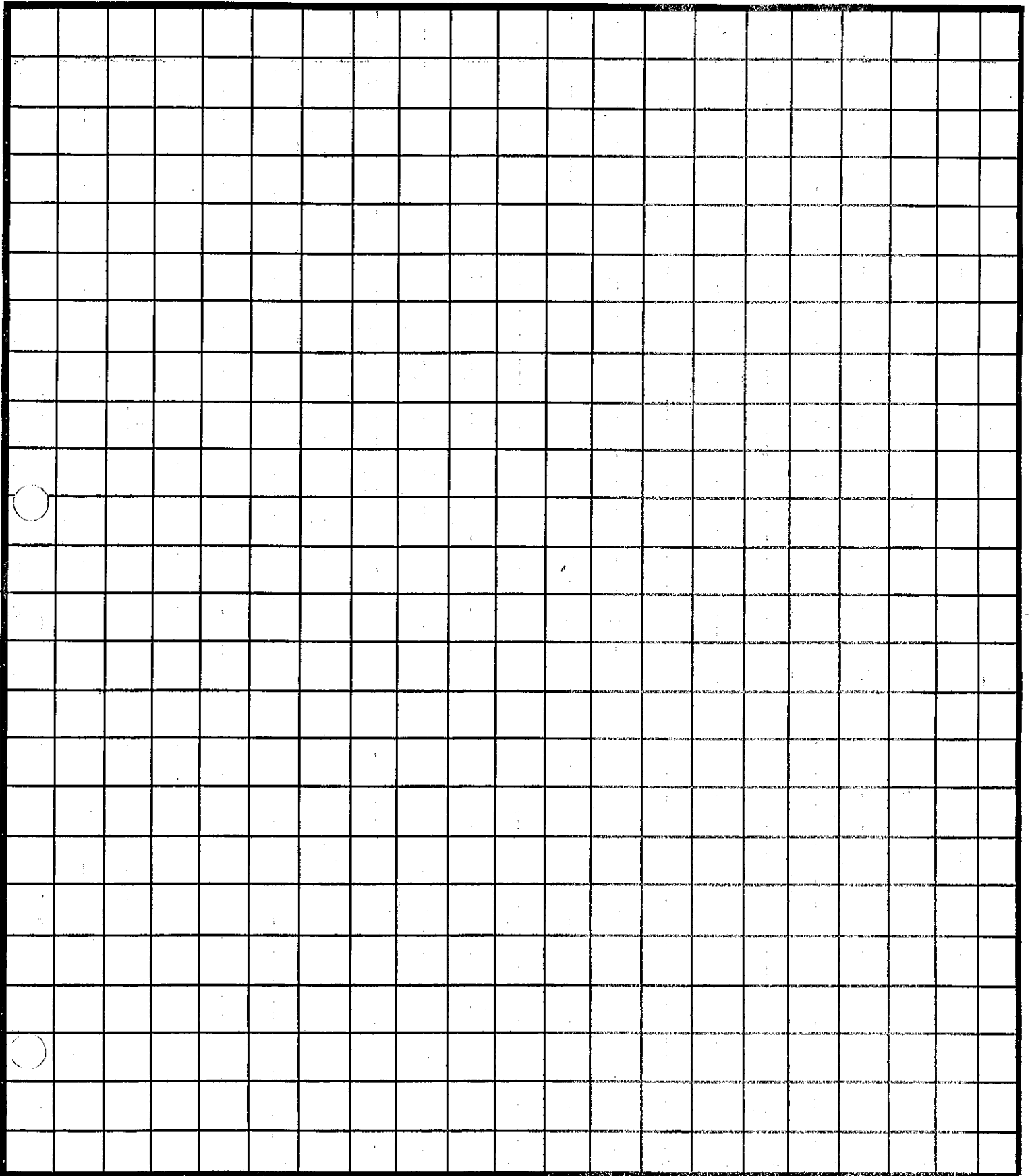


# Small Square Worksheet



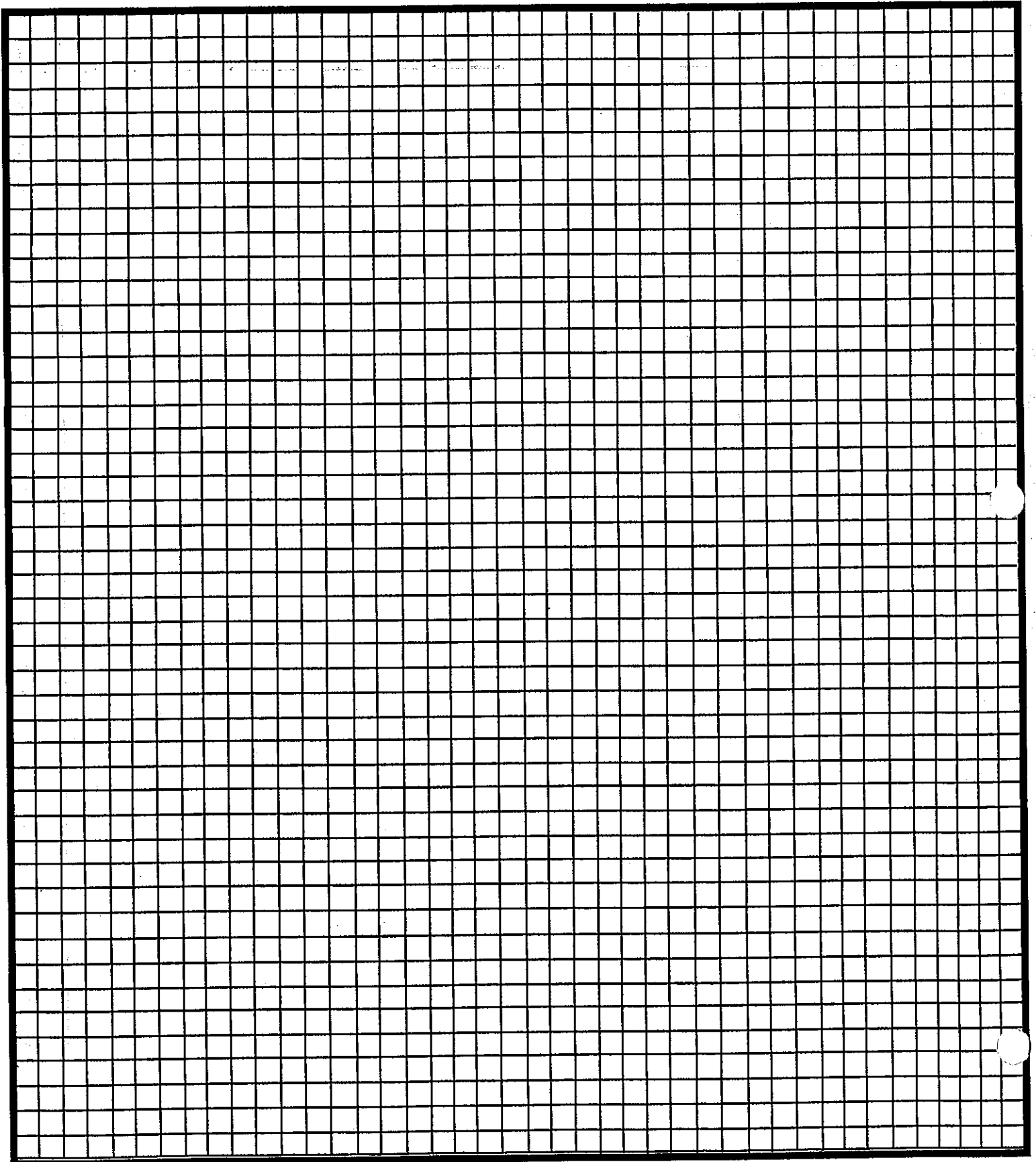


# Large Squares





# Small Squares

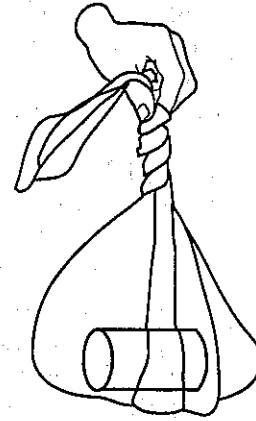




NOTES

How to Do It

1. Put one of the items, such as one of the canned goods, into the empty plastic grocery bag.

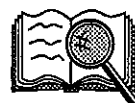


2. Holding the bag by the handles, twist it five times. Release it so it can spin, and time how long it takes for the bag to stop spinning.
3. Add a second item of the same size and weight to the bag. Again, twist it five times and let it spin. Once again, time how long it takes for the bag to stop spinning. It can take more than twice as long to stop spinning. Try it again after putting a third can into the bag. It will take even longer to stop.

As the bag gets heavier, it takes more **energy** from you to twist the bag, because you must **work** harder to move the extra weight. That extra **energy** is released when you let go of the bag, and it spins longer as a result.

Physicists define **energy** as the ability to do **work**. **Work** is defined as using a **force** to move an object a certain distance. When you pick up an object and move it, you are doing **work**. The **energy** needed to do **work** comes from your body.

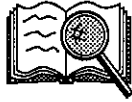
**Energy** doesn't have mass, meaning that it doesn't weigh anything or take up space. However, energy can move things by applying a **force**. There are different kinds of energy. The kinds that most often come to mind are: chemical, nuclear, electrical, solar, light, heat, and sound.







NOTES



Tell them that **energy** is the ability to do work. In physics, **work** happens when you push or pull something and move it. Ask for a volunteer. Push her gently on one shoulder, until she moves sideways. Ask the girls: **Did I do some work on her?** Yes. If I push or pull something and I move it, I have done work, and I need energy to push or pull.



Ask them: **Where do people get energy?** From the food they eat. **Where does the food get its energy?** From the sun. Food comes from plants and animals, and both get their energy from the sun. Most energy can be traced to the sun. Some energy, like nuclear energy, comes from atoms.

**Can you name different kinds of energy?** The girls will need help listing different kinds of energy. Don't worry about defining all of them. Just learning what energy is, and that there are different kinds of energy is a big conceptual step for girls this age. The following are some different kinds of energy:

1. solar energy from the sun.
2. sound energy from vibrations.
3. heat energy and light energy from the sun.
4. chemical energy from the food we eat; we also get chemical energy from burning fuel like gasoline or coal.
5. electrical energy runs all kinds of appliances in our home.
6. nuclear energy comes from splitting atoms apart.



**What kind of energy do you use at home?** Let the girls share and discuss this. Point out that one kind of energy can change to another. For example, burning coal makes electricity. Electrical energy turns into light energy when you turn on a light switch.











**NOTES**

7. Have the girls first color the rainbow in the correct order. Then have them draw their own version of what they think the light spectrum they saw through their diffraction gratings looked like.



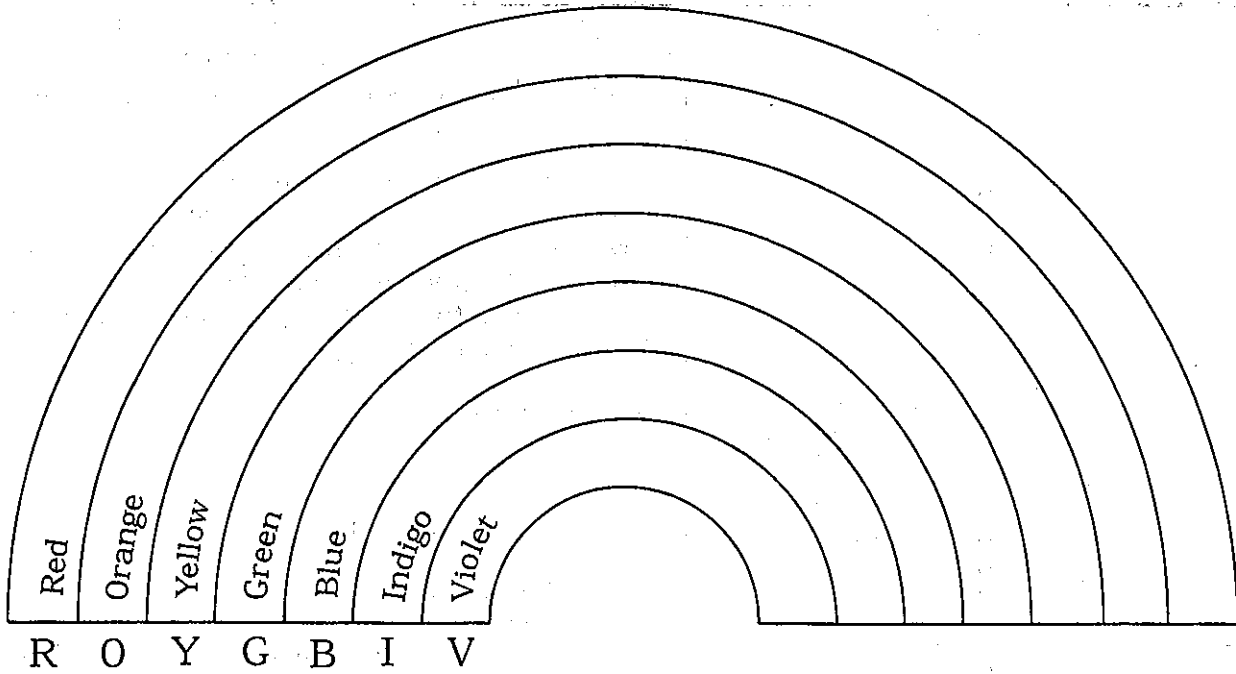
*Don't worry about the accuracy of the girls' drawings. Documenting what they saw, in their own way, is what is important.*



Be careful that the crayon doesn't get on the diffraction gratings. It is impossible to remove and will ruin them.



### Colors of a Rainbow



Draw a light spectrum





**NOTES**

**Before the Meeting**

Make one copy of the worksheet and several copies of the bar code alphabet for each girl.

**Doing the Activity With the Girls**

1. Gather the girls together. Ask them: **How do people read?** Help them to break the process down step-by-step:

- We look at letters with our eyes.
- Our eyes send the message to the brain.
- The brain recognizes words and we remember what the word is.



Ask them: **You can read books, but what sort of things would a computer read?** Let them toss around some ideas on this before proceeding.

2. Hold up one of the canned goods or another item with bar code on it.



Ask the girls: **How do computers read bar codes? Do computers have eyes like us?** Let the girls think about this and discuss their ideas.

Ask the girls if they have ever noticed a red light by the cash register at the grocery store, as the cashier 'scans' an item. The checkout person has to pass the bar code by this light on the cash register's scanner. The light is a laser and acts as the computer's eyes.

Sometimes this laser is hand-held and the checkout person holds the laser scanner up to the bar code. After the laser reads the bar code, it sends a signal, through wires, to the computer. The computer recognizes the bar code and tells the cash register the price of the item.



**NOTES**

The girls will want to start cutting and gluing at this point. Let them finish the message.

**More To Explore**

1. If you have older girls, you may want to let them have a fresh bar code alphabet sheet and have them find letters that look alike. Point out A and see if they can find two more letters like it (K and U).

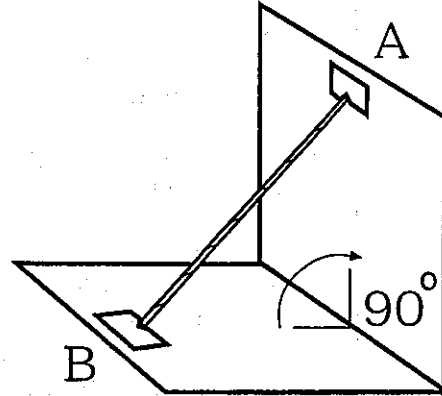
Have them examine the letters A, K, and U and see if they can determine what makes them different. Point out the spacing differences if they don't see it.

2. If the girls remain interested, you can have them cut and paste to write their own messages. To do this have plenty of alphabet sheets available. Point out the 'space', 'end', and 'start' codes used as punctuation.

## NOTES

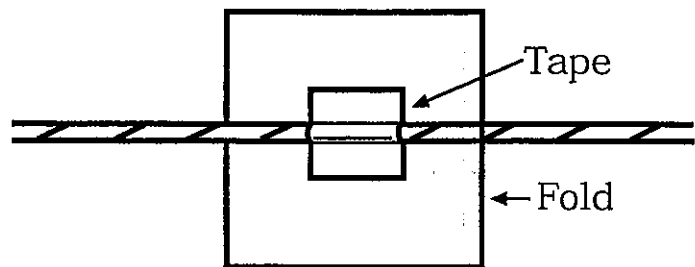
## How To Do It :

1. Make a copy of the sundial on card stock. If you don't have card stock, glue a paper copy to a piece of light cardboard. It will be a bit harder to cut and fold, but should work just as well. Start by cutting out the sundial.
2. Fold the sundial along the fold line. Use a ruler or another straightedge to make it easier to fold.
3. Cut a two-inch piece of crochet thread. Use the tape to attach the string from point A to point B (see diagram below), so that when the sundial is open at a 90-degree angle, the string is pulled tight.



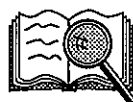
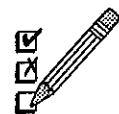
Open and close the sundial to make sure the string is secure.

4. Fold the sundial closed. Cut a length of ribbon, about 18-20 inches, and tape the ribbon to the back of the wrist sundial.



You can decorate the top cover if you wish.

Your wrist sundial is now ready to use. Sundials are only useful on clear sunny days. This is one of the reasons people developed water clocks and other ways of telling time.



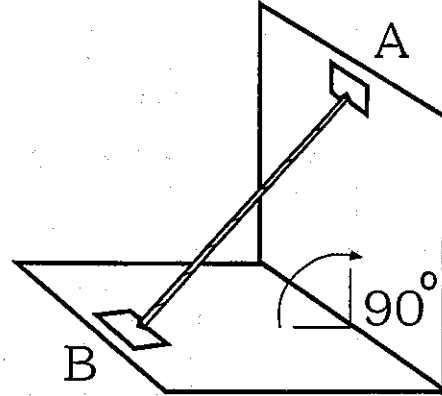




**NOTES**

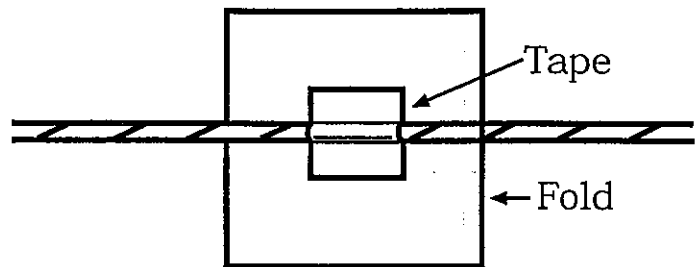
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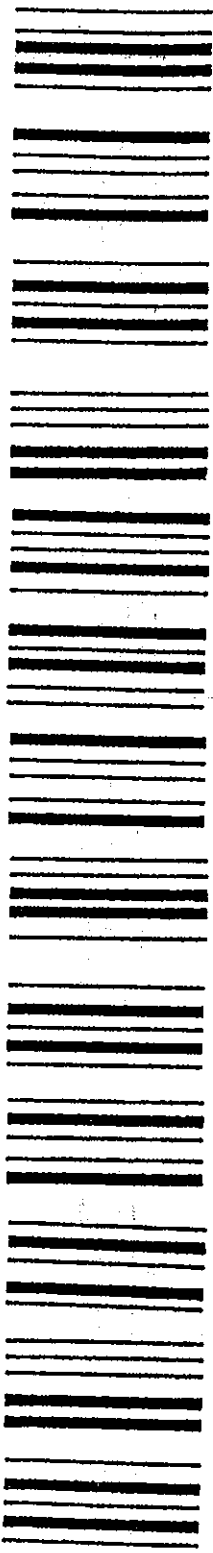
*You can decorate the top cover if you wish.*

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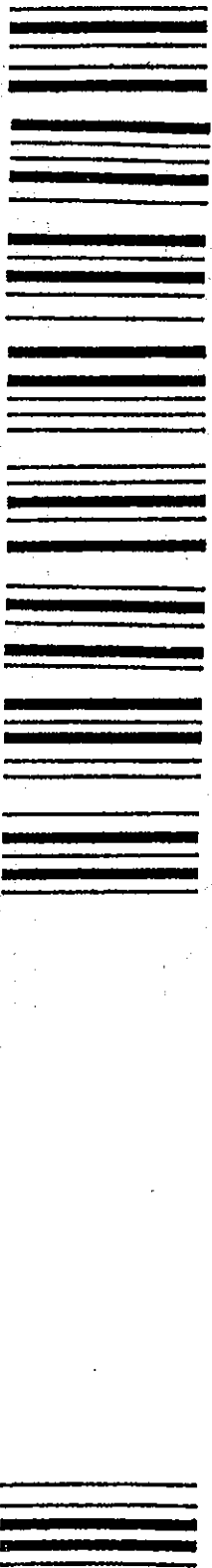


Write In Bar Code

START A SPACE G R E A T SPACE B I G SPACE



B R O W N I E SPACE S M I L E END



# Bar Code Alphabet

**A**



**B**



**C**



**D**



**E**



**F**



**G**



**H**



**I**



**J**



**K**



**L**



**M**



**N**



**O**



**P**



**Q**



**R**



**S**



**T**



**U**



**V**



**W**



**X**



**Y**



**Z**



**SPACE**



**START**



**END**





**NOTES**



6. Go outside on a sunny day. Take the compass, the large sundial, and your wrist sundial with you.
7. Use your compass to locate which direction is south. Place the large sundial on a flat level surface and line it up properly. Make sure the gnomon is not bent. Where is the shadow? Does it agree with the current 'clock' time?

To find out just how accurate your sundial is there are several adjustments you can make to 'correct' the time on sundial.

- 1) Using the chart on the next page, you may add or subtract minutes to compensate for the season. Find the approximate location on the graph for the date you are using the sundial, then add the appropriate amount of minutes if your sundial is too slow, or subtract the minutes that your sundial is running too fast.
- 2) Add one hour if you are in daylight savings time.
- 3) Obtain a picture of the time zone you are in. If you are located in the middle of the time zone, do nothing. If you are on the far eastern end of the time zone you are probably running fast by as much as 30 minutes. If you are on the western end, your sundial could be as slow as 30 minutes. Make a reasonable guess based on how far east (or west) of the center of the time zone you are located.

Check and see how accurate your sundial is.

*Your homemade sundial will probably not be quite this accurate. This type of adjustment works best if you are using a garden sundial.*

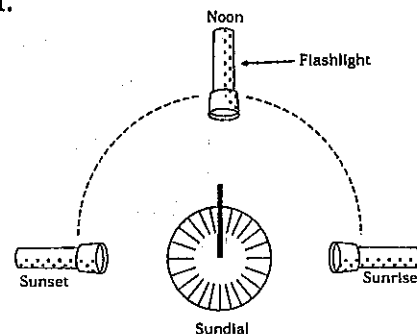




**NOTES**

**Before The Meeting**

1. Pre-make the wrist sundials in advance. Cut the sundials out, fold, and tape the string gnomons in place. This is hard for Brownies to do accurately, particularly younger Brownie Girl Scouts. You may also want to pre-cut lengths of ribbon for the girls. At minimum, pre-cut the crochet thread for the girls to insure their being the proper length.
2. Be flexible in your planning since this activity needs to be done on a bright, sunny day. You may want to keep pre-made sundials on hand in order to have them ready on short notice for use on an appropriate day.
3. Practice using a flashlight to show how the sun casts a shadow on a sundial.
  - a) Place the large sundial on a table indoors. (A darkened room works best.) Line the sundial up so the bottom pointed part of the gnomon points to you. This will be "south". To your right will be "east", and to your left will be "west". The flashlight serves as the sun.
  - b) Turn the flashlight on. Hold it about a foot above the sundial and shine the light directly over the gnomon.
  - c) Move the flashlight slightly left and right. Do you see a shadow falling over the number? Move the flashlight in an arc to the right, still pointing at the gnomon, and watch the shadow move. Position the flashlight so that the shadow falls on 7 or 8 o'clock in the morning. The flashlight should be far to the right. This is the "sunrise" position.
  - d) Move the flashlight in a half-circle from right to left. Watch the shadow change from 8 AM to noon to 5 in the afternoon. This far-left position is the "sunset" position.







**NOTES**



Ask the girls: **Does the sun really move around the earth?** No. The earth moves around the sun and when it spins, it makes it appear that the sun is moving. The earth spins around one time in a whole day. When we see the sun rising again in the morning, the earth has spun around one time.

3. Have the girls try the following exercise to demonstrate this point.

Ask for a volunteer. Have her choose a spot on the wall, such as a light switch, and look at it. Make sure the chosen spot is directly in front of her (high noon). Have her pretend to be the "earth" and spin around slowly counterclockwise, and stop when she sees the spot again straight in front of her. How many times did she spin around? Exactly one time, just like the earth.

4. Have the girls gather around the sundial, and perform the flashlight demonstration.

- a) Mention that for everyone to get the same "time" on her sundial, everyone must hold it in the same position. Refer back to your discussion about directions. Remember, north? The open end of the point must always face north; the pointy end facing south.
- b) Ask them to pretend that the flashlight is the sun. The sun is coming up in the east. Have them note the shadow. **What time does the sundial say it is?**



*Begin this part by stopping the flashlight around 8AM. Continue moving slowly, asking them:*  
**What time does the sundial have? Do this at 8AM, noon, and sunset.**  
**What is happening to the shadow as the sun moves across the sky? Does it get longer or shorter, darker or lighter?**  
**Can you see the shadow after the sun sets?**



**NOTES**



*One way to do this is to first use the compass to locate 'south'. Then position the large sundial so it is lined up correctly. Finally, have the girls use the large sundial as a reference to correctly position themselves.*

*Have the girls compare the sundial to a watch. They can position the sundial to match the position of their watch. Brownie Girl Scouts aren't very interested in the finer points of adjustment charts. They just want to see what time the sundials read.*

10. Let each girl read her sundial, and compare what it says with the actual time. If you are in daylight savings time, tell them that their sundial will be an hour off, and mention that this is because a sundial shows real sun time, not daylight savings time.







## NOTES

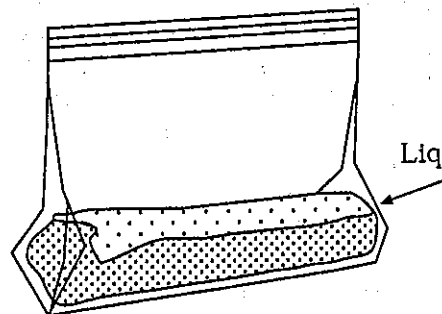
**Carbon Dioxide Demonstration**

The following is a demonstration showing that yeast really does give off carbon dioxide. Practice this before the meeting and demonstrate it for the girls. Steps C through G are optional. Skip them if you aren't comfortable with them.

- A. Put one teaspoon of yeast, and two teaspoons of sugar into a small resealable plastic bag. Add 1/4 cup of warm water. Mix the sugar and yeast to dissolve.
- B. Push out all excess air and zip the bag closed. Place the bag in a cup or container of hot (120 degrees) water. It should begin foaming within five minutes. Let the yeast grow until the bag puffs up with carbon dioxide gas.
- C. Take the bag out of the warm water. Shake it to break up the foam, but don't open the bag yet.

Carbon dioxide is heavier than air and fire cannot burn in it. A common test for carbon dioxide gas is to see if it puts out a match or other flame.

- D. Set the bag on a flat surface in an upright position. Have some matches handy (wooden ones work well).



Liquid in the bottom







## NOTES



### Doing the Activity With the Girls

*If you have a large troop, or younger Brownies, you may want to go ahead and add the 2 teaspoons of sugar to the cups labeled with an "S".*

4. Secure adult helpers for a large troop, and be sure to practice the "Carbon Dioxide Demonstration".

1. Show the girls a package of dry yeast. Ask them: **Can anyone tell me what yeast is, or what it is used for?** Some may recognize it as something their parents use in cooking. Tell them that yeast is used in making bread, rolls, some pizza crusts, and in baking.

2. Tell the girls that yeast is a living organism and can eat food, grow, and make other products as a result. At this point, begin the "**Carbon Dioxide Demonstration**".

a) Mention that yeast is a type of fungi; a relative of mushrooms. Put one teaspoon of yeast into a resealable plastic bag.

b) **What do living things need to stay alive?** Have the girls focus on what they need to live. First, they need food. Now, give the yeast some food. **What do they think yeast likes to eat?** Put two teaspoons of sugar into the bag.

c) **What else do living things need?** Water. Add 1/4 cup of 120-degree water.

d) The yeast also needs a place to live with just the right temperature. Close the bag, pushing out as much air as you can. Show the girls that there is no air in the bag and put the bag into a container of warm 120-degree water. Now, move on to the next step, and let the yeast grow.

3. Hand out paper and magnifying lenses. Put a small amount of yeast, about 1/8 teaspoon, on each girl's paper. Have the girls look at the yeast.



**NOTES**



**More To Explore**

7. Enough time has passed to have foam appear in the cups with the sugar added. Have the girls check their cups, and observe what happened to their yeast.

Ask them: **Did the yeast without food grow?** Let them discuss how it looks, and what they think has happened. Yeast needs food to grow and make bubbles.

8. If you wish, the girls can add sugar to the inactive cup of yeast to see if it starts growing when it gets food. When doing this, make sure it stays warm.

9. Complete your other planned activity and then let the girls come back. If you added sugar to inactive cups, they should be foaming at this point.

1. Have the girls try different ingredients as yeast food such as flour, corn syrup, honey, etc.

2. Try growing the yeast at different temperatures.





## Materials List for *Science in Action* activities

### Pixel Pictures

#### Tub Contents:

- 30 magnifying lenses in a sandwich bag

#### You provide:

For each girl:

- Copy of Sunday Comics (in color)
- Copy of "Large Square Worksheet"
- Copy of "Small Square Worksheet" (extra copies of both worksheets recommended)
- Color pencils or fine-tip markers
- Copies of "Large Squares" and "Small Squares" sheets (several recommended for each)

### Energy Sleuth

#### Tub Contents:

None

#### You provide:

For each girl:

- Plastic grocery bag

Additional supplies:

- A watch with a second hand
- Numerous items for use in the bag 2-3 total items of various sizes and weights for each girl. One item the same for each girl (Item examples: canned goods, balls, large blocks, stuffed animals, etc.)

### Making Rainbows

#### Tub Contents:

- 1 clear light bulb in a cardboard box
- 1 plastic box of 30 diffraction gratings

#### You provide:

For each girl:

- Crayons
- Copy of "Colors of a Rainbow" worksheet

Additional supplies:

- Small lamp
- Access to an electrical outlet



## Computers in Your Life

### Tub Contents:

None

### You provide:

*For each girl:*

- 2-3 copies of "Bar Code Alphabet"
- 1 copy of "Write In Bar Code" worksheet
- Glue sticks or glue
- Scissors

*Additional supplies:*

- Assortment of items with bar codes

## Sundials

### Tub Contents:

- 1 sundial
- 1 compass

### You provide:

*For each girl:*

- Card stock copy of wrist sundial
- Scissors

*Additional supplies:*

- Several rolls of cellophane tape
- 1 roll of crochet thread
- 1 roll of curling ribbon
- Flashlight
- Globe (optional)

## Growing Yeast

### Tub Contents:

- 30 magnifying lenses in a sandwich bag
- 30 thermometers in a quart bag

### You provide:

*For each girl:*

- Sheet of paper

*Additional supplies:*

- Box of plastic spoons or stirring sticks
- Fast-rising, dry yeast (one tri-fold container per 3 girls)
- 1 box of sugar
- Measuring spoons
- Measuring cup (to measure 1/4 cup)
- 1 box of small resealable plastic sandwich bags
- Cup to pour water
- 1 box of matches
- Container for warm water (110-120 degrees)



**Bridging the Gap**  
**Science in Action**  
**Troop Leader Survey**

Today's Date: \_\_\_\_\_ Number of Girls Participating: \_\_\_\_\_

1. Approximately how long did you spend on each of the following activities?

<b>Pixel Pictures</b>	_____ minutes	<b>Energy Sleuth</b>	_____ minutes
<b>Making Rainbows</b>	_____ minutes	<b>Computers in Your Life</b>	_____ minutes
<b>Sundials</b>	_____ minutes	<b>Growing Yeast</b>	_____ minutes

2. What activity did you or your girls enjoy the most, and why?

3. What activity did you or your girls like the least, and why?

4. Were your girls interested in exploring any of the activities further?  Yes  No

5. Which one(s)?

6. What did you do to fulfill that interest?

7. What can be done to make this more successful for your girls?

Thank you for your help and for your opinions!!!

Please return all forms to: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_