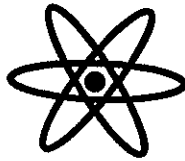


My Body

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
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GAP

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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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These activities are designed to simplify the activities found on pages 228-230 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

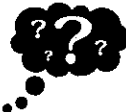
The activities in this guide are intended to be as user-friendly as possible. They were developed to be easy to do, easy to set up, and virtually always successful. Each refers to a corresponding section from an official Girl Scout Leader handbook, and that is noted on the 'Contents' page as well as 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

There are three activities in "Brain Power".

Activity #1 -- Different Muscles

1. Write your name on a piece of paper. Set the pen and paper aside.
2. Take a mini-ball in your hand. If you are right-handed, use your left hand for this. If you are left-handed, use your right.
3. Throw it straight up in the air a few inches and catch it with the same hand.
4. Try doing both, signing your name on a piece of paper, and tossing and catching the ball, at the same time. This should be difficult for you to do well because the two actions are unrelated, and both require your attention.

Activity #2 -- Eye to Brain to Hand

1. Drop a dollar bill from shoulder height and try to catch it before it hits the floor. It will be difficult to catch it because there is no pattern to its fall, and it moves in unexpected ways. If you were able to get someone to drop it from a higher height, you would have more time to observe and react, and you would be more successful in catching the dollar.

Activity #3 -- Touch

1. Take a brass paper fastener, and spread the points slightly apart. Close your eyes and touch the points to the tip of your finger. Take note of what your finger feels. You will probably feel both points.



A vertical rectangular box with rounded corners, containing 20 horizontal lines for writing notes.



NOTES



Ask the girls: **Which was easier, doing the activity separately or together?** Explain that it should be more difficult to do these two activities together.

Our brains often have trouble doing two unrelated activities that both require our attention, at the same time. As another good example, have them try to rub their stomachs and pat their heads at the same time.

Have the girls see if they can create pairs of unrelated tasks that are easy to do separately, but hard to do at the same time.

Activity #2 -- Eye to Brain to Hand

1. Have the girls sit in a circle with you standing in the center.
2. Tell the group that they will be trying to catch a paper bill. They will have to grab it with their hands and can not trap it against their bodies.

You may want to use play money dollar bills, or make your own using dollar-size pieces of paper. The girls especially like the activity if they can keep the play money they catch.

3. Have one of the girls join you in the center. Hold the bill at your shoulder height and then drop it. Have the helper try to catch the dollar. It will be hard to catch a dollar bill from this height. Let each girl, in turn, try this part of the activity.



Explain that the eyes send messages to the brain. The brain then uses that information to tell your hands what to do. This is called **hand-eye coordination**. Sometimes though, an object falls in unexpected ways that may be difficult, or impossible, for your brain to predict. This makes the task seem hard to do, and demands more of your concentration to accomplish.





NOTES

3. While one girl has her eyes closed, have the other gently touch one or both of the paper fastener's points to the tip of her partner's finger. Have the first girl guess out loud how many points are touching her finger without opening her eyes. Let her have several turns guessing before switching positions.
4. Now, repeat step 3, only have the girls touch the back of their partner's neck with the fastener.



Ask the girls: **Was it easier to guess the number of points when you were touching your neck, or when you were touching your finger tip?** It should be much easier on their fingertip. We all have nerves in our skin. These nerves carry messages to our brain. There are more nerves in our fingertips to carry those messages than in the back of our neck, and so we should guess correctly more often when we touch our fingertips.

How do other areas of the body compare with the fingertips? Have them test the sensitivity of areas like their elbows, or the bottom of their feet.



NOTES

How to Do It

1. Using the flat side of a No.1 pencil point, shade in a spot on a piece of paper approximately the size of a quarter. Make the area very dark. Tear off a piece of cellophane tape about 2 inches long and keep it handy.
2. Rub the tip of your right index finger in the area you have just shaded.
3. Take the piece of tape and wrap it around that same finger.
4. Remove the tape carefully and place it, graphite side down, on the appropriate block on a copy of the **Fingerprint Card**. Continue doing this with every finger until you have recorded all of your fingerprints.
5. After cleaning your hands, compare your fingerprints to the types represented on the **Fingerprint Types** card. Your fingerprints may match several of the types on the card.

Before the Meeting

1. Make enough photocopies of the **Fingerprint Card** and the **Fingerprint Types**, found at the end of this activity, for each girl.
2. Cut pieces of tape (about 1-1/2 - 2" in length, approximately the length of your thumb) and lay the pieces on the edge of the tables so the girls can share tape easily.



You may wish to teach the girls how to cut their tape.

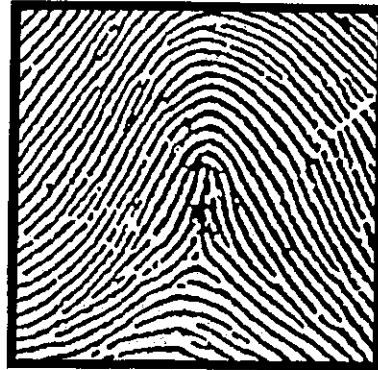
Doing the Activity With the Girls

1. Have the girls find partners and work in pairs. Give each pair of girls a pencil, a piece of paper and two.
2. Have the girls shade in a spot on the paper the size of a quarter using the flat side of the pencil point. Tell them to make the shaded area very dark.
3. Next, have one girl in each pair rub the tip of her right index finger in the graphite-shaded area.

Fingerprint Types



Plain Arch



Tented Arch



Loop



Loop



Plain Whorl

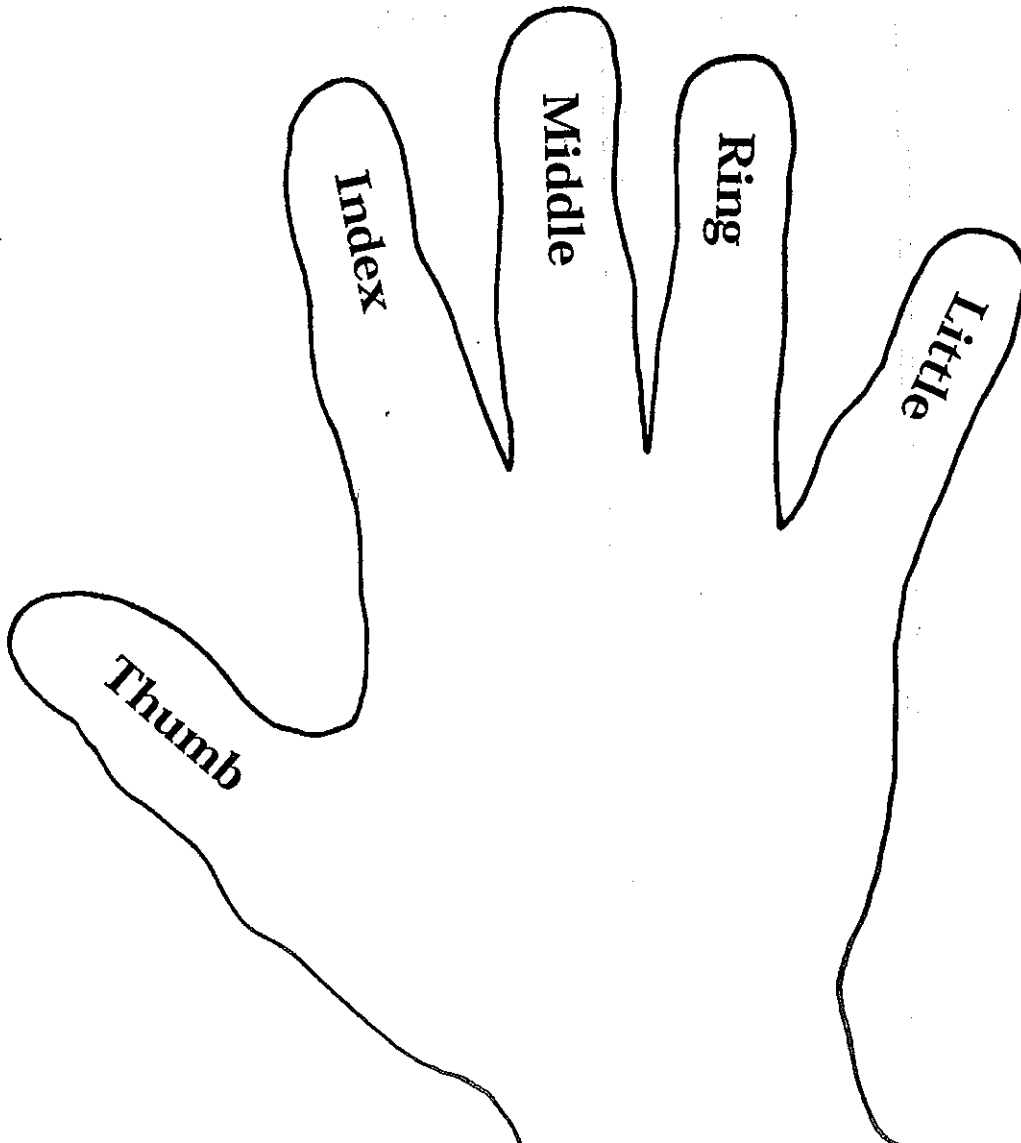


Double Loop



Name _____ **Fingerprint Card**

1. Right Thumb	2. Right Index	3. Right Middle	4. Right Ring	5. Right Little
6. Left Thumb	7. Left Index	8. Left Middle	9. Left Ring	10. Left Little



NOTES

Reflexes

Corresponding Activity

My Body Try-It, p. 228-229, Brownie Girl Scout Handbook

Overview

The girls will test some of their body reflexes by doing two separate exercises.

Big Ideas

In these exercises, the girls will learn what a reflex is, and what their pupil and iris are by watching a reflex in the eye.

Estimated Activity Time

15 minutes

Materials Needed

No specific materials are needed for this activity. The girls will each need space along a wall.

Safety

No special precautions are necessary.

Clean-Up

None required.

A vertical column of 25 horizontal lines for taking notes, enclosed in a rounded rectangular border.



NOTES

Doing the Activity With the Girls

Activity #1 -- Eye Changes

1. Have the girls find a partner and sit facing their partner in a room with lots of light.
2. Tell the girls to look at their partner's eyes very closely.
3. Tell the girls that the black center of their eyes is called the pupil and that the colored part is called the iris. One girl in each pair should then close her eyes for two minutes.

You can suggest that the girls cover their eyes with their hands if this helps them keep their eyes shut.



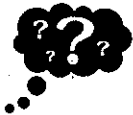
4. After the two minutes have passed, ask the girls to watch what happens to the black center (the pupil) as their partners open their eyes.

Ask the girls: **What did you observe happening to your partner's eyes?** They should have noticed that their partner's pupils got smaller after opening her eyes. The pupil reacts to the amount of light going into it, changing its size to allow only the correct amount of light in. It gets smaller when there is a great deal of light, and larger when there is little light. The iris regulates how large the pupil is. This whole process is a reflex because it happens automatically, without them even thinking about it.

If a girl has difficulty seeing a change in her partner's eyes, have her try it again with a new partner. It is sometimes difficult to notice a change in dark brown eyes.

Activity #2 -- Muscle Reactions

1. Have the girls stand sideways, next to a wall, with the side of their body approximately 3 inches from the wall.





NOTES

Pulse

Corresponding Activity

My Body Try-It,
p. 229, Brownie Girl Scout Handbook

Overview

The girls will learn how to feel their pulses, and gain a better understanding of how a pulse is generated.

Big Ideas

The girls will learn that the heart pumps blood throughout the body, and how the pulse relates to that.

Estimated Activity Time

10 minutes

Materials Needed

Your VSC provides:

For each girl:

- One freezer pop (the kind that is sold unfrozen in plastic tubes)

Safety

No special precautions are necessary.

Clean-Up

You may wish to have paper towels, or a sponge, on hand in the event any of the freezer pops should leak.



NOTES



Next, the girls will locate their pulse.

A pulse is caused by blood rushing from the heart to different parts of the body. Arteries are tubes, or vessels, that carry blood away from the heart, and veins are vessels that carry blood back to the heart.

5. Tell the girls to look straight ahead. Have them place their index and middle fingers on their Adam's apples. From this position, have them slide their fingers slowly to the right, pressing down a slight bit until they feel a pulse.

Some girls will have difficulty with this, and may need your help. They can also try to find their pulse by putting their index and middle fingers just below their ears on the jawline, and following a straight line to their necks.

6. Explain that exercise will make their pulses go even faster. Have the girls run in place for one minute.
7. When they finish running in place, have the girls find their pulses, and compare how it feels now with how it felt before they ran in place. Girls who had trouble on Step 6 should now be able to feel a pulse.

Now that the girls have found their pulse, why not have them measure it? First, have the girls locate their pulse again. Tell them to begin counting the number of pulse "beats" they feel when you say "go". Using a watch with a second hand, tell them to "go", and allow them to count for 15 seconds. Have them write down how many "beats" they counted during the 15 seconds. Have a leader multiply that number by 4 to find out their pulse rate. (You might consider having a small form reproduced to give the girls to put their pulse rate on and take home afterwards.)

You may repeat this experiment after the girls run in place for one minute, or in conjunction with the next activity, to demonstrate just how much their pulse rate increased after exercise



NOTES

Before the Meeting

- Eighth** - The lower leg and foot bones (green) from the knee to the foot of the left leg
- Ninth** - The upper leg muscles (dark pink), from the hip to the knee of the right leg
- Tenth** - The lower leg muscles (dark pink), from the knee to the ankle of the right leg

Keep practicing until you feel comfortable putting the parts in place.

1. Learn the basic function of each body part so you can tell the girls about it, when doing the activity. You may also want to discuss what people can do to keep that body part healthy.

<u>Body Part</u>	<u>Function</u>	<u>Care</u>
Brain	<ul style="list-style-type: none"> •Thinking •Controls most body functions 	<ul style="list-style-type: none"> •Wear a seatbelt •Wear a helmet when riding a bike
Lungs	<ul style="list-style-type: none"> •Breathing in oxygen •Breathing out carbon dioxide 	<ul style="list-style-type: none"> •Don't smoke •Breathe clean air
Heart	<ul style="list-style-type: none"> •Pumps blood throughout the body 	<ul style="list-style-type: none"> •Exercise regularly
Liver	<ul style="list-style-type: none"> •Aids in digestion 	<ul style="list-style-type: none"> •Eat and drink healthy foods
Stomach	<ul style="list-style-type: none"> •Breaks down 	<ul style="list-style-type: none"> •Chew food thoroughly
Intestines	<ul style="list-style-type: none"> •Nutrients are absorbed into the blood here 	<ul style="list-style-type: none"> •Eat good food full of fiber •Breaks down food
Muscles	<ul style="list-style-type: none"> •Necessary for movement 	<ul style="list-style-type: none"> • Exercise
Bones	<ul style="list-style-type: none"> •Give the body support and protection 	<ul style="list-style-type: none"> •Eat calcium

NOTES



For younger girls, you may want to tell the first girl the name of the body part on the card, and let the girls whisper it to each other as they pass the card around the circle.

6. Tell the assistants that it is their job to think of clues, or ways to describe the body part, so that the 'Doctor' can guess which one it is. Beginning with the girl to the 'Doctor's' left and going counterclockwise, have each girl give a clue. The clue can be about the location of the body part, what it does, or, perhaps, how you might take care of it.



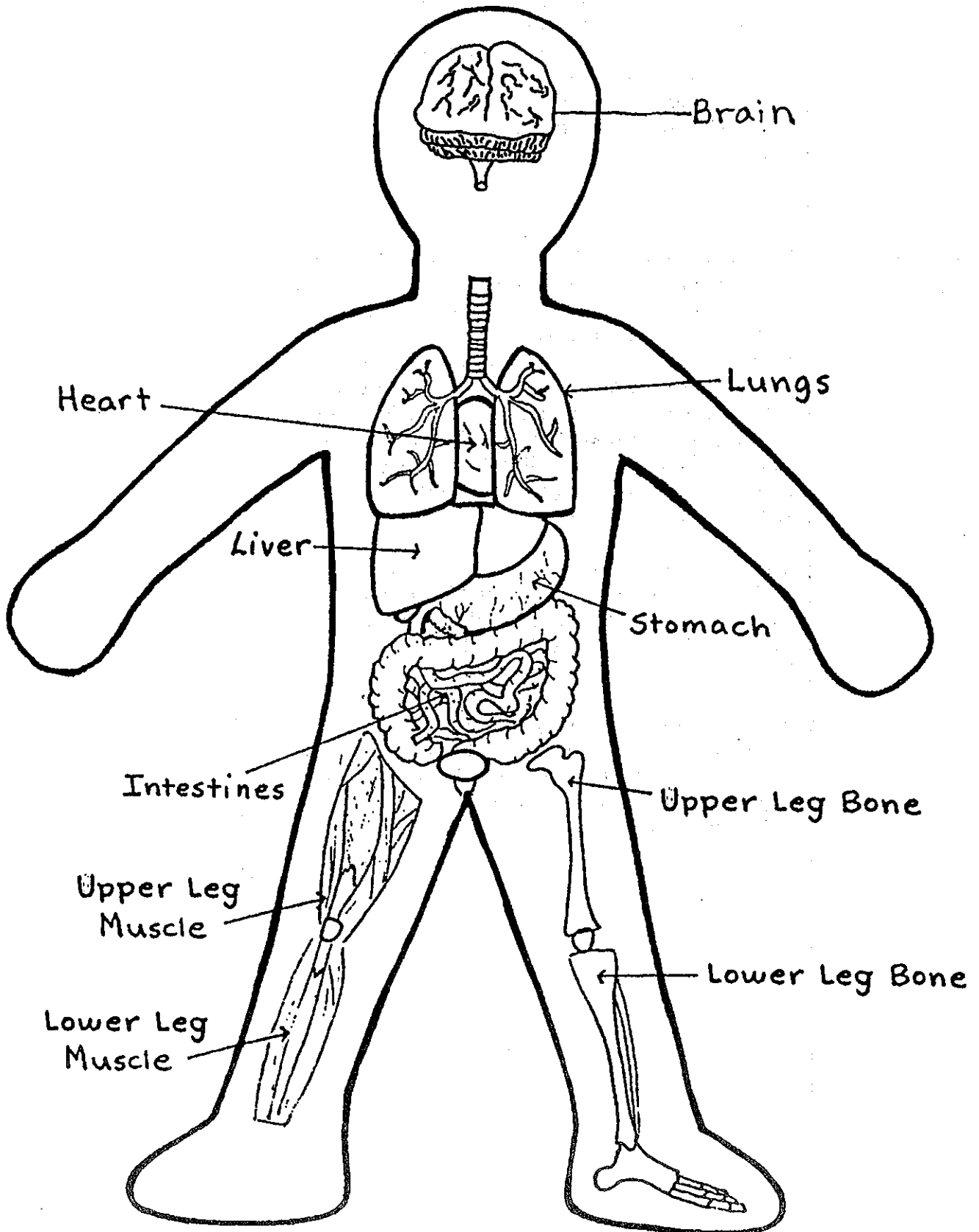
It may be difficult for nine girls to each give a different clue about the liver, so don't worry if the girls repeat clues. Give them hints and remind them of the facts you gave them earlier about the body part. The important thing is that each girl has a turn and contributes something.

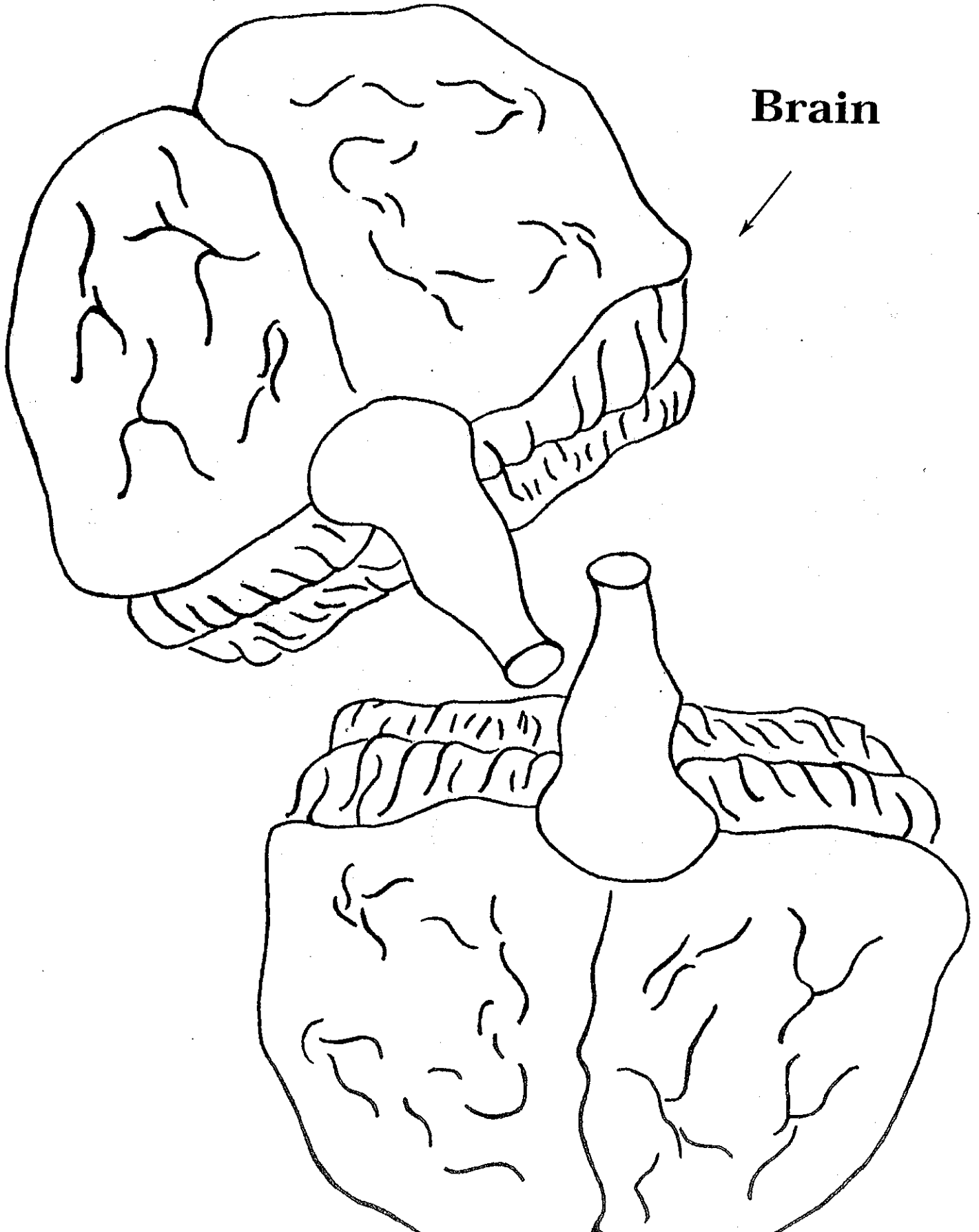
7. After each girl has given a clue, the 'Doctor' tries to guess what part is being described, and then pulls it out of the box. If she is right, the 'Doctor' moves on to step #8. If the 'Doctor' is not correct, she must keep choosing parts until she gets the right one. The other girls can give hints to help her choose the right one.

8. Once she has identified the right body part, the whole group will help her in deciding where to put the part on the body shape. The leader or adult helper will then tape the part in place (use tape loops on the back of the body part).

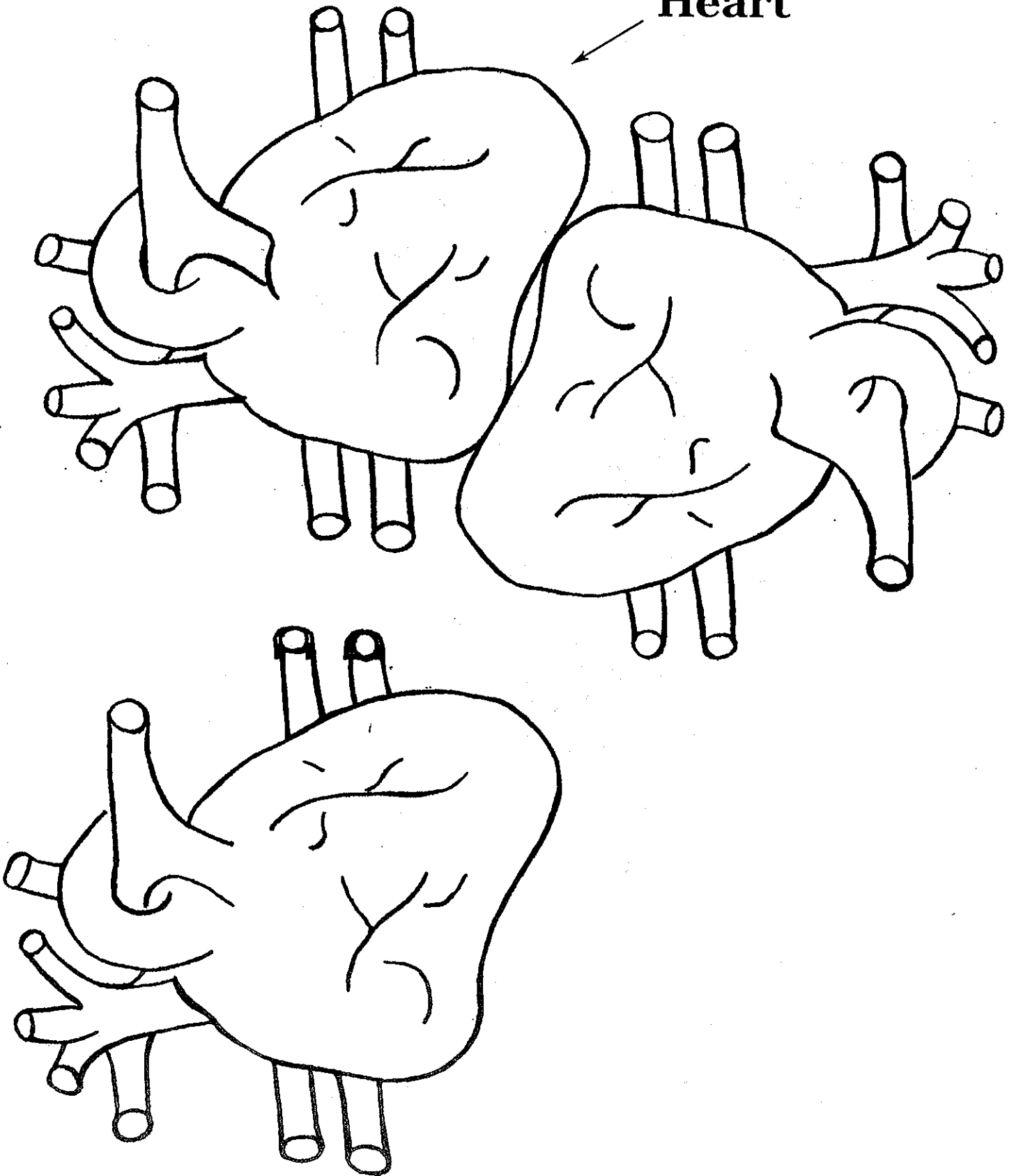
9. Moving clockwise, the next girl in the circle becomes the 'Doctor' until each girl has had a turn. (And remember, the girl seated to the left of the new 'Doctor' will start the clues. The rule is clues left and counterclockwise, 'Doctors' clockwise.)

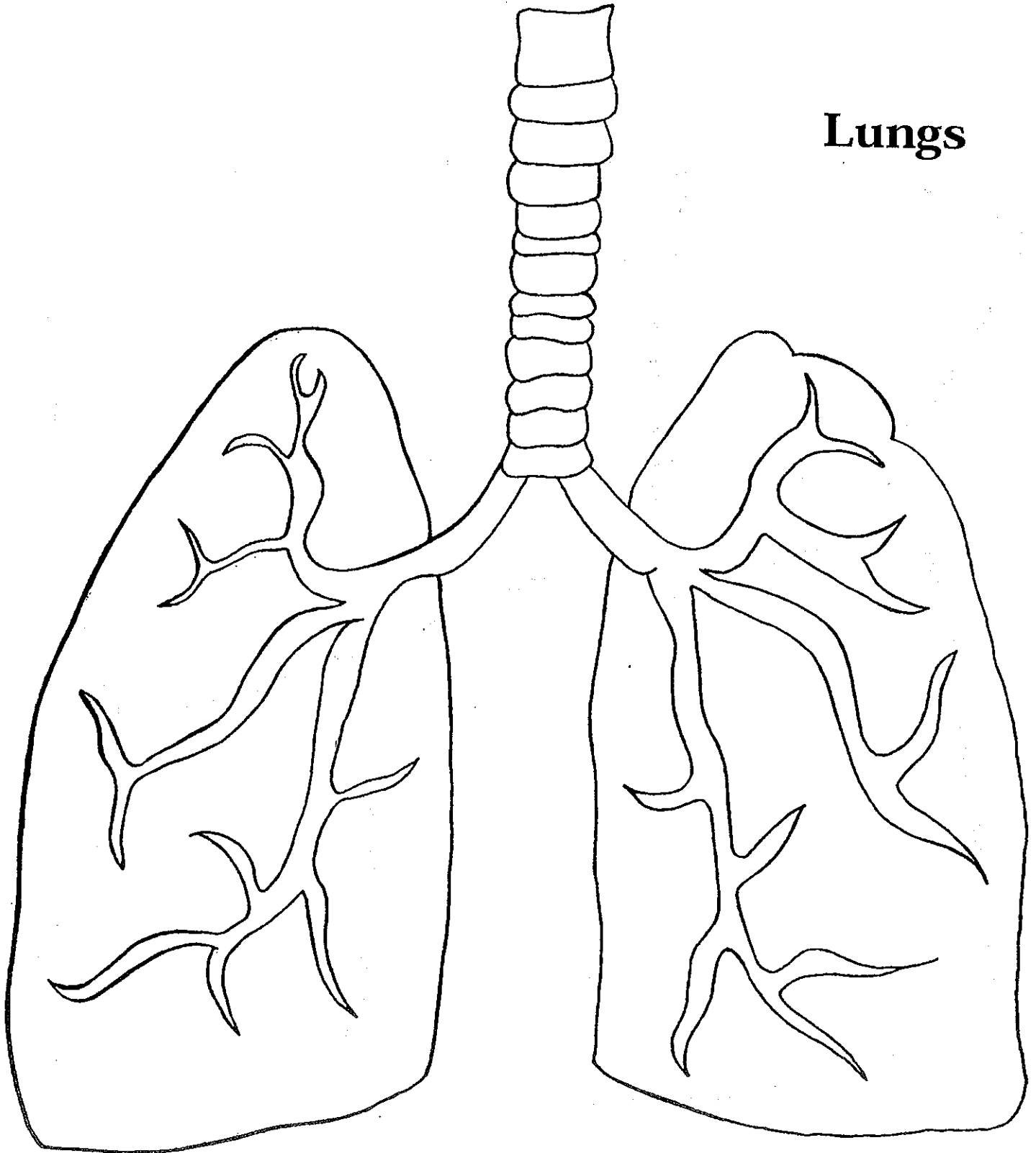
My Body Pattern





Heart

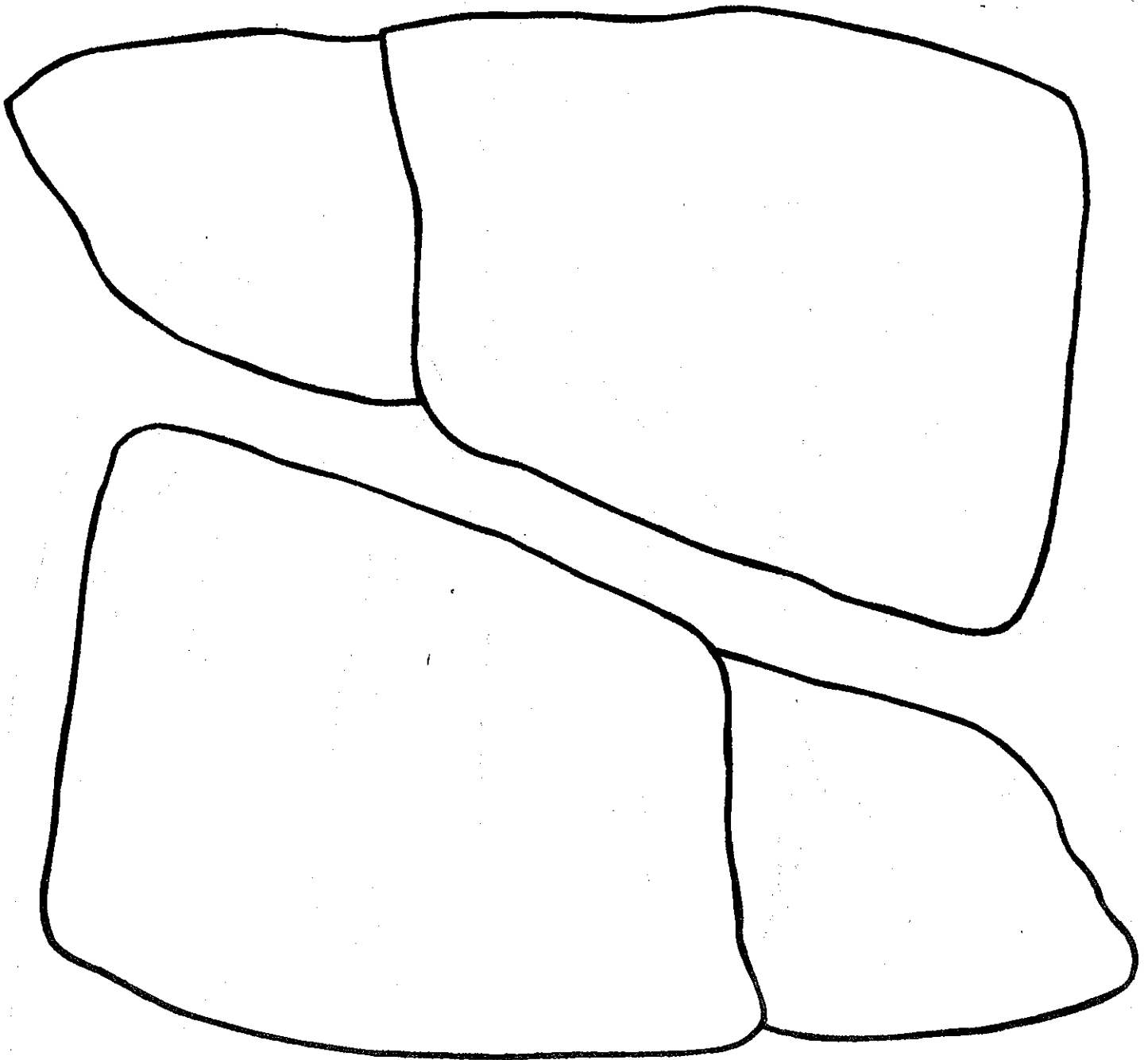




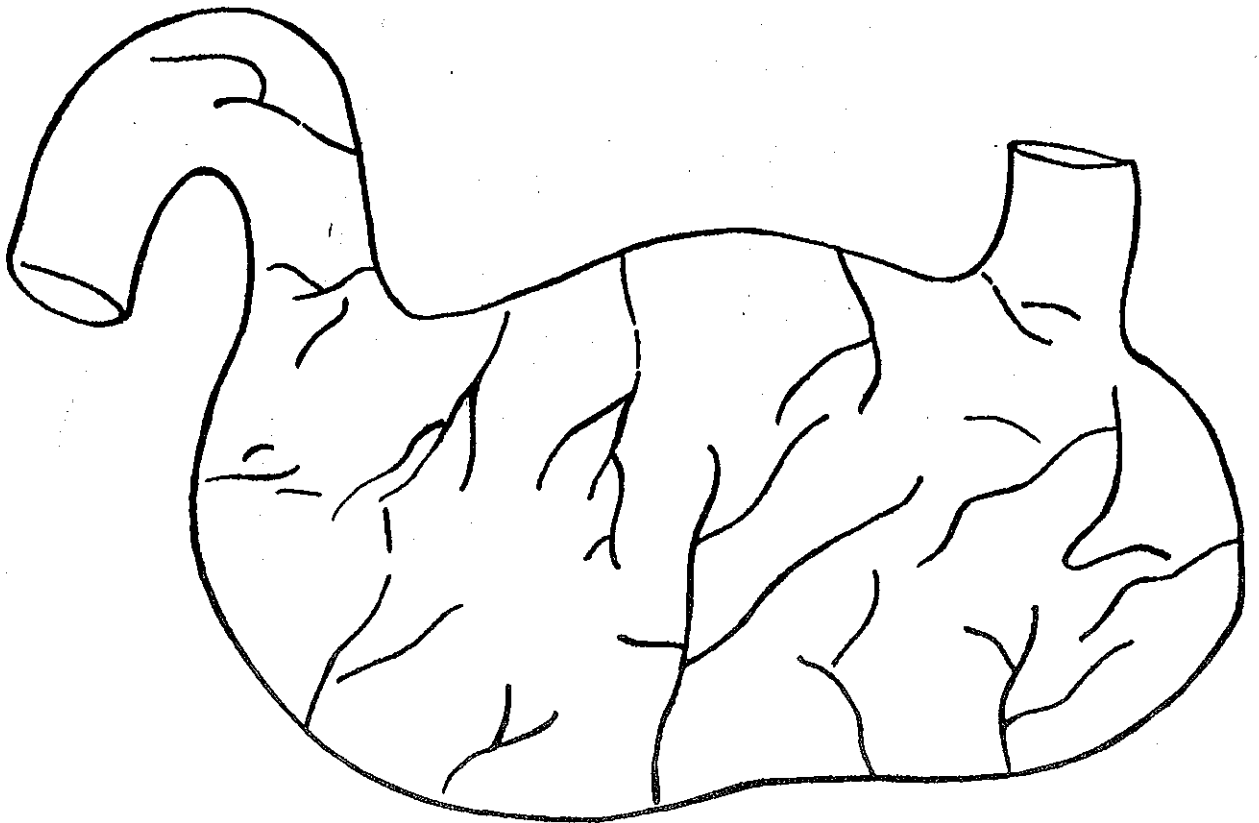
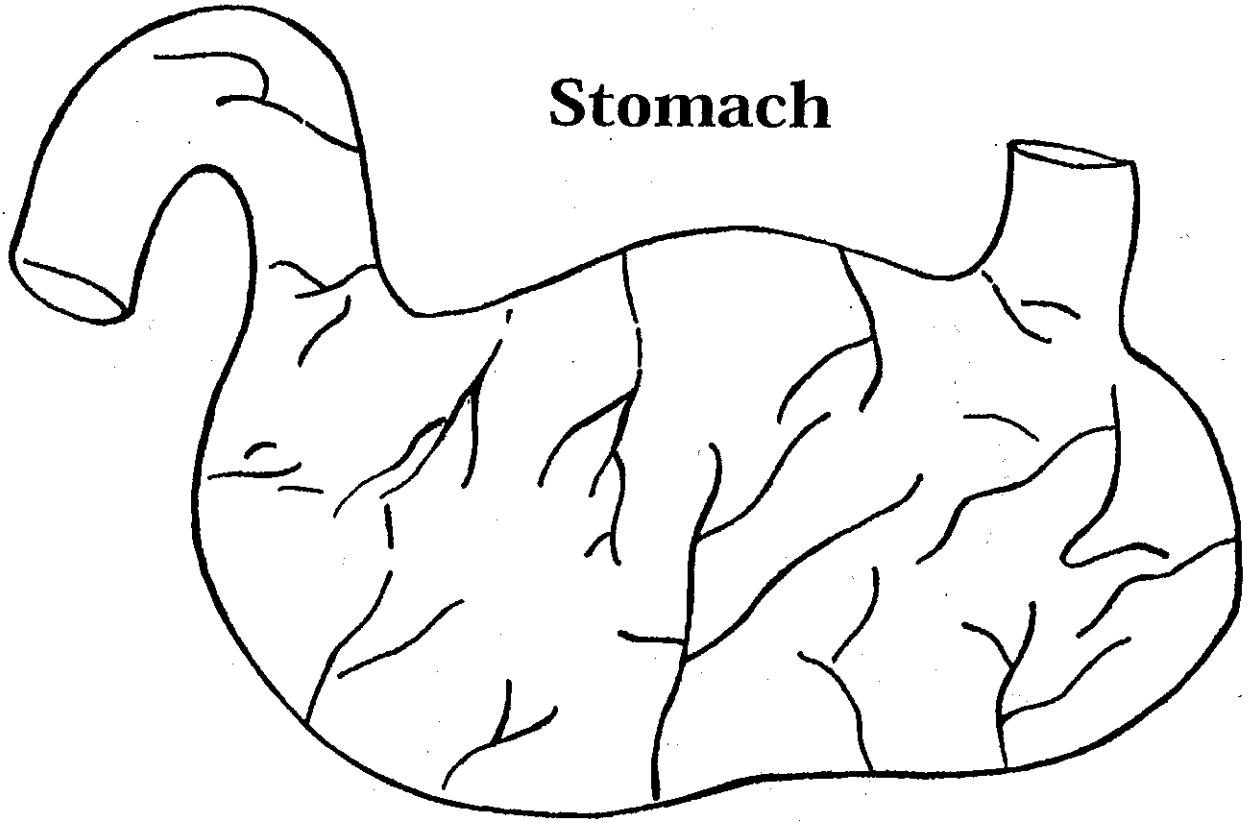
Lungs



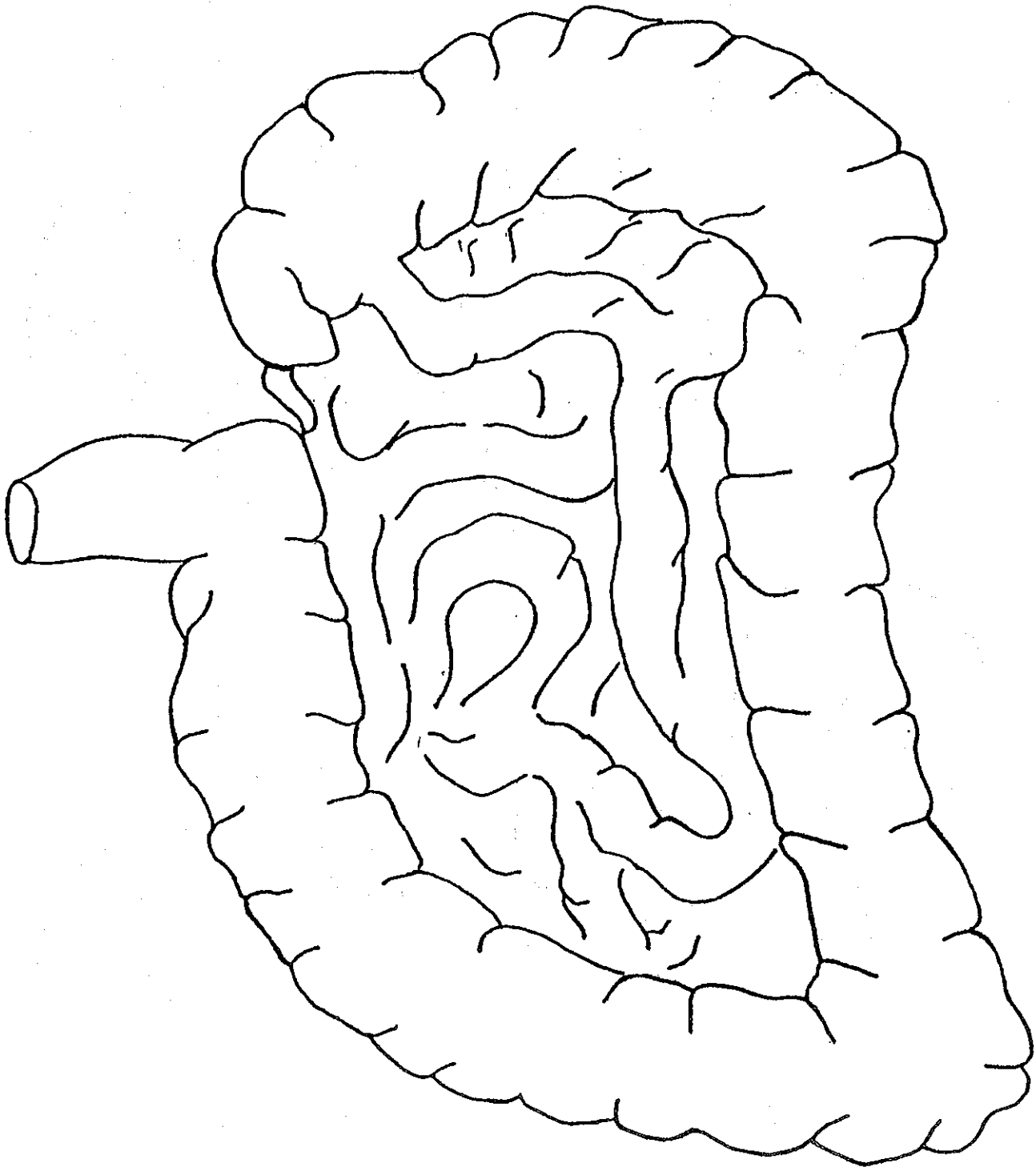
Liver



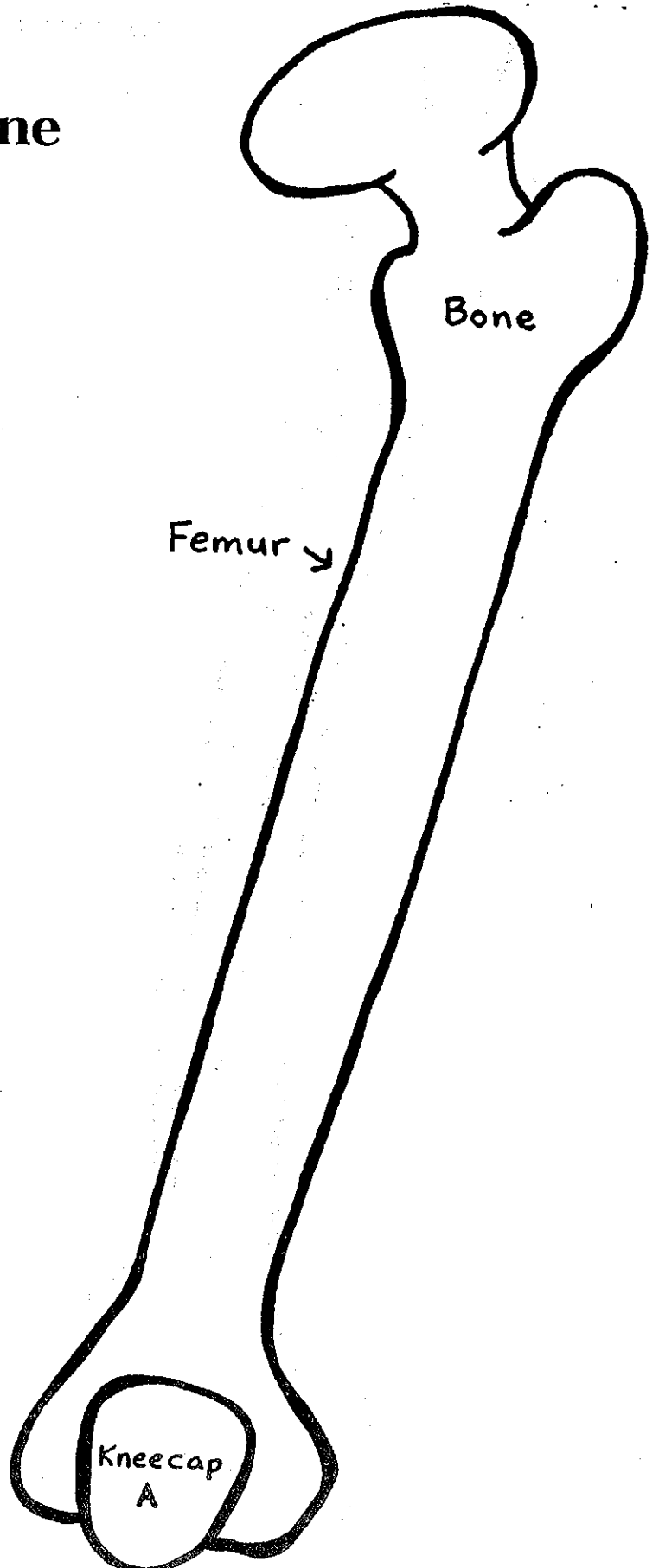
Stomach



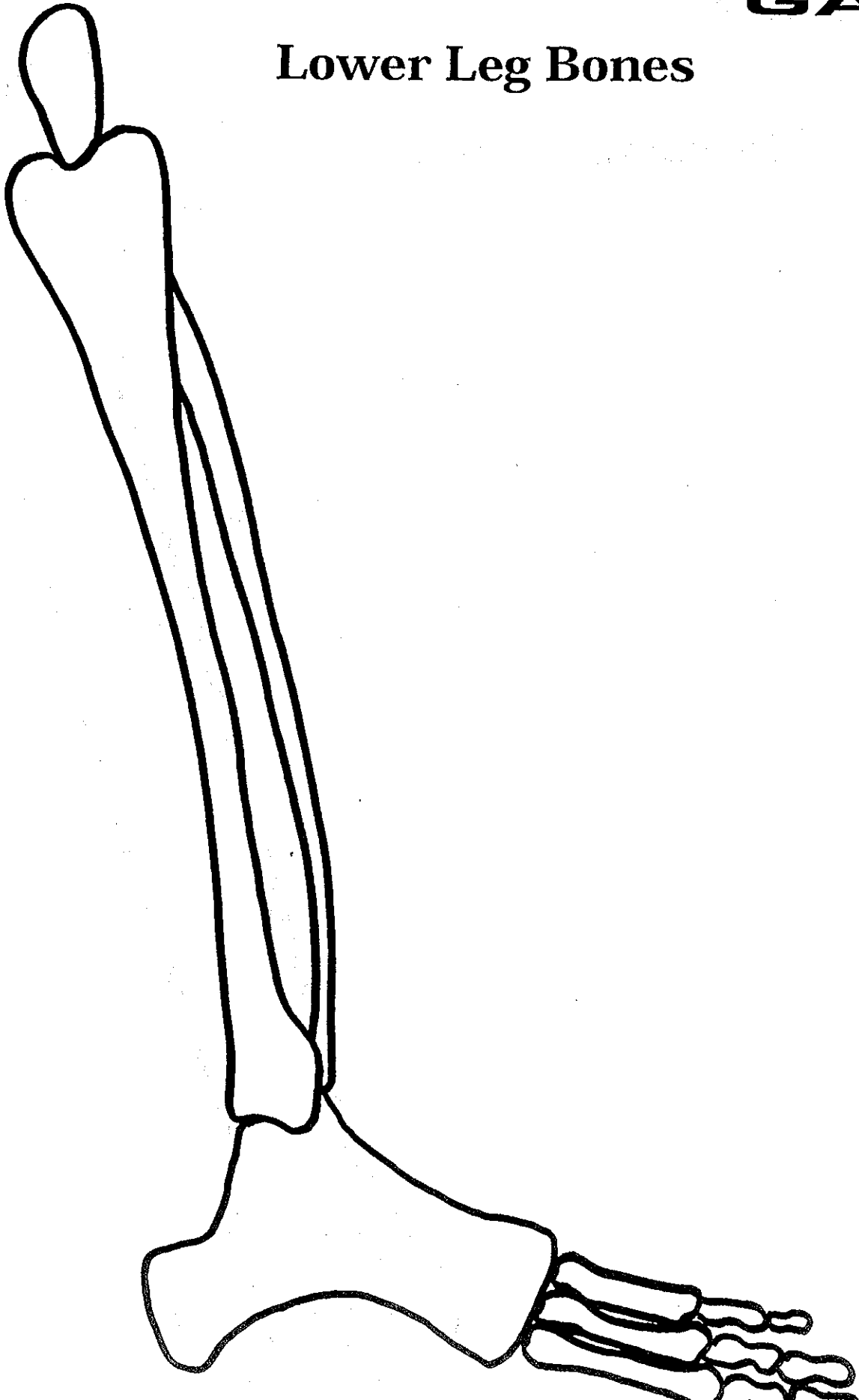
Intestines



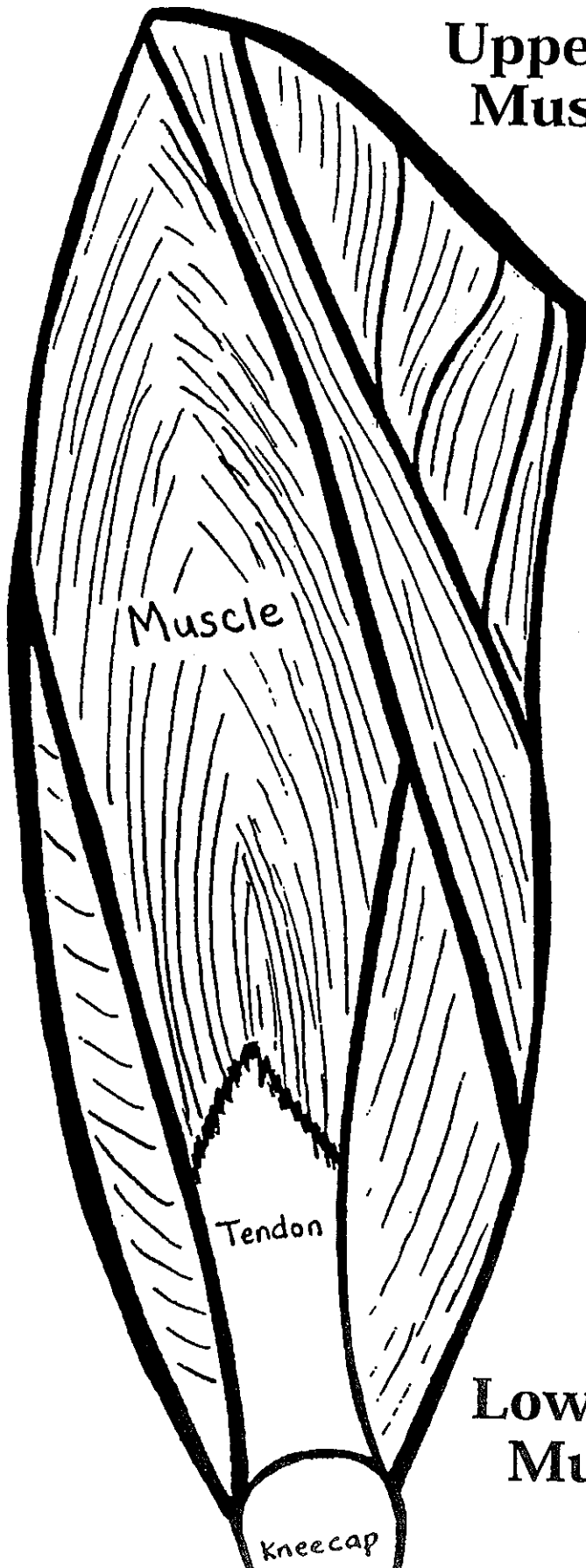
Upper Leg Bone



Lower Leg Bones



Upper Leg Muscles



Lower Leg Muscles



Materials List for *My Body* activities

Brain Power

Tub contents:

- 30 mini-balls in a quart bag
- 1 box round head, brass paper fasteners

You provide:

- Pencil and paper for each girl
- Dollar-size pieces of paper or play money dollar bill (at least one for each girl)

Fingerprints

Tub contents:

- 30 No. #1 pencils in a gallon bag
- 15 magnifying lenses in a sandwich bag

You provide:

For each girl:

- Copy of **Fingerprint Card** and **Fingerprint Types**
- Plain white paper

Additional Supplies:

- 2-3 rolls of clear cellophane tape
- Container of baby wipes

Reflexes

Tub contents:

None

You provide:

No materials required for this activity

Pulse

Tub contents:

- 30 freezer pops in a 2-gallon bag

A Fit Body

Tub contents:

None

You provide:

- Pen or pencil
- Pieces of paper to write on
- 1 small bowl

Build a Brownie Girl Scout

Tub contents:

- Plastic box
- Set of laminated body parts in an envelope
- Set of labeled laminated index cards in a quart bag

You provide:

- Pencils or crayons for tracing a life-size Brownie Girl scout
- Roll of brown butcher paper or some large paper for body tracings
- Roll of masking tape
- A few glue sticks or bottles of school glue (optional)
- Scissors (optional)
- Additional copies of body parts (optional)



Bridging the Gap
My Body
Troop Leader Survey

Today's Date: _____ Number of Girls Participating: _____

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

Brain Power	_____ minutes	Pulse	_____ minutes
Fingerprints	_____ minutes	A Fit Body	_____ minutes
Reflexes	_____ minutes	Build a Brownie	_____ 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: _____

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GIRL SCOUTS®

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