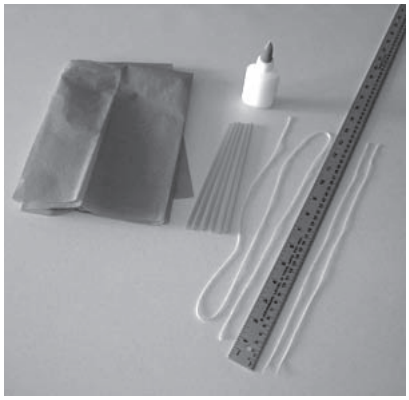
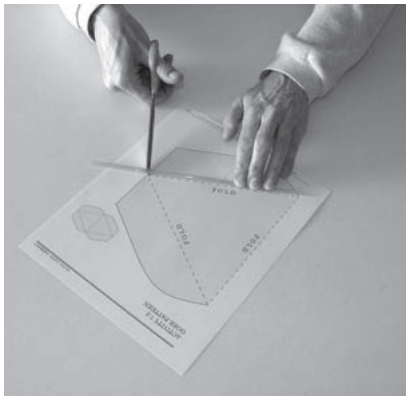
ACTIVITY 7.1
DIRECTIONS FOR MAKING A TETRAHEDRON KITE

Step 1. You will play a game with a tetrahedron dice to collect some of the materials you need: 24 stiff straws, 9 meters of string, four sheets of tissue paper and one gore pattern. Your teacher will give you a meter stick, scissors, a pencil and glue.



Step 2. After you have the materials, divide them into four groups, one for each tetrahedron frame: one piece of tissue paper, six straws, one piece of string 1 meter long and two pieces of string about 35 centimeters long.



Step 3. Put one straw on one of the dotted lines on the gore pattern (Activity 7.2). Cut the straw to make it the same length as the dotted line. Use the cut straw to measure the other 23 straws, and cut them so that all your straws are the same length.

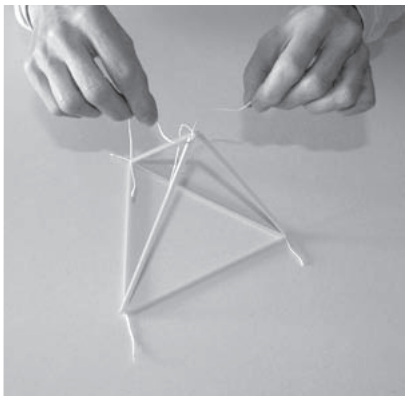
Step 4. Make the four tetrahedron frames by following these steps for each frame: First, thread three straws onto the 1-meter length of string.

Step 5. Tie the ends of the string together to make a triangle. Each straw will form one side of the triangle. Leave one end of the string longer than the other so you have a "tail" on one corner.

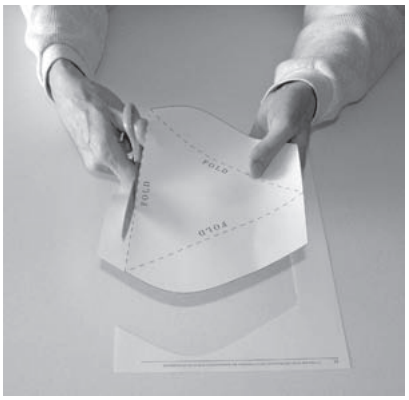
Step 6. Take the two shorter strings and tie one onto each of the corners that does not have a tail. You should now have a tail of longer string on all three corners of the triangle.

ACTIVITY 7.1 (continued)
DIRECTIONS FOR MAKING A TETRAHEDRON KITE

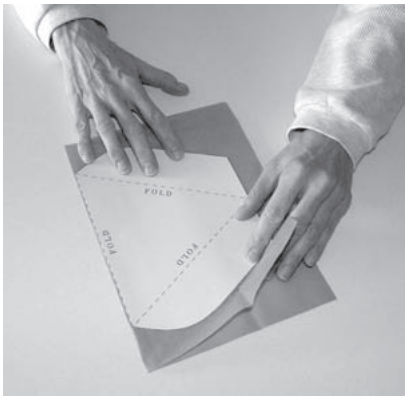
Step 7. Take one of the remaining three straws and thread it onto one of the shorter tails. Take another straw and thread it onto the other short tail. Tie the ends of the tails tightly to form a second triangle.



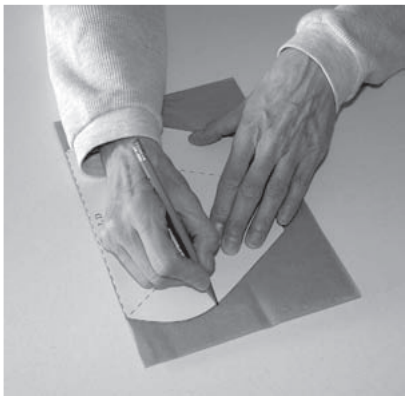
Step 8. Thread the last straw on the remaining tail. Tie the string tightly to the opposite corner. This will complete your first four-sided, three-dimensional tetrahedron frame. Repeat Steps 4 through 8 to make three more frames.



Step 9. Make the tissue paper coverings, or gores, for the frames by following these steps: First, cut out the gore pattern on Activity 7.2.



Step 10. Fold a full sheet of tissue paper neatly in half. Place the gore pattern on the folded edge of the tissue paper, with the dotted edge of the pattern on the fold.



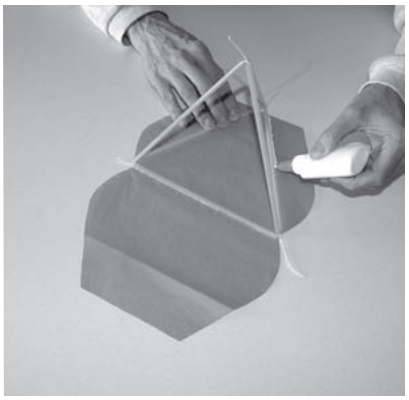
Step 11. Draw lightly around the pattern with the pencil, and carefully cut out the tissue-paper shape. Follow the lines exactly, and do not cut along the fold.

Step 12. Unfold the tissue paper. Use the gore pattern to trace and cut three more pieces of paper to make four gores.

ACTIVITY 7.1 (continued)
DIRECTIONS FOR MAKING A TETRAHEDRON KITE

Step 13. Cover each tetrahedron frame with the tissue-paper gores by following these steps: First, place a very thin line of glue along the fold in the center of one tissue-paper gore.

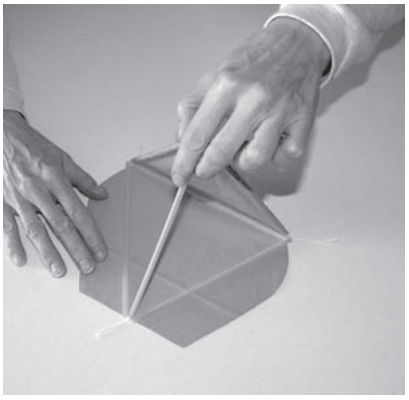
Step 14. Lay a straw that forms any side of one tetrahedron on the line of glue, holding the rest of the tetrahedron upright. This is easier if two people work together.



Step 15. Let go of the tetrahedron and let it drop down on one side of the gore. Put a thin line of glue along the outside edge of one of the straws. Also put a thin line of glue around the edge of the flap next to the straw.

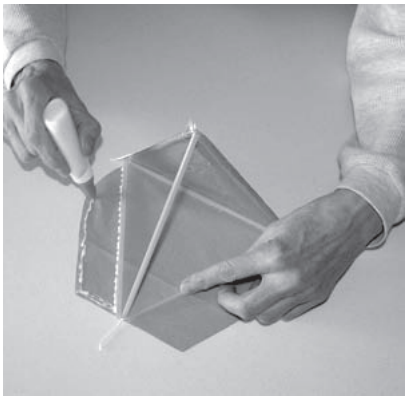
Step 16. Fold the flap with the glue over the straw toward the inside of the triangle and press down.

Step 17. Put a thin line of glue along the outside edge of the other straw and around the edge of the other flap. Fold this flap over the straw toward the inside of the triangle and press down.

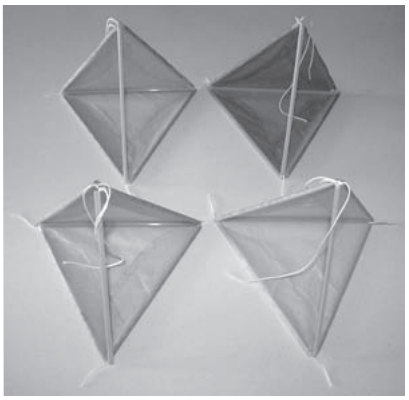


Step 18. Roll your tetrahedron to the other side of the tissue-paper gore.

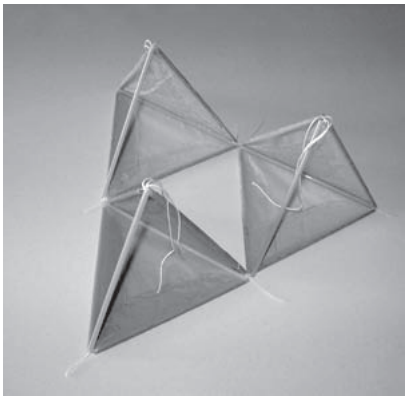
ACTIVITY 7.1 (continued)
DIRECTIONS FOR MAKING A TETRAHEDRON KITE



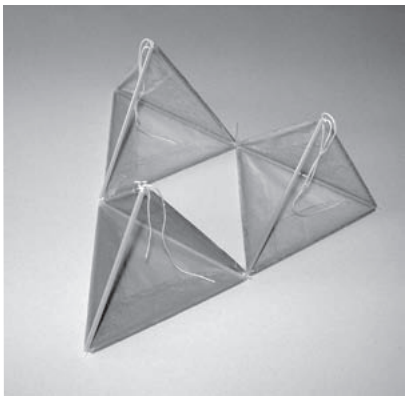
Step 19. Glue the flaps on this side the same way you glued the flaps on the other side. You should now have a tetrahedron with two covered sides and two open sides.



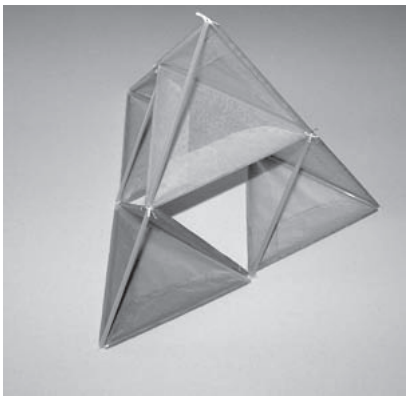
Step 20. Follow Steps 13 through 19 to cover the remaining three tetrahedron frames.



Step 21. Now assemble your kite. First place three of the finished tetrahedrons on the table, with one covered side down, so they form a large triangle shape. Make sure all of the other covered sides are facing in the same direction.



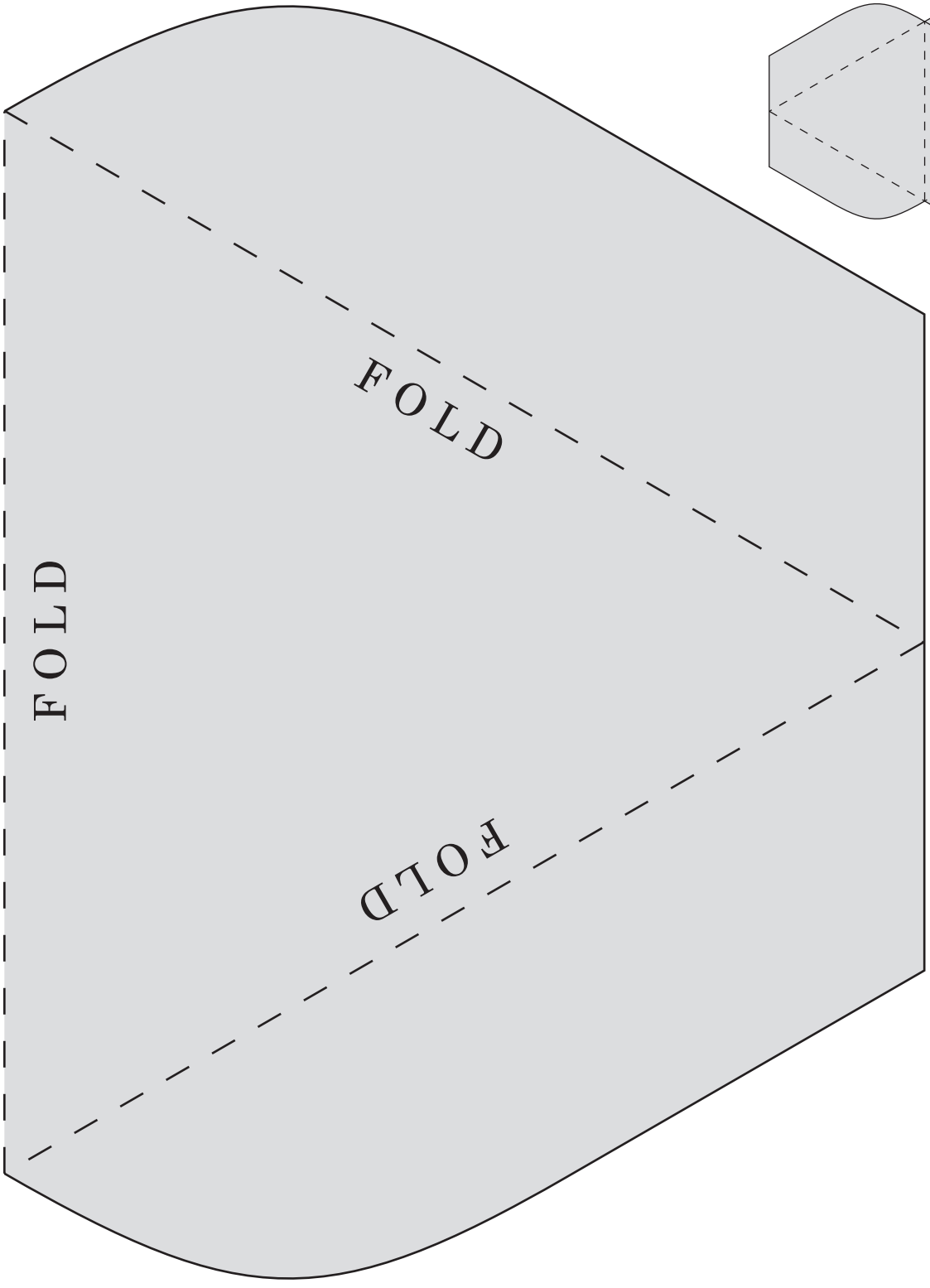
Step 22. Cut three short pieces of string long enough to tie the tetrahedron corners together where they touch. Tie each of the three corners tightly. Trim off the leftover string.



Step 23. Cut three more short pieces of string. Put the fourth tetrahedron on top of the other three. Use the pieces of string to tie the corners tightly together where they touch. Trim off the leftover string. Let the kite dry thoroughly.

Step 24. Display your kite in class or go outside and fly it! You can also make a bigger kite by tying together four kites the way you tied together the four tetrahedrons.

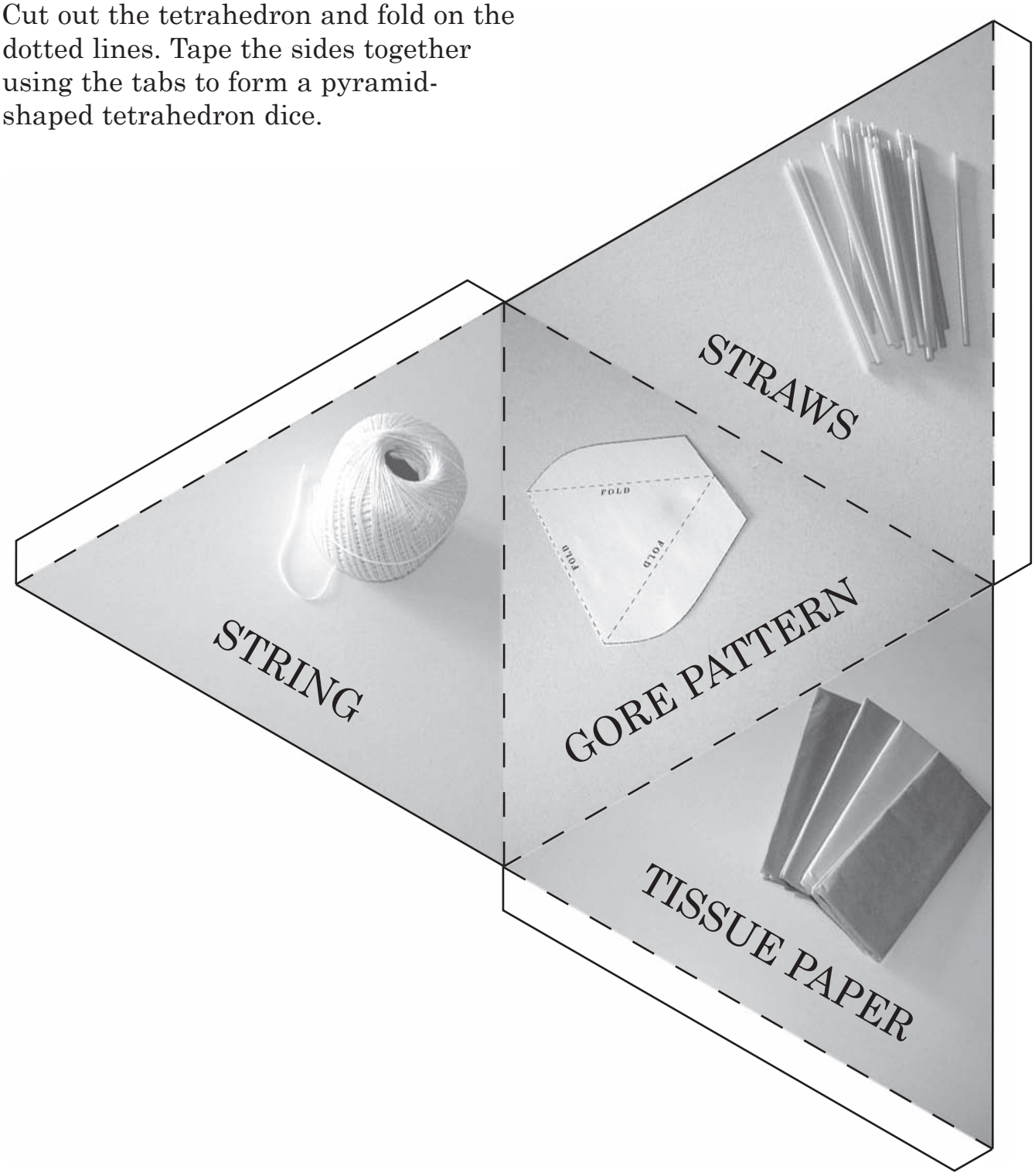
ACTIVITY 7.2
GORE PATTERN



The tissue-paper gore will look like the diagram above when you have finished cutting it out and unfolding it.

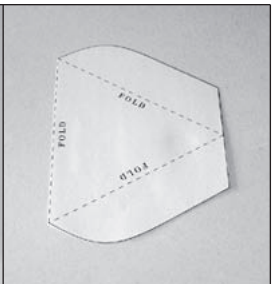
ACTIVITY 7.3
TETRAHEDRON DICE

Cut out the tetrahedron and fold on the dotted lines. Tape the sides together using the tabs to form a pyramid-shaped tetrahedron dice.



ACTIVITY 7.4
GETTING YOUR INTERMEDIATE GOODS

Put an X in the column to indicate which intermediate good your team got each time it rolled the tetrahedron dice.

	 **Straws**	 **String**	 **Tissue Paper**	 **Gore Pattern**
Roll 1				
Roll 2				
Roll 3				
Roll 4				

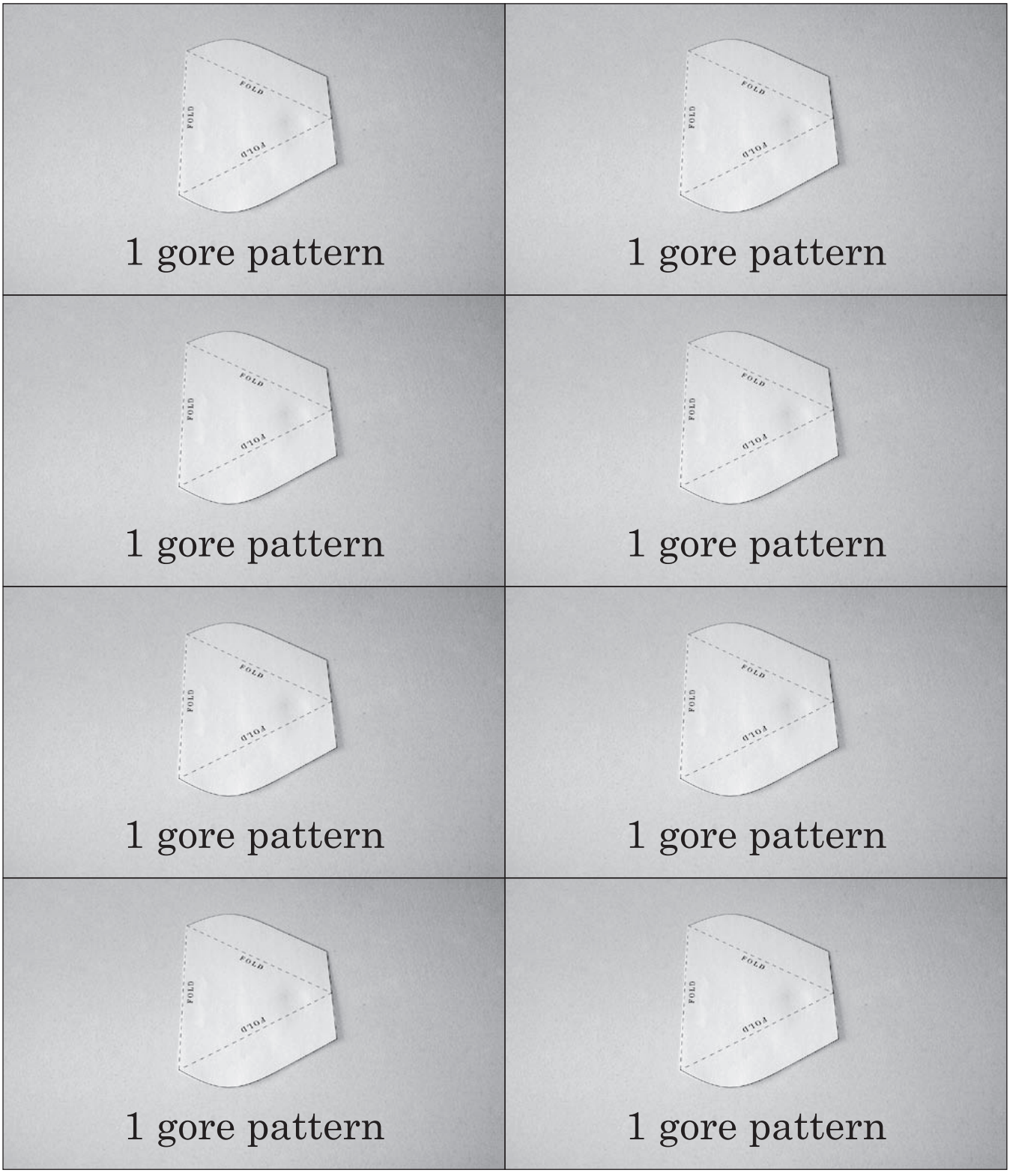
ACTIVITY 7.5
INTERMEDIATE GOODS TICKETS

 24 drinking straws	 24 drinking straws
 24 drinking straws	 24 drinking straws
 24 drinking straws	 24 drinking straws
 24 drinking straws	 24 drinking straws

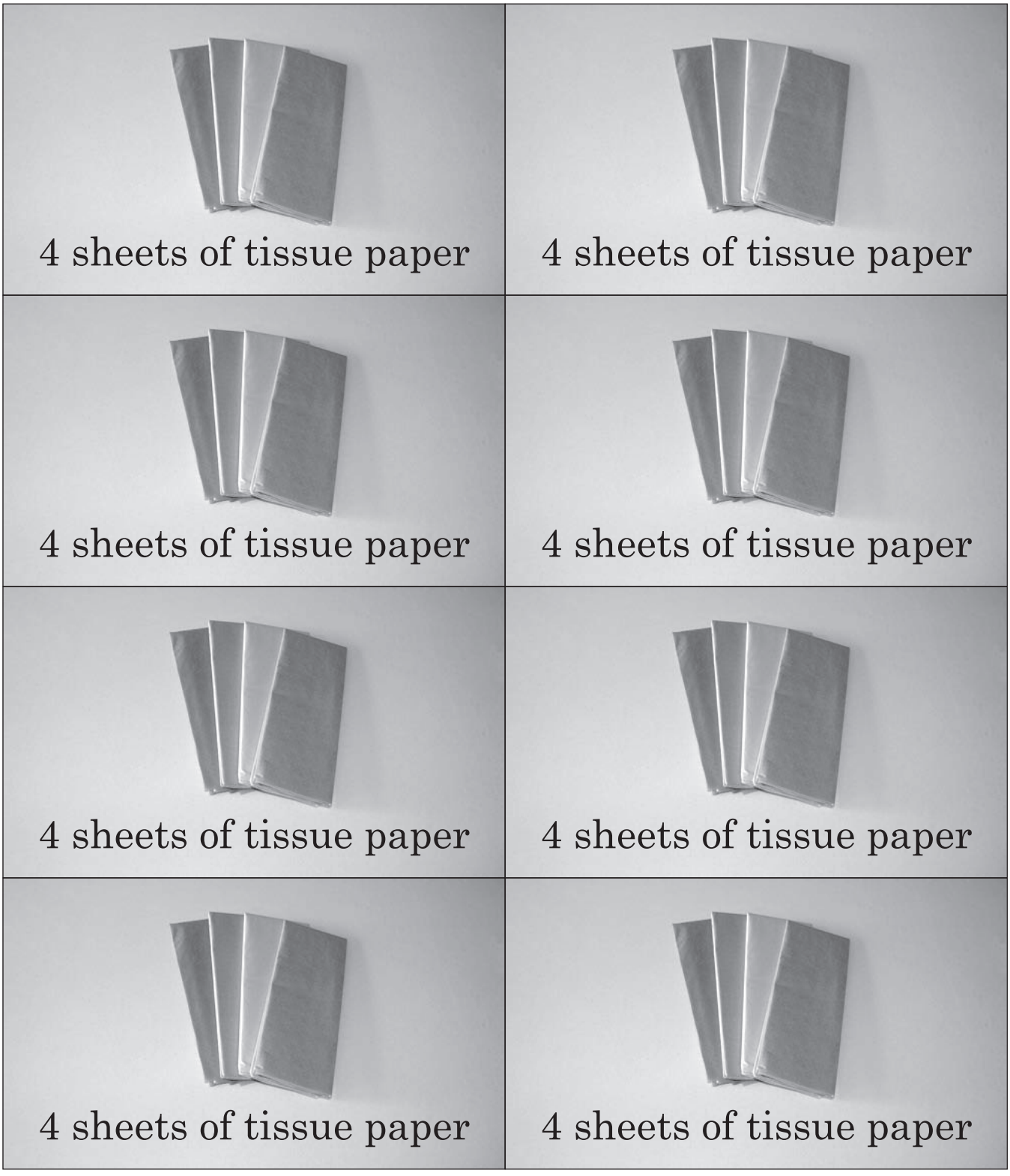
ACTIVITY 7.5 (continued)
INTERMEDIATE GOODS TICKETS

 9 meters of string	 9 meters of string
 9 meters of string	 9 meters of string
 9 meters of string	 9 meters of string
 9 meters of string	 9 meters of string

ACTIVITY 7.5 (continued)
INTERMEDIATE GOODS TICKETS



ACTIVITY 7.5 (continued)
INTERMEDIATE GOODS TICKETS



ACTIVITY 7.6
ASSESSMENT: SHAPELY LUNCH

Directions: Luis, Michael and Sonya hurry from math class into the cafeteria for lunch. As they empty their lunch sacks, Sonya notices that many of their items look like the shapes they have just been studying.

"Hey!" Sonya exclaims, "Look at our lunches. Everything we have looks like the shapes in math class." Luis and Michael notice, too, and start to giggle. "Wouldn't it be fun," says Michael, "if we all ate the same 'shapely' lunch?" They agree and decide to do some bartering.

Here is what each student brought for lunch:

Luis	**Michael**	**Sonya**
• Italian meatballs	• Yogurt	• PB&J sandwich
• Pretzels	• Orange	• Pickle
• Peach	• Small can of chips	• Brownie
• Can of root beer	• Carton of milk	• Juice box

1. Which three lunch items look like a cylinder?

2. Which three items look like a rectangular prism?

3. Which three items look like a sphere?

ACTIVITY 7.6 (continued)
ASSESSMENT: SHAPELY LUNCH

4. Fill in the blanks below to explain how Luis, Michael and Sonya can barter their lunch items so that they each have a cylinder, a rectangular prism and a sphere.

A. Luis has two lunch items that are the same shape:

_____ and a _____.

He needs to barter for a _____ shape, so he barters

a _____ for a _____.

B. Michael has two lunch items that are the same shape:

a _____ and a _____.

He needs to barter for a _____ shape, so he barters

a _____ for a _____.

C. Sonya has three lunch items that are the same shape:

a _____, a _____

and a _____. She needs to barter for two different shapes:

a _____ and a _____.

She first barters a _____ for

a _____ and then barters

a _____ for a _____.

ACTIVITY 7.6 (continued)
ASSESSMENT: SHAPELY LUNCH

5. Draw a picture of what each student actually ate for lunch.

Luis
Michael
Sonya