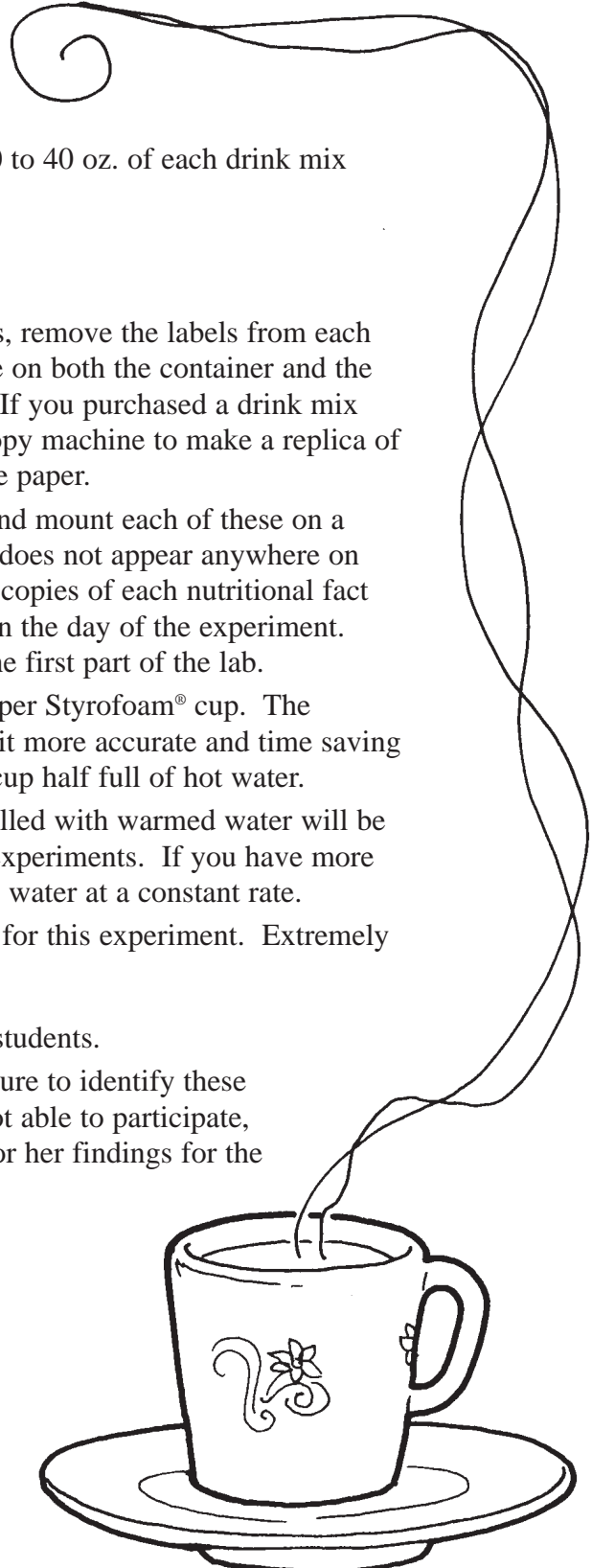


# Hot Chocolate Testing

The following activity will allow your students to scientifically compare and contrast various brands of hot chocolate.

## Teacher Directions:

1. You will need to purchase:
  - four different varieties of hot chocolate drinks (30 to 40 oz. of each drink mix should be enough to accommodate 100 students)
  - four Styrofoam® cups per student
  - one stir straw per student
2. Once you have purchased the hot chocolate mixes, remove the labels from each container. Then use permanent marker to indicate on both the container and the removed label whether it is Drink A, B, C, or D. If you purchased a drink mix whose label cannot be removed, use your photocopy machine to make a replica of the label and then cover the container with opaque paper.
3. Cut from each label the nutritional facts section and mount each of these on a square of tagboard. Make sure the product name does not appear anywhere on these cards. You may want to make three or four copies of each nutritional fact card. Display these cards around the classroom on the day of the experiment. Students will need this information to complete the first part of the lab.
4. Use approximately 1 teaspoon (5 mL) of powder per Styrofoam® cup. The students may do this themselves or you may find it more accurate and time saving to do this yourself ahead of time. Then fill each cup half full of hot water.
5. One large or two to three small coffee maker(s) filled with warmed water will be enough to handle approximately 20-25 students' experiments. If you have more than one class, you will need to refill and heat the water at a constant rate.  
**Warning:** The water only needs to be very warm for this experiment. Extremely hot water could be dangerous in the classroom.
6. You may have to define the word *residue* for the students.
7. Some students may be allergic to chocolate. Be sure to identify these students before the taste testing. If a student is not able to participate, assign a partner to him or her who will share his or her findings for the remainder of this activity.



# Hot Chocolate Testing (cont.)

## Learning About Brands From Labels

Use the posted nutrition information from the labels of drinks A, B, C, and D to fill out the following chart.

Label Information (Per Serving)

Drink	Calories	Total Fat (g)	Sodium (mg)	Sugar (g)	Protein (g)	% Vitamin A	% Vitamin B	% Vitamin C	% Calcium	% Iron
A										
B										
C										
D										

Use the information from the above chart to answer the following questions.

- Which drink has the fewest calories? \_\_\_\_\_
- Which drink has the least fat? \_\_\_\_\_
- Which drink has the least sodium? \_\_\_\_\_
- Which drink has the fewest grams of sugar? \_\_\_\_\_
- Which drink has the most protein? \_\_\_\_\_
- Which drink has the greatest percent of vitamin A? \_\_\_\_\_
- Which drink has the greatest percent of vitamin C? \_\_\_\_\_
- Which drink has the greatest percent of calcium? \_\_\_\_\_
- Which drink has the greatest percent of iron? \_\_\_\_\_
- Which drink was listed most often in answer to questions 1 through 9? \_\_\_\_\_

# Hot Chocolate Testing *(cont.)*

## Scoring Taste and Dissolving Ability

Follow the directions below to participate in the taste and dissolving ability tests.

1. Label four cups A, B, C, and D.
2. Place the appropriate amount of powder in cup A.
3. Ask your teacher to add hot water to the powder. Use caution with your drink now that it is hot. Carry, handle, and drink it carefully!
4. Stir your drink 25 times.
5. Drink the hot chocolate and record the taste. Score the taste on a scale of 1-10. A score of 1 would indicate a poor flavor while a score of 10 would have an excellent taste.
6. Check the bottom of the cup for residue and make a note of what you find under the heading Dissolving Ability. Score how well the powder dissolved on a scale of 1-10. A score of 1 would mean that you found quite a bit of residue left in the cup while a score of 10 would mean that you found no residue.
7. Repeat the above procedure with brands B, C, and D.

Drink	Taste Score	Dissolving Ability Score	Comments
A			
B			
C			
D			

# Hot Chocolate Testing *(cont.)*

## Interpreting Your Data

Using all of your data, please rank the hot chocolates from the best (#1) to the worst (#4).

Ranking	Drink
#1	
#2	
#3	
#4	

Write a paragraph (approximately 50 words), using your data to defend your high ranking of your #1 drink. Use the back of this paper if you need more room.

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Write a paragraph (approximately 50 words), using your data to defend your low ranking of your #4 drink. Use the back of this paper if you need more room.

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