



**Mathematics Governor's Institute 2003  
Problem-in-a-bag Template**

**Title of Project:** We All Scream For Ice Cream

**Team Members:** Melissa Belperio, Jocelyn Hakos, Jodi Lambright, Carrie Snell

**Grade Level and/or Course:** Kindergarten Mathematics

**Concepts used:** Problem solving  
Geometric shapes of triangle (cone), circle (sphere)  
Communication, discussion  
Using manipulatives

**PA Standards Addressed:**

2.4 Mathematical Reasoning and Communication

2.4A Verify predictions about quantity, size and shape of object

2.5 Mathematical Problem Solving and Communication

2.5A Describe appropriate problem solving strategies

2.5B Describe what information is needed to solve a problem

2.5C Select and use an appropriate method, materials, and strategy to solve problems

2.6 Statistics and Data Analysis

2.6A Gather, organize and display data on a bar graph and /or pictograph

2.9 Geometry

2.9A Identify and label two-dimensional shapes

2.9B Create and reproduce geometric designs using concrete objects

**NCTM Standards Addressed:**

Geometry Standard

-Use visualization, spatial reasoning, and geometric modeling to solve problems

Data Analysis and Probability Standard

-Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them

-Develop and evaluate inferences and predictions that are based on data

Problem Solving Standard

-Build new mathematical knowledge through problem solving

-Solve problems that arise in mathematics and in other contexts

-Apply and adapt a variety of appropriate strategies to solve problems

-Monitor and reflect on the process of mathematical problem solving

**Reasoning and Proof Standard**

-Recognize reasoning and proof as fundamental aspects of mathematics

**Communication Standard**

- Organize and consolidate their mathematical thinking through communication
- Communicate their mathematical thinking coherently and clearly to peers, teachers and others
- Use the language of mathematic to express mathematical ideas precisely

**Representation Standard**

- Create and use representations to organize, record, and communicate mathematical ideas
- Select, apply, and translate among mathematical representation to solve problems

**Introductions/applications:** Amy’s kindergarten teacher wants to have an ice cream party. Her teacher decided to buy three kinds of ice cream and three different kinds of cones that the class would enjoy. The ice cream flavors are represented by circles that are brown, gray and pink. The ice cream cones are represented by triangles that are green, blue and yellow.

**Question:** How many different combinations of ice cream and cones can the class make the day of the party?

- \*Use your manipulatives to find the combinations
- \*Color in the combinations on your recording sheet
- \*Write how many combinations the class can make at the bottom of your sheet
- \* Draw your favorite ice cream cone and flavor on the back of the sheet
- \* Do your best work! (See page 5)

**Model:** Model on a felt board the different combinations that can be made with ice cream flavors and cones. Ask for volunteers to manipulate the felt pieces for the class to see. Discuss the combinations and invite children to explain their answer

Number of Ice Cream Flavors	Number of Cones
1 flavor	1 cone
1 flavor	2 cones
2 flavors	1 cone
2 flavors	2 cones
3 flavors	1 cone
3 flavors	2 cones
3 flavors	3 cones

**Resources and Materials (estimated cost):**

<b>Resources and Materials</b>	<b>Estimated Cost</b>
Pre cut triangles from paper, foam or felt 3 pieces per student	\$10.00
Pre cut circles from paper, foam or felt 3 pieces per student	\$10.00
Recording sheets	\$2.00
Ziploc baggies for manipulative	\$2.00
Crayons or colored pencils	\$10.00
<b>TOTAL</b>	<b>\$34.00</b>

**Procedures and Activities:**

- Begin the discussion on ice cream by brainstorming
- Create a web on chart paper (flavors, hard, soft, dish, cones, sundaes, and milkshakes)
- Make a graph of the student's favorite flavors and favorite ice cream cones using post-it notes
- Discuss the top three of each category and compare and contrast the graph
  - What is the class' favorite kind of ice cream?
  - What is the class' least favorite kind of ice cream?
  - Are there any flavors that have the same number of students who said it was their favorite?
  - How many of each is there?
  - How many more chocolate is there than vanilla?
  - How many students picked strawberry and vanilla as their favorites?
- Follow with The Model (see page 3)
- Complete the activity

Extension of the activity:

- Students will make their own ice cream in Ziploc baggies
- Students will design their own ice cream cone with various art supplies
- Students will make an ice cream shape counting book with numbers 1-10
- Students will have an ice cream party to culminate the unit

**Answers/Rubric:** There are nine different combinations that can be made. Students will transfer their answers onto a recording sheet (see page 6). A rubric will be used by the teacher to assess their work (see page 7).

**Accommodations/Adaptations:**

ESL: model, immediate feedback after 1 completed task, peer assistance, color words written on the ice cream and ice cream cones

Special Ed:

Autism – Model, immediate feedback after 1 completed task, peer assistance, repeat directions, modify with fewer cones and flavors



Emotional Support – Follow behavior plan in place

Neurological Impairment – Model, immediate feedback after 1 completed task, repeat directions, reword

Deafness/Hearing – Model

Speech and Language – Model, immediate feedback after 1 completed task, read directions, reword directions, repeat directions and have student repeat directions back

Specific Learning Disability – Model, immediate feedback after 1 completed task, peer assistance, repeat directions, reword directions, repeat direction and have student repeat directions back

Mental Retardation – Model, immediate feedback after 1 completed task, peer assistance, repeat directions as needed

Multi Handicap – Read directions, model, and hand over hand

Blindness/Visual Impairment - Peer assistance, repeat directions, textured or enlarged manipulatives.

Enrichment: How many combinations of ice cream and cones can you get with 4 choices? 5 choices? 6 choices?

How many combinations can you make with two scoops of ice cream on each cone?

Come up with your own combinations of two items, such as different colored dogs and bones.



# WE ALL SCREAM FOR ICE CREAM

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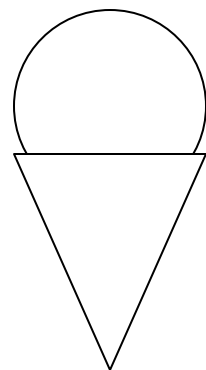
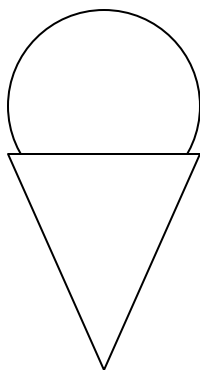
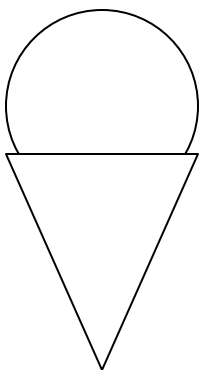
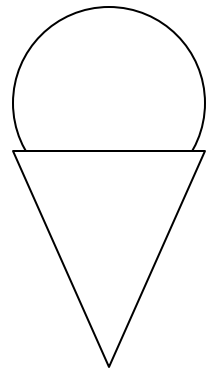
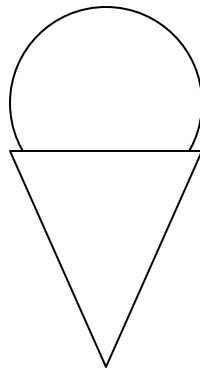
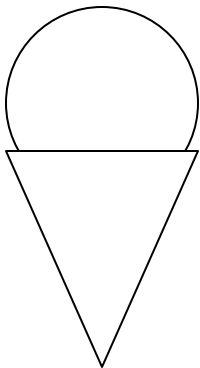
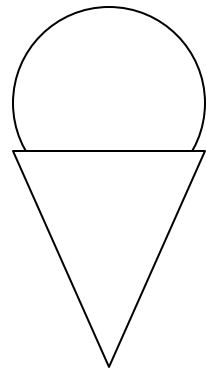
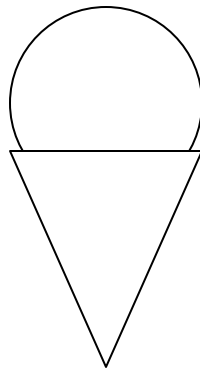
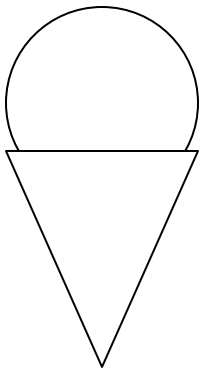
\* Draw your favorite ice cream cone and flavor on the back of the sheet

\* Do your best work!

Name: \_\_\_\_\_

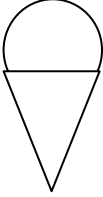
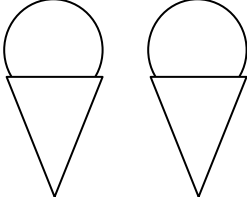
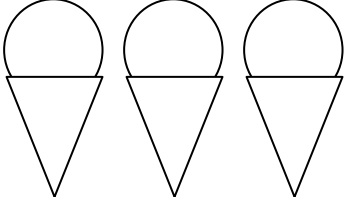
# WE ALL SCREAM FOR ICE CREAM!

**Directions:** Use the circles and triangles to make the different ice cream cones. Then color each cone below.



# Assessment Rubric

To be used by the teacher to guide instruction.

 <p><b>0-3</b> <b>correct responses</b></p>	 <p><b>4-6</b> <b>correct responses</b></p>	 <p><b>7-9</b> <b>correct responses</b></p>
<p>This student demonstrates little or no understanding of the concepts presented. She or he may need practice with a simplified version of the activity.</p>	<p>This student demonstrates some understanding of the concepts presented. She or he needs extended practice to achieve mastery.</p>	<p>This student demonstrates mastery of the concepts presented. She or he may be ready for enrichment activities.</p>