



Developed and Published
by

AIMS Education Foundation

This book contains materials developed by the AIMS Education Foundation. **AIMS** (Activities Integrating Mathematics and Science) began in 1981 with a grant from the National Science Foundation. The non-profit AIMS Education Foundation publishes hands-on instructional materials that build conceptual understanding. The foundation also sponsors a national program of professional development through which educators may gain expertise in teaching math and science.

Copyright © 2013 by the AIMS Education Foundation

All rights reserved. No part of this book or associated digital media may be reproduced or transmitted in any form or by any means—except as noted below.

- A person purchasing this AIMS publication is hereby granted permission to make unlimited copies of any portion of it (or the files on the accompanying disc), provided these copies will be used only in his or her own classroom. Sharing the materials or making copies for additional classrooms or schools or for other individuals is a violation of AIMS copyright.
- For a workshop or conference session, presenters may make one copy of any portion of a purchased activity for each participant, with a limit of five activities or up to one-third of a book, whichever is less.
- All copies must bear the AIMS Education Foundation copyright information.
- Modifications to AIMS pages (e.g., separating page elements for use on an interactive white board) are permitted only for use within the classroom for which the pages were purchased, or by presenters at conferences or workshops. Interactive white board files may not be uploaded to any third-party website or otherwise distributed. AIMS artwork and content may not be used on non-AIMS materials.

Digital distribution rights may be purchased for users who wish to place AIMS materials on secure servers for school- or district-wide use. Contact us or visit the AIMS website for complete details.

AIMS Education Foundation
1595 S. Chestnut Ave., Fresno, CA 93702-4706 • 888.733.2467 • aimsedu.org

Printed in the United States of America

Table of Contents

Catch Me If You Can	1- 4
How Does Your Corn Pop?	5-10
If the Shoe Fits	11-14
Colorful Crystal Gardens	15-18
Polar Bear Pie	19-21
Goober Peas	22-24
Mighty Mittens	25-28
Electric Breakfast I	29-31
Electric Breakfast II	32-34
Valentine Candy Count	35-41
You Are All Heart	42-44
All Aboard the Chow Express	45-52
Only the Nose Knows	53-57
Do You Have a Snoot for Fruit?	58-67
Sorda Pop	68-70
Whoa, That's Heavy	71-73

Index of Skills

MATH SKILLS

Applying Formulas	1, 15, 22, 68
Attributes	11, 15, 25, 45, 53
Comparing	29, 71
Counting	1, 5, 19, 22, 25, 29, 35, 42, 53, 58
Equations	1, 35, 53, 68
Estimating	5, 19, 22
Fractional Numbers	1, 53, 68
Graphing Skills	5, 19, 22, 25, 29, 32, 42, 53, 58, 71
Logical Thinking	11
Measuring Length	1, 5, 15
Measuring Mass	68, 71
Measuring Volume	15
Patterns	1, 19, 22
Predicting	5, 11, 32, 35, 53, 58
Sorting	25, 35, 45
Timing	1, 42

SCIENCE PROCESSES

Applying and Generalizing	5, 11, 29, 42, 45, 68
Controlling Variables	1, 15, 29, 42, 45, 53, 68
Estimating	5, 19, 22
Gathering and Recording Data	5, 19, 22, 42, 58
Interpreting Data	1, 5, 11, 19, 22, 25, 29, 32, 42, 45, 58, 68, 71
Measuring	1, 15, 19, 42, 53, 68
Observing and Classifying	5, 11, 15, 19, 22, 25, 29, 32, 45, 53, 58, 68, 71

Introduction

Whether you are amidst the rain, fog, or snow, here is a remedy for those cold winter blues! Winterize with math and science! The winter booklet of the Project AIMS K-1 series is here to dispel those feelings of winter.

The Project AIMS series for K-1 is seasonally based to make it convenient for you to incorporate these investigations into your present curriculum. Because of the peak learning experiences you will be presenting to your students, they will feel like winners when it comes to math and science.

This series is not designed with a specific scope and sequence where each succeeding lesson is based on the preceding lesson. The investigations are written in such a way that your students will discover the true meaning of math and science integration—application of knowledge in the real world.

The Project AIMS K-1 series allows for flexibility for usage in your classroom. Use your own judgment to find the appropriate application and extension of each investigation. Each activity comes complete with a student activity page that you may wish to send home with your students or start a math-science scrap book.

This booklet is not intended to replace your science program, but rather it is intended to enhance it. Remember that these experiences place prime emphasis on the science processes and appropriate math skills. It is not necessary to have a laboratory and elaborate equipment to run a strong science program. All that is needed is every day materials and your willingness to try new ideas!

—*The K-1 Series Writing Team*

Catch Me... If You Can



I. Topic Area

Foods

II. Introductory Statement

Students will learn how to make gingerbread and form it into a life size gingerbread man.

III. Key Question

How could we make a life-size gingerbread man of our very own?

IV. Math Skills

- Applying formulas
- Counting
- Equations
- Fractions
- Measuring
- Patterns
- Ratios
- Timing

Science Processes

- Measuring
- Controlling variables
- Interpreting data

V. Materials

- | | |
|--------------------------------|---|
| • ½ cup soft margarine | • butcher paper |
| • 1½ cups brown sugar (packed) | • cookie sheets |
| • ¼ cups molasses | • rolling pin |
| • 1 cup cold water | • knife |
| • 10½ cups flour | • spatula |
| • 3 teaspoons baking soda | • mixing bowl |
| • 1½ teaspoons salt | • measuring cups and spoons |
| • 1½ teaspoons allspice | • decorations for cooked gingerbread: raisins, nuts, candy, colored frostings, etc. |
| • 1½ teaspoons ginger | |
| • 1½ teaspoons cloves | |
| • 1½ teaspoons cinnamon | |

VI. Background Information

Gingerbread Recipe

Mix: ½ cup soft margarine
1½ cups brown sugar (packed)
¼ cups molasses

Stir in: 1 cup cold water

Sift together and add to mixture:

- 10½ cups flour
- 3 teaspoons baking soda
- 1½ teaspoons salt
- 1½ teaspoons allspice
- 1½ teaspoons ginger
- 1½ teaspoons cloves
- 1½ teaspoons cinnamon

Roll dough ⅜ inch thick and cut into body parts using pattern.

Bake in 350° oven 12-15 minutes (lightly greased pan)

Decorate

VII. Management

- This activity should be broken into 3 separate sessions:
 - Session One—tracing of a child's body onto butcher paper for a cookie pattern
 - Session Two—making the gingerbread dough
 - Session Three—decorating the giant cookie after it has been cooked.
- All three sessions are best conducted in small groups of 4-5 children.

VIII. Advanced Preparation

- Have butcher paper ready for tracing.
- Purchase all the ingredients necessary for the gingerbread dough and decorations.

IX. Procedure

1. *Session One:*

Select the student to serve as the pattern for the gingerbread man. Have the child lie on the butcher paper while the teacher traces around his or her body. Cut out the figure and save for the second session.

2. *Session Two:*

Measure and mix all the ingredients into a large bowl. Refrigerate the dough for 2-3 hours. Roll dough $\frac{3}{8}$ inch thick on a floured table. Cut the body pattern into assorted body sections—be sure each piece will be able to fit on the cookie sheets. Place the pattern pieces on the dough and cut out. Bake each section accordingly.

3. *Session Three:*

Working in small groups, decorate each body section with nuts, raisins, candy, and frosting. Reassemble the gingerbread man and check for symmetry or the patterns. You might like to arrange your gingerbread man on a sturdy piece of cardboard so it can be moved for display. Using extra frosting, "glue" each piece of your cookie to the selected piece of cardboard.

XI. Discussion

1. Why is this recipe called gingerbread? What other ingredients did we use?
2. What would happen if we didn't read the recipe carefully and used whatever amount of each ingredient we wanted?
3. What else could we make with our cookie dough?

XI. Extensions

After baking the cookie pieces, hide them somewhere in the room. Explain to the children that when you opened the oven to check the gingerbread man, he jumped out and ran away. Suggest hunting for him and conduct a school-wide hunt. While the children are out of the room, have another adult reassemble the giant cookie. When the children are ready to give up their search, return to the room. The gingerbread man will have returned. You might want to do this extension after decorating your gingerbread man.

XII. Curriculum Coordinates

Language Arts

1. Have the children write their own gingerbread man stories, explaining who would chase them and how they would escape.

Art

1. Using "goofy goop" decorate individual construction paper gingerbread men.

Goofy Goop

3 cups flour
3 cups salt
3 cups water

Separate the goop into individual squeeze bottles and add colored tempera paint. Use this to decorate construction paper gingerbread men.



Catch me
if you
can!



