

# I. Topic Area

Estimating, measuring and generalizing.

### II. Introductory Statement

In this investigation the students will determine what percentage of a banana is edible. By sampling several bananas, the students will develop a formula relating the edible part to the total mass of the banana.

Science Processes

b. Recording Data

d. Generalizing

c. Interpreting Data

a. Measuring

#### III. Math Skills

# a. Finding Mass

- b. Using Ratios
- c. Finding Percentages
- d. Graphing
- e. Writing a Formula
- f. Averaging

# IV. Materials (per class)

A supply of bananas Scales with masses Student Worksheet, page 51

## V. Key Question

"What part of a banana is edible?"

#### VI. Background Information

1. This may be the students' first experience in writing a formula. If so, the development of a formula needs to be discussed. In this case, the edible part of a banana (E in the formula) is to be expressed as a fraction or percentage of the total mass of the banana (T in the formula). Thus, if one-half of the banana is edible, the formula would be E=1/2T. Most bananas will come very close to fitting the formula E=.65T or E=2/3T.

2. If desired, the average or the median percentage may be used. If either term is used, introduce the students to the term being employed.

# VII. Management Suggestions

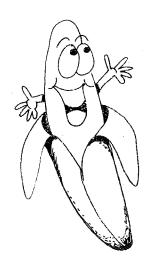
- 1. Before students begin, have them predict and record the edible percentage of a banana.
- Students may work in groups of five with each member of each group having one banana and actually carrying out all of the activities. The members in a group would then pool their information.
- 3. Estimated time: one or two 45 minute periods.

#### IX. What the Students Will Do

- 1. Predict the percentage of a banana that is edible.
- 2. Measure the mass of the unpeeled and peeled banana and record the results.
- 3. Find the ratio of the edible part to the total mass.
- 4. Find the percentage that is edible.
- 5. Graph the percentage that is edible.
- 6. Graph the results of other members of the group.
- 7. Write the formula for the edible portion.

#### XI. Extension

This may lead to finding edible portions of other foods such as fruits, steaks, etc. The cost per kilogram or gram of the edible portion could be computed.



# THE SIE SENSONS

USE 5 BANANAS TO FIND THE ANSWER

What Part of a Banana is EDIBLE?



1	25T							
C	Complete the Table.	Total mass in Grams	MASS OF PEELING (g)	MASS OF EDIBLE PART	RATIO OF EDIBLE (g)	PERCENT OF BANANA THAT		
•				(9)	TOTAL MASS (g)	IS EDIBLE		
	Banana A							
_	BANAMA B							
	BANANA C	·						
	BANAMA D							
	BANANA E							
•	sum							
	AVERAGE							

NEXT... CONSTRUCT A BAR GRAPH SHOWING THE PER CENT OF EACH BANAWA THAT IS EDIBLE.

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
BANANA A											
BANANA B	$\prod$										
Banana C	,										
Bananad											
BANAMAE											
AVERAGE											

THE EDIBLE PORTION. LET E STAND FOR EDIBLE AND

T FOR THE TOTAL.

E = T