

Name _____

Date _____

FRUIT SENSE

Materials needed for 1 class

Both fruits of one kind should be the same approximate weight
whole should = peeled plus peelings

- 1 pineapple whole and 1 cored
- 1 orange whole and 1 peeled
- 1 apple whole and one cored
- 1 banana whole and one peeled
- 1 kiwi whole and one peeled
- 1 bunch of seedless grapes and one bunch without vines
- 1 melon whole and 1 melon cut into edible portions

- 1 recording sheet per student
- 1 large piece of construction paper or oak tag per group
- 1 balance scale or digital scale per group
- Small plastic bags for fruit

OBJECTIVES:

- Following directions
- Accurate weighing using balance scale
- Recording weights accurately
- Labeling
- Calculating percentage
- Using percentage to compare
- Create a chart for class presentation

STUDENT ACTIVITY:

As a group you are going to investigate a variety of fruits and compare the edible portion to the non-edible portion. The group will estimate, weigh fruit, record your findings, make a chart, draw conclusion, and present your findings to the class.

[Source: [A Guide to K-12 Program Development in Mathematics](#), State of Connecticut]

Fruit Sense ASSESSMENT

Checklist:

___ Group cooperation	0-1	-2-	3-4
___ Total group participation	0-1	-2-	3-4
___ Focus and on task	0-1	-2-	3-4
___ Followed directions	0-1	-2-	3-4
___ Use balance scale correctly	0-1	-2-	3-4
___ Accurately recorded data, including labels	0-1	-2-	3-4
___ Accurately computed percentage	0-1	-2-	3-4
___ Class presentation	0-1	-2-	3-4
Range of scores possible 0-32			
Satisfactory score 22 +			

Grouping: (Adaptation)

1. Class is grouped into groups based on the number of fruits to be used.
2. Each student is given a ticket with a color and a number when they arrive in class.

Red	1,2,3,4	(apples)
Tan	1,2,3,4	(pineapples)
Green	1,2,3,4	(kiwis)
Yellow	1,2,3,4	(bananas)
Orange	1,2,3,4	(oranges)
Purple	1,2,3,4	(grapes)
Blue	1,2,3,4	(melon)
3. To begin activity have class arrange themselves into groups by color, all red ticket holders go to one table, all tan to a second, etc. Give each group the whole fruit associated with their color (red = apples), etc.
4. Later when section on problem solving is done, groups will reassemble into four (4) larger groups. All the ones will become one group, all the twos will become a second group, the threes and fours similarly. Now each group has each fruit represented.

[Source: [A Guide to K-12 Program Development in Mathematics](#), State of Connecticut]

A.73-a

Fruit Sense

STUDENT ACTIVITY:

As a group you are going to investigate a variety of fruits and compare the edible portion to the non-edible portion. The group will estimate, weigh fruit, record your findings, make a chart, draw conclusion, and present your findings to the class.

Part I – Estimating and Weighing the Fruit

1. In your group, discuss and estimate the average weight (in grams) of your piece of fruit. Use known benchmarks for making comparisons on weight. Record your results on Data Chart #1.
2. Weigh the piece of fruit and record your results on the data chart.
3. Discussion questions to consider:
 - a. How did you come up with an estimate of the fruit's weight?
 - b. How does your estimate compare with the real weight? (more than, less than, a little more than, a little less than, really off target)
 - c. How did your results compare with the rest of the class?

Part II – Estimating and Measuring Edible vs. Non-Edible Part of Fruit

4. Discuss and estimate the **PERCENTAGE** of your fruit that is edible. Record your results on the data chart.
5. Select the bag that contains the edible portion of your fruit. Weigh and record the weight of the edible portion on the data chart.
6. Calculate the **PERCENTAGE** of edible fruit (peeled banana, cored apple, etc.) and record your results on the data chart.
7. Discussion questions to consider:
 - a. What percentage of the item of fruit is edible and what percentage is waste?
 - b. Does the edible and waste portion equal the whole fruit's weight? If it doesn't what might be the reason?
 - c. How do your results compare with the rest of the class' results?

[Source: [A Guide to K-12 Program Development in Mathematics](#), State of Connecticut]

A.73-b

Part III – Problems to Solve

RE-GROUPING STUDENTS FOR PROBLEM SOLVING

Re-group all students into four groups. All ones will sit together, all twos at a different table, etc. Each of the new groups will represent all of the tested fruits.

PROBLEM #1 – Pounds of Pulp

8. How many pounds or kg of bananas would you need to buy in order to get 1 lb or kg of edible bananas for a recipe? How many lbs or kg for each of the other fruits? Discuss and complete Data Chart #2.

PROBLEM #2 – Best Buys

9. Based on the portion of the fruit that is edible, determine which of the fruits is the best buy? Was that fruit the least expensive to buy at the fruit counter? Use the data chart to help you arrive at a position. Be prepared to defend your decision.

PROBLEM #3 – Fruit Salad

10. If 1 lb of each of the fruits was mixed together as a fruit salad, then repacked in one lb containers, how much would you need to charge for each lb of fruit salad, if the cost of the fruit was the only factor to consider.

PROBLEM #4 – Purchase Preference

Should price, “the best buy”, be the only factor a consumer considers when determining which fruit to purchase? What are some of the variables that might affect the cost of the fruit, or your reasons for wanting to make a purchase? (health, personal preference, region of the U.S., import/export, weather and season, etc.)

11. Decide which fruit you would like to purchase. Prepare an argument to defend your purchase. You may need to do some additional research. Make a chart that summarizes your data and supports your selection. Be prepared to present the reasons for your selection.

[Source: [A Guide to K-12 Program Development in Mathematics](#), State of Connecticut]

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Cost of Fruits

Fruit	Cost per kilogram 1 kg	Cost per gram 1/1000 kg	Cost per pound 1 lb	Cost per ounce 1/16 lb
Grapes	\$6.58	\$0.00658	\$2.49	\$0.16
Apples	\$3.94	\$0.00394	\$1.49	\$0.09
Oranges	\$3.41	\$0.00341	\$1.29	\$0.08
Bananas	\$1.82	\$0.00182	\$0.69	\$0.04

Fruit	Cost each
Cantaloupe	\$2.49
Kiwi	\$0.50
Pineapple	\$4.49

[Source: [A Guide to K-12 Program Development in Mathematics](#), State of Connecticut]

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Name _____

Date _____

Fruit Sense Data Chart #1

	Estimated Weight of Fruit	Actual Weight of Fruit	Estimated % of Edible Fruit	Weight of Edible Fruit	Actual % of Edible Fruit
Pineapples					
Oranges					
Apples					
Bananas					
Kiwis					
Grapes					
Melon					

[Source: A Guide to K-12 Program Development in Mathematics, State of Connecticut]

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Name _____

Date _____

Fruit Sense Data Chart #2

	Cost/unit	Amount of fruit that needs to be purchased to obtain 1 lb or 1 kg of edible fruit.	Cost of 1 lb or kg of edible fruit
Pineapples			
Oranges			
Apples			
Bananas			
Kiwis			
Grapes			
Melon			

[Source: A Guide to K-12 Program Development in Mathematics, State of Connecticut]

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Fruit Sense Data Chart #2 (revised)

	Cost/lb or each	% edible	How much fruit must be bought to have 1 pound of edible fruit? (1 lb/% edible = amount of fruit to buy) or (1 item of fruit/% edible = number of items of fruit you will need to buy.)	What will be the cost of one lb of edible fruit? Amount of fruit x cost per lb (or each) = cost of 1 lb of edible fruit
Pineapples				
Oranges				
Apples				
Bananas				
Kiwis				
Grapes				
Melon				

[Source: A Guide to K-12 Program Development in Mathematics, State of Connecticut]

A.73-g