

# Contents

<i>Preface</i> .....	ix
<i>Acknowledgments</i> .....	x
<b>Laboratory 1: Measuring Techniques</b> .....	<b>1</b>
• Nonmetric Measure of Volume .....	2
• To Learn Correct Techniques for Measuring Ingredients .....	4
• Water and Thermometry .....	7
• Application of Measuring Techniques: Cookies .....	8
<b>Laboratory 2: Food Preservation: Canning and Freezing</b> .....	<b>12</b>
• Observe and Learn How to Use Utensils and Equipment Commonly Used in Canning .....	13
• Foods To Be Packed and Processed .....	15
• Freezing of Fruits and Vegetables .....	19
<b>Laboratory 3: Starch and Cereal Cookery: Role of Gelatinization and Gelation</b> .....	<b>22</b>
• Starch Principles .....	23
• Cereal Cookery .....	29
<b>Laboratory 4: Quick and Yeast Breads: Role of Manipulation and Gluten Formation in Doughs</b> .....	<b>37</b>
• To Evaluate Factors Which Affect the Quality of Muffins .....	38
• To Evaluate Factors Which Affect the Quality of Biscuits .....	40
• To Identify the Gluten-Forming Properties of Various Wheat Flours .....	43
• To Study Factors Which Affect the Quality of Yeast Bread .....	44
<b>Laboratory 5: Shortened- and Foam-Style Cakes</b> .....	<b>48</b>
• Shortened-Style Cake .....	50
• To Demonstrate the Effect of Changing the pH in Chocolate Cake Batters .....	53
• Foam-Style Cake .....	55
<b>Laboratory 6: Pastry, Cream Puffs, and Popovers</b> .....	<b>59</b>
• To Learn and Observe How Manipulation and Steam Will Affect Cream Puffs and Popovers .....	60

- To Determine Which Fat Contributes Both Tenderness and Flakiness in a Pie Crust Through Proper Manipulation ..... 62
- Laboratory 7: Fruit Selection and Cookery** ..... 70
  - To Study the Prevention of Browning in Fresh Fruit Through the Use of Antioxidants ..... 71
  - To Identify the Factors That Influence the Quality of Cooked Apples ..... 73
  - To Observe Fruits That Have Enough Pectin to Form a Gel when Sugar and Water are Added ..... 74
  - To Observe the Variety of Ways Fruits Can Be Prepared ..... 75
- Laboratory 8: Vegetables** ..... 80
  - To Study the Effect of Heat and pH on Pigments and Texture in Vegetables ..... 82
  - To Prepare Vegetables in a Variety of Ways and to Recognize Quality Parameters in Selection and Preparation ..... 83
  - Vegetable Preparation ..... 86
- Laboratory 9: Salads** ..... 96
  - Appetizer Salad ..... 97
  - Dinner Accompaniment Salads ..... 98
  - Main Dish Salads ..... 102
  - Dessert Salads ..... 103
- Laboratory 10: Fats and Emulsions** ..... 105
  - To Show the Effect of Frying Temperature on Fat Absorption During Deep Fat Frying ..... 107
  - To Evaluate Fats According to Color, Flavor, Aroma and to Be Able to Detect Rancidity in a Fat ..... 108
  - To Become Familiar with Various Emulsions and the Effect That the Emulsifier Has on Stabilizing the Emulsion ..... 110
- Laboratory 11: Gelatin** ..... 113
  - To Compare Products Made with Unflavored Gelatin and the Available Commercial Mix ... 114
  - To Identify and to Become Familiar with the Different Uses of Gelatin ..... 116
- Laboratory 12: Egg Cookery** ..... 119
  - To Observe the Effect of Aging on the Raw Egg ..... 121
  - To Become Familiar with Various Methods to Cook Eggs ..... 122
  - To Understand How Heat Affects Gelation of Egg Proteins ..... 126
  - To Observe the Use of Egg White Foams in Food Preparation ..... 128
  - Miscellaneous Egg Cookery ..... 130
- Laboratory 13: Milk and Cheese** ..... 132
  - To Become Familiar with Various Milk Products ..... 134
  - To Show the Effects of Temperature upon the Clotting of Milk by Rennin ..... 134
  - To Study the Effects of Heat and Acid on Milk Proteins ..... 135
  - To Observe How Milk Behaves During Preparation ..... 137

- To Differentiate Among the Many Available Varieties of Cheese ..... 138
- To Compare How Various Processed Cheese Products Melt as Compared to a Natural Cheese Product ..... 138
- To Understand How to Cook with Cheese ..... 139

**Laboratory 14: Meat and Poultry ..... 142**

- To Show the Effects of the Degree of Doneness as Measured by the Internal Temperature and the Effects of Roasting Temperature on Roasting Time, Cooking Losses, and Color and Juiciness of Ground Meat Patties ..... 144
- To Show the Effect of Heat and Treatment on the Cooking of Less Tender Cuts of Beef ..... 145
- To Learn to Apply Different Cooking Techniques for Different Meat Cuts or Varieties ..... 146
- To Observe and Learn How to Cut Up or Disjoint a Whole Chicken ..... 151
- To Learn Various Methods for Chicken Preparation ..... 151

**Laboratory 15: Fish and Seafood Cookery ..... 155**

- How to Prepare Fish in a Variety of Ways ..... 157
- To Learn How to Prepare Shellfish ..... 159

**Laboratory 16: Legumes and Tofu ..... 164**

- To Learn How to Identify and Prepare Legumes ..... 166
- To Learn About and Become Acquainted with Tofu in Food Preparation ..... 168

**Laboratory 17: Sugar Crystallization ..... 171**

- To Successfully Prepare Crystalline Candy by Learning the Principles of Proper Manipulation ..... 173
- To Observe and Successfully Prepare Amorphous Candy ..... 175
- Miscellaneous Candy ..... 176

**Laboratory 18: Ice Crystallization (Frozen Desserts) ..... 178**

- Preparation of Freezer and Freezer (Mixtures) ..... 179
- To Use Still-Freezing in the Making of Frozen Desserts ..... 183

**Laboratory 19: Beverages: Coffee, Tea, and Cocoa ..... 184**

- To Show Some Factors Which Affect the Quality of Coffee Beverages ..... 186
- To Show Some Factors Which Affect the Quality of Tea ..... 187
- To Evaluate Cocoa and Chocolate ..... 189

**Laboratory 20: Sensory Evaluation of Food ..... 192**

- To Study the Effect of Temperature on Flavor Intensity ..... 193
- To Learn How Color Affects Flavor ..... 194
- To Determine How Texture Affects Food Identification ..... 194

*Glossary of Common Terms Used In Food Preparation ..... 196*

*Appendix A: Food Safety ..... 209*

*Appendix B: Sanitation in the Kitchen ..... 212*

*Appendix C: Care and Cleaning Of Small Appliances*.....214  
*Appendix D: Measuring Equivalents*.....216  
*Appendix E: Emergency Substitutions* ..... 220  
*Appendix F: Safe Food Storage* ..... 223  
*Appendix G: Retail Meat Cuts and Recommended Cooking Methods* ..... 227  
*Appendix H: How To Identify Cuts Of Meat By Bones*.....231