

Lesson 3

Food Science and technologies

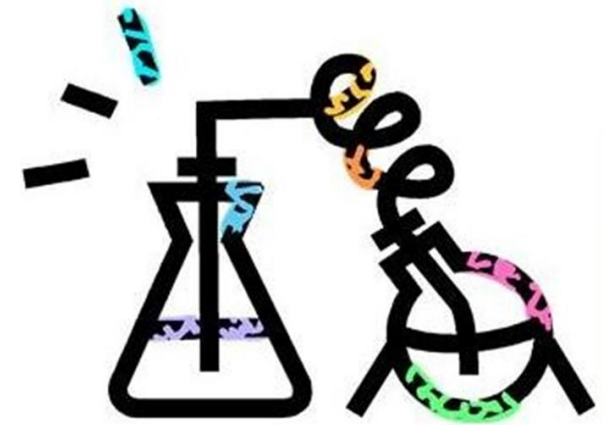
FOOD SCIENTISTS IN HISTORY

- > Sir Francis Bacon – Preservation through freezing
- > Justus von Liebig – Researches on the Chemistry of Foods
- > Fannie Farmer – Boston Cooking School Cookbook
- > George Washington Carver – Developed more than 100 products from peanuts, sweet potatoes, and pecans
- > Clarence Birdseye – Flash freezing



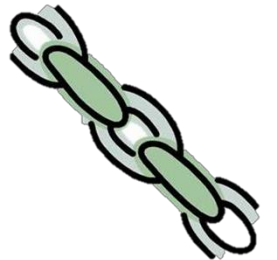
AREAS OF FOOD SCIENCE

- > Production
- > Processing
- > Evaluation
- > Use



FOOD PRODUCTION

- > Food Chain – Process in which matter and energy transfer between organisms as food.
- > Food Production – Techniques for raising crops and animals for food
- > *Example: Food scientists discover new ways to treat soil to produce the most nutritious crops.
- > Biotechnology - Scientists use the tools of modern genetics in the age-old process of improving plants, animals, and micro-organisms for food production.
- > *Example: Food scientists improve products by enhancing or eliminating traits that a plant or animal inherits



FOOD PROCESSING

- > Processing takes food that has been produced and puts it through steps to create a final marketable result.
- > Researchers in food science help develop more affordable
- > means of producing foods and retaining nutrients.
- > Quality control specialists monitor foods through the stages of processing to ensure the foods meet government and industry standards.
- > *Check storage areas for cleanliness
- > *Develop food labels after testing foods for nutrient content.

FOOD PREPARATION

- > Food scientists are responsible for the cooking directions on the back of our food products.
- > Science is used to determine cooking factors, such as time and temperature. These factors are based on the type of food and how different ingredients will react under certain situations.
- > *This keeps our food safe and enjoyable!
- > Food scientists answer the “WHYS” we come across in the kitchen.



EVALUATION OF FOOD

- > Evaluation is a before and after process.
- > Test kitchens and evaluation laboratories conduct crucial research to determine whether people will buy a product. They focus on taste, texture, appearance, flavor, and other similar qualities.
- > Initially, food is evaluated to be cost effective.
- > Later, evaluation of the product determines two things:
 - Will people buy the product?
 - Will people enjoy the product?



UTILIZATION OF FOOD

- > Food scientists are always searching to find new uses for food items, but now more than ever before. Why?
- > * Consumer demands are growing to new levels and putting a strain on our earth's resources.
- > -Looking for every possible use of a food has led to soybeans in our newsprint items and corn in our gasoline!

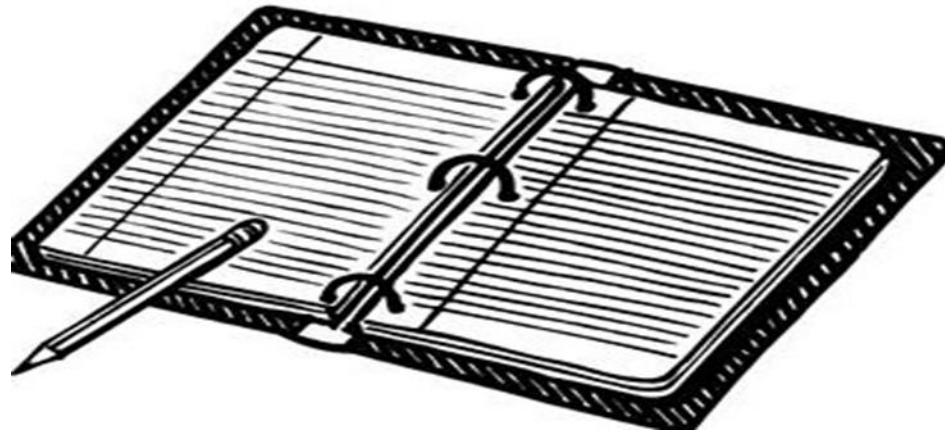


FAMOUS FOOD SCIENTISTS... WHO AM I?

- > Research each one of these food scientists using the Internet and a textbook (<http://www.britannica.com/>)
- > Record facts/discovery/action/innovation the person is best known for in food science

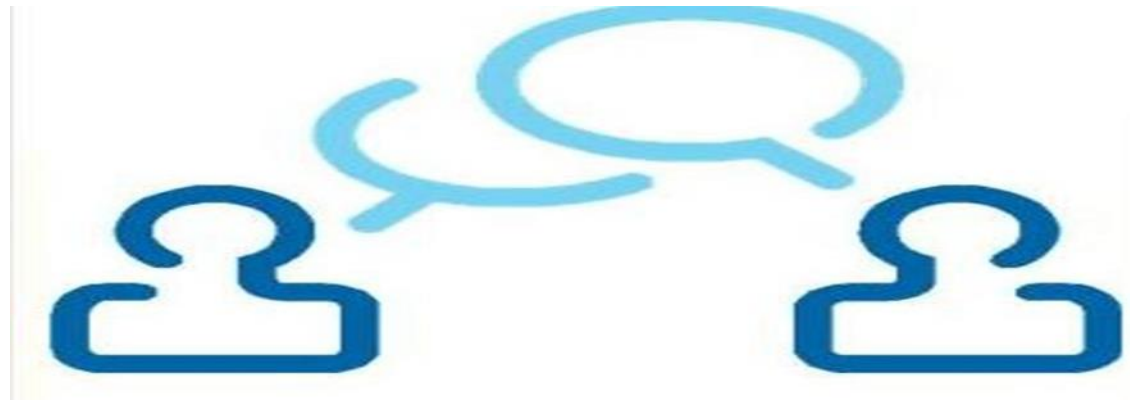
DAY 1 – DISCUSSION/JOURNAL

- > People need to make thorough use of the foods grown on earth because...



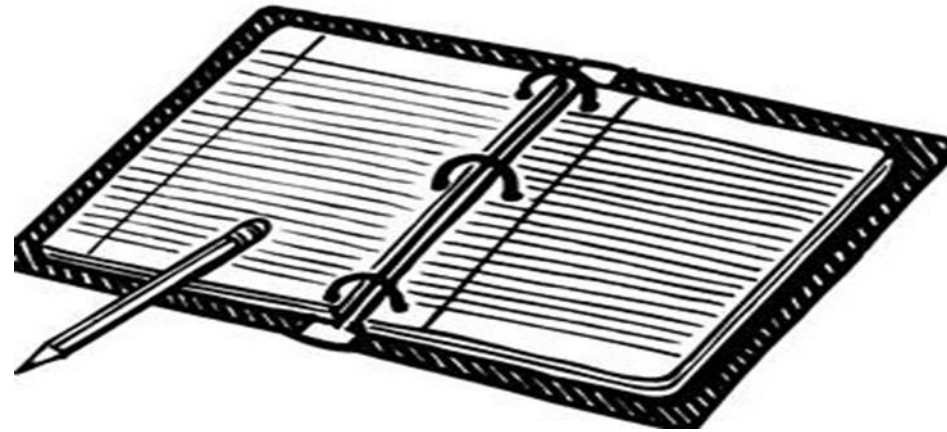
DAY 1 – 90 SECOND SPEECH

- > Why can we consider cookbooks the first food science “textbooks”?



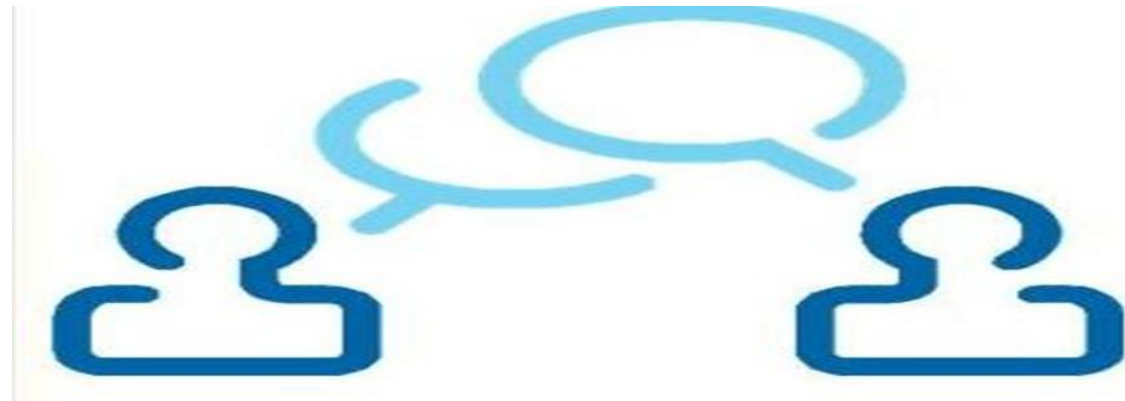
DAY 2 – JOURNAL/DISCUSSION

- > People have been interested in understanding the science of food for a long time because...



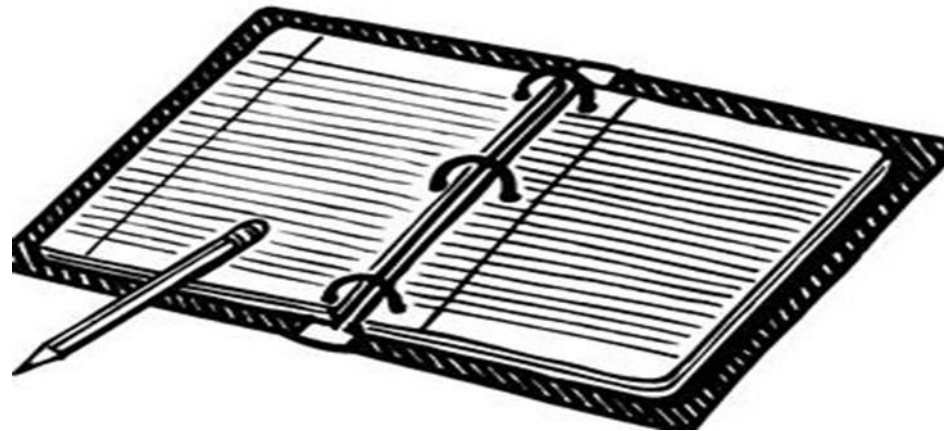
DAY 2 – 90 SECOND SPEECH

- > What are the four areas of food science, and how are they interconnected?



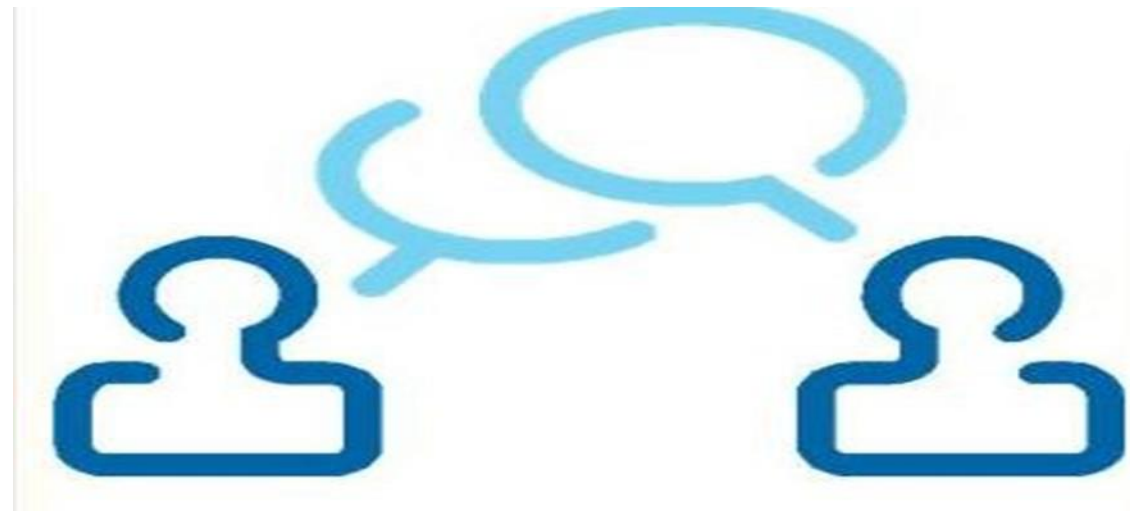
DAY 3 – JOURNAL/DISCUSSION

- > Without technology and the advancements in food science, we would not have...



DAY 3 – 90 SECOND SPEECH

- > How has food science increased the safety and availability of our food supply?



REFERENCES/RESOURCES

- > Kay Yockey Mehas & Rodgers, Sharon Lesley . (2002). Food Science: The Biochemistry of Food and Nutrition. Fourth ed. New York, NY: Glencoe McGraw-Hill, pp. 23-33. Print.
- > Encyclopedia Britannica
- > Online Encyclopedia
- > <http://www.britannica.com>
- > Microsoft Office Clip Art images