SENSORY EVALUATION OF FOOD
Influences on Food Preferences

• Physical:
  • Issues that can affect the ability to detect flavors:
    ▪ Body chemistry
    ▪ Number of taste buds
    ▪ Age
    ▪ Gender
Influences on Food Preferences

• Psychological
  – **Taste bias** is a like or dislike that is linked to past positive or negative experiences
    – Label terms
    – Brand names
    – Advertising
    – Peers
    – Settings (depends on format of taste testing)
Influences on Food Preferences

- Cultural
  - Beliefs and behaviors strongly influence exposures to food and resulting food preferences
    - Religion/Religious Practices
    - Lifestyle
    - Holiday traditions
Influences on Food Preferences

- Environmental
  - People are more likely to eat what is available and economical
    - Geography
    - Climate
    - Food costs
    - Obtainability
  - Immediate surroundings affect food preferences
    - Most children learn to like foods they are exposed to
    - Preferences carry on into adulthood
Overcoming Taste/Food Bias

- Evaluating food goes far beyond “like” or “dislike”

- Train your taste buds
  - Taste is a mental exercise
  - Use culinary terminology
  - Interpret food; don’t just eat it
Scientifically testing food using the 5 basic senses:

- Sight
  - Appearance
- Touch
  - Texture
- Hearing
- Smell
  - Aroma
- Taste
Appearance

- Appearance: Size, shape, condition, & color
  - Example: Muffins
    - Peaked, rounded, tunnels in inside, size of air cells, etc
Measuring Appearance

- A colorimeter is a device that measures the color of foods in terms of hue, value, and chroma.
  - **Hue**: Basic color
  - **Value**: Lightness or darkness of that color
  - **Chroma**: Intensity
Appearance Influences

- Color can influence a person’s perception of other sensory characteristics
  - Beverage Activity

- Colored lights may be used in a sensory evaluation to prevent color from influencing a taste panel
TEXTURE

- How food feels to the fingers, tongue, teeth, and palate (roof of the mouth)
  - “Mouthfeel”
    - Refers to the texture to the palate

- Texture is evaluated in terms of...
TEXTURE

Chewiness:

- How well 1 part of a food slides past another without breaking

Taffy VS Pudding
TEXTURE

Graininess:
- Refers to the size of the particles in a food product

Whipped Cream vs Grits
TEXTURE

Brittleness:
- How easily a food shatters or breaks apart

Crackers

VS

Cake or Strawberries
TEXTURE

Firmness:

- Food’s resistance to pressure
- Tough foods require a considerable biting force to chew

Beef Jerky  VS  Steak
TEXTURE

Consistency:
- Thinness or thickness of a product
- Measured in terms of “pourability”

Au Jus  
Beef Gravy
TEXTURE Preferences

- Remember texture preferences are very subjective

- Examples:
  - French vs. American preferences in bread
  - May like or dislike food based on texture alone
The sound a food makes when bitten or chewed

Examples:
- Crisp
- Soggy
SENSE: TASTE

- FLAVOR
  - Distinctive taste resulting from a food’s combination of:
    - Taste
    - Aroma
TASTE

BASED ON FIVE BASIC TASTES:

1. Sweet
2. Salty
3. Sour
4. Bitter
5. Umami (Savory)
Uma..what!? 

**UMAMI** (u-ma-me)

- Japanese term for *delicious* or *savory*
- Described as *brothy* or *meaty*
- Found in seafood, meats, vegetables and others

Ginger Shrimp and Watermelon Salad with Lemongrass Vinaigrette

Vietnamese Spring Rolls with Sweet and Sour Fish Sauce

Nishime (simmered chicken and vegetables)

http://www.umamiinfo.com/recipes/
Flow of Taste Buds

Research indicates that a food’s taste is related to the shape of the food’s molecules.

Molecule of food matches to particular taste bud

Nerve ending sends a message to the brain

Brain knows which nerve impulse was sent from that particular taste bud
Factors Affecting TASTE

**Sour** foods are evaluated in terms of **ASTRIGENCY:**

- The ability of a substance to draw up muscles in the mouth
- “Mouth-puckering power” of a food
Factors Affecting TASTE

*Flavor Enhancers:*

- Open receptor sites on the tongue increasing stimulation.
- Increases flavor sensations & smooth out flavors
- *Examples:*
  - MSG
  - Mushrooms
Factors Affecting TASTE

- **Temperature:**
  - Warmer food has more aroma & flavor

- **Age:**
  - Babies have more sensitivity; decreases with age

- **Taste blind –**
  - Unable to distinguish taste
  - Often a result of diseases and/or colds
SMELL  “Aroma”

Terminology

- Aroma:
  - The odor of a food
    - 20,000 different aromas
SMELL  “Aroma”

- **Volatile:**
  - Substances that contain particles that evaporate or become gaseous quickly

- **Olfactory Bulb:**
  - Bundle of nerve fibers
  - Located at the base of the brain
  - Associates 1000’s of type of nerve stimulation with specific foods and/or experiences
SMELL

“Aroma”

- Odor results from **volatile** particles coming in contact with the **olfactory bulb**

- The brain links various nerve stimulations with specific foods and experiences
Aroma Test

1. Waft the test tube containing the vanilla bean & cinnamon stick

2. Waft the test tube containing only the cinnamon stick

3. Waft the 1st test tube again (containing both)

- What aroma(s) do you smell in the 1st test tube the second time around?

The nose only picks up CHANGE of smells

Interesting Fact:
Right handed people smell better with right nostril and vice versa
Volunteers Needed

- Must be willing to eat food without seeing it first

1. Plug nose
2. Close eyes
3. Chew
4. Open eyes (still not your nose)

Results:
- Nose Pinched?
  - Sweet & Chewy

- Nose Open?
  - Retronasal allows for licorice taste to come through
Explain a chip to an alien...

- Each group will receive 1 bowl of chips
- Using all of your senses, describe how you perceive your chips based on:
  - Appearance
  - Texture
  - Hearing
  - Flavor:
    - Taste
    - Aroma
- Be ready to explain your product as though someone has NEVER had a chip in their life!