Day 2: Ingredient Identification

Learning Objectives

- Identify the different categories of vegetables and fruits.
- Understand the classifications and benefits of nuts, seeds, whole grains.
- List the forms and preparations of common meat alternatives.
- Identify essential macro and micronutrients.
- Understand best practices for prepping vegetables for consumption.
- Understand the ratios and methods for cooking grains.
- Define “smoke point” and distinguish plant-based oils for different cooking methods.
- Understand the benefits of herbs and spices.
- Prepare a variety of vegetarian dishes using standardized recipes.

Categories of Vegetables

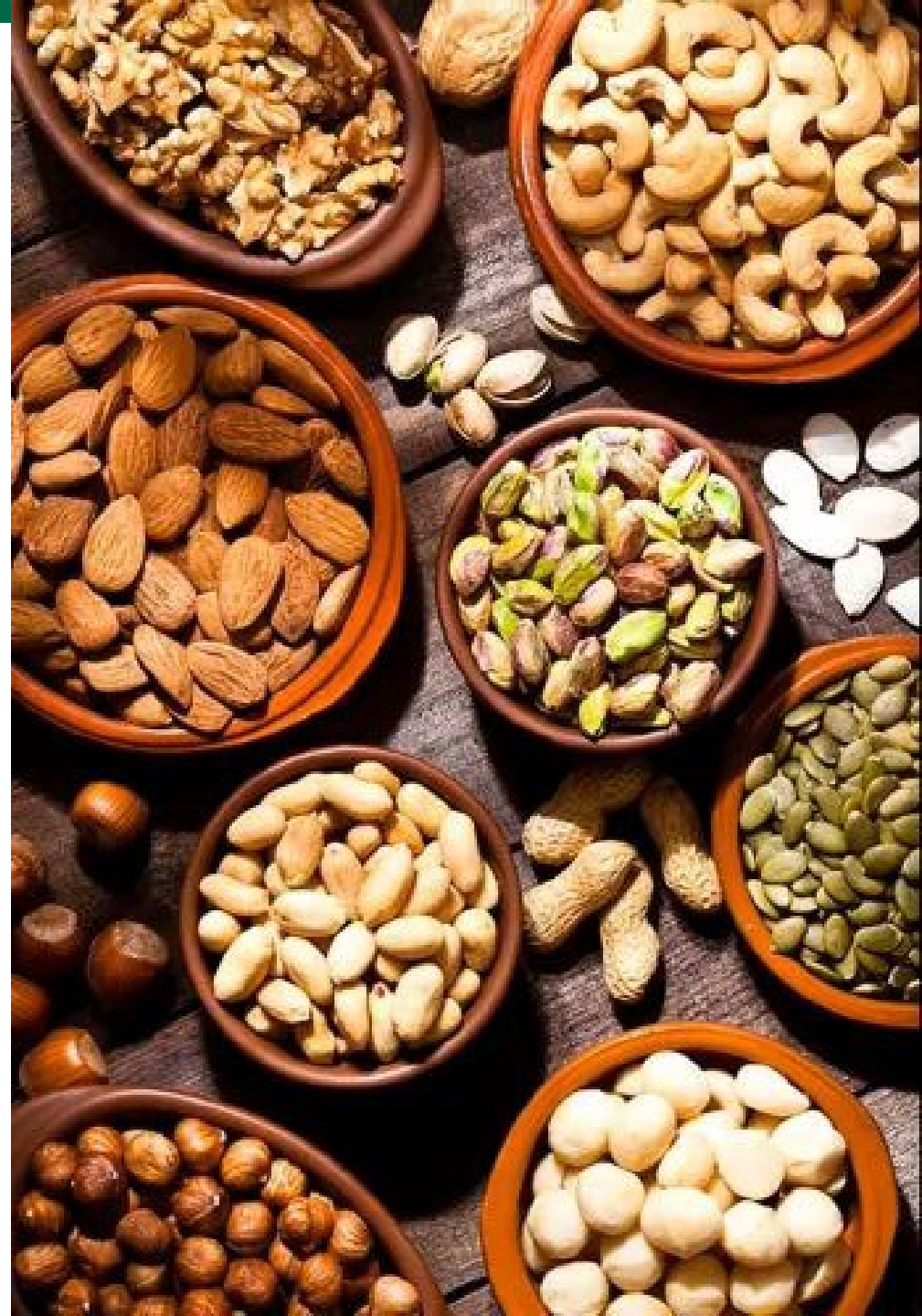
1. **Leafy:** kale, spinach, lettuce
2. **Root:** carrots, beets, radishes
3. **Bulb:** onions, garlic, leeks
4. **Stem:** asparagus, celery, rhubarb
5. **Flower:** broccoli, cauliflower, artichokes
6. **Fruit:** tomatoes, bell pepper, eggplant
7. **Pod:** peas, green beans, okra
8. **Tuber:** potatoes, yams
9. **Seed:** corn, legumes
10. **Fungi:** mushrooms

Categories of Fruits

1. **Simple:** from one ovary of a single flower; plums, peaches, walnuts, hazelnuts
2. **Aggregate:** from one flower with multiple ovaries creating small, tightly grouped fruit; raspberries, blackberries, strawberries
3. **Multiple:** when the ovaries of many flowers merge to create a single larger fruit; pineapples, figs, breadfruit

Nuts & Seeds

- Botanically, nuts are fruits
- Culinarily, nuts are any oily kernel found in a shell
- Many common “nuts” are seeds, like almonds, cashews, walnuts, & pecans
- Nuts & seeds can be butters, pastes, milks
- Can make animal product alternatives, like cashew cheese & spreads
- Contain healthy fats, fiber, & protein



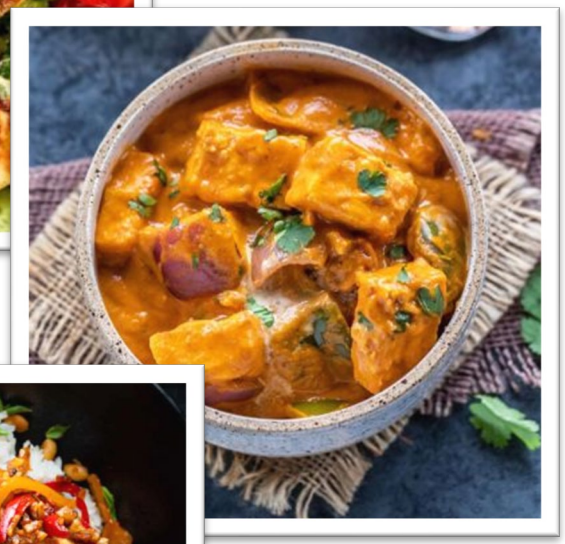
Whole & Processed Grains

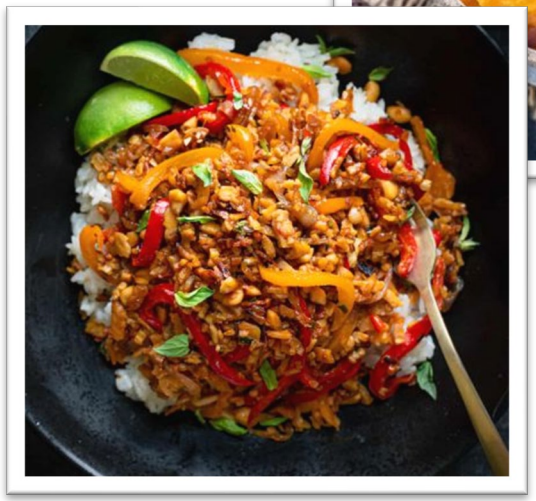
- Grains are the seeds of grasses, AKA cereals
- Examples include wheat, oats, rice, barley
- Has fiber, vitamins, minerals, & antioxidants
- Help control cholesterol levels, weight, & blood pressure
- Can lower risk of diabetes & heart disease
- Ancient grains like spelt, einkorn, barley, & buckwheat, etc. tend to be less processed
- Whole grains are better than refined grains

Western Meat Alternatives

- **Eggs:** High-protein, readily available, substitutes are easy to find (e.g. JustEgg)
- **Jackfruit:** Similar texture to pulled pork/ chicken, neutral flavor, low protein
- **Mushrooms:** Fleshy texture & mild taste can replace common meats; easily available, widely used

Eastern Meat Alternatives





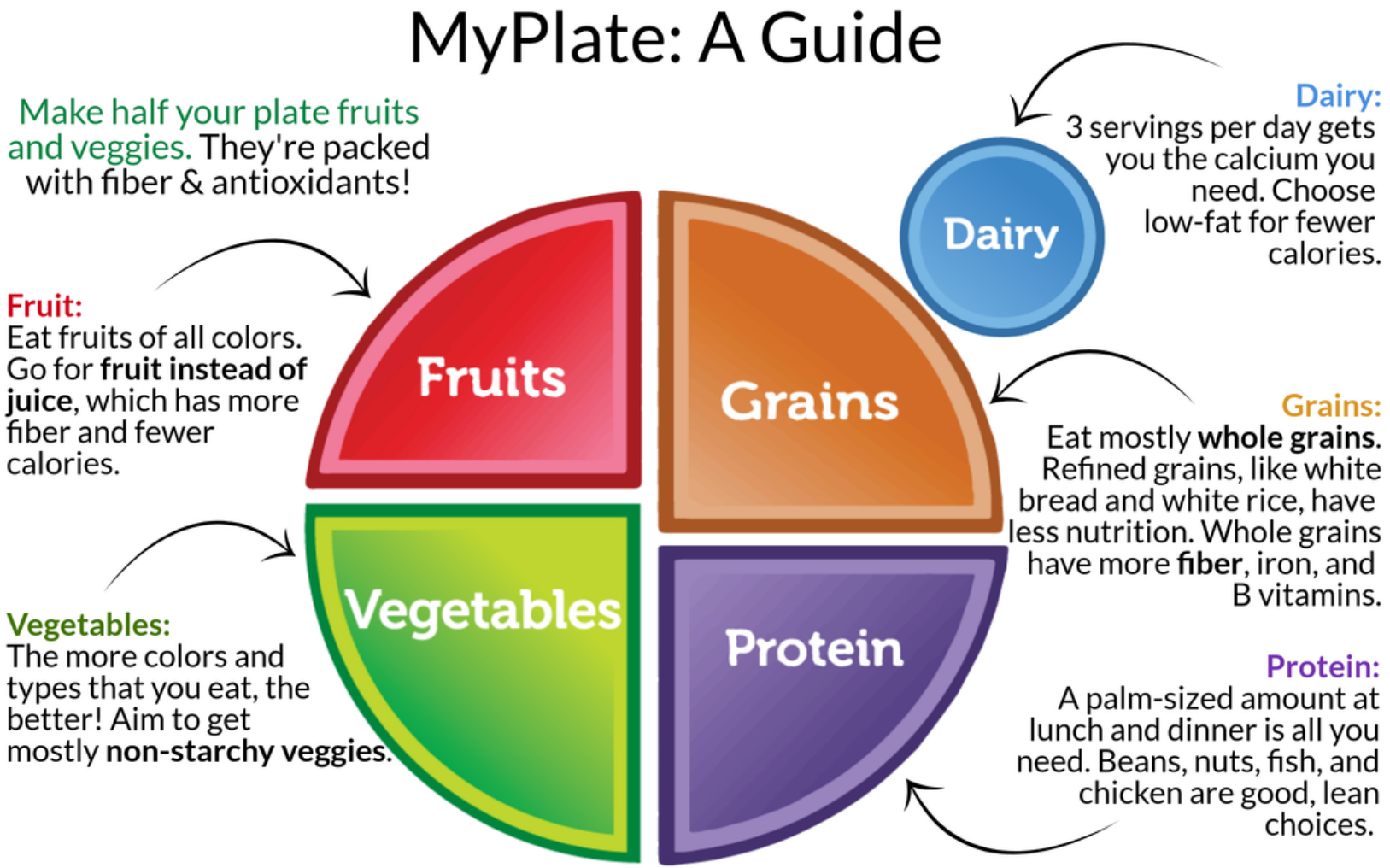
- **Halloumi:** Cheese made with sheep's/goat's milk, used in salads
- **Paneer:** Spongy cottage cheese, can be stewed, curried, or breaded & fried
- **Tofu:** Soy-based bean curd, can be grilled, stir-fried, stewed, or baked into desserts
- **Tempeh:** Fermented soybeans pressed into a firm, cake-like block; popular in SE Asian cuisine

Daily Nutrition

- 6 essential nutrients are needed to maintain a healthy human body

1. **Carbohydrates:** 45-65% of daily calories
2. **Proteins:** 10-35% of daily calories
3. **Fat:** 20-35% of daily calories
4. **Water:** 6-8 cups (1.5-2L)/ day
5. **Vitamins**
6. **Minerals**

Daily Nutrition



Carbohydrates

- Needed in large amounts daily (macronutrient)
- Contains 4 kcal/ gram
- Breaks down into glucose
- Provides instants energy to the body & helps store energy
- **Dietary fiber:** promotes regularity, digestive health, and feeling full

Carbohydrates

Simple Carbs

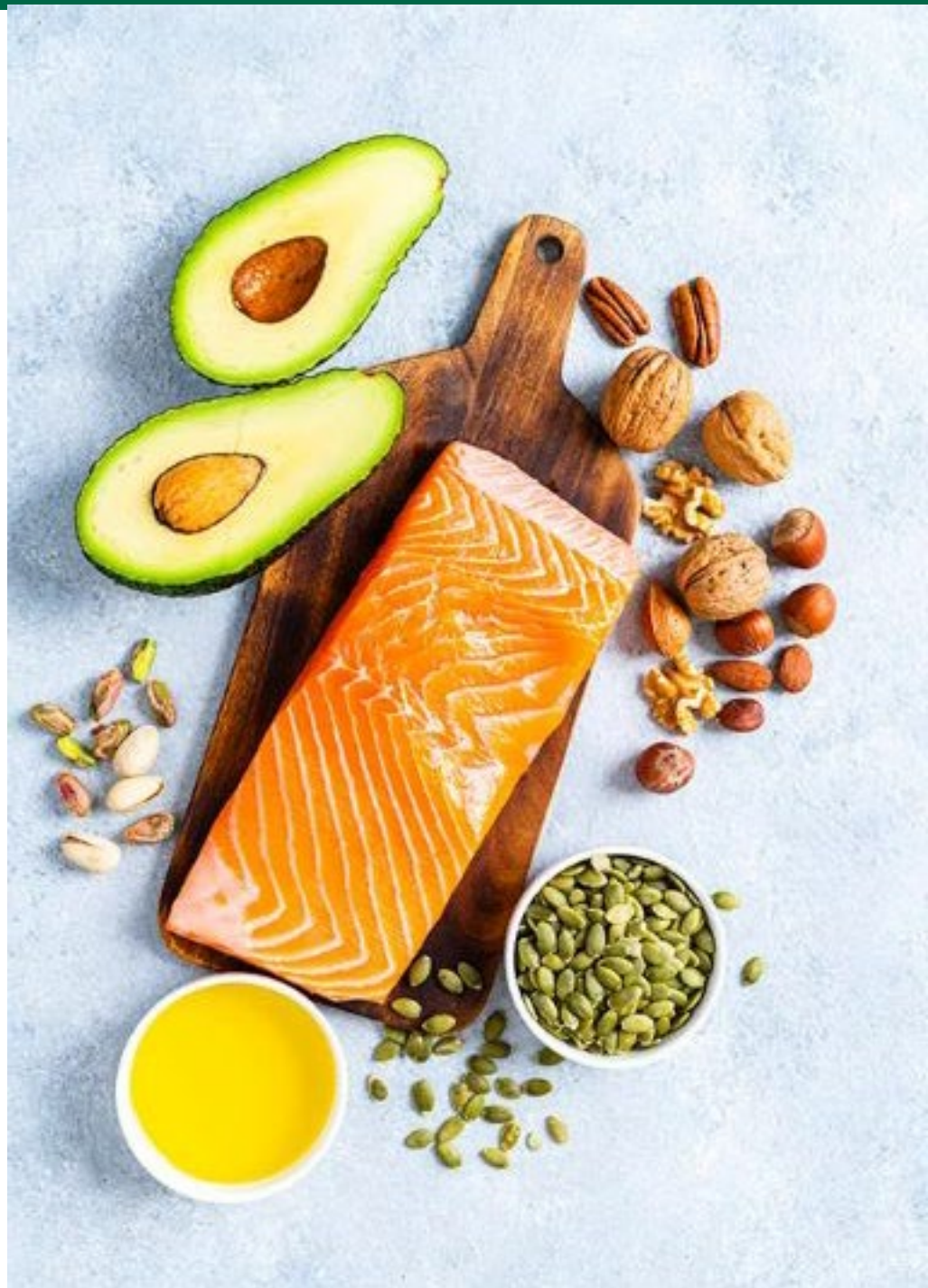
- Short chains of sugar molecules
- The most basic form of sugar
- Absorbed quickly into the bloodstream
- Spikes blood sugar levels
- **Types:** fructose, lactose, glucose
- **Foods:** table sugar, pasta, white bread, white rice, fruit juices

Complex Carbs

- Long chains of sugar molecules
- Absorbed slowly
- Raises blood sugar slowly
- Prevents sugar crashes
- Includes fiber
- **Types:** cellulose, glycogen, starch
- **Foods:** whole grains, apples, bananas, potatoes, beans

Fats

- Contains 9 kcal/ gram
- **Saturated:** increases LDL cholesterol, found in animal fats/ tropical oils
- **Unsaturated:** no effect on cholesterol, found in vegetable oils, nuts, fatty fish
- **Trans:** Most harmful form of fat, found in margarine, shortening, & some meat/ dairy products



Protein

- Is a macronutrient
- Contains 4kcal/ gram
- Supports bones, muscles, immune function, hormones, & skin repair
- **Complete proteins:** provides all 9 essential amino acids
- Found in meats, eggs, soy foods
- **Incomplete proteins:** are missing 1+ essential amino acid
- Found in grains, legumes, nuts

Vitamins

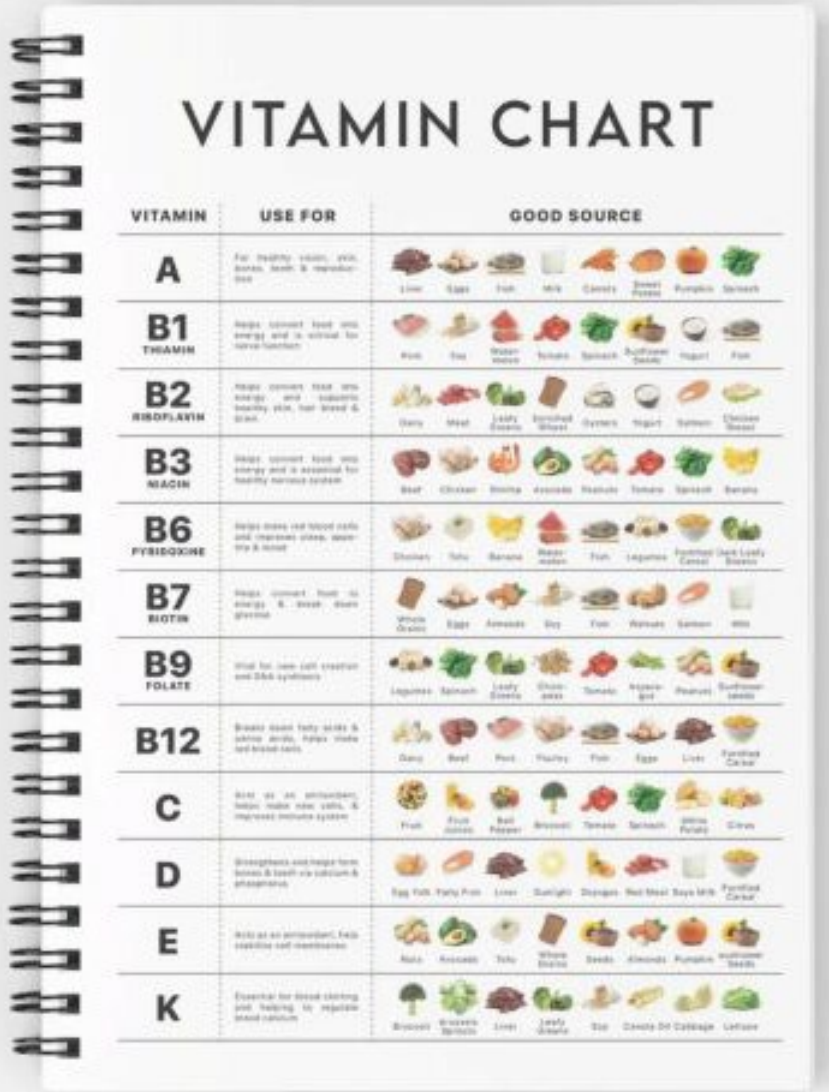
- Help fight infections, regulate hormones, & aid metabolic processes

Fat-Soluble Vitamin A: carrots, sweet potatoes, spinach

- Vitamin D: fortified milk, sunlight, fish
- Vitamin E: nuts, seeds, spinach
- Vitamin K: leafy greens

Water-Soluble

- Vitamin C: citrus fruits, bell peppers
- The 8 B-vitamins: grains, eggs, meat, legumes



Essential Minerals

- Supports bone health, fluid balance, muscle contractions, & nerve transmission

Macro (>100mg/ day)

- Calcium: dairy, tofu, leafy greens
- Potassium: bananas, potatoes, beans
- Magnesium: nuts, seeds, whole grains

Micro (<100mg/ day)

- Iron: red meat, lentils, spinach
- Zinc: meat, shellfish, legumes

Water

- Is a macronutrient
- Maintains cell shape & structure required for the body
- No nutritional value but carries nutrients throughout the body
- Recommended 6-8 cups daily
- Fruits & vegetables also contain water & help hydration
- **Water-rich foods:** watermelon, strawberries, cucumber, tomatoes, bell peppers, grapefruit

Phytochemicals & Antioxidants

Phytochemicals

- AKA “plant nutrients”
- Improve cell function & protect from damage
- Reduce risk of certain diseases/ cancers
- Related to plant pigment & flavor (polyphenols, carotenoids, terpenoids)

Antioxidants

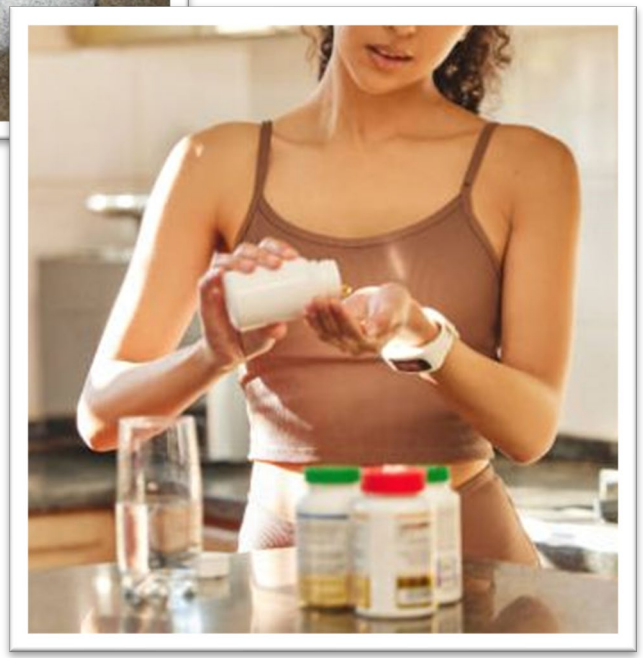
- Reduce cell damage from waste (free radicals)
- Reduce risk of chronic diseases
- Improve immune function

Eat the Rainbow

"When diet is wrong, medicine is of no use. When diet is correct, medicine is of no need."

- *Ayurvedic Proverb*

Dietary Supplements



- ~70% of Americans use dietary supplements
- Supplies vitamins, minerals, proteins, herbs, botanical essences
- Can be used to fill nutrient gaps/ deficiencies
- Should be taken under doctor recommendation & supervision

Preparing Plant Foods

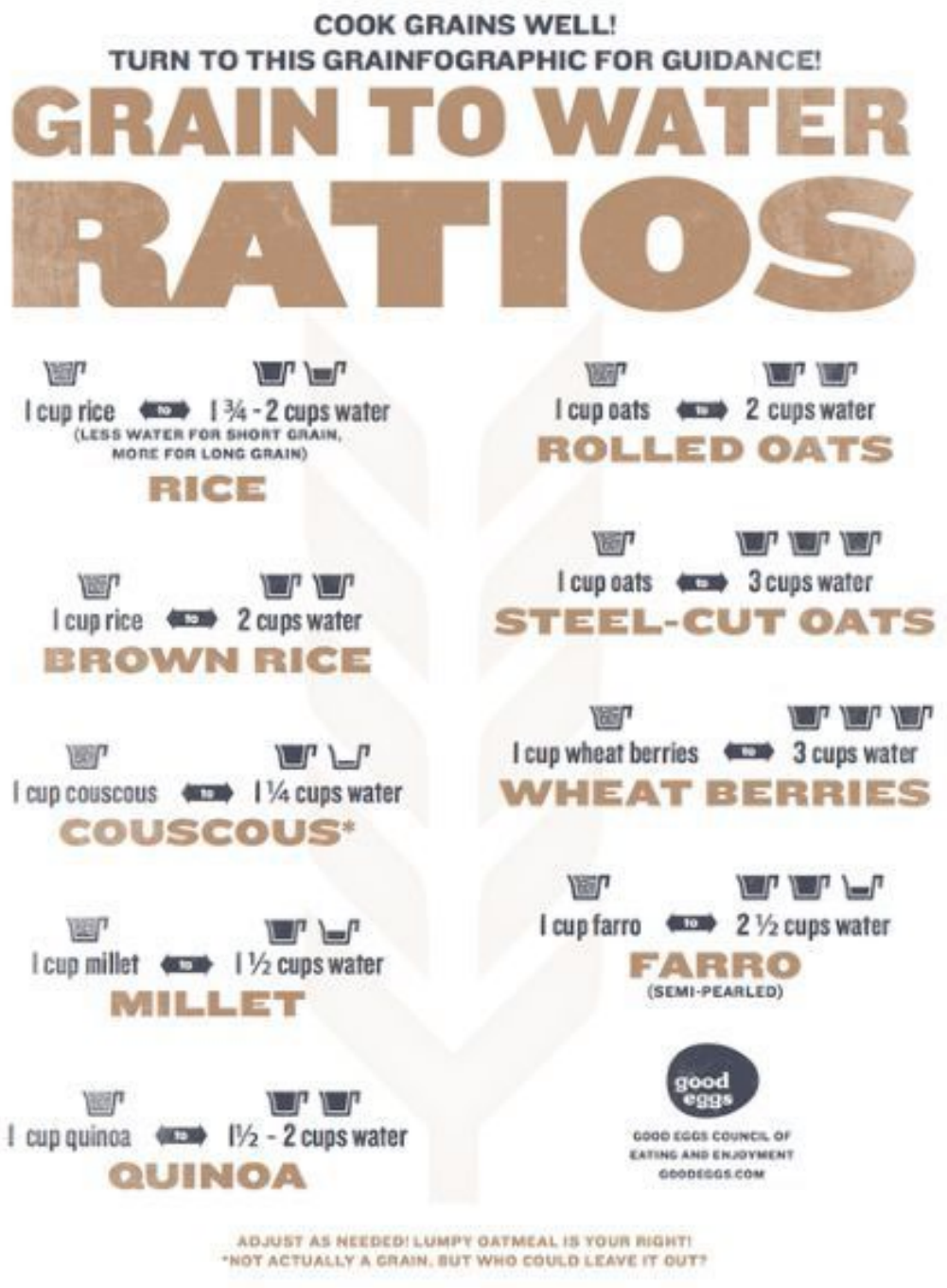
- Cook foods high in water-soluble vitamins in less water
- Use vegetables as thickeners & binders in soups/ sauces
- Edible peels provide nutrients & fiber; avoid unnecessary peeling
- Steaming, pressure cooking, stir-frying, & sous-vide preserve nutrients
- High heat can destroy vitamins & create free radicals

Grilling & Smoking

- Using minimal fats/ oils is healthier
- Grilling helps vegetables retain nutrients
- Smoked/ charred foods may contain carcinogenic compounds
- Avoid overcooking food items on the grill, discard burnt ends
- Thinly cut vegetables & meat substitutes to expedite cooking
- Grill with gas, not charcoal

Cooking Grains

- Common methods are steaming & boiling
- Cooking time varies by desired texture
- Water & stock are common cooking liquids
- Grains such as whole barley & wheat berries require soaking to soften the outer layer
- Toasting grains before cooking can increase depth of flavor



Plant-Based Oils

- Plant oils high in unsaturated fat can help increase satiety
- Oils high in saturated fat should be consumed in moderation
- **Smoke point:** the temperature where oils begin to break down
- Canola & avocado oil best for stir-frying
- Olive oil & coconut oil best for sautéing

Herbs & Spices

- Herbs & spices add flavor without adding calories, fat, or salt
- Use global cuisines for inspiration
- **Delicate herbs:** basil, cilantro, dill; for marinades, salads, vinaigrettes
- **Sturdy herbs:** bay leaf, rosemary, thyme; for soups, sauces, braises
- Higher sodium, unhealthy ingredients often found in prepared varieties

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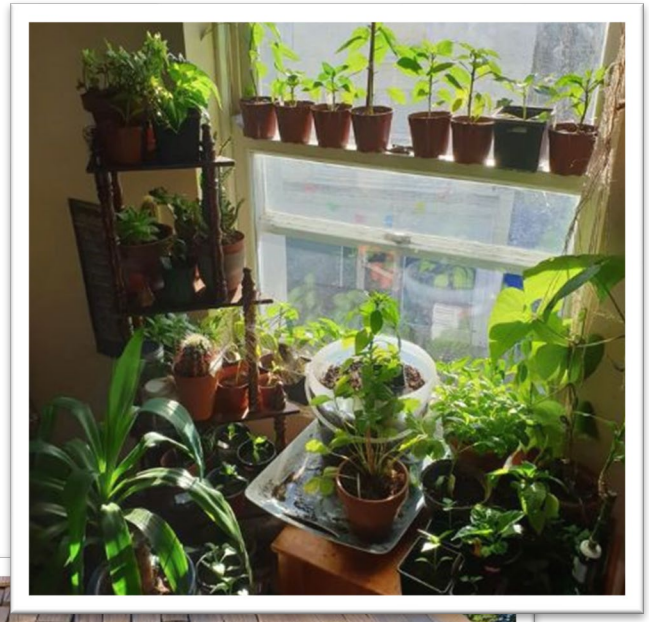
Day 3: Sourcing, Storage, & Meal Planning

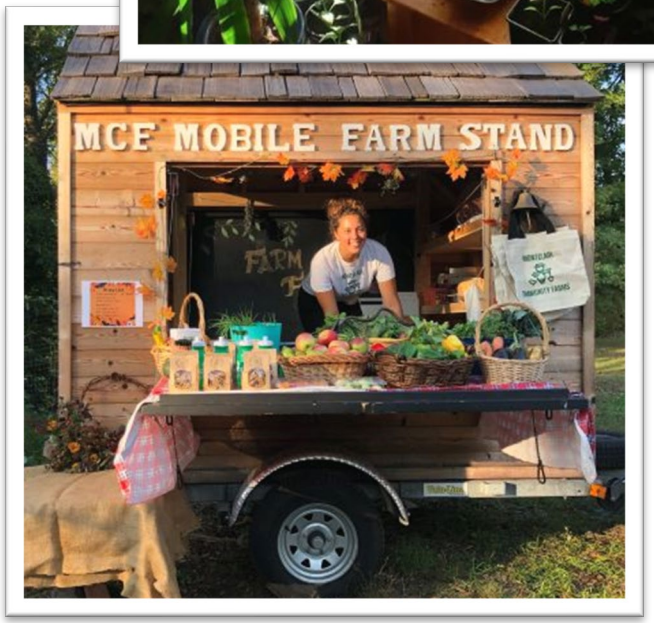
Learning Objectives

- Understand the methods of sourcing plant-based foods.
- Distinguish between the different types of food production.
- Understand how to store produce to prevent oxidation and premature spoilage.
- List the different methods of food preservation and how to store them.
- Understand how to plan, prep, and cook vegetarian meals for optimal nutrition, presentation, originality, and flavor.
- Prepare grains, vegetables, and sauces in advance.

Sourcing Plant-Based Ingredients

- **Search locally:** Farmer's markets, small grocers, or "local" sections in a grocery store
- **Visit farms:** Purchase produce, dairy, & eggs at lower prices
- **Community Supported Agriculture:** Buy a share & get produce during the growing season
- **Consider seasonality:** Produce is cheaper & more flavorful during its season
- **Remember sustainability:** Consider the ethics of businesses you support
- **Grow it yourself:** Organic, cheap, trustworthy





Types of Food Production

- **Organic:** growing crops without synthetic chemicals; using natural fertilizers & pest control
- **Subsistence:** food production for the farmer's family; with little or no surplus for sale
- **Commercial:** large-scale farming focused on producing crops/ livestock for profit & market sale

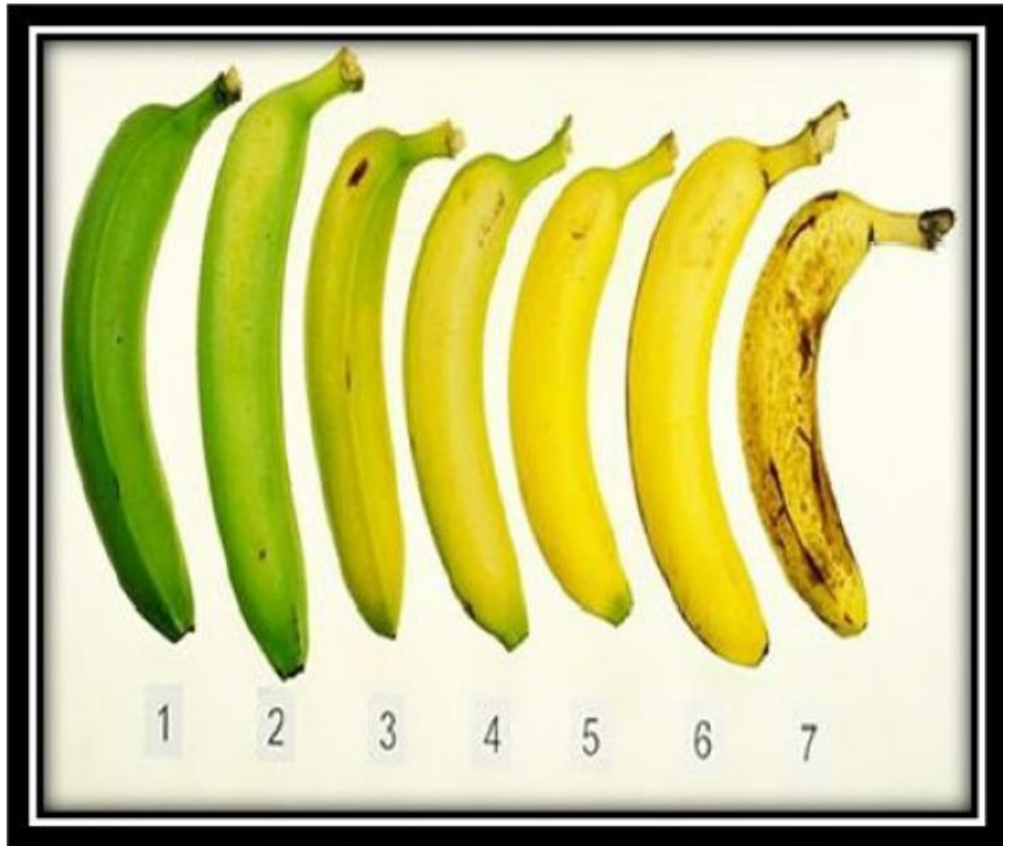
Types of Food Production

- **Permaculture:** mimics natural ecosystems to create self-sufficient agriculture
- **Biodynamic:** a holistic farming method combining sustainability with spirituality
- **Hydroponic:** growing plants without soil, using nutrient-rich water solutions
- Hydroponic, organic, & permaculture are best to support plant-based diets

Storing Produce

- Properly storing produce reduces waste, improves flavor
- Store herbs wrapped in paper towels or held in water
- Avoid washing produce far in advance to increase shelf-life
- Store produce dry to slow spoilage
- Keep ethylene-producing fruits (apples, bananas, etc.) separately
- Store root vegetables away from sunlight

Stages of Ripeness



1. **Unripe:** Firm, green, sour, & bitter fruit
2. **Ripening:** Softer texture, sweeter flavor, & darker color
3. **Overripe:** Mushy, overly sweet/ sour, brown spots

- **Climacteric fruits:** bananas, tomatoes, mangoes, apples; continue ripening after harvest
- **Non-climacteric fruits:** grapes, strawberries, citrus, pineapples; will not ripen after harvest

Oxidation

- **Enzymatic browning:** When cut fruits/ vegetables turn brown when exposed to air
- Leads to breakdown of vitamins C, A, E
- Common in apples, bananas, avocados, potatoes

To avoid oxidation:

- Keep produce whole
- Submerge cut produce in water
- Store in cold airtight containers
- Coat produce in lemon juice
- Blanch produce before using

Preventing Food Spoilage

- **Proper storage:** Keep cold foods below 40 °F & dry goods in airtight containers
- **First In, First Out:** Use older stock before newer deliveries
- **Temperature control:** Cook, chill, & hold foods at safe temperatures
- **Control Inventory:** Pay attention to stock & avoid double buying foods
- Preventing food waste holds environmental, economic, & social importance

Methods of Food Preservation

- **Canning:** 1:1 ratio of vegetables to liquid
- **Pickling:** 1:1 ratio of vinegar to water
- **Fermenting:** 2-5% salt by the total weight of vegetables & water combined
- **Fruit preserves:** 1:1, 2:1, or 60%/40% ratio of fruit to sugar
- **Freeze-drying:** Can be eaten dried or rehydrated, retains 90% of nutrients
- Food preservation reduces costs, food waste, & increases food availability

Storing Canned Items

- Label & date the jars
- Store in a cool, dark, dry place
- Examine jars regularly for bulging, rusting, leaking, spoilage
- Store canned foods at 50-70°F or refrigerated at 35-38°F
- A HAACP plan must be in place for commercial establishments

Meal Prepping & Menu Planning

- Plant-based cooking often requires meal prepping
- Beans, some grains must be soaked in advance
- Chopping & cooking vegetables can be time consuming
- Grain bowls, soups, curries, roasted vegetables reheat well
- Plant-based menu planning should consider nutrient balance, originality, flavor

Prepping Cooking Grains

- Cooked grains can be stored under refrigeration for 3 days
- Add grains to soups, salad, and health bars for extra protein & fiber
- Common whole grains include quinoa, brown rice, farro, barley
- Cooking grains in bone broth adds protein, collagen, & minerals

Prepping Vegetables

- Vegetables should be washed, peeled, & trimmed close to consumption
- Cut vegetables can be stored in water/ an airtight container with a wet paper towel on top
- Cut vegetables uniformly for even cooking, texture
- Leave skin on when able
- Use vegetables of different colors for better presentation & more antioxidants

Cooking Vegetables

- Cook green vegetables without acid to preserve color
- Roots should always start in cold water
- Broccoli, spinach, lettuce lose up to 50% of their vitamin C when boiled
- 40% of B vitamins and minerals are lost during grilling/ broiling
- Short cooking times, reduced heat exposure are best
- Consuming vegetables raw allows for full absorption of nutrients

Prepping Sauces

- Vinaigrettes, relishes, pickles, chutneys can be homemade
- Store-bought products often contain higher sugar, sodium
- Prep and store sauces in air-tight glass jars
- Store in the refrigerator for 1 week and up to 3 months

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Any Questions?