PRECISION EXAMS by youscience

Food and Nutrition I

EXAM INFORMATION

Exam Number

340

Items

42

Points

50

Prerequisites

NONE

Recommended Course Length

ONE SEMESTER

National Career Cluster

AGRICULTURE, FOOD & NATURAL RESOURCES

HEALTH SCIENCE

HOSPITALITY & TOURISM

Performance Standards

INCLUDED (OPTIONAL)

Certificate Available

YES

DESCRIPTION

This course is designed to focus on the science of food and nutrition. Experiences will include food safety and sanitation, culinary technology, food preparation and dietary analysis to develop a healthy lifestyle with pathways to career readiness. Student leadership and competitive events (FCCLA) may be integrated into this course.

EXAM BLUEPRINT

STANDARD	PERCENTAGE OF EXAM
1- Safety & Sanitation	18%
2- Equipment & Management	22%
3- Carbohydrates & Fiber	12%
4- Proteins & Lipids	18%
5- Vitamins, Minerals & Water	12%
6- Healthy Nutrition Guidelines	18%

STANDARD 1

Students will consistently demonstrate kitchen safety procedures and sanitation techniques. (Suggested 6 days)

Objective 1 Apply established safety rules and guidelines in a work environment.

1. Identify prevention, protocol, and treatment for cuts.
    a. Prevention
        i. Use sharp knives, dull knives are more dangerous.
        ii. Hold knife correctly, using the claw hand position on guide hand.
        iii. Use a stabilized cutting board.
        iv. Hold onto the knife handle while cleaning, do not soak.
    b. Protocol
        i. Clean and sanitize the affected area and equipment as soon as possible.
    c. Treatment
        i. Minor cuts clean wound, apply bandage and wear glove.
        ii. Sever cuts apply pressure and seek medical attention.
2. Identify prevention, protocol, and treatment for fires, chemical and heat related incidents.
    a. Prevention
        i. Avoid flammable materials or clothing on or near the range.
        ii. Turn handles away from the front of the range.
        iii. Lift lids on hot foods to direct steam away.
        iv. Use hot pads or oven mitts for handling hot baking pans.
        v. Keep equipment clean.
        vi. Keep chemicals away from food.
    b. Protocol
        i. To extinguish a fire, use the correct fire extinguisher. (A, B, C, or K)
        ii. To extinguish a grease fire, cover/smother the pan, pour baking soda/salt. Avoid water, flour, or sugar on grease fires.
        iii. Follow manufactures directions for all chemical use and storage, do not mix chemicals.
    c. Treatment
        i. First Degree Burn and Second Degree Burn: immerse burn in cool water or use cool compress for 10-15 minutes.
        ii. Third Degree Burn: seek medical treatment.
        iii. For Chemical Burn: seek medical treatment or call poison control.
3. Identify prevention, protocol and treatment for break, strains, and sprains.
    a. Prevention
        i. Keep floors clean and dry.

ii. Post caution signs for wet floors.
iii. Store heavy items on lower shelves.
iv. Use ladders or step stools appropriately.
v. Lift heavy items appropriately.
vi. Wear non-slip shoes.

b. Treatment
i. Seek medical attention.

Objective 2 Identify health and hygiene requirements for food handling.

1. Identity proper hand washing and when a double hand wash is required.
   a. Wash hands with soap and warm water for a minimum of twenty seconds.
   b. Wash hands before/after handling raw meat, poultry, or eggs.
   c. Wash hands after using restroom, sneezing, coughing, changing diapers, etc.
2. Identify appropriate clothing and hair restraints.
   a. Clean clothing or uniform
   b. Cover and tie back hair with hair restraints before working with food.
3. When tasting foods use clean utensils.
4. Discuss appropriate use of gloves.
   a. Single use gloves.
   b. Wash hands before putting on gloves.
   c. Change gloves when they get dirty, torn, or changing task.
   d. Wear gloves when handling ready-to-eat (RTE) foods.
   e. Wear bandage and gloves if there is a cut or open wound.

Objective 3 Recognize food-borne illnesses and prevention.

1. Identify the ways food becomes unsafe.
   a. Physical: fingernail, hair, metal shard, band aid
   b. Chemical: cleaning chemicals, sanitizers
   c. Biological: pathogens
2. Define food-borne illness.
   a. Food-borne illness results from eating foods containing pathogens.
   b. Pathogens are any bacteria, virus, parasite, or fungi that can cause illness.
      i. Bacteria need certain conditions to grow. FATTOM: Food, Acid, Time, Temperature, Oxygen, and Moisture.
   c. Common symptoms of a food borne illness include fever, headache, nausea, vomiting and diarrhea.
   d. Common types of food borne illnesses may include: Campylobacter, Clostridium Perfringens, E-coli, Norovirus, Salmonella, Staphylococci
   e. Food will often look and smell normal even if unsafe.
   f. When in doubt, throw it out.

3. Controlling time and temperature
    a. Foods like milk/dairy, meat, fish, eggs, poultry, shellfish/crustaceans, baked potatoes, tofu, sprouts, cooked rice, beans, and vegetables, sliced melons or tomatoes and lettuce are susceptible to pathogens. These are known as TCS foods (Time/Temperature Control for Safety).
    b. Temperature Danger Zone: 41-135 degrees
        i. Foods held in the danger zone for longer than 4 hours should be thrown out.
            1. Time in the danger zone includes: shopping, transportation, preparation, and holding for service.
    c. Frozen foods: 0°F
    d. Refrigerator/Cold Food: 41°F or below
    e. Holding Hot Foods: 135°F
    f. Seafood, Beef, Pork, Lamb: 145°F
    g. Ground Meats: 155°F
    h. Poultry Whole or Ground and Reheated food: 165°F
    i. Identify the ways to safely thaw TCS foods.
        i. In the refrigerator.
        ii. In a sink of cold, running water or a sink/container full of cold water, changing the water every 30 minutes. Prepare and use food immediately.
        iii. In the microwave. Prepare and use food immediately.
        iv. As part of the cooking process.
4. Preventing cross contact and cross contamination
    a. Cross contact is when food item containing an allergen comes in contact with another food.
        i. The big 8 allergens include: tree nuts, eggs, milk, soy, wheat, peanuts, fish, and shell fish.
    b. Cross contamination is the transfer of pathogens from people, surfaces, or food to food.
        i. Food should be stored 6 inches off the ground, label stored food correctly, store ready-to-eat (RTE) food separately or above raw food.
    c. Equipment Storage: Store glasses and cups upside down on a clean, sanitized surface, and store utensils with handles up.
    d. Food Preparation: clean and sanitize food contact surfaces and equipment, wash hands between task, never place cooked food on/in a container which has previously held raw meat, poultry or seafood.
    e. Serving food: no bare hand contact with RTE food.
    f. Cleaning and Sanitizing
        i. Clean removes food and other dirt from surface.
        ii. Sanitize reduces pathogens on surface.
        iii. Steps to cleaning and sanitizing using a 3 compartment sink:
            1. Scrape, Wash, Rinse, Sanitize, Air dry

iv. Clean and sanitize food contact surfaces and equipment after completing a task or after 4 hours of constant use.
v. Remove garbage from prep area as soon as possible.
vi. To reduce pest/insects, avoid crumbs or spills, keep food in airtight containers and dispose of garbage properly.

Standard 1 Performance Evaluation included below (Optional)

STANDARD 2

Students will apply the skills of kitchen equipment and management. (Suggested 5 days)

Objective 1 Identify types, use, and care of selected kitchen equipment.

1. Identify various types of kitchen equipment.
    a. Serrated knife
    b. Chef's knife
    c. Paring knife
    d. Strainer
    e. Cutting board
    f. Turner
    g. Colander
    h. Pastry blender
    i. Rubber scraper/spatula
    j. Tongs
    k. Whisk
2. Demonstrate basic knife skills, including safety and proper handling.
3. Identify the basic principles of cooking in a microwave.
    a. Fat, sugar, and water molecules are most affected by microwaves.
    b. Microwaves cause molecules to vibrate. Vibration creates friction, which produces the heat that cooks the food.
    c. Follow manufactures instructions for microwave safe cooking containers.
    d. Shallow, round containers cook more evenly than square containers.
    e. The amount of food in the microwave increases cooking and standing time.
    f. Standing time is the time food continues to cook after the microwave has stopped.
    g. Covering foods holds in the moisture, helps foods cook more evenly, and prevent splattering.

Objective 2 Identify abbreviations, food-measurement terminology, and demonstrate proper measuring techniques.

1. Identify abbreviations.
    a. Tablespoon = T. Tbs. or Tbsp.
    b. Teaspoon = t. or tsp.
    c. Gallon = gal.
    d. Quart = qt.
    e. Pint = pt.
    f. Cup = c.
    g. Pound = lb. or #
    h. Ounce = oz.
2. Identify measuring techniques and tools.
    a. Use dry measuring cups for dry ingredients and level with a straight edge spatula.
    b. Use liquid measuring cups for liquid ingredients. Measure at eye level on a flat, level surface.
    c. Brown sugar is packed and leveled in dry measuring cups.
    d. Shortening is pressed into dry measuring cups and leveled; or use water displacement method.
    e. Use most effective tools for measuring. For example: use ¼ cup rather than 4 Tbsp.
    f. Do not measure directly over the mixing bowl.

Objective 3 Utilize equivalents and recipe adjustments.

1. Identify equivalents.
    a. 3 t. = 1 T.
    b. 4 T. = ¼ c.
    c. 16 T. = 1 c.
    d. 4 qt. = 1 gal.
    e. 16 c. = 1 gal.
    f. 8 fl. oz. = 1 c.
    g. 2 c. = 1 pt.
    h. 1 stick butter = ½ c.
    i. 16 oz. = 1 lb.
2. Adjust recipe size.
    a. When adjusting a recipe, the cooking temperature will remain the same.
    b. The amount of ingredients, overall length of cooking time and size or number of pans will be affected.

Objective 4 Define cooking terms.

1. Chop: to cut into small pieces
2. Cream: to work sugar and fat together until the mixture is soft and fluffy
3. Cut-in: to cut fat into flour with a pastry blender or two knives
4. Fold-in: to mix ingredients by gently turning one part over another

5. Mince: to cut or chop food as finely as possible
6. Sauté: to brown or cook foods with a small amount of fat using low to medium heat
7. Simmer: to cook just below the boiling point
8. Steam: to cook by the vapor produced when water is heated to the boiling point
9. Whip: to beat rapidly to introduce air bubbles into food

Standard 2 Performance Evaluation included below (Optional)

STANDARD 3

Students will identify the sources and functions of carbohydrates and fiber and apply appropriate food preparation techniques. (Suggested 7 days)

Objective 1 Identify carbohydrates, their sources and functions, and the importance of whole grains in the body.

1. Define types and functions of carbohydrates.
    a. Simple carbohydrates are sugars. These include natural sugar and refined sugar products. Added sugars should be limit in the diet.
    b. Complex carbohydrates are starches. These include whole grains, refined grains, cereal products, dried beans, rice, and pasta.
        i. Refined grains should be limited in the diet.
        ii. Fiber is a type of complex carbohydrate.
    c. The primary function of carbohydrates is to provide energy.
    d. The parts of a whole grain kernel and the nutrients provided are:
        i. Endosperm: starch and protein (in wheat this protein is called gluten)
        ii. Germ: vitamins and minerals
        iii. Bran: fiber

Objective 2 Identify fiber, its sources, and functions.

1. Fiber attracts water to the intestines and aids in digestion.
2. Fiber helps to keep bowel movements soft and reduces constipation.
3. Drink plenty of liquids, otherwise fiber can slow down or even block normal bowel function.
4. The American Institute for Cancer Research recommends 30 grams of daily fiber.
5. Fiber may reduce the risk of some diseases including colon and rectal cancer.
6. Foods high in fiber: fruits and vegetables, whole grains, legumes, nuts and seeds.

Objective 3 Apply food selection and preparation guidelines related to quick breads, rice, grains, and pasta.

1. Quick breads include: muffins, pancakes, waffles, biscuits, cornbread, and fruit bread.
    a. Quick breads do not use yeast for leavening.
2. Identify the function of each ingredient contained in breads.
    a. Flour: structure.
    b. Liquid: moisture.
    c. Leavening Agents: makes the bread rise. Examples of leavening agents for quick breads include: baking powder, baking soda, eggs and steam.
    d. Fat: tenderness, richness, and some flavor.
    e. Salt: flavor.
    f. Sugar: flavor and browning.
3. Identify types of rice.
    a. Brown rice is the whole grain form of rice.
    b. Instant rice is precooked and then dehydrated.
    c. Long grain rice stays dry and fluffy.
    d. Short grain rice sticks together and is also known as “sticky rice”.
4. Identify a cooking method for pasta.
    a. Bring water to a boil.
    b. Slowly add pasta so the boiling does not stop.
    c. Cook uncovered until pasta is al dente (firm to the tooth), stirring occasionally.

Standard 3 Performance Evaluation included below (Optional)

STANDARD 4

Students will identify the sources and functions of proteins and fats/lipids and apply appropriate food preparation techniques. (Suggested 7 days)

Objective 1 Identify proteins, their sources, and functions in the body.

1. The primary function of protein is to build and repair body tissues.
2. Amino acids are the building blocks of protein.
3. There are many amino acids, nine are essential.
    a. The body cannot manufacture essential amino acids so they must be obtained from food.
4. Complete proteins contain all nine of the essential amino acids. Food sources from animals such as meat, chicken, fish and milk products are complete proteins.

   a. A plant source of complete proteins is soy beans/soy products.
5. Incomplete proteins contain some, but not all, of the essential amino acids. These include but are not limited to grains, dried beans, nuts and seeds.

Objective 2 Identify function and preparation methods for eggs.

1. Functions of eggs:
   a. Binder (Meat loaf)
   b. Thickener (Pudding)
   c. Coating (Breading on Chicken)
   d. Leavening agent (Angel Food Cake)
   e. Emulsifier (Mayonnaise)
2. Identify storage and preparation methods related to eggs.
   a. Store eggs in the original container in the refrigerator. When properly stored in the refrigerator, eggs may be stored for several weeks.
   b. Methods of cooking eggs include: boiled or steamed in shell, scrambled, fried, and poached.
   c. Eggs are toughened by high heat.

Objective 3 Identify processing and preparations methods for milk and milk products.

1. Discuss processing methods for milk.
   a. Pasteurized milk has been heat treated to remove harmful bacteria.
      i. Most of the nutritional benefits of drinking raw milk are available from pasteurized milk without the risk of disease that comes with drinking raw milk.
   b. Homogenized milk has had the fat particles broken down and evenly distributed so the fat will not separate from the milk.
   c. Milk is fortified with vitamins A and D.
2. Explain milk preparation principles.
   a. Milk products scorch easily and need to be cooked at a low temperature with constant stirring.
   b. Heating milk in the microwave prevents scorching.

Objective 4 Identify lipids (fats and oils), their sources, functions, and related health concerns.

1. Identify the functions of fats:
   a. Carrier for vitamins A, D, E, and K.
   b. Reserve supply of energy.
   c. Promotes healthy skin.
   d. Satisfies hunger and helps you feel full longer.
2. Explain the role of cholesterol, including HDL and LDL factors.

a. Cholesterol is essential for many body processes. Cholesterol produces hormones and bile acids. It is found in animal tissues, but is never present in plants.
b. HDL cholesterol is "good" cholesterol because it transports excess cholesterol found in the blood stream back to the liver.
c. LDL cholesterol is "bad" cholesterol because if too much LDL cholesterol is circulating in the blood stream, it can be deposited in the arteries and increase the chance of heart disease or stroke.

3. Identify the differences between saturated, monounsaturated, and polyunsaturated.
    a. Saturated Fats:
        i. Raise the LDL and HDL levels of cholesterol in the blood.
        ii. Examples: meat, poultry skin, whole milk, tropical oils, butter, shortening and lard.
    b. Polyunsaturated Fats:
        i. Lower both the LDL and HDL cholesterol levels in the blood.
        ii. Examples: corn oil, soybean oil and safflower oil.
    c. Monounsaturated Fats:
        i. Lower LDL and raise HDL levels of cholesterol in the blood.
        ii. Examples: olive oil, olives, avocados, peanuts and canola oil.

Standard 4 Performance Evaluation included below (Optional)

STANDARD 5

Students will identify the sources and functions of select vitamins, minerals, and water, and apply appropriate food preparation techniques to foods high in these nutrients. (Suggested 7 days)

Objective 1 Identify select vitamins, their food sources, functions, and deficiencies in the body.

1. Identify select water-soluble vitamins:
    a. Vitamin C: Helps to form collagen which holds the cells together and aids in healing. Prevents scurvy. Sources include citrus, strawberries, broccoli, and peppers.
    b. Folate or Vitamin B9 is one of the B Vitamins. Folate helps tissue to grow and cells to work. Folate reduces the risk of neural tube birth defects. Sources include legumes, dark leafy greens, citrus, and eggs.
2. Identify fat-soluble vitamins:
    a. Vitamin A: Maintains normal vision and immune system. Prevents night blindness. Sources: Orange and dark green vegetables.

   b. Vitamin D: Works with the body to build and maintain healthy bones and teeth. Prevents bone softening and loss. Sources include milk products. Manufactured by the body with exposure to sunlight.
   c. Vitamin K: Helps blood to clot. Prevents bruising and excessive bleeding. Sources include green leafy vegetables, Brussel sprouts, eggs and broccoli.

Objective 2 Identify select minerals, their food sources, functions, and deficiencies in the body.

1. Calcium: Builds strong bones and teeth. Calcium deficiency causes bones to become weak this is called osteoporosis. Good sources are found in dairy products.
2. Iron: Helps to form the hemoglobin in red blood cells which carry oxygen throughout the body. Prevents anemia. Sources include red meat, spinach, black beans, and dried fruit.
3. Sodium: Helps maintain the fluid balance and blood pressure in the body. Deficiency is not generally a concern, unless over hydrating. Sources include salt and processed foods.
4. Potassium: Helps maintain a regular heartbeat. Prevents muscle cramps. Sources include bananas, potatoes, and nuts.

Objective 3 Identify the functions and importance of water in the body.

1. Carries water soluble vitamins.
2. Carries waste through the body.
3. Regulates body temperature through perspiration.
4. Dehydration occurs from lack of water.
   a. Thirst is an indicator of dehydration.
   b. Urine should be a pale yellow color. Darker urine is another indication of dehydration.
5. Water is the most important of all the essential nutrients.
6. 64 fl. oz. of water is recommended daily.

Objective 4 Apply food selection and preparation guidelines related to fruits and vegetables.

1. Identify how to preserve nutrients in the preparation process of fruits and vegetables.
   a. Air, heat and water can reduce nutrients in fruits and vegetables.
   b. Eat raw.
   c. Good cooking methods include: microwave, steam, bake/roast, stir fry/sauté.
      i. Cook in larger rather than smaller pieces when possible.
      ii. Use small amounts of water and cook only until fork tender.
2. Identify how to select fresh produce.

   a. Select fresh produce that is firm, free from decay, crisp, smooth, dense (heavy for size), free from bruises and have good color.
   b. Seasonal produce is lower in cost, plentiful and have better quality.
   c. Room temperature is needed to ripen some fruits.
3. Discuss how to prevent enzymatic browning of fresh fruits.
   a. Some produce will turn brown when cut and exposed to oxygen.
   b. Prevent enzymatic browning of fresh produce by covering with liquid or dipping in an ascorbic acid liquid.

Standard 5 Performance Evaluation included below (Optional)

STANDARD 6

Students will explore healthy nutrition guidelines. (Suggested 3 days)

Objective 1 Identify healthy nutrition guidelines.

1. Follow a healthy eating pattern across the lifespan.
   a. Choose a healthy eating pattern at an appropriate calorie level to help achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of disease.
2. Focus on variety, nutrient density, and amount.
   a. Nutrient dense foods provide vitamins, minerals, and other beneficial substances with relatively few calories.
   b. To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.
      i. 50-60% Carbohydrates—4 calories per gram
      ii. 10-20% Protein—4 calories per gram
      iii. No more than 30% fats/lipids—9 calories per gram
3. Limit calories from added sugars and saturated fats and reduce sodium intake.
4. Include physical activity as part of healthy lifestyle.
   a. Children and teens should be physically active for at least 60 minutes every day.

Objective 2 Explore resources for nutritional recommendations.

1. Identify the characteristics of MyPlate.
   a. Grains—Choose 100% whole grain. Make at least half of the grains consumed whole grain.
   b. Protein—Choose a variety of foods. Keep portions small and lean.

c. Vegetable—Choose a variety including fresh, frozen, canned, or dried. Eat more red, orange, and dark green vegetables.
d. Fruit—Choose whole or cut-up fruits more often than fruit juice. Make half your plate fruits and vegetables.
e. Dairy—Choose a variety of dairy products. Check for added sugars.

Standard 6 Performance Evaluation included below (Optional)

Food And Nutrition I

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of 8 or higher on the rating scale. Students may be encouraged to repeat the objectives until they average 8 or higher.

Student's Name: _____

Class: _____

PERFORMANCE STANDARDS RATING SCALE

Self-Awareness and Careers Score:

- ☐ Complete FCCLA Step One

STANDARDS 1-2: Safety & Sanitation/Equipment & Management Score:

- ☐ Complete food safety instruction and an assessment comparable to that required for a Food Handlers Permit.

STANDARD 3: Carbohydrates & Fiber Score:

- ☐ Actively participate in the preparation of a nutrient dense carbohydrate food.

STANDARD 5: Proteins & Lipids Score:

- ☐ Actively participate in the preparation of a nutrient dense protein food.

STANDARD 5: Vitamins, Minerals & Water Score:

- ☐ Actively participate in the preparation of a nutrient dense produce food.

STANDARD 6: Healthy Nutrition Guidelines Score:

- ☐ Plan and evaluate a one-day menu based on healthy nutrition guidelines.

PERFORMANCE STANDARD AVERAGE SCORE:

Evaluator Name: _____

Evaluator Title: _____

Evaluator Signature: _____

Date: _____