NO PREP

Special Diets

Vegetarian, Vegan, and Gluten-Free

Includes: Student reading, case study, differentiated questions, teacher key

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Name: Period: Date:

Special Diets: Vegetarian, Vegan, and Gluten-Free

Not One Diet, and Not One Reason

Vegetarian is an umbrella term covering several different eating patterns, and knowing which one a person follows is the difference between cooking for them successfully and cooking for them badly. A lacto-ovo vegetarian eats no meat, poultry, or fish, but does eat dairy and eggs, and this is the most common form in the United States. A lacto vegetarian includes dairy but not eggs. An ovo vegetarian includes eggs but not dairy. A vegan eats no animal products at all, which extends past meat, dairy, and eggs to honey and to ingredients like gelatin, which is made from animal collagen, and sometimes to non-food items such as leather. Two related terms often get grouped in and do not technically belong. A pescatarian eats fish and seafood while avoiding other meat. A flexitarian eats mostly plant foods with occasional meat. Neither is

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Protein Without Meat Is the Easy Part

The question every vegetarian gets asked is where they get their protein, and it is the least interesting nutritional question about the diet because the answer is straightforward. Protein is abundant in plant foods. Beans, lentils, chickpeas, tofu,

tempeh, edamame, peanuts, tree nuts, seeds, and whole grains all supply it, and a cup of cooked lentils delivers roughly 18 grams. What differs is amino acid completeness. A complete protein contains all nine essential amino acids in useful proportions, and among plant foods soy and quinoa qualify on their own. Most other plant proteins are limited in one or two amino acids, with legumes running low in methionine and grains running low in lysine. Because those gaps are complementary, combinations like beans and rice, lentils and bread, or hummus and pita fill in each other's shortfalls. An older nutrition idea insisted these complementary proteins had to be combined within a single meal, and that requirement was later found to be unnecessary. The body maintains a circulating pool of amino acids, so eating a variety of plant proteins across a day accomplishes the same thing. The position of the Academy of Nutrition and Dietetics is that appropriately planned vegetarian and vegan diets are healthful, nutritionally adequate, and appropriate for all stages of life, including pregnancy, infancy, and athletics. The operative phrase in that sentence is appropriately planned, which is doing real work. A diet built on french fries, white bread, and soda is technically vegetarian and nutritionally poor.

The Nutrients That Actually Require Attention

The genuine planning challenges in a vegan diet are not about protein. Vitamin B12 is the one that cannot be improvised. It is produced by bacteria and is not reliably present in any unfortified plant food, so vegans need fortified foods such as nutritional yeast, fortified plant milks, or fortified cereals, or a supplement. This is not optional, and B12 deficiency can cause irreversible nerve damage that may develop slowly enough to be missed for years. Iron is the second concern, and the issue is form rather than quantity. Plant foods contain non-heme iron, which the body absorbs less efficiently than the heme iron in meat. Absorption improves substantially when iron-rich plant foods are eaten alongside vitamin C, which is why beans with tomatoes or spinach with citrus is a genuinely better combination than either alone. Calcium requires attention when dairy is excluded, and reliable sources include fortified plant milks, tofu set with calcium sulfate, and low-oxalate greens such as kale and bok choy. Spinach contains calcium but binds much of it in a form the body absorbs poorly. Zinc, iodine, and vitamin D all warrant a look. Omega-3 fats are the last item. Plant sources including flaxseed, chia, walnuts, and canola oil supply ALA, which the body converts into the longer-chain EPA and DHA found in fish only

inefficiently, so algae-based supplements exist for exactly this gap. None of these are reasons to avoid the diet. They are the short list that makes planning it work.

Gluten-Free Is a Medical Category Before It Is a Trend

Gluten is a protein complex found in wheat, barley, and rye. It gives bread dough its stretch and structure and it is the reason a wheat loaf rises and holds its shape. For most people it is simply food. For several distinct groups it is not, and conflating those groups is why gluten-free became one of the most misunderstood terms in a grocery store. Celiac disease is an autoimmune disorder affecting roughly one percent of the population in which gluten causes the immune system to attack the lining of the small intestine, flattening the villi, the tiny projections that absorb nutrients. Untreated celiac disease leads to malabsorption, anemia, bone loss, and other long-term damage, and the only effective treatment is complete, lifelong avoidance of gluten. This is not a preference and small amounts matter. A wheat allergy is a separate condition, an ordinary immune allergy to wheat protein that can cause anaphylaxis, and someone with a wheat allergy may tolerate barley and rye while someone with celiac disease cannot. Non-celiac gluten sensitivity describes people who report real symptoms from gluten without the intestinal damage or antibodies of celiac disease. It is recognized and still being researched. What matters for a kitchen is that all three require the food to be genuinely free of gluten, which means checking for barley malt, brewer's yeast, soy sauce, and oats processed alongside wheat, since oats are naturally gluten-free but are frequently cross-contacted during handling.

Cooking for a Table Where Everyone Is Different

A common assumption is that gluten-free products are healthier, and for people without a gluten-related condition that is generally not true. Wheat flour in the United States is enriched, meaning B vitamins and iron are added back by law after refining. Most gluten-free flours, including rice flour, tapioca starch, and potato starch, are not enriched, so gluten-free breads and pastas are frequently lower in fiber, iron, folate, and other B vitamins than the wheat products they replace, and often higher in sugar and fat to compensate for texture. The FDA sets a standard for the gluten-free label at less than 20 parts per million, which is the practical detection threshold and is safe for nearly everyone with celiac disease. For a school foods lab, or for any cook feeding a mixed group, a few habits handle almost every

case without turning a meal into a project. Build the meal around a naturally compliant center rather than substituting into an existing recipe, since rice bowls, bean chilis, stir fries, tacos with corn tortillas, and roasted vegetables with a protein satisfy most restrictions with minor adjustments. Serve components separately and let people assemble, which turns one dish into several. Keep the cheese, the sour cream, and the meat as toppings rather than as ingredients stirred through. And for celiac disease specifically, apply the same physical separation rules used for allergens, meaning a dedicated toaster, a clean colander, separate serving spoons, and gluten-free food prepared before the flour comes out.

Key Information: Vegetarian, Vegan, and Gluten-Free Diets

Detail	Information
Lacto-Ovo Vegetarian	No meat, poultry, or fish; includes dairy and eggs
Vegan	No animal products at all, including honey and gelatin
Complete Plant Proteins	Soy and quinoa supply all nine essential amino acids alone
Complementary Proteins	Beans plus grains; may be eaten across the day, not one meal
Vitamin B12	Not reliable in unfortified plant food; needs fortification or a supplement
Non-Heme Iron	Plant iron absorbed better when eaten with vitamin C
Celiac Disease	Autoimmune; about 1 percent; damages villi in the small intestine
Gluten-Free Label	FDA standard is less than 20 parts per million

Case Study: One Lab, Four Sets of Rules

Bryce drew the short straw and had to plan his lab group's meal. Nadia is vegan. Sam has celiac disease. Two others eat everything. His first plan was spaghetti with meat sauce plus a separate pot of gluten-free noodles and a bowl of plain marinara, and he lost twenty minutes trying to make the timing work with two colanders. His teacher suggested he stop substituting and start over. The group built rice bowls instead. Brown rice as the base, black beans and roasted vegetables in the center, and everything else set out as toppings: seasoned ground turkey, shredded cheese, avocado, salsa, lime, and cilantro. Nadia skipped two bowls. Sam checked the salsa label for barley malt and used a clean serving spoon. "Nobody got a special version," Bryce wrote in his reflection. "There wasn't a main dish and then accommodations. There was just food, and everyone put what they wanted on top of it." The group finished eight minutes early.

1. Bryce stopped substituting and rebuilt the meal instead. Explain why the reading recommends that approach.

_____

_____

2. Sam checked the salsa label and used a clean spoon. Explain what each of those two steps protected against.

_____

_____

Multiple Choice

1. Which plant foods are complete proteins on their own?

    a) Almonds and sunflower seeds

    b) Soy and quinoa

    c) Black beans and lentils

    d) Brown rice and whole wheat bread

2. Vitamin B12 is a specific concern in a vegan diet because it:

a) Is needed in far larger amounts than other vitamins

b) Cannot be absorbed unless eaten alongside animal fats

c) Is destroyed when vegetables are cooked at high heat

d) Is not reliably present in any unfortified plant food

3. Why are gluten-free breads often lower in iron and B vitamins than wheat bread?

a) Gluten-free flours are milled from vegetables, not grains

b) Gluten itself is the source of iron and B vitamins

c) The FDA prohibits fortifying any gluten-free product

d) Wheat flour is enriched by law and most GF flours are not

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ Lacto-Ovo Vegetarian	A) An autoimmune condition in which gluten damages intestinal villi
2. ___ Complementary Proteins	B) The plant form of iron, absorbed better alongside vitamin C
3. ___ Non-Heme Iron	C) Plant foods whose amino acid gaps cover for each other
4. ___ Celiac Disease	D) Trace transfer from shared tools that a rinse will not fix
5. ___ Cross-Contact	E) Someone avoiding meat and fish while still eating dairy and eggs

Fill-in-the-Blank

1. A vegan avoids all animal products, including _____.

2. Celiac disease damages the _____ of the small intestine.

3. Oats are naturally gluten-free but are often _____ with wheat.

Short Answer

Answer each question in 2-4 complete sentences.

1. Explain why the phrase appropriately planned matters in claims about vegan diets.

2. Explain why pairing beans with tomatoes is better than eating beans alone.

3. Explain why gluten-free products are not automatically the healthier choice.