

STEM

Science
Technology
Engineering
Math

Poster Lesson Plans

POSTER: FRUIT & VEGGIE FAKES

item #
410240

DON'T BE DUPED BY THESE **FRUIT & VEGGIE**

FAKES

SNAP PEAS



SNAP PEA CRISPS

INGREDIENTS: Green peas, corn oil, rice, salt, calcium carbonate, and vitamin C (ascorbyl palmitate).

SPINACH



SPINACH TORTILLA

INGREDIENTS: Enriched bleached wheat flour (wheat flour, niacin, reduced iron, thiamine mononitrate, riboflavin, folic acid), water, vegetable shortening (partially hydrogenated soybean oil, hydrogenated soybean oil, and/or palm oil), and contains 2% or less of: seasoning (spatch powder, onion powder, spice, salt, garlic powder, soybean oil, artificial color (yellow #5 lake, blue #1 lake), natural and artificial flavor, silicon dioxide), salt, sugar, leavening (sodium bicarbonate, sodium aluminum sulfate, corn starch, monocalcium phosphate and/or sodium acid pyrophosphate, calcium sulfate), dicalified monoglycerides, enzymes, wheat starch, calcium carbonate, antioxidants (tocopherols, ascorbic acid, calcium ascorbate), dough conditioners (succinic acid, sodium metabisulfite and/or mono- and diglycerides).

BANANA & STRAWBERRIES



STRAWBERRY-BANANA FRUIT ROPE

INGREDIENTS: Apple puree concentrate, apple juice concentrate, contains 2% or less of: natural flavor, citrus pectin, lemon juice concentrate, strawberry juice concentrate, mango juice concentrate, citric acid, ascorbic acid, vegetable juice (carrot, cabbage) for color.

FRESH, FROZEN, CANNED, AND DRIED FRUITS AND VEGETABLES ARE THE BEST CHOICES because they contain health-promoting nutrients and phytochemicals —things that are missing in these fakes.

BEETS & SPINACH



VEGETABLE NOODLES

INGREDIENTS: Enriched semolina wheat flour (iron, thiamine, riboflavin, niacin, folic acid), tomato, beet, and spinach powders.

TOMATO



KETCHUP

INGREDIENTS: Tomato concentrate, distilled vinegar, high fructose corn syrup, corn syrup, salt, spice, onion powder, natural flavoring.

GRAPES



FRUIT SNACKS

INGREDIENTS: Fruit juice blend from concentrate (pear, apple, cranberry), corn syrup, sugar, modified corn starch, contains 2% or less of: fruit pectin, citric acid, vitamin C (ascorbic acid), dextrose, sodium citrate, malic acid, vegetable juice and fruit juice added for color, potassium citrate, mineral salt, natural flavor, carmelum, bassolax.

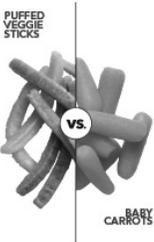
ORANGES



ORANGE-FLAVORED DRINK

INGREDIENTS: Water, corn syrup and 2% or less of each of the following: concentrated juice (orange, tangerine, apple, lime, grapefruit, pear), citric acid, ascorbic acid (vitamin C), thiamin hydrochloride (vitamin B1), natural flavors, modified cornstarch, canola oil, sodium citrate, cellulose gum, sucralose, acesulfame potassium, neotame, sodium hexametaphosphate, potassium sorbate to protect flavor, yellow #5, yellow #6.

PUFFED VEGGIE STICKS



BABY CARROTS

INGREDIENTS: Potato starch, dehydrated potato, expeller pressed sunflower or safflower oil, rice flour, sea salt, tomato, spinach, green pepper, parsley, paprika, celery, garlic, potassium chloride, nutrients from whole food concentrates of spinach, broccoli, carrots, tomatoes, beets, shiitake mushrooms.

RAISINS



YOGURT COVERED RAISINS

INGREDIENTS: Raisins, yogurt coating (sugar, partially hydrogenated palm kernel oil, nonfat milk powder, yogurt powder, whey, trisodium phosphate, soy lecithin, vanilla, colorants), glucose, corn syrup, dextrose, maltodextrin.

READ FOOD LABELS AND INGREDIENT LISTS

The best way to determine if a fruit or vegetable food is real and a healthy choice is to read the Nutrition Facts label and the ingredient list on the package. Here's where to look:

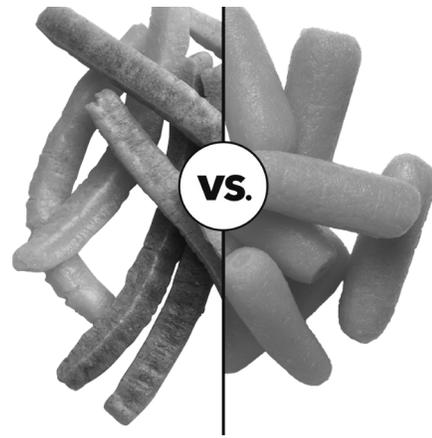
Most fruits and vegetables are naturally fat-free and low in calories. High amounts of fat and calories can indicate that a food has been processed into a less healthy choice. Fruits are naturally sweet and don't need extra sugar.

Look for these words on ingredient lists that indicate sugar has been added:

- ▶ Evaporated cane juice
- ▶ Fruit juice concentrate
- ▶ Corn syrup
- ▶ High fructose corn syrup
- ▶ Honey
- ▶ Brown rice syrup

SIP SMART

Don't be tricked when it comes to fruit juice. Choose 100% juice when selecting a juice. Many fruit flavored drinks look like juice, but are mostly water, sugar and flavoring. Limit 100% fruit juice to one 8 oz. glass a day. It counts as a serving of fruit, but is missing the fiber from the whole fruit that will keep you feeling full.



STEM CONNECTIONS

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SCIENCE: Research common chemical compounds that mimic the fragrance or flavor of fruits, such as isoamyl acetate (banana), limonene (orange), allyl hexanoate (pineapple), methoxyfuraneol (strawberry) or ethyl-(E,Z) 2,4-decadienoate (pear). How are the compounds created? How does a smell or fragrance influence perception of flavor? Discover which fruits or vegetables food processors use to naturally color foods. What factors influence a food processor's decision to use a natural food dye versus a synthetic food dye? Compare a whole fruit or vegetable (like sugar snap peas) to a factory-created fake fruit or vegetable, such as snap pea crisps or dried wasabi peas. What are the similarities and differences between the two foods? Investigate how the human body's senses influence the taste or flavor of a food. What is a supertaster?

TECHNOLOGY: Research the career of a food or flavor chemist. What work does a food or flavor chemist do? What are the educational requirements? Investigate the safety of manufactured ingredients, flavors, or colors. What does the Generally Recognized As Safe (GRAS) designation from the Food and Drug Administration (FDA) mean when it comes to food products? Investigate flavor technology and how it is used within the food manufacturing industry, such as flavor masking or enhancing sweetness.

ENGINEERING: Investigate how scientists use chemistry to develop fruit flavorings like cherry or orange in a laboratory setting. What is flavor engineering? What industries use manufactured flavors? What is a "flavor profile"? What considerations do flavor chemists need to take into consideration when creating a flavor using chemicals? Why do food processors choose to use artificial flavorings or colors in foods instead of natural ingredients?

MATH: What factor do artificial ingredients have on the cost of manufacturing a food? How does this influence the price a consumer pays for the food at the store? Why might consumers be willing to pay more for natural or organic ingredients? How do flavor chemists use math in creating a flavor profile?



INQUIRY OPTIONS

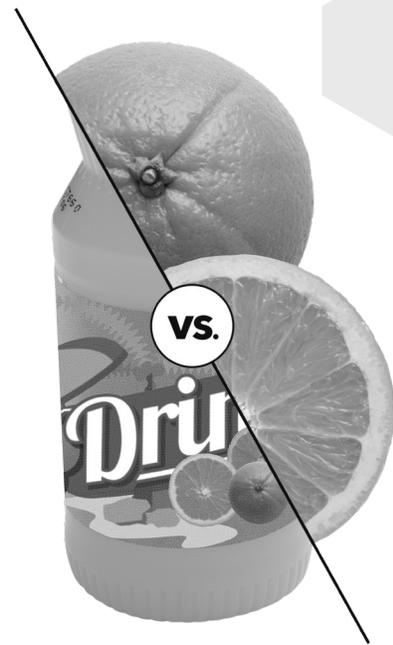
1. What surprises you or catches your eye on this poster?
2. What facts are critical to understand on this poster?
3. What information most connects with you on this poster?
4. How can knowledge about eating too many “fake” fruits and vegetables impact your health?
Your family’s health? Others in the community?
5. What action do you feel called to take as a result of your new knowledge?
6. How are the nutrients in whole foods impacted when they are manufactured into processed foods?
7. What ways do food companies manipulate consumers into thinking a food is a healthy choice?
8. How do food-labeling laws help regulate claims made on food packaging?

KEY / RELATED VOCABULARY

Nutrition Facts label	Natural	Food technology
Food labels	Organic	Flavor engineering
Flavor chemistry	Supertaster	Flavor profile
Food chemistry	Sensory evaluation	
Synthetic food dye	Manufactured flavors	

KEY CONCEPTS ADDRESSED:

Fruit and vegetable flavored foods can trick consumers into thinking you’re choosing a healthy option. Chemistry, engineering, marketing, and advertising collide with fruit and veggie fakes, making it difficult for many to identify if a food is healthy or not. Learning to read food packaging and ingredient listings can help determine if a food is actually a fruit or vegetable.



INTERNET RESOURCES:

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Consumer Reports – “Food Fake Outs”

<http://www.consumerreports.org/cro/magazine/2014/01/food-fake-out/>

Prevention Magazine – “11 Health-Food Impostors”

<http://www.prevention.com/food/smart-shopping/health-food-impostors-and-healthier-swaps>

How Flavor Chemists Make Your Food So Addictively Good

<http://io9.com/5958880/how-flavor-chemists-make-your-food-so-addictively-good>

RELATED CAREER ROLES:

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Food chemist
Flavor chemist
Food scientist

Dietitian
Nutritionist

