**STEM Poster Lesson Plans**

**POSTER: FRUIT & VEGGIE FAKE VS REAL**

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

**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.

**Ingredients are listed in order by the amount the food contains, from greatest to least.**

**CHOOSE FOODS WITH FRUITS OR VEGETABLES LISTED FIRST.**

**READ FOOD LABELS AND INGREDIENT LISTS**

The key way to determine if a fruit or vegetable is fresh and a healthy choice is to read the Nutrition Facts label and the ingredient list on the package. Here’s how to look:

Most fruits and vegetables are naturally low in fat and high in vitamins. High amounts of fat and sugar can indicate that a food has been processed into less healthy choices.

**SIP SMART**

Drink water or low-fat milk instead of sugary drinks. Choose 100% pure option over juice. Enjoy your food but don’t overeat. www.learningzonexpress.com 1-888-455-7003

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STEM CONNECTIONS

**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:

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:

Food chemist
Flavor chemist
Food scientist
Dietitian
Nutritionist