

Mobile Ag Ed Science Lab

Vocabulary

General

agriculture	farming; the occupation, business, or science of cultivating the land, producing crops, and raising livestock in order to provide food and products
by-product	something of value produced during the making of another product
conclusion	to bring to a close; to deduce by
control	to regulate or restrain
data	information; facts or figures used in analysis
hypothesis	an educated scientific guess
observation	to notice or record results in a science experiment
procedure	series of actions or steps completed in a certain order
product	something that is manufactured or refined for sale
properties	a characteristic or quality of something
scientific method	process that scientists use to study and learn about the world around them; tool that scientists use to find the answer to questions by following a series of steps: <ol style="list-style-type: none">1. Identify Problem2. Form a Hypothesis3. Test the Hypothesis4. Collect and Analyze data5. Make Conclusions
variable	something able to change or vary

Elementary

Colorful Bean

biodegradable	readily decomposed or broken down through bacterial action
hydrogenated	to treat a liquid vegetable oil with hydrogen and convert it into a solid fat
non-renewable	a resource or product that cannot be renewed or recycled
petroleum	a thick, dark, flammable liquid that occurs naturally below the surface of the earth and is processed into such products as natural gas, gasoline, kerosene, and fuel oils
renewable	a resource able to be restored or make new again

Mighty Smooth Bean

absorption	the process of taking in of a liquid or absorbing
chemical change	to bring about a change in the chemical makeup of a substance
embryo	the early developmental stage of an animal or plant
roots	the base of a plant that usually grows underground
seed coat	the protective outer covering of a seed
stored sugars	food within a seed put away for future use

Glue from Milk

casein	a milk and cheese protein used in foods and in manufacturing plastics and adhesives
curds	coagulated milk; to change from a liquid state to a thick, soft mass
peel strength	the stress an adhesive can bear without tearing apart when it is pulled back along the surface

shear strength	the stress an adhesive can bear without tearing apart when the stress is along the bond (pulling sideways)
tensile strength	the stress an adhesive can bear without pulling apart when the stress is at a right angle to the bond (pulling apart)
viscosity	property of fluids that causes them <i>not</i> to flow easily
whey	a clear liquid that separates from the curd when milk is curdled

Cream to Butter

agitation	to shake or move sharply and irregularly
fat content	the amount per serving of dietary fat
homogenized	milk that has been processed to break up fat globules and distribute them evenly throughout
nutrition label	a source used to determine the amount of nutrition in a food product

How Well Do You Wash?

bacteria	a division of microorganisms that cause various diseases
friction	the rubbing of a surface or object against another
germs	any microorganism, especially one that is harmful
percentage	parts per hundred: a fraction or ratio out of 100

Snack Attack

contamination	to pollute; to make impure
fat	oily animal substance
healthy	soundness of body or mind
ingredients	the elements in a mixture
nutrition labels	information found on all foods to indicate calories, fat, etc.

processed a series of changes in developing or manufacturing a product

Tree Story

cambium cell layer under bark of plants and trees from which new wood and bark grow

dendrochronology tree ring dating; an absolute dating technique using the growth rings of trees to determine the age of a stand of trees

heartwood the skeletal system of a tree made of dead sapwood that appears a darker color than new sapwood

increment borer a tool used by forestry workers to sample a tree and determine the age of the tree without cutting down the tree

inner bark the digestive system of a tree made of live phloem cells that carry the sugar/food made in the leaves throughout the tree

outer bark the skin of the tree made of dead phloem cells that split and shift in various patterns special to each tree

phloem plant tissue made of live cells

sapwood the circulatory system of a plant or tree made of xylem cells that carry minerals and water throughout the tree

xylem the woody vascular tissue of a plant or tree

Where's the Juice?

contamination action of making something impure

nutritious food with nourishing value

Pigment Power

acid a chemical substance that neutralizes alkalis

base a substance that reacts with an acid to form a salt and water

chemical reaction a reaction that happens when two or more molecules interact and something happens

control	in an experiment, a substance not tested that remains in its original form
neutral	having no strongly marked characteristics or features
phytochemicals	naturally occurring plant chemicals that fight disease

Fungi Fun

animals	multi-celled living things that consume organic matter as food for energy and are characterized by voluntary movement
cap	the button or umbrella like part of the mushroom that supports the reproduction process for the mushroom
carbon dioxide	colorless, odorless gas that is produced when people and animals breathe out
chlorophyll	green pigment present in plants that absorbs sunlight to make energy for photosynthesis process
classification	the process of organizing something according to shared qualities or characteristics. Classifications of living things starts with categories called kingdoms
flower	the part of the plant that is often brightly colored and allows for reproduction to occur
fungus	a special classification of living things that lacks chlorophyll and vascular tissue that feeds on organic matter and reproduces by spores
gills	the vertical plates arranged radially on the underside of mushroom caps that form spores
kingdom	categorizing living things by the way they absorb, ingest, or produce food
leaves	a flat green part that grows in various shapes from the stems and branches of a plant or tree and whose main function is photosynthesis
mycelium	underground mass of interwoven filaments that collect the nourishment for the mushroom
oxygen	colorless, odorless gas that is necessary for survival of living things
photosynthesis	the process by which green plants use chlorophyll and sunlight to make foods from carbon dioxide and water that generates oxygen

pistil	long central part of the flower that produces the seeds
plants	multi-celled living things that produce their own from inorganic matter through photosynthesis
root	underground part of the plant that anchors the plant and absorbs nutrients and water for the plant
seed	part of the plant, usually contained in the fruit of the plant, from which a new plant can grow
spores	tiny, tiny part of the mushroom that produces new mushroom caps from the spores
stem	main body of a plant that carries water and nutrients for the plant and supports the leaves, flowers, and fruit of the plant
stipe	short stem-like part of the fungus that supports the cap
vascular tissue	the system of tubes that carry resources (water, nutrients, and food) throughout the plant
yeast	single celled organism that converts sugar to alcohol and carbon dioxide

Environmentally Friendly Farmer – My EFF

buffer zones	strips of grass, trees, or shrubs that are planted along the edges of fields and/or waterways to decrease the amount of soil erosion (both by wind and water) and water pollution
corn	a tall green plant that produces large grains, or kernels, set in rows on a cob that yield numerous products that are highly valued for both human and animal consumption
cover crops	a crop that is planted between growing seasons to protect and enrich the soil
crops	plant or plant products that are grown by farmers
erosion	gradual breaking down
fencing	a barrier enclosing or bordering a field or yard, usually made of posts and wire, used to prevent entrance or confine animals to a particular space
manure pit	a structure on livestock farms for the collection and storage of manure

natural resources	materials or substances that are found in nature and are necessary or useful to humans
non-renewable	a resource or product that cannot be renewed or recycled
renewable	a resource able to be restored or make new again
shrubs	a woody plant that is smaller than a tree and has several main stems starting at or near the ground
silo	a tower on a farm used to store food (grain or grass) for farm animals
soil	black or dark brown upper layer of earth consisting of a mixture of organic remains, clay, and rock particles in which plants grow
soybeans	a bushy plant in the legume family that produces a seed that contains a large amount of protein and is used as food sources for both humans and livestock
wheat	a plant with thin yellow stalks that produces a small grain that is important in animal feeds and from which flour is made to produce breads, baked goods, pasta

Magical Bean

biodegradable	decomposed or broken down through bacterial action
renewable	a substance that can be made renewed or used again
nonrenewable	a substance that can not be renewed or used again
soybean	a bushy plant in the legume family that produce a seed that contains a large amount of protein and is used as food sources for both animals and livestock
legumes	legume plants have trifoliate leave (leaves with three parts). Peas, beans, peanuts, and clover are all legumes
nodules	found on the roots of the plant. Home to microbes that convert nitrogen in the air into soil nitrogen
harvest	process of gathering crops
combine	a large machine which is used on farms to harvest grains by cutting, sorting, and cleaning grain in the field

soybean oil	viscous liquid extracted from the seeds of the soybean
soy meal	powdery edible part of the soybean made by grinding
soy lecithin	fat that is essential in the cells of the body and can be found in many foods
emulsifier	a substance that stabilizes processed foods, allows ingredients to smoothly mix

No Soil? Now What?

uninhabitable	areas of land that are not suitable for people to live or grow crops (deserts, mountains, polar regions)
habitable	a place suitable for living
arable	land suited for growing crops
non arable	land where people can live, but crops cannot be grown because it is too rocky, hot, wet, or it has been developed
hydroponic	the process of growing plants without soil
nutrients	anything that nourishes a living thing; a substance or material used by an organism to survive, grow, and reproduce
nitrogen	keeps plants green and healthy
phosphorous	helps plants grow strong and healthy roots
potassium	helps plants fight disease
fertilizer	a chemical or natural substance added to soil to increase its fertility, or ability to grow plants
aerate	to introduce air into a material
rockwool	a lightweight material made from spinning melted basaltic rock into fine fibers that are then formed into cubes or blocks

Middle School

Steering Through the Chute

livestock	domesticated animals raised to produce labor and commodities such as eggs, milk, meat, etc.
natural shelters	shade from trees, access to barns
sustainable grazing	raising animals to provide quality meat
tracking	using ear tags to track animal health throughout their life
handling	using a stress free method of moving livestock

Water Analysis

contamination	to make impure; pollute
concentration	to increase, as in density; a concentrated substance
groundwater	water that is under the surface of the ground
indicator	to be a sign of change
ppb	parts per billion, a term used to describe parts of a polluting substance per billion drops of water
source	a place of origin
spot plate	a tray to hold samples of water or other liquids in an experiment

Corn to Plastic

biodegradable	readily decomposed or broken down by bacteria
landfill	a place for burying garbage
non-renewable	a substance that cannot be renewed or used again
renewable	a substance that can be renewed or used again

Genetics

biotechnology	a collection of scientific techniques, including genetic engineering, that are used to create, improve, or modify plants, animals and microorganisms
chromosome	any of the microscopic bodies carrying the genes of heredity
DNA	deoxyribonucleic acid basic material of chromosomes that transmits a heredity pattern
dominate	genetic material that overpowers recessive genes; genetic material that is the stronger trait and are always expressed in the offspring
gene	unit of heredity in a chromosome
genotype	internally coded, inheritable information carried by all living organisms
inherited	DNA material of both parents that is carried to the offspring
phenotype	the outward, physical manifestation of the organism; anything that is part of the overall structure, function, or behavior of a living organism
recessive	genetic material that tends to recede or be diminished
trait	a characteristic

Exciting Eggs

air cell	a space between the inner and outer shell membranes that increase with time
albumen	the white part of the egg that acts as an elastic shock absorber and has a high water content
bacteria	microorganisms causing disease
candling	a device which is used to judge interior quality by holding the egg up to a light to see the air cell, yolk, and the white
chalazae	two whitish cords on opposite sides of the yolk which hold the yolk in the center of the albumen
follicle	a small sac or gland
germinal disk	a tiny spot on the upper surface of an egg and if fertilization occurs it will develop into an embryo

oviduct	the organ of a female bird which puts the albumen, shell membrane, and the shell around the yolk
shell	hard outer covering, as on an egg
shell gland	a gland that secretes a substance that causes the hardening of egg shells
shell membrane	two thin layers (outer and inner) inside the shell that surrounds the white albumen portion of the egg
USDA regulations	United States Department of Agriculture certification that states the eggs have been examined for quality and size
yolk	the round, yellow mass inside the egg
yolk sac	the follicle in which an ovum and its surrounding yolk are held until the yolk matures and is released

Bug Out!

beneficial	helpful or an advantage
complete	a complete change in form as in a caterpillar to a moth or butterfly, from larvae to
insect	small animal with six legs
Integrated Pest Management (IPM)	IPM is a thoughtful 6 step method of assessment, treatment, and evaluation to ensure the least invasive treatment necessary is used to minimize pest damage while protecting human health, the environment, and economic viability
metamorphosis	change insects go through from pupa to adult
methods	cultural- site selection, sanitation, plant health, rotations physical-tillage, weeding, mulching, pruning, traps barriers, flaming biological-predators, parasites, nematodes chemical-soaps, oils, baking soda, repellants, microbials, herbicides, insecticides, fungicides
pest	something that causes annoyance, damage or harm
vertebrates	having a spinal cord or backbone

Super Slurper

absorbency	having power, capacity, or a tendency to soak up liquids
non-renewable	a substance that cannot be renewed or used again
osmosis	movement of water through a semi permeable membrane from area of low concentration to high concentration
polymer	a naturally occurring or synthetic chemical compound consisting of large molecules made up of millions of repeated linked units
renewable	a substance that can be renewed and used again
saturated	unable to hold or contain more; full
water-holding capacity	the maximum amount of water a given substance can hold before becoming saturated

Banana DNA

biology	the study of living things
biotechnology	a tool that uses biology to make new things or improve the products we have
cell	the basic units of living things
cell membrane	thin semi-permeable membrane that surrounds the cytoplasm of a cell, enclosing its contents
chromatin	a protoplasmic substance in the nucleus of a cell that allows certain molecules to pass through
chromosomes	a rod-shaped structure, usually found in pairs in a cell nucleus, that carries the genes that determine sex and the characteristics an organism inherits from its parents
cytoplasm	living part of the cell inside the cell membrane and outside the nuclear membrane, where much of the work of the cell occurs
DNA	the hereditary material in cells that contains the instruction for producing the cell and enabling it to function
extract	procedure to obtain, or remove, a substance by chemical or mechanical action

filtrate	the material collected after a solution or mixture passes through a filter
genes	hereditary unit consisting of a sequence of DNA that occupies a specific location on a chromosome and determines a particular characteristic in an organism
living things	something that is capable of growth, reproduction and metabolism
nucleus	a membrane bound structure that contains the cell's hereditary information and controls the cell's growth and reproduction
nuclear membrane	double-layered membrane enclosing the nucleus of a cell that allows certain molecules to pass through
precipitate	solid material that comes out of a solution as a result of a chemical or physical change
slurry	a watery mixture; a liquid mixture of water and an insoluble solid material
technology	a tool used to make things better

The Science of Chocolate

cocoa bean	seed of the cocoa plant
cocoa butter	fatty substance obtained from the cocoa bean
cocoa nibs	center of a cocoa bean that is used to make chocolate
cocoa powder	powdery remains of chocolate liquor after cocoa butter is removed
dissolve	to melt or liquefy; to make a solution by mixing with a liquid
food scientist	a person who studies all aspects of food development, from harvest to development and manufacturing to packaging
ingredients	any substance that is combined to make a particular product
melting point	temperature at which a solid turns into a liquid
palate cleansing	to clean and refresh the mouth of any previous taste between different substances
solute	something that gets dissolved

solution	the mixture that results when a solute has completely dissolved in a solvent
solvent	the substance in which the solute is dissolved
soybeans	seed of a bushy plant in the legume family that is grown for food, animal feed, and a variety of other uses
soy lecithin	yellowish-brown fatty substance extracted from the soybean that is used as an emulsifier in foods to hold ingredients together
taste test	to try or test the flavor or quality of something by taking some into the mouth
vanilla pod	fruit of bean of the vanilla plant
viscosity	tendency of a liquid to not flow

Primary

Thirsty Stems

capillary action	the principal characteristic of stems is their ability to move water and dissolved minerals upward, downward, and side-to-side within plants
flower	petals and pistil of a plant
leaves	flat, thin, usually green part growing from a plant stem
root	underground part of a plant
stem	stalk of a plant or flower

Bee-utiful Relationship

flower	petals and pistil of a plant
petal	leaf-like part of a blossom
pistil	seed-bearing organ of a flower
pollen	powder-like cells from the anthers of flowers
pollination	placing pollen on the pistil of a flower
pollinator	insects that pollinate flowers
sepal	leaf-like part at the base of a flower
stamen	pollen-bearing part of a flower

Feast Like a Bug

beneficial	helpful or an advantage
harmful	causing hurt or damage
insect	small animal with six legs

labellum	a liplike part, such as the tip of the proboscis of various insects, used for lapping up liquids
mandible	lower jaw of mammals and some insects
piercing proboscis	a sharp, straw-like tube on some insects used to gather food
proboscis	a special, slender mouth-part on some insects used to gather food

Popcorn Capers

corn	a tall green plant that produces large grains, or kernels, set in rows on a cob that yield numerous products that are highly valued for both human and animal consumption
float	to stay on the surface of a liquid
kernel	the seed of a grain
popcorn	variety of corn with hard kernels that swell up and burst open with a pop when heated
seed coat	the protective, outer surface of a seed
sink	to go or put beneath the surface of the water

Walk-Through

Farm Charm

barn	farm building used for livestock and storage
farm	land used to raise crops or animals
fertilizer	manure or chemicals to enrich the soil
plants	living things that cannot move and can make its own food
soil	earth or ground, especially the surface layer

Tops and Bottoms

flower	petals and pistil of a plant
fruit	pulpy, edible product of a plant or tree
leaves	flat, thin, usually green part growing from a plant stem
root	underground part of a plant
seed	the part of the plant from which a new one will grow
stem	stalk of a plant or flower
weed	unwanted plant, as in a lawn

Crawly Critters

abdomen	the bottom section of an insect's body
antennae	the feelers on the head of an insect
beneficial	helpful or an advantage
compound eyes	many small eyes within two larger eyes in an insect

pheromones	substance secreted by animals to signal others of the same species
thorax	middle segment of an insect
wings	organ used by a bird or insect in flying

Little Red Hen's Pizza

dairy	milk products such as yogurt, cheese, and milk
grains	the seed of a food plant such as wheat and corn
farm	land used to raise crops or animals
pork	food that comes from pigs
soil	earth or ground, especially the surface layer
wheat	a type of grain that can be ground into flour

Forest & Me

erosion	the process by which the surface of the earth is worn away by the action of water, glaciers, winds, waves, etc.
windbreak	a growth of trees, a fence, or the like, that serve as a shelter from the wind
roots	underground part of a plant
branches	a limb or offshoot of the main stem
trunk	the main stem of a tree
leaves	flat, thin, usually green part growing from a plant stem
oxygen	a colorless, odorless gas that humans and animals breathe (inhale)
carbon dioxide	a colorless, odorless gas that humans and animals breathe out (exhale)
photosynthesis	the process by which plants convert the carbon dioxide into their food, with the help of the energy from the Sun.

How Does Your Garden Grow

air	invisible gas, mostly oxygen and nitrogen, surrounding the earth
calcium	a mineral nutrient responsible for keeping bones and teeth strong
chemical symbol	a letter abbreviation for a chemical element
nutrients	anything that nourishes a living thing; a substance or material used by an organism to survive, grow, and reproduce
nitrogen	keeps plants green and healthy
phosphorous	helps plants grow strong and healthy roots
potassium	helps plants fight disease
fertilizer	a chemical or natural substance added to soil to increase its fertility, or ability to grow plants
soil	upper layer of the earth
soil testing	analyzing a sample of soil to determine the nutrient content
photosynthesis	process by which plants use sunlight to make food from carbon dioxide and water
oxygen	colorless, odorless gas found in the air that supports life

Can You Dig It?

dirt	dead soil with no nutrient value
soil	a living ecosystem composed of water, air and plant and animal matter
ecosystem	a community of interacting organisms and their environment
organic matter	matter that has come from a recently living organism
bedrock	bottom layer, solid rock
parent material	mostly weathered or broken rock
subsoil	made up of sand, silt, clay that has not been broken down all the way

topsoil	layer that provides support and nutrients to plants; the layer where plants and animals live
organic layer	thin layer where decomposed parts of plants, leaves and insects can be found
nutrients	anything that nourishes a living thing; a substance or material used by an organism to survive, grow, and reproduce
carbon dioxide	colorless, odorless gas breathed out by humans and absorbed by plants