

Instructional Terminology

AGRISCIENCE

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A

Active Transport - Movement of molecules across the cell membrane using ATP ENERGY (against the concentration gradient)

Adaptation - Change on an organism that helps it survive better in its environment

Additive - A substance added to an animal's diet in small quantities, typically to improve or preserve it

Adenine - One of the nucleic acids found in DNA and RNA; pairs with thymine (DNA) and Uracil (RNA)

Aggregate - Particles added to concrete to make it more economical

Agronomic Crop - Occupy large acreage and are the main food and fiber production crops of the world

Airborne - Spread through the air

Alkaline - Basic; having a pH greater than 7

Alleles - The letters that represent the different forms of a gene (hair curliness: H=hair curly; h=hair straight)

Alloy - Combination of two or more metal elements made to improve strength or some other quality of the original metal

American Welding Society (AWS) - One of many associations and societies that establish codes and/or standards for the welding

industry

Amino Acid – Simple organic compounds which are the building blocks of proteins

Animal Cell - Basic units animals are made up of that contain a nucleus and organelles and carry out basic functions to keep the animal alive

Animalia - Kingdom made up of animals

Annual - Each year

Antibiotic - Medicine administered to fight an infection, typically a microorganism

Arc - Flow of electric current across a narrow gap

Arc Blow - Concentration of magnetic force acting on the welding arc causing it to deflect, move, or blow from its normal path

Arc Welder - Machine that uses electric current to fuse two pieces of metal together

Arc Welding (Shielded Metal Arc Welding) - Process of using an electric arc as the source of heat to join two or more pieces of metal by the fusion process

Architect Scale - A measuring tool with increments shortened to proportion (1 in = 1 foot on paper)

Artificial Insemination - The mechanical means of inserting semen

This Instructional Terminology is aligned to both the Program Blueprint for Instruction & Assessment as well as the Instructional Framework. It corresponds with the technical standards adopted July, 2020. Use of content-specific terminology is provided to help identify consistent definitions.

into the uterus of an animal, not by sexual intercourse

Asset - Property of a person or business that has value

Atom - The smallest component of an element having the chemical properties of the element

Atomic Mass - Number of protons and neutrons in an atom

Atomic Number - Number of protons in an atom

B

Bar Graph - Diagram that represents measured variables with equal width bars (lines or rectangles)

Base Metal - Metal to be welded

Bead Weld - Weld made by one pass of the electrode

Bill of Material - List of materials with specifications that are needed in a project. This includes size, dimension, and cost

Biodiesel - Substitute for diesel; made from a living organism

Bioethics - Ethics used in the research of living things

Biofuels - Substitute for fuels; made from living things

Biohazard - Risk to the environment or other living things from a biological source, usually a microorganism

Bonds - A bond is a promise to repay the principle along with interest (coupons) on a specified date (maturity)

Biological control - Control of pests or insects using another living organism that's its natural enemy

Bioremediation - Use of microorganisms to break down pollution

Biotechnology - Exploration of biological processes for industrial and other purposes like creating new plants and animals

Border - A heavy line around and close to the outer edges of the paper or outer edges of a yard or landscape project

Bowel Movement - Feces that leave the body during defecation

BST - Bovine Somatotropin hormone

Budget - A written plan that predicts the use of assets for an enterprise: a schedule of expected return on costs

C

Capital - Items that have a usable life of more than one year and a value of more than \$500 dollars

Carbohydrates - A biomolecule occurring naturally in foods and living tissues that includes sugars, starch, and cellulose

Carrying Capacity - The number of living things that can be supported in a given area/environment

Cell - Smallest unit of life

Cement - A fine gray powder of calcined limestone and clay

Center Line - A real or imaginary line through the center of something where both sides are a mirror image

Chemical control - Control of pests or insects using chemicals

Chipping Hammer - Used to remove slag from the weld

Cladogram - A branching diagram showing evolutionary relationships among organisms

Class - Taxonomic rank between phylum and order

Clay - A sedimentary material with grains smaller than 0.002 millimeters in diameter

Clone - A genetically identical organism

Co-Dominance - When phenotypes for both genes are expressed simultaneously

Coarse Aggregate - Aggregate that is between $\frac{1}{4}$ to $1\frac{1}{2}$ inch in size, gravel

Cold Lap – A type of weld defect characterized by weld metal piling up due to improper starts and current adjustments where the molten metal does not fuse with the cold plate surface

Commensalism - Relationship between two organisms where one benefits and the other is neither helped nor harmed

Commodity - A raw material that can be bought and sold

Compound - A chemical substance made of many identical molecules composed of atoms from more than one element held together by chemical bonds

Concrete - Created when cement, aggregates, and water are mixed together and hardened

Conservation - Protection of resources

Constants - ensures the 1 tested variable is causing the results

Consumable Supplies - Items that are used in a business within one year

Consumer - Person purchasing goods and/or services

Contour Lines - Curved and usually brown lines that connect points of equal elevation on a map are used to portray the shape and elevation of the land and represent three-dimensional shapes on a two-dimensional surface

Control - Standard or normal treatment in an experiment so you can compare the results

Cotton gin - A machine that separates the seed from the remainder of the cotton plant

Crater - Depression in face of a weld, usually at the point where weld stopped

Creed - A set of beliefs which guides actions

Cross Contamination - When bacteria are accidentally transferred

from one item to another

Cubic Feet - A unit of volume equal to a cube one-foot-long on each side

Cultural control - Controlling pests and insects by making the environment less suitable for them to survive

Current Asset - Assets that do not depreciate and are not kept for over one year

Cutting Plane - _____

Cytoplasmic Streaming - The process of the cytosol being in constant motion, allowing materials to move throughout the cell

Cytosine - One of the nucleic acids found in DNA and RNA; pairs with guanine

Cytosol - Jelly like fluid that protects the organelles

D

Data Table - A display of numbers (data) in rows and columns

Deciduous - Broadleaf plant that sheds its leaves each year

Declination - The difference between true north and magnetic north

Deficiency - Lack of a particular nutrient

Dehorn - The act of removing the horns from an animal

Dehydration - The loss of water in the body

Dependent Variable - Variable that depends on the independent variable, measured by the researcher, also known as the responding variable

Depreciation - The decrease in value of a business asset caused by wear and obsolescence

Dichotomous Key - The tool used to identify items based on their physical characteristics

Dicot - Embryo of a flowering plant that has two seed leaves

Diffusion - Movement of substances by the natural movement of their particles from high to low concentration with the gradient

Digestion - The process of breaking down food by mechanical and enzymatic action into substances that can be used by the body

Dilute - Make a liquid weaker by adding water or another solvent to it

Dimension line - | 1 5/8" | Lines on a drawing that indicate the length of a measurement

Diploid - Having a complete set of chromosomes from each parent

DNA - Deoxyribonucleic acid; genetic information

Dominant - Trait that overshadows and is expressed (capital letter) (Ex: H)

Dose - Quantity of medicine or drug taken or recommended to be taken

E

Economic threshold - Point at which it is profitable to treat an insect or pest issue

Economical - Giving good value in relation to the amount of money, time, or effort spent

Economically threatening - Something that could be financially detrimental

Electrode - A conductor used to make contact with a nonmetallic part of a circuit allowing electricity to enter or leave an object, substance, or region

Electrode Holder with Lead - Holds electrode

Embryo transfer - The process of moving an embryo from one superovulated female to the uterus of another using a catheter

Endocytosis - Part of the cell membrane surrounds materials in a vesicle and carries them into the cell to be released inside

Entrepreneur - Organizer and owner of a business

Entrepreneurship - Students create an enterprise/business (independent project)

Environmental hazard - Something that could have harmful effects

on the environment

Epidermis - Outer/surface layer of the skin

Equilibrium - A state of balance within the body

Erosion - Loss of soil by wind, water, or other natural agents

Ethanol - A fermented sugar added to gasoline to reduce carbon emissions

Eukaryote - A cell type in which the DNA is in chromosomes inside of the cell's nucleus

Evergreen - A plant that has leaves all year round

Evolution - Diversification of organisms over time

Exocytosis - Part of the cell membrane surrounds materials in a vesicle and carries them out of the cell to be released outside

Expenses - The cost of purchasing items or services

Exploratory - Type of SAE where you explore many options

Export - Commodity sent out of a country to someplace else

F

Family - Taxonomic rank between order and genus

Fats - Type of feedstuff containing the most amount of energy; also known as lipids

Fertility - The ability to bear young

Fertilization - The process of male and female gametes fusing to form a zygote

Fibrous - Root made up of thread-like fibers; characteristic of monocots

Filament - Makes up the stamen, a male reproductive organ in flowers; supports the anther

Fine Aggregate - Aggregate that is smaller than ¼ inch, sand

Fixed Costs - Costs that do not change with the volume of production

Flight or fight - Response to a situation where the animal feels threatened and either fights or runs away

Flux - A chemical coating on electrodes used to promote fusion of metals during welding

Fossil fuels - Natural geological fuel

Full Scale – Drawing is the same size as the object it represents

G

Genes - A small stretch of DNA that controls a trait you exhibit; found on chromosomes

Genetic Engineering - Changing the genetic make-up of an organism using molecular techniques. This includes introducing one or more genes from unrelated organisms

Genetic Modification - Used interchangeably with genetic engineering although there are many types that do not involve genetic engineering

Genetic Pedigree – The representation of a family tree which diagrams the inheritance of a trait or disease through several generations

Genetics - The study of heredity and the variation of inherited characteristics

Genotype - Combination of alleles (Letters): HH, Hh, hh

Genus - Taxonomic rank between family and species; makes up the first part of the scientific name and should be capitalized

Glands - An organ in the body that secretes a chemical substance

Global Harmonization System (GHS) - International standard for identifying hazards in the workplace

GM foods - Foods derived entirely or in part from GM crops

GMO - Genetically Modified Organism

GPS - Global Positioning System; navigation and surveying system based on the use of satellite triangulation

Gross income - Income earned before taxes

Ground - A green or copper wire that connects the electricity to the

earth through a grounded conductor

Ground Clamp with Lead - A device used for making an electrical connection with a ground

Guanine - One of the nucleic acids found in DNA and RNA; pairs with cytosine

H

Haploid - Having a single set of unpaired chromosomes; half the number of the parent cell

Hardwoods - Come from broadleaf trees that lose their leaves each fall season, called deciduous trees

Helix Structure - Shape of DNA

Heredity - The process of characteristics (traits) being passed genetically from parents to offspring

Heterotrophic - An organism that gets its energy from eating other organisms

Heterozygous - 2 alleles for 1 trait that are different (Ex: Hh)

Hidden Lines - -----

Homozygous - 2 alleles for one trait that are the same (HH or hh)

Horizon - A layer parallel to the soil surface whose characteristics differ from the material above and below it

Hormones - A regulatory substance in living organisms that stimulates cells or specific tissues to move into action

Hybrid - Offspring of two plants or animals of different species or variety

Hypothesis - A proposed explanation that is a starting point for investigation

I

Import - commodity brought into a country

In Vitro - A process that takes place outside of a living organism such as in a test tube, culture dish, or elsewhere

Income - Money received for products sold or services provided

Incomplete Dominance - The blending of traits

Indentured Servitude - A landowner paid for immigrants to come from Europe and they worked for a specified period of time to pay back the cost to the landowner

Independent Variable - Variable that the researcher purposely changes, also known as the manipulated variable

Infectious - A disease that could be transmitted through the environment

Insulin - Biotechnological medicine that treats diabetes

Insurance – An arrangement in which an organization (company or governmental agency) receives payment of a premium in exchange for a guarantee of compensation for identified events

Interest rates - Percentage of a loan charged to the borrower for the use of the funds

Inventory - A list of items and their value as property, goods in stock, or contents of the building

Investments - Devoting time, effort, money, or energy to a particular undertaking with the expectation of positive results

Irradiation - Process of exposing food to gamma rays to kill bacteria and microorganisms

Isolation - Keeping an organism by itself away from other organisms to reduce the spread of disease

J

K

Kingdom - Highest taxonomic rank

L

Land Grant Institution - Land that was set aside in each state for college-level agriculture education by the Morrill Act

Liability - Item or service owed to a person or business

Line Graph - Chart that uses lines to connect measurable data points

Lipids - Organic compounds that are insoluble in water but soluble in organic solvents, provide the body with stored energy, also known as fats

Loam - A soil composed of relatively equal amounts of sand and silt and a smaller proportion of clay

Logo - Symbol or design adopted by an organization used to identify itself

Long Term Goal - A goal that will take longer than 6 months to accomplish

M

Macro - Large scale item

Macromolecule – A very large molecule composed of a thousand or more atoms with subunits of different types

Macronutrient - Nutrient needed in large amounts for plant growth and development

Mad Cow Disease - Disease of cattle also known as Bovine Spongiform Encephalitis

Masonry - Building of structures with stone, brick, or block

Mean - Also known as average, equals the sum of all data values divided by the number of data values

Median - After terms are put in order it is the middle term of a data set that has an odd number of terms or the average of the two middle terms of the data set that has an even number of terms

Meiosis - Cell division resulting in four daughter cells each of which have half the number of chromosomes as the parent

Metal Inert Gas (MIG) Welding - An arc welding process where a continuous solid wire electrode is heated and inserted into the weld pool from a weld gun causing it to join with the workpiece metal(s)

Metamorphosis - Transformation of an immature species into an adult

Micronutrient - Nutrient needed in small amounts for plant growth and development

Micronutrients - Nutrients needed in small amounts (see also Trace Nutrients)

MIG welding - Metal inert gas welding; also known as Gas Metal Arc Welding

Minerals - Group of inorganic naturally occurring substances that are essential for growth and nutrition

Mission - Used by a company or organization to explain its purpose(s) for existing

Mitosis - Type of cell division that results in 2 daughter cells each having the same number of chromosomes as the parent cell, to repair cells or grow

Mode - Is the most often occurring term; a data set may have more than one mode or none

Molecules - Group of atoms representing the smallest unit of a chemical compound

Monocot - Embryo of a flowering plant that has one seed leaf

Mortar - A mixture of cement and sand used to bond masonry units together

Motto - Official statement that summarizes the character, ideals, and/or beliefs of an individual, family, organization, or institution

mRNA - Messenger RNA; carries DNA codes to ribosomes

Multicellular - Made up of many cells

Mutation - Alteration in the nucleotide sequence of an organism

Mutualism - Relationship between two organisms where both organisms benefit from the relationship

N

Natural Selection – The process through which organisms that are better adapted to the environment are the organisms which survive to reproduce more offspring

Nerves - Bundle of fibers that transmits signals to the brain or spinal cord and then back to muscles or organs

Net worth Statement - Financial document that reports net worth (assets minus liabilities) of a person or business

Net worth - The value of assets less the value of liabilities

Net Pay - The total amount of money earned after all deductions are withheld

Niches - An organism's position/function in its environment

Non-Current Asset - Assets that are kept for over one year and have a value of \$100 or more

Non-renewable resources - A finite resource that cannot be replaced or renewed

Noninfectious - A disease which is not transmitted through the environment

O

Observation - The act of watching something to gather information

Opportunity cost - When one alternative of many is chosen, the potential loss of benefit from those alternatives not chosen

Organ - Made of similar tissues that work together to perform a

specific activity

Organ System - Groups of one or more organs working together to perform functions for the organism

Organic - Derived from living matter; a farming method where production occurs without the use of synthetic chemicals, fertilizers, etc.

Organic Matter - Decayed plant and animal life

Organism - An individual animal, plant, or single-celled life form

Ornamental - Plant grown for its decorative quality

OSHA - Occupational Safety and Health Administration; ensures employees health and workplace safety; safety guidelines and requirements

Osmosis - Movement of water molecules from high to low concentration with the gradient

Outline Lines - _____

Overgrazing - Grazing animals so heavily that the vegetation is so damaged that erosion is more likely to occur

Ovule - After fertilization, the part of the ovary that becomes the seed

Oxyacetylene Welding - Use fuel gasses and oxygen to weld

P

Pad – A piece of practice metal on which parallel beads are deposited side by side

Parasite - Organism that lives in or on another organism, stealing its nutrients and causing it harm

Parasitic - Living as a parasite

Parent Material - Unweathered material from which soil is formed

Parliamentary Procedure - The body of rules that define how situations are handled or outcomes achieved in legislative bodies

Passive transport - Movement of molecules across cell membranes WITHOUT the use of ATP energy (with the concentration gradient)

Pasteurization - Milk or other products heated to sterilize it, thereby eliminating pathogens and making it safe for consumption, and extending shelf life

Patented - Right granted to an inventor giving them exclusive rights to a product or product design

Penetration – The extent to which weld metal combines with base metal as measured from the surface of base metal

Perennials - Plants that regrow year after year

Permeability - The ease at which air, water, and roots move through the soil

pH - Expresses the acidity or alkalinity of a solution

Phenotype - Physical appearance of a trait (Ex: curly, straight)

Photosynthesis - Utilization of sunlight to synthesize energy for food

Pie Chart - Graph in which the circle is divided into sectors which represent percentages of a whole

Placement - Students volunteer or work for a business/organization (independent project)

Plagiarism - Taking someone else's work and claiming it as your own

Plant Cell - Basic units plants are made up of that contain a nucleus and organelles and carry out basic functions to keep the plant alive

Pollution - The presence or introduction of a substance that has harmful or poisonous effects on the environment

Porosity - Condition caused by a trapped gas pocket in a weld as it solidifies; total pore space in soil, volume in soil holding air and water

Post-emergent - Type of herbicide that kills plants which have already emerged from the ground

PPE - Personal protection equipment, refers to protective clothing or equipment used to protect the wearer's body from harm, examples include helmets and goggles

Pre-emergent - Type of herbicide that kills plants before they emerge from the ground

Precision agriculture - Using new technologies to increase yields and profit while using less input

Prediction - Educated guess or forecast

Pricing incentive - Common sales incentive; items are reduced in price to encourage sales numbers to rise

Primer - Preparatory coat used on previously unpainted materials

Prions - Transmissible agent that changes proteins and makes them infectious and deadly

Producer - Creates its own energy using sunlight

Product feature - A particular aspect of a product that will hopefully entice buyers to purchase it

Profit - Income minus costs

Prokaryote - A single-celled organism without a nucleus

Propagation - Breeding of plants or animals from the parent stock

Proteins - Class of nitrogen-based organic compounds composed of amino acids and are an essential part of living organisms

Punnett Square - A square diagram that is composed of a grid of usually four boxes and is used to calculate and depict all the combinations and frequencies of the different genotypes and phenotypes among the offspring of a cross

Purebred - Organism bred from parents of the same breed or variety

Q

Qualitative Data - Data that is observed, but not measured; examples include color, texture, taste, appearance

Quantitative Data - Data that is measured; examples include mass, length, time

Quarantine - Period of isolation to prevent the spread of disease

R

Reaper - A machine used to harvest cereal grains

Recessive – Heritable characteristics controlled by genes expressed in offspring when inherited from both parents; often hides in the background (lowercase letter); can only be expressed in homozygous form (Ex: hh)

Reimbursement – Repayment of something

Renewable resources - Resource that can be replenished or replaced as it is used up

Replication - Copying or reproducing something

Research - Student plans and conducts an experiment using the scientific method (independent project)

Respiration - Breathing; creating energy through the use of oxygen and release of carbon dioxide

RNA - Ribonucleic acid, messenger carrying instructions from DNA for producing proteins

Root - Bottom surface of a weld; the opposite side from which the

welding was done

Root hairs - Outgrowths from the roots that absorb water and nutrients from the soil

Ruler - Measurement tool with increments that are in proportion to real life (1 foot = 1 foot)

Return - The money gained through investment or profit

Revenue - Amount earned from sales of goods or services and inflow from miscellaneous sources such as interest, rent, and royalties; income earned for the period, such as from the sales of goods and services

S

Sale incentive - Extra payment to employees to encourage them to make more sales

Sand - A granular sedimentary material, composed of rock and mineral particles, defined by its grain size (smaller than gravel and coarser than silt)

Sanitation - Cleanliness in relation to water and sewage disposal

Scale factor – The ratio between two corresponding measurements of an object; usually a decimal which scales or multiplies a quantity

School-Based Enterprise - Student-led business enterprises that provide goods or services where a group of students usually works cooperatively

Scientific Method - Research that uses systematic rules and

procedures to investigate a problem by formulating and testing a hypothesis

SDS - Safety Data Sheet; contains pertinent information on chemicals

Secondary - Less important than primary

Selective breeding - Choosing parents with particular characteristics to breed to create a more desirable offspring

Service Learning - One or more students plans, conducts and evaluates a project designed to provide a service to the school, public entities, or the community other than FFA

Sharecropping - Landowners provided the use of arable land to a farmer in exchange for a share of the crop produced

Sharps Container - Rigid, puncture-resistant container used to store discarded needles or other medical material

Short Term Goal - A goal that will be accomplished within the next 6 months

Silt - A granular material consisting of very fine particles intermediate in size between sand and clay; carried by running water and deposited as a sediment

Slag – Nonmetallic by-product of welding process; made of flux and nonmetallic impurities

Slag Inclusion – A defect in finished products made by rolling or forging; when nonmetallic porous material is captured in weld metal or between the weld metal and base metal; a common issue in FCAW

welding

Small Intestine - Part of the digestive system between the stomach and large intestine, absorbs nutrients

Softwoods – Wood from needle leaf or evergreen trees, conifers

Soil - A mixture of broken and weathered fragments of rock and/or decaying organic matter which covers the earth in a thin layer and serves as the medium for plant growth

Spatter - Deposit of small spots or particles of metal on the base metal long side of the bead

Species - Lowest taxonomic rank; second part of the scientific name written in lowercase

Stem cells - Similar cell of a multicellular organism that can make more cells

Stimulate - Raise activity levels

Style - Female part of the flower that connects stigma to the ovary

Supervised Agricultural Experience (SAE) - Student-led, instructor-supervised, work-based learning experience that results in measurable outcomes within a predefined, agreed-upon set of Agriculture, Food and Natural Resources (AFNR) Technical Standards and Career Ready Practices aligned to your Career Plan of study

Supplement - Material that completes or enhances an animal's diet

Sustainable - Able to be maintained

T

Tack Weld - Small weld used to hold base metals together temporarily

Tap - Straight root growing vertically downward

Tensile Strength – Maximum pull stress in pounds per square inch that a weld specimen can withstand

Texture - Proportion of sand, silt, and clay present in a soil

Texture by Feel Method - A step by step method used to classify the soil texture

Thymine - One of the nucleic acids found in DNA; pairs with adenine

Tillage - Turning the crop residue under the surface of the soil leaving the soil barren (empty)

Tissue – An ensemble of similar cells that together to perform a specific function

Title Block - The section of a drawing reserved for information about the drawing in general

Topsoil - Top layer of soil with the highest concentration of organic matter which contains microorganisms

Toxicity - Degree/amount to which a substance can damage an organism

Trace - Small quantity

Trace Nutrients - Nutrients needed in small amounts (see also Micronutrients)

Tracker - Log of journal or financial actions to be entered online at a later date

Transcription - the process by which information in a strand of DNA is copied into a new molecule of messenger RNA (mRNA). DNA safely and stably stores genetic material in the nuclei of cells as a reference, or template.

Transgenic - An organism that contains DNA that was inserted from an unrelated organism

Translation - Process of making proteins from the RNA code, occurs in ribosomes

Transport Protein - Protein embedded in the cell membrane responsible for picking up molecules from the outside or inside of the cell and carrying them across the cell membrane

U

Undercutting – A groove in base metal near the root of the weld that occurs when it fails to fill in the grooved area due to excessive current and the improper movement of the electrode

Uracil - One of the nucleic acids found in RNA; pairs with adenine

Urine - Watery, yellowish fluid stored in the bladder which contains nitrogen compounds removed from the blood by the kidneys

V

Vaccination - Treatment to produce immunity against a disease

Vaccine - Stimulated antibody production against a disease

Variable Costs - Costs that change as production within an enterprise changes

Vector - An organism that transmits a disease from one living thing to another

Vitamins – A group of organic compounds essential for normal growth and nutrition required in small amounts in a diet

W

Water - Colorless, transparent, odorless tasteless liquid

Water Holding Capacity - The amount of water soil can hold

Weaning - The process of removing an animal from being able to drink its mother's milk

Weld Face - Exposed surface of a fusion weld

Wire Brush - Used to clean the weld face after welding

Withholding - Deduction from an employee's paycheck

X

x-axis - Horizontal axis coordinates on a graph

Y

y-axis - Vertical axis coordinates on a graph

Yield - Amount of an agricultural product produced

Z