Acheuelan: More advance tool, symmetrical hand axe made by hitting a rock hundreds of time with a hammer stone to produce a sharp edge and a rain drop shape hand axe.
Adipocyte: fat cell.
Advanced Glycation End products (AGE): non-enzymatic glycation (slow motion Maillard reaction).
Aeolian dust: Wind-blown dust
Aguamiel: Sweet, fructose rich juice of the Maguey.
Alcohol Dehydrogenase 1 / ADHAD1: Enzyme involved in the initial step of ethanol detoxification.
Aldehyde Dehydrogenase 2 / ALDH2: Enzyme involved in the second step of ethanol detoxification.
Alkaloids: Basic, nitrogen containing compounds found in many plants and other organisms, many are toxic and have effects on the central nervous system.
Allele: Particular genetic variant at a locus.
Allergen: molecule or combination of molecules in food or other matter, that can cause an allergic reaction.
Allergy: Unwarranted immune reaction to a substance.
Ammonium Nitrate: Chemical made from ammonia and nitric acid (HNO3) which is used for nitrogen fertilizer and explosives.
Amylase: An enzyme that can dissolve starch.
Amylopectin: A type of plant starch, “sticky starch” branched polysaccharide of alpha 1-4 linked glucose with alpha 1-6 linked branching.
Amylose: Plant starch, a polysaccharide of alpha linked glucose
Anaphyllaxis: A serious, potentially fatal allergic reaction and medical emergency that is rapid in onset and requires immediate medical attention
Anorexia nervosa: A devastating eating disorder leading to malnutrition, can be fatal.
Antelopes: Antelopes account for over two-thirds of the approximately 135 species of hollow-horned ruminants (cud chewers) in the family Bovidae, which also includes cattle, sheep, and goats.
Anthropocene: the current geological age, viewed as the period during which human activity has been the dominant influence on climate and the environment.
Anti-nutrient: Molecule in plants that act to deter herbivores by being toxic, obnoxious and/ or interfering with digestion.
Antibodies: Highly specific molecular probes (Immunoglobulins) made by B-cells.
Antigen: Molecule capable of being recognized by immune cells or the antibodies they secrete.
Aquaporin: Transmembrane proteins capable of transporting water molecules across the cell membrane.

Aquatic Biotoxins: Toxins made by aquatic plankton (bacteria, protozoa or algae).
Arill: A fleshy, usually brightly colored, and often outgrowth or appendage that covers or surrounds a seed or a fruit.
Artificial fertilizer: Fertilizer containing nitrate made by the Haber Bosch process of industrial nitrogen fixation.
Asexual Reproduction: Reproduction that does not include sexual recombination and formation of a zygote by gamete fusion.
Aspartame: Artificial sweetener, methyl esther of a dipeptide, 200 times sweeter than sugar.
Atherosclerosis: Formation off gruel-like fat and immune deposits inside the arteries.
Atlatl: Spear thrower, aka Woomera in Australia.
ATP: Adenine tri phosphate, the major energy currency of living cells.
Austraolopitecine: A member of the extinct genus Australopithecus (lit, southern ape) comprising several African species of upright hominids, including *A, anamnesis* and *A. afarensis* fro East Africa and *A. africanus* and *A. Sediba* from South Africa. These upright hominids had relatively small brains, but hands that are much more human like, some of them possibly used stone tools and hunted or scavenged. They existed between 4 and 1.6 mya.
Autophagy: Cellular defense mechanisms involving the digestion of matter inside cells.
Autotroph: Organisms that use phtotosyntesis or chemosynthesis to produce sugars.
B-cells: Type of immune cell that produce antibodies.
Baboon: A group of six species of terrestrial monkeys in Africa.
Bajau: Marine hunting people of South East Asia (Austranesia).
Beriberi: Disease resulting from vitamin A deficiency.
Biomolecule: Molecule produced by living organisms.
Blow gun: Hunting weapon using air blown by hunter to propel small darts, often poisonous,
BMI: Body Mass Index defined as body mis over the body height squared. Squaring height in the denominator of BMI makes sense, because roughly speaking weight does go up proportionately to the square of height.
Bottle Gourd: *Lagenaria spec*. Gourd that produces fruit that make perfect fluid transport containers when dried.
Bovid: Pair-hoofed mammal in the family Bovidae (order Artiodactyla), which includes the antelopes, sheep, goats, cattle, buffalo, and bison. What sets the Bovidae apart from other cud-chewing artiodactyls (notably deer, family Cervidae) is the presence of horns consisting of a sheath covering a bony core that grows from the skull's frontal bones.
Brassicaceae: Family of plants that includes important food plants including cabbage, broccoli, mustard, bak Choi, cauliflower, Bai Cai, raddishes. Turnip and arugula.
Brazzein: extremely sweet tasting plant peptide from African plant Pentadiplandra brazzeana.
Brown adipocyte: Special fat cells capable of generating heat.

Bush Meat: Meat of wild animals commercially sold and often favored over domesticated animal meat by local populations.
C3 / C4 photosynthesis: Different ways plants capture CO2 from the air to form sugars, The C3 way is older and C4 evolved as adaptation to hotter and drier climate. These two different types of photosynthesis accumulate different rations of stable carbon isotopes in plants and in the animals that eat them.
Caramelization: A process of browning of sugar (**pyrolysis**) used extensively in cooking for the resulting sweet nutty flavor and brown color. The brown colors are produced by three groups of polymers: caramelans (C24H36O18), caramelens (C36H50O25), and caramelins (C125H188O80). As the process occurs, volatile chemicals such as diacetyl are released, producing the characteristic caramel flavor.
Carbon Cycle: The movement of carbon between land, atmosphere, and oceans as gas, component of living organisms, their fossils and/or minerals.
Carboniferous: A geologic period during which most of the coal deposits were formed 350 to 290 mya.
Cassava/Maniok/ Yuca: An important South American tropical tuber that provides large amount of starch and is now grown all over the tropics, *Manihot esculent* belonging to Euphorbiaceae, purge family .
Cecum/Caecum: “blind” end of the small intestine, just where the large intestine begins, the ascending Colon.
Cell wall: A complex matrix of polysacchatrides around each plant, fungal or bacterial cell, providing structural stiffness and protection.
Cellulase: Enzyme that can digest cellulose.
Cellulose: A highly resistant polysaccharide of beta 1-4 linked glucose made by plants and some other organisms, the most abundant biomolecule on the planet.
Cenozoic, Mesozoic and Paleozoic
Channel Proteins: Transmembrane proteins that can from channels and thus regulate transport of various molecules across cell membranes.
Chicha: Peruvian Maize beer malted by pre-chewing the corn and spitting it in a vat, using human salivary amylase to digest corn starch into fermentable shorter sugars.
Chitin: A resistant polysaccharide consisting of beta 1-4 linked N-Acetylglucosaine sugars made by many invertebrates and fungi. The second most abundant biopolymer on the planet.
Chitinase: Enzyme that can digest chitin.
Cholesterol: An animal lipid molecule that conveys stiffness to the cell membranes and serves as source fro synthesis of sex steroid hormones.
Chromatin: The complex of DNA with histone and adapter proteins found in the nucleus of cells.

Chylomicrons: (from the Greek χυλός, chylos, meaning juice (of plants or animals), and micron, meaning small particle), also known as ultra low-density lipoproteins (ULDL), are lipoprotein particles that consist of triglycerides (85–92%), phospholipids (6–12%), cholesterol (1–3%), and proteins (1–2%). They transport dietary lipids from the intestines to other locations in the body. ULDLs are one of the five major groups of lipoproteins (sorted by density) that enable fats and cholesterol to move within the water-based solution of the bloodstream.

Chyme: the semi-fluid mass of partly digested food that is expelled by a person's or an animal's stomach, through the pyloric valve, into the (the beginning of the small intestine).

Cis-fatty acids: In nature, unsaturated fatty acids generally have double bonds in cis configuration (with the adjacent C–C bonds on the same side) as opposed to trans. Nevertheless, trans fatty acids (TFAs) occur in small amounts in meat and milk of ruminants (such as cattle and sheep), typically 2–5% of total fat.

Clonal Selection: Selection of B-cells whereby B-cells that happen to produce certain antigens undergo clonal expansion resulting in lots of the same antigen being produced.

Cob oven: Oven built out of clay mixed with straw/grass.

Collagen: The main structural protein in the extracellular matrix found in the body's various connective tissues. As the main component of connective tissue, it is the most abundant protein in mammals, making up from ~ 30% of the whole-body protein content. Collagen consists of amino acids bound together to form a triple helix of elongated fibril known as a collagen helix. It is mostly found in tissues such as cartilage, bones, tendons, ligaments, and skin.

Comal: Traditional central American clay cooking plate.

Communication: The transmission of information between individuals or groups.

Comparative approach: A method of studying evolution that involves comparisons between different species, bot closely and distantly related.

Complement System: A complex part of the innate immune system that includes around 50 different proteins and can trigger massive immune responses based on the molecular identity of a cells (self or invading pathogens).

Convergent evolution: Independent but similar outcome of evolution in unrelated lineages a.k.a. parallel evolution.

COPD: Chronic obstructive pulmonary disease, a major cause of indoor fire and smoke inhalation.

Coprolite: Fossilized feces.

Coprophagy: Eating of feces.

Copy number variation (of genes): A type of genetic variation that involves the existence of different copy n umbers of the same gene in a population.

Corm: A rounded underground storage organ present in plants, consisting of a swollen stem base covered with scale leaves.

Corn syrup: Glucose syrup (monosaccharide solution) made from corn starch (poly glucose).

Cotyledon: The embryonic, nutrient storing leaves in a seed.

Cretinism: Intellectual disability linked to lack of iodine in the mother during pregnancy, often combined with inbreeding (**Alpine Cretinism**).
Crockery: plates, dishes, cups, and other similar items, especially ones made of earthenware or china.
Cucinivore: An animal specie that relies on cooked food.
Cuisine: The style of cooking, preparing and serving food.
Cultural relativism: The idea that a person's beliefs, values, and practices should be understood based on that person's own culture, rather than be judged against the criteria of another.
Culture: The transmission of behavior and shared meaning across generations
Cumulative Culture: Culture where ideas are shaped based on ideas of others.
Cyanogenic Glycosides: Plant toxins that produce cyanide when digested by animals.
Denisovans: An extinct sister species to Neanderthals that evolved in Asia and went extinct 40 kya.
Dental Calculus: Calcified deposit on surface of teeth that include starch granules and phytoliths.
Dental microwear: Pattern of marks left on animal teeth by the food consumed or any other use of the teeth. Can allow to reconstruct food types and tooth usage pattern even in fossils.
Desert Kite: Hunting trap for wild mammals.
DHA: Docosahexaenoic acid (DHA) is an omega-3 fatty acid (polyunsaturated) that is a primary structural component of the human brain, skin and retina. In physiological literature, it is given the name 22:6(n-3). It can be synthesized from alpha-linolenic acid or obtained directly from maternal milk (breast milk), fatty fish, fish oil, or algae oil.
Dicot: Plants that form two cotyledons.
Diet: from Greek “δίαιτα” way of life
Dioecious: Plants where male and female function are found on different individual plants.
Diploid: Genomes with two copies of each chromosome, except for the sex chromosomes).
Domestication: Process of complete control of a species’s reproduction and selective breeding for particular traits.
Dual inheritance: The process by which biological inheritance based on molecules of inheritance (DNA) and cultural inheritance based on ideas, attitudes and beliefs shape subsequent generations of humans.
Duodenum: the first section of the small intestine. In mammals it may be the principal site for iron absorption. The duodenum precedes the jejunum and ileum and is the shortest part of the small intestine.
Dutch Oven: Cast Iron pan with lid that can be used to bake without an oven.
Ecological Buffering: Process by which the ecology in which an animal lives, buffers against lack of certain vitamins, e.g. fruit rich diet of apes buffers against their inability to make the vitamin.
Edible gardens: Gardens that grow many edible plants as both decorative and nutritious features.

Element (chemical): chemical building blocks, i.e. different types of atoms oxygen carbon etc.

Endocannibalism: Consumption of human flesh for ritual reasons within a group.

Endosperm: The inside of a seed that contains the nutrients fro the plant embryo.

Endothelial cells: Cells lining the blood vessels.

Enhancer: Stretches of DNA that interact with proteins such as transcription factors and in so doing influence the activity of nearby and far away genes.

Enzyme: Protein that act as biological catalyst.

Eon: Two or more Eras form an Eon, the largest division of geologic time; Precambrian eon.

Epithelia: or epithelial tissue is a thin, continuous, protective layer of compactly packed cells with a little intercellular matrix. Epithelial tissues line the outer surfaces of organs and blood vessels throughout the body, as well as the inner surfaces of cavities in many internal organs.Metabolic disease

Epochs: Some periods are divided into epochs: e.g. Holocene, Pleistocene, Pliocene, Miocene…

ER / Endoplasmatic Reticulum: Network of intracellular esicles where protein synthesis and modification takes place.

Eras: Two or more periods comprise a geological Era.

Essential Animo Acid: Amino acids that humans cannot produce themselves, have to be obtained via the diet.

Evolution: The process by which different kinds of living organisms have developed and diversified from earlier forms during the history of the earth. The theory of evolution by natural selection underlies all modern life sciences.

Exocannibalism: Consumption of human flesh from outsiders often associated with conflict.

Expensive Tissue Hypothesis: Hypothesis about a trade off between digestive and central nervous tissues in animals.

Extra-cellular matrix / ECM: The complex matrixof proteins, polysacchraides and proteoglycans secreted by animal cells.

Extractive foraging: foraging that requires extracting food from inside hard shells, or any other difficult to obtain source.

Fatty Acids: A fatty acid is a carboxylic acid with an aliphatic chain, which is either saturated or unsaturated. Most naturally occurring fatty acids have an unbranched chain of an even number of carbon atoms, from 4 to 28

Favism: Hemolytic (red blood cell death) disease resulting from a mutation in a gene (G6PD) encoding a detoxifying enzyme when fava beans are consumed. Fava beans contain vicine, a toxic protein that generates excess oxidants. The mutation exists because it protects against malaria.

Fertile Crescent: A crescent-shaped region in Western Asia. Formed by the Tigris and Euphrates rivers and the Mediterranean Sea, this region gave rise to some of the world's earliest civilizations.

Fire regimes: Fequency, distribution and extent of fires at certain times and uncertain locations.
Fire: The chemical reaction that could be considered as “photosynthesis in reverse” carbon containing molecules react with oxygen and produce heat and light, water and CO2.
Folivory: Leaf eating.
Furanocoumarins: A specific group of secondary metabolites that commonly present in higher plants, such as citrus plants. The major furanocoumarins found in grapefruits. Can be phototoxic, i.e come toxic once exposed to light.
GALT: Gut associated Lymphoid Tissue.
Ganglioside: Glycolipids containing sialic acids.
Gelada Baboons: Monkeys living in the mountains of Ethiopia belonging to the genus Theropithecus..
Gelatin: Gelling agent extracted from animal skin and bones (collagen)
Gelatinization: The molecular change of starches when mixed with water and heated. process of breaking down of intermolecular bonds of starch molecules in the presence of water and heat, allowing the hydrogen bonding sites (the hydroxyl hydrogen and oxygen) to engage more water. This irreversibly dissolves the starch granule in water. Water does act as a plasticizer.
Gene: A stretch of DNA with a function
Genome editing: Molecular biology techniques allowing to alter the genome of living organisms.
Genus: Taxonomic category ranking above species and below family: group of species that share a relatively recent common ancestor.
Germ Plasm: Tissue from plants that can be banked, especially from plants that do not make seeds such as banana and manic.
GLP1/Glucagon-like peptide-1: A hormone churned out by gut tissue that triggers insulin release in the pancreas. It is encoded by the same gene as glucagon and GPL2 and represents a different proteolytic fragment of the proglucagon protein.
Glucagon Receptor: The glucagon receptor is a 62 kDa protein that is activated by glucagon and is a member of the class B G-protein coupled family of receptors. Glucagon receptors are mainly expressed in liver and in kidney with lesser amounts found in heart, adipose tissue, spleen, thymus, adrenal glands, pancreas, cerebral cortex, and gastrointestinal tract.
Glucagon-like peptide-1 receptor (GLP1R): a receptor protein found on beta cells of the pancreas and on neurons of the brain. It is involved in the control of blood sugar level by enhancing insulin secretion.
Glucagon: A peptide hormone, produced by alpha cells of the pancreas. It raises the concentration of glucose and fatty acids in the bloodstream and is considered to be the main catabolic hormone of the body.
Glycocalyx: Literally “sugar coat” a complex collection of glycans and glycoconjugates decorating the surface of all living cells.
Glycoconjugates: Molecules that consist in part of a glycan attached to a non-glycan.
Glycogen: An animal polysaccharide with a peptide core made of branched, alpha 1-4 and alpha 1-6 linked glucose made by animal cells.

Glycolipid: Molecules that contain a glycan linked to a lipid.
Glycoprotein: Molecules that contain a glycan linked to a protein.
Glycosidic Linkage: A chemical bond in the form of a covalent connection that connects a carbohydrate (sugar) molecule to another group, which might be another carbohydrate or not. e.g. alpha 1,4 between first carbon atom of one glucose molecule and the 4th carbon atom of the next as in starch, or in contrast beta 1,4 between two glucose molecules in cellulose. Alpha and Beta refer to the orientation of the link in space, alpha=axial, beta=equatorial.
GMO: Genetically manipulated organisms. Any organism whose genetic material has been altered using genetic engineering techniques. The exact definition of a genetically modified organism and what constitutes genetic engineering varies, with the most common being an organism altered in a way that "does not occur naturally by mating and/or natural recombination".
Goblet Cells: Epithelial cells that secrete mucins.
Goiter: Enlarged thyroid gland due to lack of iodine.
Golden Rice: Genetically modified rice that produces large amounts of carotin, provitamin A.
Golgi Apparatus: Complex network of intracellular vesicles involved in synthesis, transport, and secretion of molecules from a cell.
Gout: Disease resulting from accumulation of uric acid crystals in joints and kidneys.
Granary: Dedicated place to store grain, often in separate buildings.
Grass silicates: Crystals of silicium deposited in grass to deter herbivores.
Guano: Fresh and fossilized bird or bat feces often used as a source of nitrates for fertilizer and explosives.
Gum Arabic: A natural gum originally consisting of the hardened sap of two species of Acacia trees. It is a complex polysaccharide.
Haber-Bosch Process: Industrial process for fixing Nitrogen from inert N2 in the air, uses high pressure, high temperature and catalysts to turn N2 and water into ammonia (NH3).
Hadza: A group of hunter gatherers fro Tanzania who have lived on the same land for 100,000 years or more.
Haploid: A single set of chromosomes (as in mammalian sperm and eggs).
Haplotype: Unique combination of different alleles along a stretch of chromosome.
Hemicellulose: One of a number of heteropolymers (matrix polysaccharides), such as arabinoglycans , present along with cellulose in almost all plant cells walls. Pectin: A type of hemicellulose.
Hemoglobin: Major protein in red blood cells, with iron at its core, it can bind oxygen or CO2 and acts as the major gas transporter in the body.

Heparin: A sulfated polysaccharide (glycosaminoglycan) obtained from pig guts and used. As an anticoagulant in medicine and research. Over 11 metric tons with a value of 3to 4 billion dollars yearly!
Heterotroph: Organisms that are required to feed on other organisms.
Hexaploid: Genome with six copies of each chromosome.
High Fructose Corn Syrup: Processed corn syrup that contains fructose as well as glucose. Glucose is converted to fructose by the enzyme D-xylose isomerase, the mixed back with glucose to produce HFCS with varying degrees of fructose, of the 42% or 55% of total monosaccharide. HFCS 42 mainly used for processed foods, or HFCS 55 mostly used to sweeten soft drinks.
Histone Proteins. Highly conserved proteins around which DNA is wrapped.
HLA System: (Human Leukocyte Antigen). Human **MHC system** region on Chromosome 6
Holocene: the last ~ 12 ky of earth's history
Home Base: The repeated use if a location for sleeping, shelter and consumption of food.
Homo erectus: An extinct species of early hominids arising in Africa about 2 million years ago and thereafter spreading to Eurasia between 1.8 and 1.6 mya.
Homo habilis: An extinct species of hominids from Africa that lived 2.3 to 1.65 mys. Some researcher have suggested that it might have been an Austrlopithecus.
Homo naledi: An extinct species of very small brained hominid that lived in Southern Africa up to 200 kya and was not ancestral to modern human.
Honey Guide: A species of African bird, the only wild animal that has a symbiosis with humans, it leads humans to bee hives in hope of getting access to honey combs. It can digest bee's wax.
Honey: Food of the bees made by turning nectar (sucrose solution into concentrated monosaccharide solution of free glucose and free fructose.
Human milk oligosaccharides: Oligosaccharides made by human mammary gland cells, they are all extensions of the lactose disaccharide.
Hunter-Gatherer = Forager: Human groups that live off the land and sea, without farming or herding.
IgA: Bivalent antibodies secreted by B-cells, especially important in the gut.
IgE: monomeric antibodies involved in anti worm defense and allergies.
IgG: monomeric antibodies that are secreted by B-cells after these have class switched.
IgM: a.k.a. B cell receptors, pentameric immunoglobulins on B cell cell surfaces.
Ileum: the final section of the small intestine, the divisions of the small intestine are not as clear and the terms posterior intestine or distal intestine may be used instead of ileum. Its main function is to absorb vitamin B12, bile salts, and whatever products of digestion that were not absorbed by the jejunum.
Immunoglobulin: A family of proteins that include antibodies.
Immunological self

Imu: Traditional Hawaiian ground oven
Insulin resistance: A resistance to the hormone insulin, resulting in increasing blood sugar. With insulin resistance, the body's cells don't respond normally to insulin. Glucose can't enter the cells as easily, so it builds up in the blood. This can eventually lead to type 2 diabetes.Weight loss and exercise can help reverse insulin resistance.
Insulin: A peptide hormone produced by beta cells of the pancreatic islets encoded in humans by the INS gene. It is considered to be the main anabolic hormone of the body.
Interglacial: The periods between glaciation events.
Inverted sugar: A syrup mixture of the monosaccharides glucose and fructose, that is made by hydrolytic saccharification of the disaccharide sucrose. This mixture's optical rotation is opposite to that of the original sugar, which is why it is called an invert sugar.Ict is 1.3x sweeter than table sugar,[2] and foods that contain invert sugar retain moisture better and crystallize less easily than do those that use table sugar instead.
Isoform: Different versions of a protein encoded by the same gene.
Jaggery: Evaporated sugar cane juice.
Jejunum: the second part of the small intestine. Its lining is specialized for the absorption by enterocytes of small nutrient molecules which have been previously digested by enzymes in the duodenum.
Ketone bodies: water-soluble molecules or compounds that contain the ketone groups produced from fatty acids by the liver (ketogenesis)Ketone bodies are produced by the liver during periods of caloric restriction of various scenarios: low food intake (fasting), carbohydrate restrictive diets, starvation, prolonged intense exercise,[5] alcoholism, or during untreated (or inadequately treated) type 1 diabetes mellitus.
Koobi Fora: Important paleoanthropological site in the Turkana region of Kenya.
Kuru,a.k.a. laughing death, spongiform encephalopathy: A neurodegenerative disease caused by a msifolded brain glycoprotein (prion) which is contagious.
Kwashiorkor: Disease from chronic protein deficiency leading to distended guts and reddish hair.
Lactase: Enzyme that allows the digestion of the beta linked disaccharide lactose.
Lactose: A disaccharide consisting of glucose and galactose linked by a hard to digest beta 1-4 glycosidic linkage..
Language: A communication system using duality of patterning to create infinite possible meanings by combining meaningless sounds or signs into words and then combining words into sentences.
Large Intestine/Colon: aka large bowel, last part of digestive system, about 1.5 m long in humans or 1/5 of the total gastrointestinal tract.
Lectin: Protein that can specifically bind sugars, including cell surface sugars in the gut of animals.
Leukocytes: White blood cells
Levallois: Prepared core stone tools, where instantly sharp blades can be broken off from a core with a single blow of a hammer stone.
Levoglucosan: a molecule that forms from cellulose when plant matter is burnt.

Lignin: A phenolic polymer that gives wood its strength and resistance.
Ligninase: Enzyme that can digest lignin.
Linus Pauling: Double Nobel laureate who was a huge proponent of Vitamin C.
Lipid: Class of biomolecule including any of a class of organic compounds that are fatty acids or their derivatives and are insoluble in water but soluble in organic solvents. They include many natural oils, waxes , and steroids.
Lithic (tools): stone tool.
Locus: Site in the genome, particular spot along a chromosome, gene.
Lychen: A symbiotic organism between algae or cyanobacteria and fungi.
Lymph nodes: Immune organs dispersed throughout the body, where immune cells mature and exchange information.
Lymphocyte: Small white blood cells with a round nucleus including, B, T and NK cells.
Lymphatic system: The lymphatic system, or lymphoid system, is an organ system in vertebrates that is part of the immune system, and complementary to the circulatory system. It consists of a large network of lymphatic vessels, lymph nodes, lymphoid organs, lymphoid tissues and lymph.
M-cells: Microfold cells, specialized microfold cells in the epithelium overlying the lymphoid follicles mediate transcellular transport of particulate material including intestinal microbiota.
Macaque: A genus of monkeys found all over Asia and in North Africa.
Macrophages: Immune cells that can ingest foreign material and microorganisms.
Maguey: Blue Agave, Century plant, *Agave americana*.
Maillard Reaction: the reaction between sugars and protein under heating a.k.a. browning reaction.
Malting: Partial sprouting of seeds to awaken the embryo and have the seed produce glycolytic enzymes.
Maltose: an oligosaccharide of multiple alpha linked glucose monomers.
Mano: hand piece used to grind on a metate (also called metlapil)
Mashing: Soaking of malted grains in warm water to activate the glycolytic enzymes expressed during malting (partial sprouting) and cause these to cleave the starch into shorter fermentable sugars.
Mast cells: Immune cells involved in rapid reactions including itches and allergies.
Mbege: African Banana beer
Mead/Tej: Honey wine.
Megafauna: Animals 100 lbs and lager.
Mesentery: The organ that attaches the intestines to the posterior abdominal wall and is formed by the double fold of peritoneum. It stories fat and allows blood vessels, lymphatics and nerves to supply the intestines, among other functions.

Metabolic Syndrome: A cluster of conditions that increase the risk of heart disease, stroke, and diabetes.Metabolic syndrome includes high blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol levels.
Metabolites: Products of metabolsim (digestion or other chemical processes).
Metarespresentation: The capacity to appreciate that members of another group may harbor beliefs that are different from one's own group, that is, to compare 'how things ought to be'
Metate: Grinding stone
MHC system: Major Histocompatibility system, a genomic region containing about 200 genes and harboring the highest diversity within mammalian genomes. The genes include many genes critically involved in immune surveillance, neurodevelopment and reproductive compatibility.
Micogroglia: Immune cells resident in the brain.
Microbiome: The complete collection of microbes (protozoa, fungi, bacteria, archea and viruses) living in or on an animal.
Microlithics: Very small stone blades that can be used to mountain spears, arrows or form the blade of a sickle.
Milk: Refers to an emulsion of fat in water, the mammary secretion of female mammals or the latex of plants.
Mismatch: When past adaptations leed to lower fitness in a new environment, mismatch between our evolved biology and our modern ways of life.
Molasses: A viscous substance resulting from refining sugarcane or sugar beets into sugar. Molasses is a major constituent of fine commercial brown sugar.[2] It is also one of the main ingredients used to distill rum.
Molecule: A group of two or more atoms that form the smallest identifiable unit into which a pure substance can be divided and still retain the composition and chemical properties of that substance.
Monocot: Plants that from a single cotyledon.
Monocyte: white blood cells that give rise to dendritic cells and macrophages (antigen presenting cells).
Monoecious: Plants that form both sexes on the same plant.
Monosaccharide: Molecule of single unit of a carbohydrate e.g. glucose.
Mucins: Glycoproteins extremely rich in short glycans that form hydrated bogeys on many animal epithelia.
Mucus: Aqueous secretions of animal epithelia that acts as lubricants and as first line of defense against invasion and infection.
Muscovado Sugar: sugar is very dark brown and has fine, soft crystals that are sticky. It contains 8–10% molasses, giving it a stronger flavor.
Mycotoxins: Toxins made by fungi and molds.

Myoglobin: Protein that can store oxygen in muscle cells, gives red meat its red color and the iron contains heme group gives red meat its taste.
Natufian: Ancient culture of the Middle East (Palestine) just predating the beginning of farming, they brewed beer and baked bread.
Neanderthal: A an extinct species of hominids that evolved in Eurasia over the last million year and went extinct 40 kya.
Nectar: Sucrose solution made by fmany flowering plants to entice pollination by animals. Immature honey.
Neolithic: late stone age, characterized by stone tools shaped by polishing and grinding, roughly corresponding to the Holocene.
Neophoby: Fear of novelty, especially including novel foods.
Neutrophils: Immune cells that are one of the first responders that make up 40 to 70% of all white blood cells, they attack invading pathogens and ingest foreign molecules throughout the body.
Niacin (vitamin B3):one of the water soluble B vitamins.
Niche: (from French "nest") in ecology, all of the interactions of a species with the other members of its community, including competition, predation, parasitism, and mutualism. A variety of abiotic factors, such as soil type and climate, also define a species' niche. Each of the various species that constitute a community occupies its own ecological niche. Informally, a niche is considered the "job" or "role" that a species performs within nature.
Nitrogen Cycle: The movement of nitrogen between land, atmosphere, and oceans as gas, component of living organisms, their fossils and/or minerals.
NK cells: Natural killer cells, special immune cells involved in self-non-self surveillance and destroy infected or otherwise compromised cells.
Nori (Gim, zicai): Edible red algae of the genus
Nucleic acid: Class of biomolecules including DNA and RNA
Nutrient Sensing: The process by which cells and an organisms senses the levels of nutrients available to it.
Obesity: Defined as BMI of over 30.
Ochre: soil or rock containing ferric oxide, usually brightly colored yellow to red.
Oldowan Stone Tool: Type of simple, ridged stone tool named after Olduvai Gorge in Tanzania. Stone tools made from juts a few breaks of a large rock.
Olduvai Gorge, Tanzania: Important paleoanthropological site, where the first ancient hominids in East Africa have been discovered.
Oligosaccharide: molecule conisisting of two or more monosaccharides, e.g. sucrose a disaccharide made from glucose and fructose..
Organ: A structure formed by several different tissues that jointly perform a common function.

Organic Farming: also known as ecological farming or biological farming, is an agricultural system that uses fertilizers of organic origin such as compost manure, green manure, and bone meal and places emphasis on techniques such as crop rotation and companion planting. It avoids the use of synthetic fertilizer or synthetic herbicide pr pesticides.
Organism: A living being, the material structure of an individual life from.
Orthorexia nervosa: Proposed term for pathological obsession with consuming the right diet.
Oxalates: Plant acid that binds metal ions in animals that consume the plant.
Palm kernel oil: Colorless oil from the seed of the African oil palm Elaeis guineensis very rich in saturated fatty acid Lauric acid (C12).
Palm Oil: Bright orange oil from the fruit of the African oil palm Elaeis guineensis. Very rich in the saturated fatty acid palmitic acid (.
Palm Sugar: Sugar made from sweet plant juice (phloem) of palm trees, collect near the growth cone.
Pancreatic amylase: Enzyme allowing the digestion (cleavage) of starch secreted by the pancreas.
Paneth Cells: found only in the small intestine, can be found at the base of the crypts and are the main secretors of antimicrobial peptides. found only in the small intestine, can be found at the base of the crypts and are the main secretors of antimicrobial peptides.
Papillary ridges: Structures on the surface of primate hands that amplify the sense of touch and form finger prints…
Paracelsus: Philippus Aureolus Theophrastus Bombastus von Hohenheim, famous renaissance physician who coined the phrase: “Dosis facit Venenum” = the doses makes the poison.
Paranthropus: An extinct genus of upright hominids in Africa that had remarkably strong jaws and large teeth (nutcracker man) nd appeared to have been mostly vegetarian..
Paraphilia: A sexual interest in anything other than a consenting human partner.
Pellagra: Diseasse resulting from Niacin deficiency, often associated with dependence on maize as staple crop, in absence of **nixtamalization**, or hominy making: treating maize with limestone or ash to release the niacin.
Periods: The period is the basic unit of geological time in which a single type of rock system is formed: e.g. Quaternary, Tertiary, Cretaceous etc
Peyer’s patches: are an important part of gut associated lymphoid tissue usually found in humans in the lowest portion of the small intestine
Phage: Virus-like parasite that infects bacteria
Photosynthesis: Process of harnessing light energy from the sun within the plant cells mediated by chlorophyll, a compound that starts the photosynthesis process by capturing light. The other components required in photosynthesis are water and carbon dioxide (CO2). Photosynthesis “splits” water molecules into oxygen released into the atmosphere, and hydrogen to bond with the carbon dioxide (CO2) to create what we know as glucose (SUGAR), which translates to food for us to consume.The capture of light energy for splitting water is performed by a collection of proteins located on the inside of specialized organelles (chloroplasts).
Phylogenetic tree: Graphical representation of evolutionary history of lineages.

Phylogeny: The history of lineages of living organisms.
Phytates: Acids made by plants to deprive herbivores of important minerals.
Phytolith: Microscopic silica bodies produced by many plants: as plants grow individual phytoliths form in each cell to aid physical support of the plant structure. Phytoliths retain the shape of the cell and allow deduction of identity of plant remains.
Pith: The tissue inside the stem of plants.
Plant-wax biomarkers: Lipid molecules produce by plants to cover their leaves that survive in the fossil record.
Pleistocene: Period of earth history from 2.5 million years ago up to ~12 kya
Poi: cooked and pounded Taro corm, traditional Polynesian carbohydrate staple.
Polymer: A molecule consisting of many repeated units of a smaller molecule
Polymorphism: Variants of a biological feature with a frequency of more than 1%.
Polyploidy: Plants with excess sets of chromosomes
Polysaccharide: molecule consisting of many repeated units of mono or di-saccharides, e.g. cellulose or amylose=starch.
Pombe: African fermented drink made from various grain and fruit.
Post-translational modifications: Chemical modification of proteins after. These are synthesized in a cell, by addition of a variety of molecules including phosphorylation, acetylation and glycosylation.
Prebiotics: Substances that when ingested, favor healthy microbiota.
Precision Grip: The ability to hold small tools between the thumb and other fingers allowing precise manipulation of tools like stone blades.
Primate: A group of mammals with over 300 species that include prosimians (bush babies, pottos, tarsiers, lorises and lemurs), monkeys. , apes and humans.
Prion: A glycophsphoinositiol (GPI) anchored glycoprotein that can cause disease when misfolded.
Probiotics: Loving microbes ingested to favor healthy microbiota.
Promoter: A region of DNA upstream of a gene where relevant proteins (such as RNA polymerase and transcription factors) bind to initiate transcription of that gene. The resulting transcription produces an RNA molecule (such as mRNA).
Protease inhibitors: Molecules that inhibit the activity of protease enzymes (protein cleaving enzymes).
Protein: Any of a class of nitrogenous organic compounds that have large molecules composed of one or more long chains of amino acids and are an essential part of all living organisms , especially as structural components of body tissues such as muscle, hair, etc., and as enzymes and antibodies. Glycan: Class of biomolecules including all carbohydrate-based monomers, oligomers or polymers made by all living organisms.
Proteoglycan: Molecules consisting in a protein core and one or more long polysaccharides known as glycosaminoglycans.

Protozoa: Single celled animals.
Pseudogene: Recognizable sequence of a gene in the genome that has lost its function during evolution.
PUFA: Polyunsaturated fatty acids (abbreviated PUFAs) are fatty acids that contain more than one double bond in their carbon backbone. This class includes many important compounds, such as essential fatty acids and those that give drying oils their characteristic property.
Pulque: Fermented drink made from the sweet juice of Agave (Maguey).
Pyrolysis: Heat induced transformation of sugar into a large number of derived molecules, many of them dark brown in color and aromatic.
Qu (koji) fermentation: A SCOBY mediated Single step fermentation of cooked starches into strong alcoholic beverages.
Rabbit Starvation: Disease caused by proton poisoning via a diet too rich in protein and lacking sufficient fat, a.k.a. Mal du Caribou.
Red blood cell RBC (erythrocytes): Cells that transport O2 in and CO2 out of the body. They are filled with hemoglobin protein and lack a nucleus and DNA.
Rhizobia: Soil microbes (bacteria) that can fix nitrogen with the help of specialized enzymes.
Rickets/Rachitis: Disease resulting from chronic lack of vitamin D and leading to bent long bones.
Root nodules: Structures in the roots of leguminous plants that house symbiotic rhizobia bacteria which can fix nitrogen fro the air, providing fertilizer for the plants.
Saccharification: The splitting of a disaccharide into monosaccharides.A term for denoting any chemical change wherein a monosaccharide molecule remains intact after becoming unbound from another saccharide
Saccharine: Artificial sweetener, benzosulfimide, 500m times sweeter than sugar.
Sago: Starch obtained from the grated inside of the Sago palm's trunk (*Cycas revoluta*).
Salarium: Compensation for soldiers in ancient Rome paid in salt, origin of word "salary".
Salivary amylase: Enzyme in saliva allowing the digestion (cleavage) of starch into sweet tasting malts.
Saponin: Bitter-tasting usually toxic plant-derived organic chemicals that have a foamy quality when agitated in water. They are triterpene glycosides.
Sapropel: A slimy sediment of marine, estuarine, or lacustrine deposition consisting largely of organic debris derived from aquatic plants and animals (Greek: rotten mud).
Saturated fatty acids: In a saturated fatty acid the carbon atoms are connected with only single bonds, which enables the fatty acids to pack closely together. Oils and fats which are rich in saturated fatty acids will have a higher melting point and a denser structure and thus will be more solid at room temperature.
SCOBY: Symbiotic Community of Bacteria and Yeast.
Scurvy: Disease caused by lack of vitamin C
Seed Coat: The tough , chemically and mechanically resistant layer surrounding a plant seed.

Semaglutide: A peptide similar to the hormone glucagon-like peptide-1 (GLP-1), modified with a side chain. It can be administered by subcutaneous injection or taken orally. sold under the brand names Ozempic, Wegovy and Rybelsus, is an antidiabetic medication used for the treatment of type 2 diabetes and an anti-obesity medication used for long-term weight management, developed by Novo Nordisk in 2012.
Shuar: A group of farming hunters from Peru and Equador Amazonia in South America.
Sialic acid: N-Actelyneuraminic acid, NANA: A sugar commonly found on cells of vertebrae animals that is of critical importance to animal development, immune function and nervous system function.Sialic acids have 9 carbon backbones, contain an amino group and are acidic (negatively charged).
SNP: Single nucleotide Polymorphism.
Socio-cultural Niche: The human ecological niche where human culture profoundly shaped human biology.
Soil carbonate: Calcium carbonate ($CaCO_3$) that accumulate in the soil and can be used to interpret climate conditions in the distant past.
Species: Populations of organisms that regularly exchange genetic material via sexual reproduction.
St Anthony's Fire: Mass poisoning with mother corn fungus on rye.
Stable isotopes: Non-radioactive isotopes, versions of the same atom that differ in mass.
Starch granules: Microscopic grains of starch that have characteristic shape and structure for each plant species.
Structural Variation (genomic): Genomic variation involving presence and absence of large stretches of DNA, e.g. duplications, deletions of megabase chunks.
Sucralose: Artificial sweetener, dichlorinated disaccharide of fructose, indigestible and 1000 times sweeter than. Sugar.
Sucrase/isomaltase: Enzyme allowing the digestion of plant sugar and starches.
Sucrose: Disaccharide consisting of glucose and fructose linked via easy to digest alpa 1-4 linkage. Most commonly found plant sugar.
Sugar Beet: Beet (*Beta* vulgaris, temperate European crop) selected forth production of sugar, chemically identical to sugar cane sugar.
Sugar Cane: An important grass originally from Papua Guinea and key source of sugar, I *Saccharum officinarum.*
Svalbard Global Seed Vault: International seed depository on Spitzbergen, Norway.
Syconium: The type of inflorescence borne by figs, formed by an enlarged, fleshy, hollow receptacle with multiple ovaries on the inside surface.
Synthetic Fertilizer: Fertilizer made by the Haber-Bosch process.
T-Cell Receptors: Molecular probes carried bye T-cells.
T-cells: Important cell type of the adaptive immune system. The help control and she the immune response and express T-cell receptor proteins that are diversified via somatic recombination, similar to antibody production in B-cells.
Tandoor oven: vertical oven, accessed from above.

Tannin: Plant molecules that act as anti-nutrients by making plant proteins unavailable to herbivores.
Taste Receptor Heterodimer: A complex of two different proteins forming a functional unit. Different heterodimers of the three TASR proteins function as sweet versus Umami receptors.
Taste receptor: Proteins in cell membranes that can detect certain taste molecules such as wet, bitter, and umami as well as salty sour and fat. Humans have over 30 different TASR genes, some of these are pseuodgenes.
TCA/Citric Acid Cycle: A series of chemical reactions to release stored energy through the oxidation of acetyl-CoA derived from carbohydrates, fats, and proteins. The Krebs cycle is used by organisms that respire (as opposed to organisms that ferment) to generate energy, either by anaerobic respiration or aerobic respiration. Tricarboxylic acid cycle (Krebs Cycle):
Terpenoids: Plant compounds that are derived from polyisoprene.
Tissue: Group of cells of the same type and origin, often connected via extra cellular matrix, that are specialized in performing a particular function.
Toxoplasma: A single celled, protozoan parasite of cats and other felids that can infect humans and later their risk-taking behavior.
Trans fatty acids: Trace concentrations of trans fats occur naturally, but large amounts of industrially produced “hardened vegetable oil” are found in some processed foods. Since consumption of trans fats is unhealthy, artificial trans fats are highly regulated or banned in many nations. However, they are still widely consumed in developing nations, resulting in hundreds of thousands of deaths each year.
Transcription Factor: Proteins that bind to DNA or to DNA-binding proteins and influence transcription, more widely, any factor that influences gene expression.
Transferrin: Important plasma glycoprotein that sequesters iron in the body, it binds iron tightly but reversebly..
Trehalose: Disaccharide of alpha 1-1 linked glucose made by many fungi and some animals (e tardigrades)
Triangle Trade: A system of three-way transatlantic exchanges – known historically as the triangular trade – which operated between Europe, Africa, and the Americas from the 16th to 19th centuries.
Trichromatic vision: Three color vision, possible by the existence of three different receptor proteins (opsins) in the eyes that perceive different wave lengths of light. The ability to see three different colors, common among primates but rare in most other mammals.
Triglyceride: An ester derived from glycerol and three fatty acids. Triglycerides are the main constituents of body fat in humans and other vertebrates, as well as plant fat.
Trophic levels: The level in the food chain starting with primary producers at the bottom and ending with top carnivores and or scavengers at the top.
Tsimane: A group of farming hunters from Bolivia in South America.
Tuber: A type of enlarged structure used as storage organs for nutrients in plants.
Turbinado sugar: Turbinado sugar is partially refined sugar that retains some of the original molasses, giving it a subtle caramel flavor.

Turkana Basin: a large drainage basin with no outflow centered around the north-southwards directed Gregory Rift system in Kenya and southern Ethiopia containing hominin fossil extraordinarily diverse hominid fossil (2.5 million years old), with numerous species of robust australopithecine and early human ancestors.
Umami: A taste sense made possible by dedicated receptor proteins that detect amino acid rich food (savory), these sensors can be stimulated by sodium slat of glutamate (MSG).
Unsaturated fatty acids: Unsaturated fatty acids can be either mono-unsaturated (MUFA) or poly-unsaturated (PUFA). Unsaturated fatty acids contain one or more double bonds in their hydrocarbon chain. The double bond introduces a kink in the hydrocarbon chain, which makes it more difficult for the fatty acids to pack tightly. Oils which are rich in mono- or poly-unsaturated fatty acids are therefore often liquid at room temperature, like cooking oils.
Uric Acid: Uric acid is a product of the metabolic breakdown of purine nucleotides, and it is a normal component of urine.
Uricase: Enzyme that can metabolize uric acid.
Vertical agriculture: Vertical farming is the practice of growing crops in vertically stacked layers. It often incorporates controlled-environment agriculture, which aims to optimize plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics.
Vitamin: Molecule required for human health that have to be obtained through the diet.
Weir: Fish trap
Wet Mill: Facility that process corn starch into corn syrup via enzymatic fermentation.
Woad: *Isatis tinctoria*, a plant in the cabbage family that can be used to produce indigo blue.