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Vocabulary Builder Reference from...

Jennifer Vail: The science of friction -- and its surprising impact on our lives | TED Talk https://www.ted.com/talks/jennifer_vail_the_science_of_friction_and_its_surprising_impact_on_our_lives



All Words

IMPORTANT

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Session 1: Word List

rub

v. to move one's hand or an object over the surface of something with pressure

synonym: scrub, massage, stroke

(1) **rub** shoulders, (2) **rub** a glass window

She **rubbed** the sore spot on her leg to ease the pain.

ridiculous

 adj. very silly or unreasonable and deserving to be laughed at

synonym: absurd, fatuous, foolish

(1) a **ridiculous** amount of money, (2) a **ridiculous** suggestion

Everyone regarded the theory he advocated as **ridiculous** but was later proven correct.

tribology

 the study of the properties and behavior of surfaces in relative motion, including friction, lubrication, wear, and adhesion

synonym: friction, lubrication, wear

(1) **tribology** research, (2) **tribology** analysis

The **tribology** laboratory at the university is equipped with advanced machinery to study the effects of different lubricants.

ancient

adj. relating to the long ago, particularly the historical period preceding the fall of the Western Roman Empire; very old

synonym: archaic, age-old, obsolete

(1) pre-Christian ancient, (2) ancient stories

They have been living near water since **ancient** times.

discovery

 the act or process of finding information, a place, or an object, or learning about something that was previously not known

synonym: finding, uncovering, detection

(1) a scientific **discovery**, (2) the great **discovery** of the century

Her research team made an important **discovery**.

amazing

 adj. extremely surprising, especially in a way that you like or admire

synonym: exceptional, extraordinary, wonderful

(1) **amazing** advances, (2) the most **amazing** feeling The golfer recorded an **amazing** distance.

combination

a collection of things that have been combined; an assemblage of separate parts or qualities

synonym: blend, hybrid, compounding

genic combinations, (2) combination number
 The combination to the safe was a secret.

span

 the entire length of something, such as time or space from beginning to end; the amount of space that something covers

synonym: interval, period, length

(1) the **span** of a bird's wings, (2) the average life **span**He slightly modified the **span** of training because it was just before a match.

lens

 a transparent optical device with curved sides, used in an optical instrument that makes objects seem larger, smaller, clearer, etc.; (metaphor) the basic thoughts or mindsets through which someone sees or understands the environment or situation

synonym: glass

- (1) a convex **lens**, (2) a **lens** with a wide angle The photographer took this photo using a telephoto **lens**.
- v. to make something, usually pain, distress, or problem, less severe or intense; to ease or lighten a burdensynonym: ease, relieve, lessen
- (1) **alleviate** anxiety, (2) **alleviate** stress

 Taking ibuprofen can **alleviate** the pain from a headache.
- n. the force that opposes motion between two objects in contact, especially by producing heat and wear, and is proportional to the normal force between the objects
 synonym: rub, scrape, resistance
- (1) friction force, (2) surface frictionThe friction between the two countries was causing tension.
- v. to apply a substance, such as oil or grease, to reduce friction or wear on a surfacesynonym: grease, oil, make slippery
- (1) **lubricate** the economy, (2) **lubricate** the hinges with oil The mechanic **lubricated** the gears to prevent them from grinding.
- v. to refuse to accept something and attempt to prevent it from happeningsynonym: fight, defy, revolt
- (1) resist temptation, (2) resist being kissedI chose to resist cancer by trying every possible treatment.
- v. to be against or in conflict with something or someone;
 to resist or to try to prevent something from happening
 synonym: match, resist, confront
- (1) **oppose** a decision, (2) publicly **oppose**

alleviate

friction

lubricate

resist

oppose

I strongly **oppose** the new proposed law that would harm our environment.

transfer

v. to move, pass, or change from one person, place, or situation to another

synonym: move, relocate, shift

(1) transfer a file, (2) transfer power

She **transferred** the money from her savings account to her checking account.

replace

- v. to take the place of something
- synonym: substitute, supersede, displace
- (1) **replace** one word with another, (2) **replace** a phone Eventually, the new design will **replace** all older models.

eventually

- adv. finally, particularly after a long time or a lot of struggle, complications, and so on
- *synonym*: finally, someday, ultimately
- (1) **eventually** become obsolete, (2) **eventually** succeed The corporation **eventually** dominated the entire tobacco business.

disappear

- v. to cease to exist or be visible
- synonym: fade, evaporate, vanish
- (1) **disappear** without a trace, (2) **disappear** after a week They watched the train **disappear** into the distance.

loosen

v. to make something less tight, firm, or fixed; to free from restraint or constraint; to relax

synonym: relax, slacken, untie

(1) loosen grip, (2) loosen knot

Please **loosen** the screws on the back panel so we can access the inside of the machine.

stubborn

adj. refusing to change one's mind or behavior despite persuasion or evidence to the contrary; unyielding; difficult to move or change

synonym: persistent, obstinate, determined

(1) **stubborn** attitude, (2) **stubborn** stains

He was so **stubborn** about his beliefs that he refused to listen to any other points of view.

 a reddish-brown coating or corrosion layer that forms on iron or steel as a result of exposure to moisture and oxygen; the process of corrosion on metal caused by oxidation

synonym: corrosion, oxidation, decay

(1) rust-proofing, (2) rusty metal

The old car was covered in **rust** and needed extensive repair work.

 a metal bar that slides across to lock a door or window closed; a discharge of lightning accompanied by thunder; (verb) to move or jump suddenly

synonym: lock, fastener, thunderbolt

(1) bolt diameter, (2) bolt from my bed

The lightning **bolt** twigged in several directions.

 to move or shift slightly, particularly with effort or resistance; to make or cause a slight change in something

synonym: move, shift, nudge

(1) **budge** an inch, (2) **budge** the shelf

No matter how hard I tried, I couldn't **budge** the heavy couch from its place in the room.

 to state or explain precisely the nature, scope, or meaning of something

synonym: characterize, depict, express

(1) **define** a word, (2) **define** my position

To advance this discussion, we must **define** "success" rigorously.

rust

bolt

budge

define

interact

- v. to communicate or react with somebodysynonym: cooperate, combine, collaborate
- (1) **interact** directly with customers, (2) **interact** with one another

He should **interact** more with his colleagues.

relative

adj. considered and evaluated through comparison with something else

synonym: comparative, proximate, congeneric

(1) a remote relative, (2) relative factors

Most countries prohibit sexual activity between certain close relatives.

wiggle

v. to move or cause to move up and down or from side to side in short and quick movements

synonym: wiggle, jiggle, squirm

(1) **wiggle** her lips, (2) **wiggle** with excitement Her hips **wiggle** as she walks.

shifting

adj. constantly changing or moving synonym: unfirm, shifty, fluctuating

(1) **shifting** balance, (2) continuously **shifting** landscape Trends in the fashion industry are so **shifting** that it is challenging to keep up with them.

shift

- n. a slight transition in position, direction, or trendsynonym: transition, change, modification
- (1) Doppler **shift**, (2) major paradigm **shift** Could you help me **shift** some furniture?

involve

v. to include or affect someone or something as a necessary part of something else

synonym: implicate, include, engage

(1) **involve** a lot of paperwork, (2) **involve** a high degree of risk

The investigation involves several government agencies and

is expected to take several months.

interaction

- n. the act of connecting with someone, mainly when working, playing, or spending time with them
- synonym: dealings, exchange, relations
- (1) the **interaction** between man and his environment,
- (2) interaction among human beings

The **interaction** of the two groups is good for brainstorming.

silk

 a fine, strong, soft, lustrous fiber produced by silkworms in making cocoons and collected to make thread and fabric

synonym: satin, taffeta, velvet

(1) silk road, (2) silk fabric

She wore a **silk** dress to the party.

squirm

v. to twist, wiggle, or contort the body uncomfortably or awkwardly, often due to embarrassment, discomfort, or nervousness

synonym: squiggle, wiggle, writhe

- (1) **squirm** uncomfortably, (2) **squirm** with excitement The child **squirmed** out of his mother's grasp and ran off.
- a textile fiber obtained from the fleece of sheep or certain other animals, used for making clothing and other fabric items

synonym: fleece, cashmere

(1) wool sweater, (2) wool fibers

I love wearing **wool** socks during the winter to keep my feet warm.

ankle

wool

n. the part or joint connecting the foot to the leg

synonym: mortise joint

(1) ankle injury, (2) pair of ankle boots

He accidentally sprained his ankle playing squash.

joint

adj. shared, held, or made between two or more people;(noun) the point of connection between two bones or elements of a skeleton

synonym: collaborative, cooperative, combined

(1) a joint venture, (2) the bone of a joint

After the summit meeting, the prime ministers issued a **joint** statement.

crack

fluid

v. to break or cause to break without dividing into separate parts; (noun) a line on the surface of something along which it has separated without breaking

synonym: snap, burst, break

synonym: liquid, aqua, sap

- (1) **crack** an eggshell, (2) a **crack** in a board He that would eat the kernel must **crack** the nut.
- n. a substance that can flow and is not solid
- plenty of fluids, (2) fluid assets
 She was diagnosed with a fluid buildup in her lungs.

essentially

adv. relating to the essential features or concepts of anything synonym: fundamentally, basically, virtually

(1) **essentially** correct, (2) become **essentially** same **Essentially**, a society is an organism.

release

- v. to set free or allow to escape from confinement synonym: free, let go, discharge
- (1) **release** a prisoner, (2) **release** CO2 into the air The animal rights group worked to **release** the dolphins back into the wild.

bubble

 a thin, round, and often transparent mass of gas that is surrounded by a thin layer of liquid; a state of economic or social prosperity that is unsustainable and eventually collapses

synonym: blob, balloon, mania

(1) **bubble** in the champagne glass, (2) economic **bubble**

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Many people worry that the current real estate market is a **bubble** that could burst soon.

tendon

 a strong, fibrous cord of tissue that connects muscle to bone

synonym: tissue, sinew, ligament

(1) **tendon** grafting, (2) **tendon** collagen

Tendon injuries are common among athletes.

fellow

adj. someone who has the same job or interests as you, or is in the same class, profession, or situation as you

synonym: buddy, mate, affiliate

(1) junior fellow, (2) nice fellow

He is the kind of **fellow** who only works for his success.

suddenly

adv. quickly and unexpectedly

synonym: abruptly, unexpectedly, unawares

(1) **suddenly** attacked by an enemy, (2) die **suddenly** Who answers **suddenly** knows little.

ballerina

 a female ballet (= a type of performance dance that tells a dramatic story or expresses an idea with music but no talking or singing) dancer

synonym: dancer, danseuse

(1) classical ballerina, (2) famous ballerina

The **ballerina's** graceful movements were a joy to watch.

slippery

adj. difficult to hold firmly or stand on because it is wet or smooth; not to be trusted

synonym: smooth, glistening, furtive

(1) a slippery customer, (2) slippery ice

How extraordinarily **slippery** a liar the camera is.

rosin

n. a solid form of resin that is obtained from conifers and is used to make varnishes, adhesives, and other products; a sticky substance used on the bows of stringed instruments to improve the grip on the strings synonym: resin, sap, pitch

(1) rosin paper, (2) rosin flux

A bit of **rosin** on the bow hair helps produce a smooth and clear sound on the cello.

sap

 to gradually weaken or drain strength, energy, or resources; to undermine or impair someone's confidence or morale

synonym: weaken, exhaust, drain

(1) sap flow, (2) sap strength

The disease has **sapped** all his energy, and he can barely get out of bed.

powder

 a dry and fine substance that consists of very small, loose particles

synonym: dust, crumb, grain

(1) powder additive, (2) curry powder

She used a **powder** brush to apply her foundation evenly.

scenario

a description of possible actions or events in the future;
 a written outline of a play, film, or literary work

synonym: plan, scheme, procedure

(1) the worst case **scenario**, (2) number of different **scenarios**

The president prepared several possible **scenarios** for an enemy attack.

clumsy

adj. lacking in grace or skill; awkward; cumbersome synonym: awkward, ungainly, inept

(1) clumsy at sports, (2) clumsy attempt

The **clumsy** waiter accidentally spilled a tray of drinks on a customer.

injury

 harm done to a person's or an animal's body caused by an accident or an attack

synonym: wound, damage, hurt

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(1) without injury, (2) a fatal injuryMy accidental injury got better right away.

optimize

- v. to make the best or most effective use of something synonym: advance, amend, improve
- (1) **optimize** a process, (2) **optimize** control for cooling The essence of economics is to **optimize** the allocation of limited resources.

manipulate

- v. to influence or control something or someone to your advantage, often in an unfair or dishonest way
 synonym: control, exploit, abuse
- (1) **manipulate** figures, (2) vulnerable to **manipulate** Please tell me how to **manipulate** this computer.

destine

v. to determine or set the course of something in advance, often in a way that seems predetermined or inevitable; to specify or choose someone or something for a particular fate or outcome

synonym: ordain, doom, predestine

(1) **destine** us to meet again, (2) be **destined** to become a great artist

Some people believe that we are all **destined** for greatness.

crayon

n. a stick of colored wax, charcoal, chalk, or other material used for drawing or coloring; (verb) to draw or color with crayons, which are sticks of colored wax, chalk, or charcoal used for drawing or coloring

synonym: chalk, pastel, (verb) draw

(1) **crayon** drawing, (2) **crayon** her coloring books

The teacher handed out several different colored **crayons** to each student.

frequent

adj. happening constantly

synonym: periodic, recurring, routine

(1) frequent absence, (2) frequent use

His heartaches are less frequent now.

entice

v. to attract or lure someone with something desirable or tempting

synonym: lure, tempt, attract

(1) **entice** foreign investment, (2) **entice** shoppers

The salesperson tried to **entice** the customer into buying a new car.

shiny

adj. reflecting light and having a bright and smooth surface synonym: polished, glossy, lustrous

(1) shiny surface, (2) shiny object

The **shiny** new car drew everyone's attention as it drove by.

wax

- a substance that is solid at room temperature but becomes softer and more pliable when heated, often used in the production of candles, polishes, and cosmetics; (verb) to become large
- (1) **wax** finish, (2) **wax** and wane
 He sealed the letter with a **wax** seal.

slide

 ν . to move or cause to move smoothly along a surface without interruption

synonym: glide, drift, drop

(1) **slide** a card across the table, (2) **slide** a glance If necessary, you can **slide** the front seats forward.

barefoot

adj. without shoes or other foot coverings; wearing nothing on the feet

synonym: bare, shoeless, unshod

(1) barefoot walk, (2) barefoot fashion

The **barefoot** hiker enjoyed feeling the earth beneath their feet.

toothpaste

 a paste or gel used for cleaning the teeth and freshening the breath

synonym: paste, gel, dentifrice

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(1) toothpaste hygiene product, (2) toothpaste tube I always use mint-flavored toothpaste to refresh my mouth in the morning and at night.

toothbrush

- a small brush with a handle used for cleaning the teeth synonym: brush, scrubber, cleaner
- (1) toothbrush stand, (2) power toothbrush My toothbrush with end-rounded bristles is excellent for gently cleaning my teeth and gums.

plaque

a flat, often rectangular, piece of metal, wood, or other material, inscribed or carved with commemorative text or designs and used as a decoration or award; a soft, sticky film of bacteria that coats teeth and can cause tooth decay

synonym: tablet, plate, medal

- (1) arterial plaque, (2) commemorative plaque The dentist removed the **plaque** from my teeth during my cleaning appointment.
- dentist a person who is qualified and licensed to treat people's teeth

synonym: oral surgeon, orthodontist, periodontist

(1) a **dentist's** office, (2) consult a **dentist** I am going to the family **dentist** to get my teeth cleaned.

to grow or expand; to improve or refine through a ν. process of progress and refinement, often to achieve greater sophistication or complexity; to elaborate or add detail to something that is in the process of being created

synonym: evolve, progress, advance

(1) **develop** a strategy, (2) **develop** a skill We must **develop** a new system to streamline our workflow and increase efficiency.

develop

investigate

v. to conduct a systematic or formal inquiry to identify and evaluate the facts of a crime, problem, statement, etc. to establish the truth

synonym: examine, analyze, look into

(1) **investigate** the matter, (2) **investigate** a data leak The committee **investigated** several apparent inconsistencies.

removal

the act of taking something away or off from a particular place

synonym: extraction, elimination, eradication

(1) dental tartar **removal**, (2) **removal** truck

The **removal** of the statue caused much controversy in the community.

incredibly

adv. in a way that is very difficult to believe; exceedingly or extremely

synonym: enormously, exceptionally, extraordinarily

(1) **incredibly** cheerful character, (2) get **incredibly** insecure

Several cities are experiencing **incredibly** high unemployment rates.

complexity

 the state or quality of being complicated or intricate and difficult to understand

synonym: intricacy, sophistication, elaboration

cognitive complexity, (2) complexity theory
 roject's complexity made it difficult for the team to complete it on time.

gum

 a soft, sticky substance that is chewed to freshen the breath or to clean the teeth; the flesh that surrounds the teeth in the mouth

synonym: mucilage, glue, alveolar arch

(1) bubble **gum**, (2) chewing **gum**

I always like having a pack of gum to freshen my breath.

saliva

n. the clear liquid that is secreted into the mouth by glands in the walls of the mouth and throat, helping to lubricate food during chewing and digestion

synonym: spit, drool, slobber

(1) dog's **saliva**, (2) dry mouth with little **saliva**The dentist asked him to spit out the excess **saliva** into the sink.

dynamics

n. the branch of mechanics that deals with the motion of bodies under the action of forces, including the particular case in which a body remains at rest; forces that produce or stimulate movement, growth, or change

synonym: mechanics, kinetics, kinematics

(1) **dynamics** of group, (2) **dynamics** of economy

The relationship **dynamics** between the two countries were complex and constantly changing.

diamond

 a precious stone made from pure carbon, typically transparent and colorless but possibly tinted in various colors; a shape or arrangement resembling the geometric form of a diamond

synonym: gemstone, jewel, precious stone

(1) diamond ring, (2) diamond necklace

The engagement ring was adorned with a large, sparkling diamond.

probable

adj. likely to happen or likely to be truesynonym: likely, possible, potential

(1) **probable** outcome, (2) **probable** cause of a fire It seems **probable** that he has forgotten our scheduled meeting.

balance

 a condition in which everything has the same weight or force; something left after other parts have been taken away

synonym: equilibrium, counterpoise, remainder

(1) the **balance** of power, (2) asset on the company's

balance sheet

Try to keep a **balance** between work and off.

dam

 a wall constructed over a river to block the flow of water, mainly used to generate energy

synonym: barricade, barrier, embankment

(1) dam-building program, (2) dam collapsing

The break in the **dam** threatened the valley.

routine

 a usual or habitual way of doing things; a set sequence of steps, part of a larger computer program

synonym: habit, custom, procedure

(1) **routine** business, (2) a built-in diagnostic **routine**She studies gardening on a **routine** basis.

tongue

 a moveable mass of muscle tissue covered with mucous membrane that is in the mouth; a language

synonym: lingo, language, vocabulary

(1) native tongue, (2) tongue cancer

The **tongue** is boneless, but it is as strong as bones.

influence

 the ability to affect someone's or something's character, growth, or behavior, or the effect itself

synonym: power, leverage, effect

(1) **influence** a child's future, (2) **influence** the daily life The former emperor had a particular **influence** even after he abdicated.

recall

v. to remember something

synonym: remember, retrieve, recollect

(1) **recall** the incident, (2) **recall** his name

She vividly **recalls** getting laid off several years ago.

lubricity

 the quality of being slippery, smooth, or polished; moral or ethical looseness or indulgence; sexual desire or lasciviousness

synonym: smoothness, pruriency, lasciviousness

(1) **lubricity** coefficient, (2) sexual **lubricity**

The **lubricity** of the oil made it ideal for use in engines.

coefficient

n. a numerical measure of a specific property or characteristic of a substance or system that is used in mathematical equations or formulas to predict behavior or outcomes; a factor that expresses the change in one variable per unit change in another variable

synonym: constant, factor, ratio

(1) absorption **coefficient**, (2) thermal expansion **coefficient**

The **coefficient** of friction on the icy road was dangerously low.

quantity

- n. the amount or number of something; magnitudesynonym: abundance, portion, amount
- (1) half **quantity**, (2) residual **quantity**In southward, the average annual water **quantity** increases.

colleague

 one of a group of a coworker, especially in a profession or a business

synonym: coworker, associate, fellow

- collaborate with colleagues,
 former colleague
 decided to seek counseling on the advice of my colleague.
- a workplace for the conduct of scientific research; a laboratory

synonym: workshop, laboratory, research chamber

(1) lab instrument, (2) medical lab

The Prime Minister will pay a courtesy visit to the Nobel laureate's **lab**.

basis

lab

 the most important facts, ideas, or events from which something is developed; the way how things are organized or arranged

synonym: foundation, base, ground

(1) on an equal basis, (2) basis for calculation

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This evidence will form the **basis** for our discussion.

pet

- an animal that you have at home as a companion and treated kindly
- (1) a **pet** bird, (2) a teacher's **pet** I have a parrot as a **pet**.

periodontal

adj. relating to the supporting structures of teeth, such as the gums, bone, and connective tissue

synonym: gum, dental, oral

(1) **periodontal** disease, (2) **periodontal** surgery

The dentist recommended a **periodontal** cleaning to remove plaque buildup on my teeth.

disease

 a disorder or illness that affects the body or mind, often characterized by specific symptoms or abnormal functioning of organs or systems

synonym: illness, ailment, affliction

(1) disease prevention, (2) disease control

The doctor diagnosed him with a rare **disease** that had no known cure.

incorporate

- v. to include something as a part of a larger entity synonym: contain, integrate, amalgamate
- (1) **incorporate** the current trends, (2) **incorporate** technology into daily life

We will attempt to **incorporate** some of your suggestions into our future strategy.

observe

v. to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion

synonym: watch, monitor, scrutinize

(1) observe a tradition, (2) observe wildlife

It is important to **observe** safety procedures in the workplace

to prevent accidents.

magical

adj. produced by or containing supernatural powerssynonym: enchanting, occult, supernatural

(1) magical place, (2) magical powers

When I was a child, my mother often cast **magical** spells to ease my pain whenever I was injured.

bench

 a long, flat surface, often elevated and supported by legs, used for sitting, working, or displaying objects; persons who administer justice

synonym: seat, terrace, judiciary

(1) bench conference, (2) bench board

I sat on the **bench** in the park and enjoyed the beautiful scenery.

mimic

v. to imitate someone's speech, movement, or behavior, especially to make others laugh

synonym: mirror, imitate, ape

(1) **mimic** a human voice, (2) **mimic** numerous instruments He is very popular at school because he can **mimic** all the teachers' accents.

locate

v. to specify or determine the exact position of someone or something

synonym: discover, find, place

(1) **locate** a missing pet, (2) **locate** a tumor

The robot can accurately **locate** construction material.

hood

 a covering for the head and neck, especially one attached to a garment

synonym: hoodie, cowl, cloak

(1) hood ornament, (2) a silk hood

He pulled his waterproof **hood** up to protect himself from the rain.

maintenance

n. the act or process of keeping something, either artificial materials or living things, in good condition; the money needed for a person's or family's living expenses

synonym: care, perpetuation, support

(1) the **maintenance** of the car, (2) **maintenance** work We have decided to extend our **maintenance** contract until next year.

tire

v. to become weary or fatigued, often due to physical or mental exertion; to cause someone to feel weary or fatigued; (noun) a rubber covering that is placed around the rim of a wheel, which provides traction and absorbs shock while driving

synonym: exhaust, weary, fatigue

(1) tire my patience, (2) tire pressure

I need to **tire** out my dog with a long walk so that he will sleep through the night.

recommend

v. to suggest that someone or something would be a suitable fit for a particular purpose or role

synonym: advise, suggest, instruct

(1) **recommend** a hospitalization, (2) **recommend** reading We **recommend** taking media training every six months.

regularly

adv. at regular intervals or times

synonym: repeatedly, routinely, usually

(1) **regularly** arranged, (2) post **regularly** to a blog This site **regularly** shares high-quality academic materials.

tread

v. to step or walk on something

synonym: step, walk, pace

(1) **tread** water, (2) **tread** a similar path He **treads** carefully on the slippery ice.

monitor

v. to observe, check, and track the progress or quality of something over a period of time

synonym: proctor, check, observe

(1) **monitor** an exam, (2) **monitor** the data carefully They used a special receiver to **monitor** police radio channels.

arrival

 the act or situation of coming or being brought to a place; accomplishment of an objective

synonym: reaching, appearance, coming

(1) **arrival** and departure gate, (2) **arrival** at a conclusion Weather forecasters are predicting the **arrival** of a heatwave.

accident

an unfortunate event, especially one causing damage or injury

synonym: calamity, casualty, chance

(1) cause an **accident**, (2) injury in a car **accident**The **accident** partially destroyed my vehicle.

acceleration

 a rate of increase in velocity; the rate of change of velocity with respect to time

synonym: speed up, quicken, hastening

(1) a unit of **acceleration**, (2) **acceleration** of an object The car's **acceleration** was impressive, going from 0 to 60 mph in just 5 seconds.

decelerate

 to slow down or reduce the speed of something; to decrease in speed

synonym: slow down, slacken, brake

(1) **decelerate** slowly, (2) **decelerate** approach

The driver had to **decelerate** quickly to avoid hitting the red light.

distance

n. the amount of space between two points, measured in units such as miles, meters, or kilometers; the extent, scope, or range between two things, such as distance or emotional distance

synonym: space, gap, span

(1) driving distance, (2) social distance

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The marathon runner covered a long **distance** in a short amount of time.

instinctively

adv. as a matter of nature or intuition rather than thought or training

synonym: inherently, intuitively, naturally

(1) **instinctively** grabbed the knife, (2) **instinctively** bad with children

Some researchers claim that even humans can **instinctively** sense earthquakes.

overcome

v. to succeed in controlling or dealing with something, such as a problem or difficulty; to defeat or overwhelm someone

synonym: beat, confound, overwhelm

- (1) **overcome** opponents, (2) **overcome** all difficulties He tried to **overcome** a bad reputation and win the election.
- a substance that is typically burned to generate heat or energy

synonym: energy, power, gas

(1) biomass fuel, (2) smokeless fuel

The **fuel** scarcity most severely impacted the manufacturing sector

efficiency

fuel

the state or quality of doing something well with no waste of input such as time or money

synonym: effectiveness, efficacy, productivity

(1) better fuel efficiency,(2) an energy efficiencyOur company must continue to strive for greater efficiency.

internal

adj. of or relating to the inside of something *synonym*: interior, inner, domestic

(1) internal organs, (2) the internal economy

The prime minister canceled visits to other countries to resolve **internal** disputes.

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combustion

- n. the act or process of burning something synonym: burning, burst
- (1) internal **combustion** engine, (2) spontaneous **combustion**

Combustion of the people grew until the revolt was unavoidable.

engine

 a machine that converts thermal energy to mechanical work; something that has an important role used to achieve a purpose

synonym: motor, locomotive, driver

(1) a steam **engine**, (2) an air-cooled **engine**The policies he announces can be the **engine** of economic growth in the country.

emission

- n. the act of production or sending out gas, heat, light, etc.synonym: emanation, radiation, discharge
- (1) global **emissions** of greenhouse gases, (2) the **emission** of light

There are five distinct emissions at five unique wavelengths.

consumption

- n. the amount used or eaten; the act of using up a resource such as energy, food, or materialssynonym: usage, uptake, utilization
- (1) average fuel **consumption**, (2) the **consumption** of food

In our country, water **consumption** usually decreases during the winter.

opportune

 adj. suitable or happening at a time that is suitable or convenient for a particular purpose

synonym: suitable, timely, practical

(1) **opportune** occasion, (2) an **opportune** remark The phone rang at the most **opportune** time.

identify

v. to recognize someone or something and say or prove who or what they are

synonym: determine, specify, recognize

(1) **identify** handwriting, (2) **identify** gene sequences I will introduce you to how to **identify** the leading causes of the malfunction.

quad

 n. (short for quadrangle) a square or rectangular open area or courtyard, often surrounded by buildings or used for recreational or social purposes

synonym: quadrangle, square, block

(1) quad room, (2) quad biking

We met at the campus **quad** to study for our upcoming exams.

perspective

a confident attitude toward something; a particular style of thinking about something

synonym: viewpoint, standpoint, outlook

(1) a **perspective** view, (2) the **perspective** of the battle His father's death changed his whole **perspective** on life.

roughly

adv. approximately but not precisely; with a violent manner *synonym*: approximately, more or less, around

(1) **roughly** explain my idea, (2) **roughly** speaking Five miles is **roughly** similar to eight kilometers.

equivalent

- n. having the same value, quality, meaning, purpose, etc.synonym: equal, counterpart, match
- (1) **equivalent** amounts, (2) **equivalent** in meaning The European Central Bank is Europe's **equivalent** of the Federal Reserve.

barrel

 a large round container made of wood, metal, or plastic, with flat ends and, usually, curved sides; one of several units of volume

synonym: cask, firkin, drum

(1) a barrel of beer, (2) \$30 a barrel

One rotten apple spoils the whole barrel.

novel

 an extended fictional work in prose; usually in the form of a story; (adjective) original and of a kind not seen before

synonym: fiction, story, (adjective) innovative

(1) historical **novel**, (2) **novel** effect

The **novel** has largely gotten positive feedback.

component

 one of several parts that combines with others to form something bigger

synonym: element, part, factor

(1) key **component**, (2) spare **components** for cars

The researchers try to discover a common **component** in all types of successful organizations.

turbine

 a machine that rotates to generate power from fluids such as water or gas

synonym: engine, generator, power plant

(1) turbine energy, (2) turbine aerofoil

The wind **turbines** were spinning rapidly, generating clean energy for the nearby town.

efficient

adj. performing at the highest level of productivity with the least wasted effort or resources; capable of achieving maximum output with minimum wasted effort, time, or materials

synonym: productive, effective, competent

(1) **efficient** operation, (2) energy- **efficient** appliances The new washing machine is much more **efficient** than the old one.

reliable

adj. worthy of being relied on; trustworthy synonym: dependable, trustworthy, dedicated

(1) **reliable** access, (2) guarantee **reliable** delivery Trains are **reliable**, inexpensive, and ideal for long-distance travel.

rev

n. a measure of the rate at which an engine or motor rotates, often expressed in revolutions per minute (RPM); (verb) to increase the number of rotations per minute

synonym: revolution, RPM, speed

(1) low- rev engine, (2) rev up the crowd

He stepped on the gas pedal, and the engine released a loud **rev**.

aerospace

adj. pertaining to the design, engineering, science, and technology related to the Earth's atmosphere and the exploration or use of space beyond it

synonym: aeronautical, space, aviation

(1) **aerospace** engineering, (2) **aerospace** and defense industry

NASA is an **aerospace** organization that explores space and improves aviation technology.

environment

 the natural world such as air, water, and land in which humans, animals, and plants live

synonym: atmosphere, surroundings, climate

environment affairs, (2) chaotic environment
 Every human is responsible for taking care of the Earth's environment.

opposing

adj. competing, fighting, or working against each other synonym: disagreeing, dissenting, conflicting

(1) **opposing** counsel, (2) in an **opposing** direction We have no intention of **opposing** his idea.

actuate

- v. to cause a machine or equipment to start to work synonym: motivate, spark, drive
- (1) **actuate** the circuits, (2) **actuate** a parking brake A desire for success **actuated** her.

weigh

 to have a particular weight; to carefully evaluate things before making a conclusion *synonym*: consider, cogitate, count

(1) **weigh** heavily on stock prices, (2) **weigh** a cargo The baby **weighs** 1 pound 3 oz.

manufacture

v. to make goods in large numbers, usually in a factory using machines

synonym: create, fabricate, assemble

(1) **manufacture** an enzyme, (2) **manufacture** a product The majority of synthetic vitamins are **manufactured** from oil.

encourage

v. to give someone support, confidence, or hope; to persuade someone to do or continue to do something by making it easier for them and making them believe it is a good thing to do

synonym: facilitate, persuade, stimulate

(1) **encourage** a sense of affinity, (2) **encourage** antisocial behavior

They **encouraged** customers with a premium for loyal patronage.

improve

v. to make or become better

synonym: enhance, ameliorate, enrich

(1) **improve** a process, (2) **improve** the test score We want to **improve** ties between our two countries.

Session 2: Spelling

1. po___r additive

2. better fuel eff____cy

3. id____fy handwriting

4. a silk h__d

5. chewing g_m

6. mo____r the data carefully

7. too____te hygiene product

8. tr____er a file

9. bu e an inch

10. st rn attitude

- a dry and fine substance that consists of very small, loose particles
- the state or quality of doing something well with no waste of input such as time or money

v. to recognize someone or something and say or prove who or what they are

a covering for the head and neck,especially one attached to a garment

 a soft, sticky substance that is chewed to freshen the breath or to clean the teeth; the flesh that surrounds the teeth in the mouth

v. to observe, check, and track the progress or quality of something over a period of time

a paste or gel used for cleaning the teeth and freshening the breath

v. to move, pass, or change from one person, place, or situation to another

v. to move or shift slightly, particularly with effort or resistance; to make or cause a slight change in something

 adj. refusing to change one's mind or behavior despite persuasion or evidence to the contrary; unyielding; difficult to move or change

ANSWERS: 1. powder, 2. efficiency, 3. identify, 4. hood, 5. gum, 6. monitor, 7. toothpaste, 8. transfer, 9. budge, 10. stubborn

ANSWERS: 11. rev, 12. quantity, 13. recommend, 14. environment, 15. lubricity, 16. quantity, 17. investigate, 18. ridiculous, 19. wiggle, 20. bolt

(verb) to move or jump suddenly

21. the in___al economy 22. en___e shoppers ν. 23. ma____I place 24. re__t temptation 25. su____ly attacked by an enemy 26. spontaneous com____on n. 27. t e pressure ν. 28. an t stories 29. too____te tube n. 30. sl ry ice 31. ba____ot walk

32. wi___e her lips

- adj. of or relating to the inside of something
- to attract or lure someone with something desirable or tempting
- adj. produced by or containing supernatural powers
- to refuse to accept something and attempt to prevent it from happening
- adv. quickly and unexpectedly
- n. the act or process of burning something
- v. to become weary or fatigued, often due to physical or mental exertion; to cause someone to feel weary or fatigued; (noun) a rubber covering that is placed around the rim of a wheel, which provides traction and absorbs shock while driving
- adj. relating to the long ago, particularly the historical period preceding the fall of the Western Roman Empire; very old
- a paste or gel used for cleaning the teeth and freshening the breath
- adj. difficult to hold firmly or stand on because it is wet or smooth; not to be trusted
- adj. without shoes or other foot coverings; wearing nothing on the feet
- v. to move or cause to move up and down or from side to side in short and quick movements

ANSWERS: 21. internal, 22. entice, 23. magical, 24. resist, 25. suddenly, 26. combustion, 27. tire, 28. ancient, 29. toothpaste, 30. slippery, 31. barefoot, 32. wiggle

ANSWERS: 33. recommend, 34. disappear, 35. probable, 36. incorporate, 37. discovery, 38. efficient, 39. recall, 40. span, 41. lab, 42. removal, 43. crack

45. the bone of a jo t adj. shared, held, or made between two or more people; (noun) the point of connection between two bones or elements of a skeleton

to relax

n. in a profession or a business

of very small, loose particles

a soft, sticky substance that is chewed n. to freshen the breath or to clean the teeth; the flesh that surrounds the teeth in the mouth

a long, flat surface, often elevated and 46. be__h board supported by legs, used for sitting, working, or displaying objects; persons who administer justice one of a group of a coworker, especially 47. former co____ue 48. die su ly adv. quickly and unexpectedly 49. ob____e wildlife to watch or notice something carefully, ν. often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion 50. ro____y speaking adv. approximately but not precisely; with a violent manner 51. mi c numerous instruments to imitate someone's speech, movement, or behavior, especially to make others laugh 52. re____ly arranged adv. at regular intervals or times 53. curry po___r a dry and fine substance that consists

ANSWERS: 44. loosen, 45. joint, 46. bench, 47. colleague, 48. suddenly, 49. observe, 50. roughly, 51. mimic, 52. regularly, 53. powder, 54. gum

54. bubble g m

- to specify or determine the exact
- position of someone or something
- a transparent optical device with curved sides, used in an optical instrument that makes objects seem larger, smaller, clearer, etc.; (metaphor) the basic thoughts or mindsets through which someone sees or understands the environment or situation

ANSWERS: 55. manipulate, 56. maintenance, 57. shiny, 58. transfer, 59. arrival, 60. bubble, 61. complexity, 62. routine, 63. locate, 64. lens

64. a convex I s

ANSWERS: 65. dam, 66. mimic, 67. opportune, 68. shift, 69. oppose, 70. encourage, 71. slippery, 72. diamond, 73. tribology

ANSWERS: 74. overcome, 75. tongue, 76. engine, 77. incredibly, 78. distance, 79. shifting, 80. injury, 81. consumption, 82. rust

Vocab-Builder Ref from "Jennifer Vail: The science of friction -- and its surprising impact on our lives | TED Talk" (139 words)

- 92. sh__y object
- 93. tu____e energy
- 94. fr___on force
- 95. b__t diameter
- 96. am g advances
- 97. re___e a phone
- 98. publicly op___e
- 99. h__d ornament
- 100. economic bu e
- 101. di ar after a week

- adj. reflecting light and having a bright and smooth surface
- a machine that rotates to generate power from fluids such as water or gas
- n. the force that opposes motion between two objects in contact, especially by producing heat and wear, and is proportional to the normal force between the objects
- a metal bar that slides across to lock a door or window closed; a discharge of lightning accompanied by thunder; (verb) to move or jump suddenly
- adj. extremely surprising, especially in a way that you like or admire
- v. to take the place of something
- v. to be against or in conflict with something or someone; to resist or to try to prevent something from happening
- n. a covering for the head and neck,especially one attached to a garment
- n. a thin, round, and often transparent mass of gas that is surrounded by a thin layer of liquid; a state of economic or social prosperity that is unsustainable and eventually collapses
- v. to cease to exist or be visible

ANSWERS: 92. shiny, 93. turbine, 94. friction, 95. bolt, 96. amazing, 97. replace, 98. oppose, 99. hood, 100. bubble, 101. disappear

to specify or determine the exact 102. lo e a missing pet ν. position of someone or something to gradually weaken or drain strength, 103. s p strength ν. energy, or resources; to undermine or impair someone's confidence or morale a condition in which everything has the 104. asset on the company's ba e n. sheet same weight or force; something left after other parts have been taken away a small brush with a handle used for 105. power too sh cleaning the teeth 106. equ____nt in meaning having the same value, quality, n. meaning, purpose, etc. 107. ae____ce engineering adj. pertaining to the design, engineering, science, and technology related to the Earth's atmosphere and the exploration or use of space beyond it 108. injury in a car ac nt an unfortunate event, especially one causing damage or injury the state or quality of being complicated 109. cognitive com____ty n. or intricate and difficult to understand 110. re I truck the act of taking something away or off n. from a particular place 111. id fy gene sequences to recognize someone or something and say or prove who or what they are 112. ins_____ely grabbed the knife adv. as a matter of nature or intuition rather than thought or training 113. st____rn stains adj. refusing to change one's mind or behavior despite persuasion or evidence to the contrary; unyielding;

ANSWERS: 102. locate, 103. sap, 104. balance, 105. toothbrush, 106. equivalent, 107. aerospace, 108. accident, 109. complexity, 110. removal, 111. identify, 112. instinctively, 113. stubborn

difficult to move or change

114. vulnerable to man____te to influence or control something or ν. someone to your advantage, often in an unfair or dishonest way adj. pertaining to the design, engineering, 115. ae____ce and defense industry science, and technology related to the Earth's atmosphere and the exploration or use of space beyond it adj. competing, fighting, or working against 116. op___ng counsel each other 117. w x finish a substance that is solid at room n. temperature but becomes softer and more pliable when heated, often used in the production of candles, polishes, and cosmetics; (verb) to become large to step or walk on something 118. tr__d a similar path ν. 119. te___n collagen a strong, fibrous cord of tissue that n. connects muscle to bone 120. ro n paper a solid form of resin that is obtained n. from conifers and is used to make varnishes, adhesives, and other products; a sticky substance used on the bows of stringed instruments to improve the grip on the strings to refuse to accept something and 121. re t being kissed ν. attempt to prevent it from happening the most important facts, ideas, or 122. ba_s for calculation events from which something is developed; the way how things are

ANSWERS: 114. manipulate, 115. aerospace, 116. opposing, 117. wax, 118. tread, 119. tendon, 120. rosin, 121. resist, 122. basis

organized or arranged

- 130. r__ty metal
- 131. op____ne occasion
- 132. native to ___e
- 133. nice fe w
- 134. sq___m uncomfortably
- 135. a p t bird
- 136. pair of an e boots
- 137. a rid____us suggestion
- 138. w x and wane

- a reddish-brown coating or corrosion layer that forms on iron or steel as a result of exposure to moisture and oxygen; the process of corrosion on metal caused by oxidation
- adj. suitable or happening at a time that is suitable or convenient for a particular purpose
- a moveable mass of muscle tissue covered with mucous membrane that is in the mouth; a language
- adj. someone who has the same job or interests as you, or is in the same class, profession, or situation as you
- v. to twist, wiggle, or contort the body uncomfortably or awkwardly, often due to embarrassment, discomfort, or nervousness
- an animal that you have at home as a companion and treated kindly
- n. the part or joint connecting the foot to the leg
- adj. very silly or unreasonable and deserving to be laughed at
- a substance that is solid at room temperature but becomes softer and more pliable when heated, often used in the production of candles, polishes, and cosmetics; (verb) to become large

ANSWERS: 130. rust, 131. opportune, 132. tongue, 133. fellow, 134. squirm, 135. pet, 136. ankle, 137. ridiculous, 138. wax

139. sk fabric	n.	a fine, strong, soft, lustrous fiber produced by silkworms in making cocoons and collected to make thread and fabric
140. prle cause of a fire	adj.	likely to happen or likely to be true
141. fld assets	n.	a substance that can flow and is not solid
142. biomass fl	n.	a substance that is typically burned to generate heat or energy
143. maI powers	adj.	produced by or containing supernatural powers
144. sqm with excitement	ν.	to twist, wiggle, or contort the body uncomfortably or awkwardly, often due to embarrassment, discomfort, or nervousness
145. toosh stand	n.	a small brush with a handle used for cleaning the teeth
146. absorption coent	n.	a numerical measure of a specific property or characteristic of a substance or system that is used in mathematical equations or formulas to predict behavior or outcomes; a factor that expresses the change in one variable per unit change in another variable
147. qd room	n.	(short for quadrangle) a square or rectangular open area or courtyard, often surrounded by buildings or used for recreational or social purposes
148. historical nol	n.	an extended fictional work in prose; usually in the form of a story; (adjective) original and of a kind not seen before

ANSWERS: 139. silk, 140. probable, 141. fluid, 142. fuel, 143. magical, 144. squirm, 145. toothbrush, 146. coefficient, 147. quad, 148. novel

149. d_m collapsing	n.	a wall constructed over a river to block the flow of water, mainly used to generate energy
150. collaborate with coues	n.	one of a group of a coworker, especially in a profession or a business
151. guarantee rele delivery	adj.	worthy of being relied on; trustworthy
152. sl_e a card across the table	<i>v</i> .	to move or cause to move smoothly along a surface without interruption
153. medical I_b	n.	a workplace for the conduct of scientific research; a laboratory
154. crn her coloring books	n.	a stick of colored wax, charcoal, chalk, or other material used for drawing or coloring; (verb) to draw or color with crayons, which are sticks of colored wax, chalk, or charcoal used for drawing or coloring
155. get incly insecure	adv.	in a way that is very difficult to believe; exceedingly or extremely
156. invte the matter	v.	to conduct a systematic or formal inquiry to identify and evaluate the facts of a crime, problem, statement, etc. to establish the truth
157. obe a tradition	v.	to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion
158. inton among human beings	n.	the act of connecting with someone, mainly when working, playing, or spending time with them

ANSWERS: 149. dam, 150. colleague, 151. reliable, 152. slide, 153. lab, 154. crayon, 155. incredibly, 156. investigate, 157. observe, 158. interaction

- historical period preceding the fall of the
- behavior, or the effect itself
- a disorder or illness that affects the body or mind, often characterized by specific symptoms or abnormal functioning of organs or systems

ANSWERS: 159. ballerina, 160. plaque, 161. reliable, 162. turbine, 163. actuate, 164. dynamics, 165. ancient, 166. influence, 167. disease

167. di e prevention

169. env____nt affairs the natural world such as air, water, and n. land in which humans, animals, and plants live 170. r b a glass window to move one's hand or an object over ν. the surface of something with pressure to make the best or most effective use 171. op___ze a process ν. of something 172. en e foreign investment to attract or lure someone with something desirable or tempting 173. the mai____ce of the car the act or process of keeping n. something, either artificial materials or living things, in good condition; the money needed for a person's or family's living expenses 174. com on number a collection of things that have been n. combined; an assemblage of separate parts or qualities the clear liquid that is secreted into the 175. dry mouth with little sa a n. mouth by glands in the walls of the mouth and throat, helping to lubricate food during chewing and digestion adj. shared, held, or made between two or 176. a jo t venture more people; (noun) the point of connection between two bones or

ANSWERS: 168. instinctively, 169. environment, 170. rub, 171. optimize, 172. entice, 173. maintenance, 174. combination, 175. saliva, 176. joint, 177. quad

177. q d biking

elements of a skeleton

(short for quadrangle) a square or

for recreational or social purposes

rectangular open area or courtyard, often surrounded by buildings or used

178. a steam ene	n.	a machine that converts thermal energy to mechanical work; something that has an important role used to achieve a purpose
179. frnt absence	adj.	happening constantly
180. continuously shng landscape	adj.	constantly changing or moving
181. a teacher's p_t	n.	an animal that you have at home as a companion and treated kindly
182. a Is with a wide angle	n.	a transparent optical device with curved sides, used in an optical instrument that makes objects seem larger, smaller, clearer, etc.; (metaphor) the basic thoughts or mindsets through which someone sees or understands the environment or situation
183. alte stress	v.	to make something, usually pain, distress, or problem, less severe or intense; to ease or lighten a burden
184. cly attempt	adj.	lacking in grace or skill; awkward; cumbersome
185. inct with one another	<i>v</i> .	to communicate or react with somebody
186. a perve view	n.	a confident attitude toward something; a particular style of thinking about something
187. essly correct	adv.	relating to the essential features or concepts of anything
188. a built-in diagnostic roe	n.	a usual or habitual way of doing things; a set sequence of steps, part of a larger computer program

ANSWERS: 178. engine, 179. frequent, 180. shifting, 181. pet, 182. lens, 183. alleviate, 184. clumsy, 185. interact, 186. perspective, 187. essentially, 188. routine

ANSWERS: 189. acceleration, 190. wool, 191. monitor, 192. sap, 193. tendon, 194. disease, 195. lubricity, 196. destine, 197. destine

- 198. dog's sa___a
- 199. a remote re____ve
- 200. de____p a skill

- 201. acc____ion of an object
- 202. in___e a lot of paperwork
- 203. ba ot fashion
- 204. s_k road
- 205. in____ce the daily life
- 206. cr_k an eggshell

- n. the clear liquid that is secreted into the mouth by glands in the walls of the mouth and throat, helping to lubricate food during chewing and digestion
- adj. considered and evaluated through comparison with something else
- v. to grow or expand; to improve or refine through a process of progress and refinement, often to achieve greater sophistication or complexity; to elaborate or add detail to something that is in the process of being created
- a rate of increase in velocity; the rate of change of velocity with respect to time
- to include or affect someone or something as a necessary part of something else
- adj. without shoes or other foot coverings; wearing nothing on the feet
- a fine, strong, soft, lustrous fiber produced by silkworms in making cocoons and collected to make thread and fabric
- the ability to affect someone's or something's character, growth, or behavior, or the effect itself
- v. to break or cause to break without dividing into separate parts; (noun) a line on the surface of something along which it has separated without breaking

ANSWERS: 198. saliva, 199. relative, 200. develop, 201. acceleration, 202. involve, 203. barefoot, 204. silk, 205. influence, 206. crack

207. internal comon engine	n.	the act or process of burning something
208. social dice	n.	the amount of space between two points, measured in units such as miles, meters, or kilometers; the extent, scope, or range between two things, such as distance or emotional distance
209. on an equal bas	n.	the most important facts, ideas, or events from which something is developed; the way how things are organized or arranged
210. te my patience	ν.	to become weary or fatigued, often due to physical or mental exertion; to cause someone to feel weary or fatigued; (noun) a rubber covering that is placed around the rim of a wheel, which provides traction and absorbs shock while driving
211. roy explain my idea	adv.	approximately but not precisely; with a violent manner
212. sle a glance	v.	to move or cause to move smoothly along a surface without interruption
213. equnt amounts	n.	having the same value, quality, meaning, purpose, etc.
214. weh heavily on stock prices	v.	to have a particular weight; to carefully evaluate things before making a conclusion
215. smokeless fl	n.	a substance that is typically burned to generate heat or energy
216. a det's office	n.	a person who is qualified and licensed to treat people's teeth

ANSWERS: 207. combustion, 208. distance, 209. basis, 210. tire, 211. roughly, 212. slide, 213. equivalent, 214. weigh, 215. fuel, 216. dentist

ANSWERS: 217. efficiency, 218. combination, 219. essentially, 220. dynamics, 221. eventually, 222. interaction, 223. dentist, 224. release, 225. manufacture, 226. encourage

227. average fuel conon	n.	the amount used or eaten; the act of using up a resource such as energy, food, or materials
228. opze control for cooling	<i>v</i> .	to make the best or most effective use of something
229. cause an acnt	n.	an unfortunate event, especially one causing damage or injury
230. inct directly with customers	ν.	to communicate or react with somebody
231. nol effect	n.	an extended fictional work in prose; usually in the form of a story; (adjective) original and of a kind not seen before
232. a fatal iny	n.	harm done to a person's or an animal's body caused by an accident or an attack
233. ine a high degree of risk	ν.	to include or affect someone or something as a necessary part of something else
234. the bae of power	n.	a condition in which everything has the same weight or force; something left after other parts have been taken away
235. peral disease	adj.	relating to the supporting structures of teeth, such as the gums, bone, and connective tissue
236. ane injury	n.	the part or joint connecting the foot to the leg
237. ace a parking brake	<i>v</i> .	to cause a machine or equipment to start to work
238. the worst case scio	n.	a description of possible actions or events in the future; a written outline of a play, film, or literary work

ANSWERS: 227. consumption, 228. optimize, 229. accident, 230. interact, 231. novel, 232. injury, 233. involve, 234. balance, 235. periodontal, 236. ankle, 237. actuate, 238. scenario

239. ime a process	ν.	to make or become better
240. a baI of beer	n.	a large round container made of wood, metal, or plastic, with flat ends and, usually, curved sides; one of several units of volume
241. decte slowly	ν.	to slow down or reduce the speed of something; to decrease in speed
242. in an opng direction	adj.	competing, fighting, or working against each other
243. ovme opponents	ν.	to succeed in controlling or dealing with something, such as a problem or difficulty; to defeat or overwhelm someone
244. lute the hinges with oil	ν.	to apply a substance, such as oil or grease, to reduce friction or wear on a surface
245. trd water	<i>v</i> .	to step or walk on something
246. ime the test score	<i>v</i> .	to make or become better
247. inal organs	adj.	of or relating to the inside of something
248. reI the incident	<i>v</i> .	to remember something
249. cly at sports	adj.	lacking in grace or skill; awkward; cumbersome
250. dee my position	v.	to state or explain precisely the nature, scope, or meaning of something
251. beh conference	n.	a long, flat surface, often elevated and supported by legs, used for sitting, working, or displaying objects; persons

ANSWERS: 239. improve, 240. barrel, 241. decelerate, 242. opposing, 243. overcome, 244. lubricate, 245. tread, 246. improve, 247. internal, 248. recall, 249. clumsy, 250. define, 251. bench

who administer justice

252. the emon of light	n.	the act of production or sending out gas, heat, light, etc.
253. manre an enzyme	<i>v</i> .	to make goods in large numbers, usually in a factory using machines
254. classical bana	n.	a female ballet (= a type of performance dance that tells a dramatic story or expresses an idea with music but no talking or singing) dancer
255. post rely to a blog	adv.	at regular intervals or times
256. bue the shelf	<i>v</i> .	to move or shift slightly, particularly with effort or resistance; to make or cause a slight change in something
257. spare conts for cars	n.	one of several parts that combines with others to form something bigger
258. lon knot	ν.	to make something less tight, firm, or fixed; to free from restraint or constraint; to relax
259. ree a prisoner	ν.	to set free or allow to escape from confinement
260. decte approach	ν.	to slow down or reduce the speed of something; to decrease in speed
261. reve factors	adj.	considered and evaluated through comparison with something else
262. the perve of the battle	n.	a confident attitude toward something; a particular style of thinking about something
263. lute the economy	<i>v</i> .	to apply a substance, such as oil or grease, to reduce friction or wear on a surface

ANSWERS: 252. emission, 253. manufacture, 254. ballerina, 255. regularly, 256. budge, 257. component, 258. loosen, 259. release, 260. decelerate, 261. relative, 262. perspective, 263. lubricate

264.	frnt use	adj.	happening constantly
265.	r_b shoulders	<i>v</i> .	to move one's hand or an object over the surface of something with pressure
266.	global emons of greenhouse gases	n.	the act of production or sending out gas, heat, light, etc.
267.	the sn of a bird's wings	n.	the entire length of something, such as time or space from beginning to end; the amount of space that something covers
268.	we_h a cargo	v.	to have a particular weight; to carefully evaluate things before making a conclusion
269.	efnt operation	adj.	performing at the highest level of productivity with the least wasted effort or resources; capable of achieving maximum output with minimum wasted effort, time, or materials
270.	\$30 a baI	n.	a large round container made of wood, metal, or plastic, with flat ends and, usually, curved sides; one of several units of volume
271.	number of different scios	n.	a description of possible actions or events in the future; a written outline of a play, film, or literary work
272.	a scientific diry	n.	the act or process of finding information, a place, or an object, or learning about something that was previously not known
273.	dee a word	<i>v</i> .	to state or explain precisely the nature, scope, or meaning of something

ANSWERS: 264. frequent, 265. rub, 266. emission, 267. span, 268. weigh, 269. efficient, 270. barrel, 271. scenario, 272. discovery, 273. define

Vocab-Builder Ref from	n "Jennifer Vail: The science of friction	on and its surprising impact on our lives	TED Talk" (139 words)
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274.	ro	n	flux

275.	per	al	surgery

- n. a solid form of resin that is obtained from conifers and is used to make varnishes, adhesives, and other products; a sticky substance used on the bows of stringed instruments to improve the grip on the strings
- adj. relating to the supporting structures of teeth, such as the gums, bone, and connective tissue
- a textile fiber obtained from the fleece of sheep or certain other animals, used for making clothing and other fabric items
- n. one of several parts that combines with others to form something bigger
- to make something, usually pain, distress, or problem, less severe or intense; to ease or lighten a burden

ANSWERS: 274. rosin, 275. periodontal, 276. wool, 277. component, 278. alleviate

Session 3: Fill in the Blanks

1.	The animal rights group worked to the dolphins back into the wild.
ν.	to set free or allow to escape from confinement
2.	We will attempt to some of your suggestions into our future strategy.
ν.	to include something as a part of a larger entity
3.	The baby 1 pound 3 oz.
ν.	to have a particular weight; to carefully evaluate things before making a conclusion
4.	She the money from her savings account to her checking account
ν.	to move, pass, or change from one person, place, or situation to another
	This site shares high-quality academic materials. v. at regular intervals or times
6.	Try to keep a between work and off.
n.	a condition in which everything has the same weight or force; something left after other parts have been taken away
7.	Everyone regarded the theory he advocated as but was later proven correct.
ad	i. very silly or unreasonable and deserving to be laughed at
8.	The doctor diagnosed him with a rare that had no known cure.
n.	a disorder or illness that affects the body or mind, often characterized by specific symptoms or abnormal functioning of organs or systems
	SWERS: 1. release, 2. incorporate, 3. weighs, 4. transferred, 5. regularly, 6. ance, 7. ridiculous, 8. disease

ocab·	Builder Ref from "Jennifer Vail: The science of friction and its surprising impact on our lives TED Talk" (139 wor
48.	The car's was impressive, going from 0 to 60 mph in just 5 seconds.
n.	a rate of increase in velocity; the rate of change of velocity with respect to time
49.	The European Central Bank is Europe's of the Federal Reserve.
n.	having the same value, quality, meaning, purpose, etc.
50.	I love wearing socks during the winter to keep my feet warm.
n.	a textile fiber obtained from the fleece of sheep or certain other animals, used for making clothing and other fabric items
51.	The new washing machine is much more than the old one.
adj	performing at the highest level of productivity with the least wasted effort or resources; capable of achieving maximum output with minimum wasted effort, time, or materials
52.	Please tell me how to this computer.
v.	to influence or control something or someone to your advantage, often in an unfair or dishonest way
53.	Most countries prohibit sexual activity between certain close
adj	considered and evaluated through comparison with something else
54.	I sat on the in the park and enjoyed the beautiful scenery.
n.	a long, flat surface, often elevated and supported by legs, used for sitting, working, or displaying objects; persons who administer justice
55.	Several cities are experiencing high unemployment rates.
ad	in a way that is very difficult to believe; exceedingly or extremely
	SWERS: 48. acceleration, 49. equivalent, 50. wool, 51. efficient, 52. manipulate, relatives, 54. bench, 55. incredibly

63.	The graceful movements were a joy to watch.
n.	a female ballet (= a type of performance dance that tells a dramatic story or expresses an idea with music but no talking or singing) dancer
64.	She wore a dress to the party.
n.	a fine, strong, soft, lustrous fiber produced by silkworms in making cocoons and collected to make thread and fabric
65.	We met at the campus to study for our upcoming exams.
n.	(short for quadrangle) a square or rectangular open area or courtyard, often surrounded by buildings or used for recreational or social purposes
66.	The driver had to quickly to avoid hitting the red light.
v.	to slow down or reduce the speed of something; to decrease in speed
67.	We taking media training every six months.
<i>v</i> .	to suggest that someone or something would be a suitable fit for a particular purpose or role
68.	The investigation several government agencies and is expected to take several months.
<i>v</i> .	to include or affect someone or something as a necessary part of something else
69.	To advance this discussion, we must "success" rigorously.
v.	to state or explain precisely the nature, scope, or meaning of something
70.	The hiker enjoyed feeling the earth beneath their feet.
adj	without shoes or other foot coverings; wearing nothing on the feet
	SWERS: 63. ballerina's, 64. silk, 65. quad, 66. decelerate, 67. recommend, 68. olves, 69. define, 70. barefoot

71. He accidentally sprained his playing squash. n. the part or joint connecting the foot to the leg
72. The break in the threatened the valley.n. a wall constructed over a river to block the flow of water, mainly used to generate energy
 73. They used a special receiver to police radio channels. v. to observe, check, and track the progress or quality of something over a period of time
 74. I always like having a pack of to freshen my breath. n. a soft, sticky substance that is chewed to freshen the breath or to clean the teeth; the flesh that surrounds the teeth in the mouth
75. Who answers knows little. adv. quickly and unexpectedly
76. The former emperor had a particular even after he abdicated.n. the ability to affect someone's or something's character, growth, or behavior, or the effect itself
77. When I was a child, my mother often cast spells to ease my pain whenever I was injured. adj. produced by or containing supernatural powers
78. Could you help me some furniture? n. a slight transition in position, direction, or trend
ANSWERS: 71. ankle, 72. dam, 73. monitor, 74. gum, 75. suddenly, 76. influence, 77. magical, 78. shift

ocab-Builder Ref from "Jennifer Vail: The science of friction and its surprising impact on our lives TED Talk" (139 word
135. Eventually, the new design will all older models. v. to take the place of something
136. The partially destroyed my vehicle.n. an unfortunate event, especially one causing damage or injury
137. The is boneless, but it is as strong as bones.n. a moveable mass of muscle tissue covered with mucous membrane that is in the mouth; a language
138. They watched the train into the distance. v. to cease to exist or be visible
139. This evidence will form the for our discussion.n. the most important facts, ideas, or events from which something is developed; the way how things are organized or arranged
ANSWERS: 135. replace, 136. accident, 137. tongue, 138. disappear, 139. basis