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Vocabulary Builder Reference from...

Jill Seubert: How a miniaturized atomic clock could revolutionize space exploration | TED Talk https://www.ted.com/talks/jill_seubert_how_a_miniaturized_atomic_clock_could_revolutionize_space_exploration



All Words

IMPORTANT

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Session 1: Word List

bate

v. to lessen the intensity or force of something; to moderate or restrain one's feelings or emotions

synonym: lower, diminish, decrease

(1) bate breath, (2) bate expectations

I tried to **bate** my fear of heights by gradually climbing higher daily.

breath

the air that is taken into and expelled from your lungs;
 the process of taking into and expelling air from your lungs

synonym: air, puff, whiff

(1) hold your **breath**, (2) **breath** of wind

He bated his breath when talking about this affair.

insight

 the ability to gain an accurate and deep understanding of people or situations; an accurate and deep understanding of what something is like

synonym: wisdom, discernment, understanding

(1) a profound **insight**, (2) share my **insights**

We gained various **insights** by analyzing the vast amount of data owned by the company.

descend

v. to move downward and lower; to come from, or to be connected by a relationship of blood

synonym: dip, drop, come down

(1) **descend** a steep hill, (2) **descend** by elevator She was **descended** from an old Italian noble family.

mar

to damage or spoil the appearance or surface of something

synonym: damage, deface, disfigure

(1) **mar** a proper relationship, (2) **mar** the reputation The scratches on the car **marred** its otherwise perfect appearance.

confirmation

 a statement, often written, that shows that something is true, correct, or definite

synonym: validation, verification, affirmation

(1) **confirmation** of purchase, (2) **confirmation** bias The **confirmation** of his appointment as CEO was met with mixed reactions.

touchdown

n. (of American football) a scoring play that occurs when the ball is carried, kicked, or fumbled into the opposing team's end zone; the act of touching down or landing, particularly in aviation or spaceflight

synonym: landing, score, goal

(1) **touchdown** pass, (2) **touchdown** celebration

The quarterback scored a **touchdown** in the game's final seconds to win it.

ecstatic

adj. feeling or characterized by intense joy, delight, or enthusiasm

synonym: joyful, thrilled, exultant

(1) ecstatic joy, (2) ecstatic dance

She was **ecstatic** to receive the news that she had won the lottery.

cube

 a three-dimensional shape with six square faces that are all equal in size; (of mathematics) the result of multiplying the number by itself three times

synonym: block, square, cell

(1) cube root, (2) ice cube

I cut the cheese into small cubes for the salad.

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.

livestream

n. a real-time video or audio broadcast of an event, performance, or activity that is encoded and distributed over the Internet, usually through dedicated apps or websites, allowing distributed viewers to watch it remotely

synonym: webcast, stream, broadcast

(1) **livestream** tutorial, (2) **livestream** concert We watched the concert **livestream** since we couldn't attend in person.

telemetry

 the process of collecting and transmitting data from remote or inaccessible sources using wireless or other communication means, usually for monitoring or control purposes

synonym: data transmission, remote measurement

(1) **telemetry** technology, (2) **telemetry** system

The satellite sends **telemetry** data back to Earth to help scientists study the atmosphere.

scream

v. to give a loud, high shout suddenly, especially because of fear, anger, excitement, etc.; to utter or declare in a very loud voice

synonym: cry, shout, yell

(1) **scream** a profanity, (2) **scream** at him to be quiet She kept **screaming** for an ambulance.

planet

 any of the nine large celestial bodies that circle in the solar system; any celestial body that revolves around a star

synonym: earth, world, globe

(1) **planet** like the Earth, (2) save the **planet** Mercury is the closest **planet** to the sun.

atmosphere

- n. the mass of air that surrounds the Earth; the pervading tone or mood of a place, situation, or creative work
 synonym: air, ambiance, circumstances
- (1) carbon dioxide in the **atmosphere**, (2) a convivial **atmosphere**

The spaceship began to burn up as it approached the Earth's atmosphere.

voyage

- n. a long journey, especially by sea or in spacesynonym: journey, trip, excursion
- a voyage of discovery, (2) take a voyage
 The astronaut trained for years before embarking on her voyage to the International Space Station.

spacecraft

- n. a vehicle designed to travel through space, typically carrying astronauts or scientific instrumentssynonym: spaceship, satellite, probe
- (1) **spacecraft** launch, (2) alien **spacecraft**The human-crewed **spacecraft** successfully landed on the moon, fulfilling its mission.

unbelievable

- adj. beyond belief or understanding and extremely surprisingsynonym: unimaginable, incredible, fantastical
- (1) **unbelievable** beauty, (2) cause **unbelievable** damage He drinks an **unbelievable** amount of beer.

intrepid

- adj. courageous and not afraid of danger or difficulties synonym: unfearing, courageous, dauntless
- (1) **intrepid** personality, (2) **intrepid** travelers

There were still **intrepid** pioneers who planned to start their businesses

explorer

- n. a person who travels to places where no one or few people have been before to find out what is theresynonym: adventurer, trailblazer, scout
- (1) team of **explorers**, (2) a polar **explorer**Aboriginal people killed the **explorer** who entered the sacred land for them.

launch

v. to send or propel something into the air or space using a device such as a rocket, missile, or spacecraft; to make something available or on sale for the first time

synonym: start, initiate, begin

(1) **launch** a spaceship into orbit, (2) **launch** a big attack The company is set to **launch** its new product line next month.

introductory

adj. intended as an introduction or preliminary; serving as a base or starting point

synonym: beginning, preliminary, initial

(1) **introductory** biology text, (2) product **introductory** sale The **introductory** class was designed to give students a basic understanding of the subject.

solo

- adv. without anybody else or anything else; alone synonym: alone
- (1) a **solo** vocal recital, (2) a **solo** flight I would love to **solo** camping someday.

interstellar

- adj. relating to or located in the space between stars synonym: galactic, cosmic, intergalactic
- (1) **interstellar** communication, (2) **interstellar** space The **interstellar** medium comprises gas, dust, and cosmic rays that fill the space between stars.

navigation

n. the act of directing a ship or airplane from place to place; advice or information intended to resolve a problem or challenge, especially as given by someone in authority

synonym: sailing, seafaring, pilotage

(1) navigation system, (2) visual navigation

The plane's **navigation** system had problems, which mechanics found.

revolutionize

 to bring about a complete or radical change in something, often through the introduction of new methods or ideas

synonym: transform, innovate, modernize

(1) **revolutionize** the industry, (2) **revolutionize** the technology

The invention of the smartphone **revolutionized** the way we communicate with each other.

explore

 to travel to or penetrate an area or a country to learn about it; to thoroughly examine a subject or a possibility to learn more about it

synonym: analyze, delve into, examine

(1) explore the world, (2) explore our options

The management must **explore** strategies to increase office security.

navigate

v. to plan and direct the way that a ship, plane, etc. will travel, often by using a map

synonym: guide, helm, voyage

(1) **navigate** the Pacific, (2) **navigate** through a document Our knowledge helps **navigate** our clients successfully.

steer

- v. to control the direction or movement of a vehicle; to direct a course of action; to guide or motivate someonesynonym: guide, direct, control
- (1) **steer** a steady course, (2) **steer** a conversation The captain told him to **steer** the ship north.

separate

- v. to force, take, or pull apart; mark as different synonym: disunite, isolate, ramify
- (1) **separate** video into chapter, (2) **separate** cream from milk

We need to **separate** the aspect of his personality from the part of his competence when making an investment decision.

destination

 the place to which someone or something is going or being sent; the ultimate purpose or goal of a journey or action

synonym: location, endpoint, target

(1) travel destination, (2) romantic destinationsI am excited to reach my destination and explore the new city finally.

Jovian

adj. relating to Jupiter or its characteristicssynonym: Jupiter, giant planet

(1) Jovian satellites, (2) Jovian planet

The **Jovian** moon Europa is believed to have an ocean beneath its icy surface.

context

 the circumstances, facts, or conditions that surround a particular event, situation, or statement and that give it meaning

synonym: background, setting, environment

(1) historical context, (2) legal context

It's important to understand the **context** of a situation before making a decision.

arrow

- a thin, pointed projectile designed to be shot from a bow;
 a symbol or pointer that is shaped like an arrow
 synonym: shaft, dart, projectile
- (1) arrow pointing, (2) arrow diagram

The archer aimed his **arrow** carefully at the target.

quarter

n. one of four equal parts; a fourth part or portionsynonym: fourth, one-fourth

(1) a **quarter** mile, (2) end of the first **quarter**The unemployment rate in the first **quarter** was 2.3 percentage points higher than in the previous.

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.

adjust

v. to make a minor modification to something to make it more suited for a new set of conditions or to make it function better.

synonym: adapt, alter, acclimate

(1) **adjust** a schedule, (2) **adjust** the rearview mirror You have to **adjust** your content to the age of the audience.

trajectory

 the curved path followed by an object moving through space

synonym: course, curve, orbit

(1) career **trajectory**, (2) a **trajectory** missile

The company has shown an excellent growth **trajectory** over the years.

fundamental

 adj. forming an essential base or core from which everything else develops or is affected

synonym: basic, essential, entire

(1) **fundamental** education, (2) **fundamental** rights Human behavior has **fundamental** characteristics.

concept

- n. an idea or principle associated with something abstractsynonym: idea, notion, vision
- learn new concepts, (2) concept car
 One such rapidly growing concept is quantum cryptography.
- a sound heard after being reflected off a surface, such as a wall or a cliff

echo

synonym: reverberate, repeat, reflection

(1) the **echo** of a person's footsteps, (2) sound **echo**

A thunderous boom **echoed** throughout the valley.

accurate

adj. correct and exact in all details

synonym: exact, precise, proper

(1) provide **accurate** information, (2) **accurate** measurements

The official transcript contains accurate academic records.

fraction

 a small part or item forming a piece of a whole; the quotient of two rational numbers

synonym: piece, part, fragment

(1) a **fractional** share of the vote, (2) a numerator in a **fraction**

He spent only a fraction of his earnings.

gentle

adj. having or showing a kindly or tender nature; soft and mild

synonym: mild, delicate, soft

(1) in a **gentle** voice, (2) **gentle** downward slope Her **gentle** manner relaxed everyone there.

crater

 a huge bowl-shaped cavity in the earth or an object in space, usually created by an explosion or the impact of a meteorite

synonym: cavity, hole, pit

(1) crater lake, (2) lunar crater

An enormous **crater** marks the area where the vast volcanic explosion occurred.

imbalance

n. a situation in which two or more things are not equal or equally treated

synonym: inequality, asymmetry, instability

(1) trade **imbalance**, (2) symptoms of hormonal **imbalance**An **imbalance** in certain substances causes problems with

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brain function.

exploration

 the activity of searching and finding out about something through a place

synonym: inquiry, quest, investigation

(1) future of space **exploration**, (2) an Arctic **exploration** He called for a careful **exploration** of the consequences.

historic

adj. famous or significant in history, or potentially so synonym: memorable, momentous, historical

(1) **historic** accomplishment, (2) achieve the **historic** feat The Chinese people have accomplished several **historic** feats.

satellite

n. an electronic device that is sent up into space and moves around the Earth or another planet, used for gathering information or communicating by radio, television, etc.

synonym: orbiter, asteroid, moon

(1) a GPS **satellite**, (2) a meteorological **satellite** Launching an artificial **satellite** contributed to the technological development of our country.

atomic

adj. of or relating to atom (= the smallest component of an element)

synonym: tiny, microscopic, nuclear

(1) **atomic** nucleus, (2) **atomic** bomb Carbon has an **atomic** mass of 12.

hardware

 durable tools, machinery, and other equipment; the physical and electronic parts of a computer or other electronic systems

synonym: gear, apparatus, gadget

(1) the **hardware** department, (2) a vast inventory of **hardware**

The mouse and keyboard are essential **hardware** for operating a PC.

refrigerator

 an appliance or device used for preserving and cooling food and beverages by maintaining a low temperature within a closed compartment

synonym: fridge, cooler, icebox

(1) **refrigerator** magnet, (2) empty **refrigerator**Don't forget to put the eggs in the **refrigerator** after you've used them.

shrink

v. to become smaller, or to make something smaller in size or amount

synonym: decrease, diminish, shy away

(1) **shrink** the tumor, (2) **shrink** with fear

This shirt will **shrink** in the wash.

revisit

- v. to go to a place again, especially after a long period synonym: reexplore, review, reexamine
- (1) **revisit** a place, (2) **revisit** an old friend We need to **revisit** this proposal as soon as the budget is more apparent than before.

largely

adv. virtually entirely; to a large degree synonym: mainly, chiefly, broadly

(1) **largely** accepted, (2) **largely** mitigate the issue Nevada is **largely** a desert state.

uncharted

adj. not mapped or surveyed; unknown or unexplored; without a clear or definite course of actionsynonym: unknown, unexplored, undiscovered

(1) **uncharted** wilderness, (2) **uncharted** waters

The explorer ventured into **uncharted** territory, not knowing what to expect.

territory

- n. an area under the control of a ruler or statesynonym: domain, region, realm
- acquire territory, (2) territory in charge
 They incorporated the conquered territory into their nation.

miniature

adj. being on a very small scale

synonym: mini, scaled-down, pint-sized

(1) miniature camera, (2) miniature version

He did complicated pen-and-ink drawings like medieval **miniatures**.

harsh

adj. severe and unkind; extremely tough and unpleasant to inhabit

synonym: brutal, severe, backbreaking

(1) harsh climate, (2) use of harsh chemicals

The prime minister faced harsh criticism.

environment

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

synonym: atmosphere, surroundings, climate

(1) environment affairs, (2) chaotic environment

Every human is responsible for taking care of the Earth's **environment**.

instrument

 an object used to make musical sounds, such as a piano, guitar, or drum; a tool or device used for a specific activity, particularly in specialist or scientific work

synonym: apparatus, tool, device

(1) musical **instruments**, (2) surgical **instruments**This electronic **instrument** is required to undergo periodic inspections to ensure precision.

technique

n. a particular way or art of doing something that needs skill

synonym: approach, procedure, strategy

(1) a **technique** in martial arts, (2) the **technique** applied to construction

Jockey's superior **technique** brought him victory.

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 repla	ace all older models.

precision

- n. the quality or condition of being exact and accurate synonym: accuracy, exactness, rigor
- a precision instrument, (2) speak with precision
 This operation requires both patience and precision.

engineer

- a person whose job is designing, building, or maintaining something such as machines, structures, or software
 synonym: architect, creator, builder
- a civil engineer,
 engineer shortage
 engineer will repair my telephone tomorrow morning.

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.

progression

 the act or process of changing to the next stage or phase or moving forward

synonym: advancement, development, evolution

(1) **progression** of civilization, (2) **progression** of disease The company has made great strides in its **progression** toward sustainability.

ion

- an atom or molecule that has a positive or negative electrical charge caused by its losing or gained one or more electrons
- (1) **ion** channel, (2) rechargeable lithium- **ion** battery

 The increased concentrat **ion** of hydrogen ions in an aqueous solution makes it more acidic.

suitable

adj. fit or appropriate; proper; adaptedsynonym: appropriate, fitting, proper

(1) **suitable** amount, (2) date **suitable** to both groups The dress was **suitable** for the formal occasion.

flip

 to turn over into a different position quickly; to throw or toss with a light motion

synonym: throw, jump

(1) **flip** over the pork chop, (2) **flip** a coin

He **flipped** when he heard that he had been accepted into

the university.

stable

adj. firm and steady; not easily moved, disturbed, or changed

synonym: sturdy, unmoving, durable

(1) in **stable** condition, (2) have a **stable** job

Relations between the two countries have been relatively **stable** due to the summit meeting.

onboard

v. to become or make part of a team, group, or system; to install, activate, or begin using a piece of equipment or software; (adjective) included or integrated into a particular system, machine, or device

synonym: embark, aboard, on-load

(1) **onboard** the new employees, (2) **onboard** computer The passengers were instructed to **onboard** the aircraft as quickly as possible so that the flight could depart on time.

autonomous

adj. capable of governing or controlling its affairs *synonym*: independent, self-governing, self-reliant

(1) development of **autonomous** vehicles, (2) an **autonomous** judiciary

Five of the six provinces will become **autonomous** regions under the new federal system of government.

survive

- v. to live or exist despite a dangerous event or period synonym: endure, persist, stay
- (1) survive a blizzard, (2) survive a plane crash

These birds can only **survive** in temperate climates.

inevitably

adv. in a manner that cannot be avoided or preventedsynonym: unavoidably, necessarily, surely

(1) **inevitably** decline with age, (2) **inevitably** reach the consumer

Because of his excellent performance, he will **inevitably** be promoted.

robotic

adj. of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots

synonym: automated, mechanical, laborsaving

(1) robotic arm, (2) robotic guide operation

The surgeon removed the tumor using **robotic** video assistance.

consequence

 the outcome of a particular action or event, especially relative to an individual

synonym: result, impact, outcome

(1) unintended **consequences**, (2) the **consequence** of an argument

These economic activities had disastrous environmental **consequences**.

crew

 a group of people who work together, especially on a ship or airplane

synonym: team, group, squad

(1) the film **crew**, (2) the **crew** of a fishing boat
The ship's **crew** worked hard to repair the damaged sails

before the next storm hit.

assume

 to think or accept something to be true without having proof of it; to take or begin to have power; to begin to exhibit a specific quality or appearance

synonym: guess, presume, suppose

(1) **assume** a lousy attitude to his boss, (2) **assume** an important role

The following example **assumes** that the capacity of each battery is the same.

astronaut

 a person trained by a space agency to travel outside the Earth's atmosphere

synonym: spaceman, cosmonaut

(1) **astronaut** mission, (2) **astronaut** in training

The shuttle **astronaut** trained for months before embarking on the space mission.

background

n. the details of a person's social heritage, such as family, vocational or educational experience; past information that is essential to understanding a situation or problem

synonym: ground, experience, backdrop

(1) a **background** color, (2) a criminal **background**The company's hiring criteria emphasize personality, not a person's **background**.

edition

n. a particular form or version in which a text, especially a printed book, magazine, or newspaper, is published;

synonym: version, release, volume

(1) a paper edition, (2) edition deluxe

They issued a limited **edition** of the artist's recordings.

chart

 a visual display of information such as a diagram, lists of figures, etc.; a map designed to assist navigation by air or sea

synonym: diagram, graph, map

(1) a weather chart, (2) a statistical chart

This pie **chart** represents our market share.

realistic

adj. having or showing a sensible and practical idea that is possible to achieve

synonym: practical, pragmatic, down-to-earth

(1) a realistic goal, (2) a realistic goal

That story was so **realistic**, and it was scary.

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.

constellation

 a group of stars that form a recognizable pattern and have a name; a group of related or similar ideas, things, or people

synonym: asterism, array, pattern

(1) the stars of the Scorpion **constellation**, (2) northern **constellation**

Navigators still use the Little Bear constellation at sea.

communicate

v. to share or exchange information with others by speaking, writing, moving your body, or using other signals

synonym: convey, share, transmit

- (1) communicate his anxieties to the psychiatrist,
- (2) communicate well with my advisor

Dolphins use sound to **communicate** with each other.

scatter

- v. to cause to separate and go in different directionssynonym: disperse, spread, bestrew
- (1) **scatter** seeds, (2) **scatter** around the internet The hunter's approach **scattered** the geese.

broadcast

 to send out a program or some information on radio or television

synonym: air, announce, advertise

broadcast a concert, (2) broadcast a radio ad
 Most of the programs are broadcast in this area.

antenna

 an electrical device that sends or receives radio or television signals; (biology) one of one or more pairs of appendages used for sensing in insects

synonym: feeler, receiver

(1) **antenna** of insect, (2) extend the TV **antenna** He had a special **antenna** for public relations

detect

v. to find or recognize something, especially something difficult to see, hear, etc.

synonym: catch, observe, notice

(1) **detect** a bad event, (2) **detect** smuggling across borders The security camera has **detected** four intruders.

subsurface

adj. situated or located beneath the surface of something; existing or occurring within the deeper layers of a material or object, often referring to areas below the Earth's surface

synonym: beneath the surface, underground, subterranean

(1) **subsurface** mining, (2) **subsurface** oil reserves The **subsurface** layers of the ocean are still largely unexplored.

far-off

adj. distant in time or space; remote; distant or unlikely to happen

synonym: distant, remote, faraway

(1) far-off lands, (2) far-off memories

The **far-off** galaxy was only visible through a powerful telescope.

icy

adj. covered with ice or frost; very cold; lacking warmth or friendliness

synonym: frosty, cold, glacial

(1) **icy** clouds, (2) cast **icy** eyes

The **icy** surface of the pond was not safe for skating.

ripple

 a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind synonym: wave, undulation, fluctuation

(1) a **ripple** of laughter, (2) **ripple** in the water Many businesses felt the **ripple** effect of the economy's decline.

relativism

n. the belief that truth, knowledge, or morality are not absolute or objective but instead relative to the context in which they are perceived or determined

synonym: subjectivism, skepticism

(1) linguistic **relativism**, (2) cultural **relativism**Moral **relativism** suggests that there is no objective right or wrong.

gravity

n. the force that attracts a body towards the center of the earth or towards any other physical body having mass; a manner that is solemn

synonym: heaviness, attraction, weight

(1) the attraction of **gravity**, (2) preserve my **gravity**The astronaut felt weightless in space due to the absence of **gravity**.

sensor

 a device that receives a signal or stimulus such as heat, pressure, light, motion, etc. and responds to it in a specific manner

synonym: detector

(1) motion **sensor** lighting, (2) an image **sensor**This automatic door could no longer be opened due to a **sensor** failure.

universe

 everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy

synonym: cosmos, macrocosm

(1) theory of the **universe**, (2) expansion of the **universe** The **universe** is about 13.8 billion years old.

precious

adj. uncommon and extremely valuable

synonym: adored, cherished, valued

(1) price of **precious** metals, (2) **precious** information We cannot afford to squander **precious** time.

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**.

exoplanet

- n. a planet that orbits a star outside of the solar system
- (1) the closest **exoplanet** to Earth, (2) **exoplanet** mission The **exoplanet** Kepler-186f is located 500 light-years from Earth and is believed to be habitable.

estimate

v. to guess or calculate the cost, size, value, etc. of something

synonym: calculate, gauge, evaluate

(1) **estimate** a fair value, (2) **estimate** this chicken to weigh three pounds

We **estimated** the season's total trade deficit at \$50 billion.

combine

- v. to join or merge to form a single thing or group synonym: coalesce, cohere, blend
- (1) combine chemically with another substance,
- (2) combine augmented reality

Hydrogen and oxygen **combine** to form water.

vast

adj. enormous in size, number, amount, or quantitysynonym: expansive, extended, boundless

(1) vast majority, (2) vast desert

A **vast** audience viewed the broadcast.

unlock

v. to open something, such as a door, window, etc., usually using a key

synonym: open, solve, unravel

(1) **unlock** a door with a key, (2) **unlock** value

The customs officer required the traveler to **unlock** his suitcase.

Session 2: Spelling

1.	a civil ener	n.	a person whose job is designing, building, or maintaining something such as machines, structures, or software
2.	revize the technology	ν.	to bring about a complete or radical change in something, often through the introduction of new methods or ideas
3.	brst a concert	<i>v</i> .	to send out a program or some information on radio or television
4.	coe augmented reality	<i>v</i> .	to join or merge to form a single thing or group
5.	cast i_y eyes	adj.	covered with ice or frost; very cold; lacking warmth or friendliness
6.	unintended conces	n.	the outcome of a particular action or event, especially relative to an individual
7.	hiic accomplishment	adj.	famous or significant in history, or potentially so
8.	a reic goal	adj.	having or showing a sensible and practical idea that is possible to achieve
9.	the great diry of the century	n.	the act or process of finding information a place, or an object, or learning about something that was previously not known
10.	a fronal share of the vote	n.	a small part or item forming a piece of a whole; the quotient of two rational numbers

ANSWERS: 1. engineer, 2. revolutionize, 3. broadcast, 4. combine, 5. icy, 6. consequence, 7. historic, 8. realistic, 9. discovery, 10. fraction

adj. of or relating to atom (= the smallest 11. at___c nucleus component of an element) 12. sub____ce mining adj. situated or located beneath the surface of something; existing or occurring within the deeper layers of a material or object, often referring to areas below the Earth's surface 13. the most am___g feeling adj. extremely surprising, especially in a way that you like or admire adj. covered with ice or frost; very cold; 14. i_y clouds lacking warmth or friendliness a visual display of information such as a 15. a statistical ch_t n. diagram, lists of figures, etc.; a map designed to assist navigation by air or 16. se____te video into chapter to force, take, or pull apart; mark as different 17. expansion of the un___se everything that exists, especially all n. physical matter, including planets, stars, galaxies, and all other forms of matter and energy 18. save the pl t any of the nine large celestial bodies that circle in the solar system; any celestial body that revolves around a star 19. the c w of a fishing boat a group of people who work together, n. especially on a ship or airplane 20. sh k the tumor to become smaller, or to make ν. something smaller in size or amount

ANSWERS: 11. atomic, 12. subsurface, 13. amazing, 14. icy, 15. chart, 16. separate, 17. universe, 18. planet, 19. crew, 20. shrink

ANSWERS: 21. mar, 22. arrow, 23. ecstatic, 24. breath, 25. ion, 26. solo, 27. territory, 28. refrigerator, 29. essentially, 30. revisit, 31. bate

ν.

31. b e expectations

to lessen the intensity or force of

one's feelings or emotions

something; to moderate or restrain

ANSWERS: 32. miniature, 33. vast, 34. progression, 35. largely, 36. instrument, 37. background, 38. livestream, 39. unbelievable, 40. accurate, 41. harsh, 42. trajectory

purpose

47. lunar cr___r

n. a huge bowl-shaped cavity in the earth or an object in space, usually created by an explosion or the impact of a meteorite

48. the e__o of a person's footsteps

49. provide ac____te information

51. a vast inventory of ha re

50. f p over the pork chop

52. on d computer

n. a sound heard after being reflected off a surface, such as a wall or a cliff

adj. correct and exact in all details

v. to turn over into a different position quickly; to throw or toss with a light motion

 durable tools, machinery, and other equipment; the physical and electronic parts of a computer or other electronic systems

v. to become or make part of a team, group, or system; to install, activate, or begin using a piece of equipment or software; (adjective) included or integrated into a particular system, machine, or device

ANSWERS: 43. Jovian, 44. technique, 45. autonomous, 46. opportune, 47. crater, 48. echo, 49. accurate, 50. flip, 51. hardware, 52. onboard

one of four equal parts; a fourth part or 53. end of the first qu r n. portion 54. mi re version adj. being on a very small scale 55. pr___us information adj. uncommon and extremely valuable 56. a qu___r mile one of four equal parts; a fourth part or n. portion 57. a vo___e of discovery a long journey, especially by sea or in space 58. as____ut in training a person trained by a space agency to travel outside the Earth's atmosphere 59. at___c bomb adj. of or relating to atom (= the smallest component of an element) to make a minor modification to 60. ad ta schedule ν. something to make it more suited for a new set of conditions or to make it function better. a group of people who work together, 61. the film c w n. especially on a ship or airplane 62. a polar ex____er a person who travels to places where n. no one or few people have been before to find out what is there 63. re t an old friend to go to a place again, especially after a long period 64. sh__k with fear to become smaller, or to make something smaller in size or amount 65. ar w diagram a thin, pointed projectile designed to be n. shot from a bow; a symbol or pointer that is shaped like an arrow

ANSWERS: 53. quarter, 54. miniature, 55. precious, 56. quarter, 57. voyage, 58. astronaut, 59. atomic, 60. adjust, 61. crew, 62. explorer, 63. revisit, 64. shrink, 65. arrow

Vocab-Builder Ref from "Jill Seubert: How a miniaturized atomic clock could revolutionize space exploration | TED Talk" (106 words)

ANSWERS: 66. steer, 67. precision, 68. context, 69. fraction, 70. vast, 71. touchdown, 72. concept, 73. scatter, 74. suitable, 75. harsh, 76. confirmation

77.	ce root	n.	a three-dimensional shape with six square faces that are all equal in size; (of mathematics) the result of multiplying the number by itself three times
78.	theory of the unse	n.	everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy
79.	faf lands	adj.	distant in time or space; remote; distant or unlikely to happen
80.	edn deluxe	n.	a particular form or version in which a text, especially a printed book, magazine, or newspaper, is published;
81.	m_r the reputation	<i>v</i> .	to damage or spoil the appearance or surface of something
82.	a trary missile	n.	the curved path followed by an object moving through space
83.	a so flight	adv.	without anybody else or anything else; alone
84.	amg advances	adj.	extremely surprising, especially in a way that you like or admire
85.	proon of civilization	n.	the act or process of changing to the next stage or phase or moving forward
86.	carbon dioxide in the atmre	n.	the mass of air that surrounds the Earth; the pervading tone or mood of a place, situation, or creative work
87.	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

ANSWERS: 77. cube, 78. universe, 79. far-off, 80. edition, 81. mar, 82. trajectory, 83. solo, 84. amazing, 85. progression, 86. atmosphere, 87. scenario

88.	crr lake	n.	a huge bowl-shaped cavity in the earth or an object in space, usually created by an explosion or the impact of a meteorite
89.	symptoms of hormonal imce	n.	a situation in which two or more things are not equal or equally treated
90.	unk a door with a key	<i>v</i> .	to open something, such as a door, window, etc., usually using a key
91.	Jon planet	adj.	relating to Jupiter or its characteristics
92.	intory biology text	adj.	intended as an introduction or preliminary; serving as a base or starting point
93.	inely reach the consumer	adv.	in a manner that cannot be avoided or prevented
94.	trade imce	n.	a situation in which two or more things are not equal or equally treated
95.	share my ints	n.	the ability to gain an accurate and deep understanding of people or situations; an accurate and deep understanding of what something is like
96.	cot car	n.	an idea or principle associated with something abstract
97.	funal education	adj.	forming an essential base or core from which everything else develops or is affected
98.	ond the new employees	ν.	to become or make part of a team, group, or system; to install, activate, or begin using a piece of equipment or software; (adjective) included or integrated into a particular system,

ANSWERS: 88. crater, 89. imbalance, 90. unlock, 91. Jovian, 92. introductory, 93. inevitably, 94. imbalance, 95. insight, 96. concept, 97. fundamental, 98. onboard

machine, or device

99. an autus judiciary	adj.	capable of governing or controlling its affairs
100. ecic joy	adj.	feeling or characterized by intense joy delight, or enthusiasm
101. plt like the Earth	n.	any of the nine large celestial bodies that circle in the solar system; any celestial body that revolves around a star
102. product intory sale	adj.	intended as an introduction or preliminary; serving as a base or starting point
103. sue a plane crash	<i>v</i> .	to live or exist despite a dangerous event or period
104. rie in the water	n.	a small wave on the surface of a liquid typically caused by an object falling int it or a slight wind
105. comte his anxieties to the psychiatrist	ν.	to share or exchange information with others by speaking, writing, moving your body, or using other signals
106. a pron instrument	n.	the quality or condition of being exact and accurate
107. sue a blizzard	<i>v</i> .	to live or exist despite a dangerous event or period
108. adt the rearview mirror	ν.	to make a minor modification to something to make it more suited for a new set of conditions or to make it function better.
109. lay mitigate the issue	adv.	virtually entirely; to a large degree

ANSWERS: 99. autonomous, 100. ecstatic, 101. planet, 102. introductory, 103. survive, 104. ripple, 105. communicate, 106. precision, 107. survive, 108. adjust, 109. largely

ANSWERS: 110. revolutionize, 111. spacecraft, 112. explore, 113. antenna, 114. launch, 115. suitable, 116. inevitably, 117. chart, 118. replace, 119. environment

ANSWERS: 120. navigation, 121. gravity, 122. scream, 123. touchdown, 124. unlock, 125. ion, 126. telemetry

ANSWERS: 127. navigation, 128. separate, 129. assume, 130. precious, 131. robotic, 132. robotic, 133. satellite, 134. bate, 135. descend

from, or to be connected by a

relationship of blood

136. gee downward slope	adj.	having or showing a kindly or tender nature; soft and mild
137. spaft launch	n.	a vehicle designed to travel through space, typically carrying astronauts or scientific instruments
138. lah a big attack	v.	to send or propel something into the air or space using a device such as a rocket, missile, or spacecraft; to make something available or on sale for the first time
139. a criminal bacnd	n.	the details of a person's social heritage, such as family, vocational or educational experience; past information that is essential to understanding a situation or problem
140. este a fair value	ν.	to guess or calculate the cost, size, value, etc. of something
141. tery in charge	n.	an area under the control of a ruler or state
142. scr around the internet	v.	to cause to separate and go in different directions
143. an Arctic expon	n.	the activity of searching and finding out about something through a place
144. brst a radio ad	v.	to send out a program or some information on radio or television
145. inid travelers	adj.	courageous and not afraid of danger or difficulties
146. brh of wind	n.	the air that is taken into and expelled from your lungs; the process of taking into and expelling air from your lungs

ANSWERS: 136. gentle, 137. spacecraft, 138. launch, 139. background, 140. estimate, 141. territory, 142. scatter, 143. exploration, 144. broadcast, 145. intrepid, 146. breath

147. in ste condition	adj.	firm and steady; not easily moved, disturbed, or changed
148. sound eo	n.	a sound heard after being reflected off a surface, such as a wall or a cliff
149. scm a profanity	v.	to give a loud, high shout suddenly, especially because of fear, anger, excitement, etc.; to utter or declare in a very loud voice
150. future of space expon	n.	the activity of searching and finding out about something through a place
151. fp a coin	v.	to turn over into a different position quickly; to throw or toss with a light motion
152. comte well with my advisor	v.	to share or exchange information with others by speaking, writing, moving your body, or using other signals
153. ase an important role	v.	to think or accept something to be true without having proof of it; to take or begin to have power; to begin to exhibit a specific quality or appearance
154. have a ste job	adj.	firm and steady; not easily moved, disturbed, or changed
155. team of exers	n.	a person who travels to places where no one or few people have been before to find out what is there
156. a teue in martial arts	n.	a particular way or art of doing something that needs skill
157. intlar communication	adj.	relating to or located in the space between stars

ANSWERS: 147. stable, 148. echo, 149. scream, 150. exploration, 151. flip, 152. communicate, 153. assume, 154. stable, 155. explorer, 156. technique, 157. interstellar

ANSWERS: 158. environment, 159. exoplanet, 160. fundamental, 161. cube, 162. steer, 163. hardware, 164. gravity, 165. detect, 166. navigate

context, 172. confirmation, 173. combine, 174. insight, 175. historic

ANSWERS: 176. instrument, 177. interstellar, 178. satellite, 179. descend, 180. subsurface, 181. estimate, 182. opportune, 183. replace, 184. detect

especially something difficult to see,

hear, etc.

185. ener shortage	n.	a person whose job is designing, building, or maintaining something such as machines, structures, or software
186. romantic desons	n.	the place to which someone or something is going or being sent; the ultimate purpose or goal of a journey or action
187. motion ser lighting	n.	a device that receives a signal or stimulus such as heat, pressure, light, motion, etc. and responds to it in a specific manner
188. take a voe	n.	a long journey, especially by sea or in space
189. cultural relsm	n.	the belief that truth, knowledge, or morality are not absolute or objective but instead relative to the context in which they are perceived or determined
190. 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
191. reftor magnet	n.	an appliance or device used for preserving and cooling food and beverages by maintaining a low temperature within a closed compartment
192. inid personality	adj.	courageous and not afraid of danger or difficulties
193. in a gee voice	adj.	having or showing a kindly or tender nature; soft and mild

ANSWERS: 185. engineer, 186. destination, 187. sensor, 188. voyage, 189. relativism, 190. scenario, 191. refrigerator, 192. intrepid, 193. gentle

202.	northern conion	n.	a group of stars that form a recognizable pattern and have a name; a group of related or similar ideas, things, or people
203.	cause unbble damage	adj.	beyond belief or understanding and extremely surprising
204.	uned wilderness	adj.	not mapped or surveyed; unknown or unexplored; without a clear or definite course of action
205.	uned waters	adj.	not mapped or surveyed; unknown or unexplored; without a clear or definite course of action
206.	the closest exet to Earth	n.	a planet that orbits a star outside of the solar system
207.	become essly same	adv.	relating to the essential features or concepts of anything
208.	a rie of laughter	n.	a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind
209.	the stars of the Scorpion conion	n.	a group of stars that form a recognizable pattern and have a name; a group of related or similar ideas, things, or people
210.	a convivial atmre	n.	the mass of air that surrounds the Earth; the pervading tone or mood of a place, situation, or creative work
211.	asut mission	<i>n</i> .	a person trained by a space agency to travel outside the Earth's atmosphere

ANSWERS: 202. constellation, 203. unbelievable, 204. uncharted, 205. uncharted, 206. exoplanet, 207. essentially, 208. ripple, 209. constellation, 210. atmosphere, 211. astronaut

Session 3: Fill in the Blanks

1.	She was from an old Italian noble family.
<i>v</i> .	to move downward and lower; to come from, or to be connected by a relationship of blood
2.	Her manner relaxed everyone there.
adj	i. having or showing a kindly or tender nature; soft and mild
3.	The dress was for the formal occasion.
adj	i. fit or appropriate; proper; adapted
4.	Most of the programs are in this area.
<i>v</i> .	to send out a program or some information on radio or television
5.	Nevada is a desert state.
adı	v. virtually entirely; to a large degree
6.	The layers of the ocean are still largely unexplored.
adj	 situated or located beneath the surface of something; existing or occurring within the deeper layers of a material or object, often referring to areas below the Earth's surface
7.	We the season's total trade deficit at \$50 billion.
<i>v</i> .	to guess or calculate the cost, size, value, etc. of something
8.	The customs officer required the traveler to his suitcase.
<i>v</i> .	to open something, such as a door, window, etc., usually using a key
	SWERS: 1. descended, 2. gentle, 3. suitable, 4. broadcast, 5. largely, 6. surface, 7. estimated, 8. unlock

18. Hydrogon and ovygon to form water
18. Hydrogen and oxygen to form water.ν. to join or merge to form a single thing or group
v. to join or merge to form a single thing or group
19. He had a special for public relations
 an electrical device that sends or receives radio or television signals; (biology) one of one or more pairs of appendages used for sensing in insects
20. Every human is responsible for taking care of the Earth's
n. the natural world such as air, water, and land in which humans, animals, and plants live
21. The increased concentrat of hydrogen ions in an aqueous solution makes it more acidic.
 an atom or molecule that has a positive or negative electrical charge caused by its losing or gained one or more electrons
22. The company's hiring criteria emphasize personality, not a person's
n. the details of a person's social heritage, such as family, vocational or educational experience; past information that is essential to understanding a situation or problem
23. We gained various by analyzing the vast amount of data owned by the company.
n. the ability to gain an accurate and deep understanding of people or situations; an accurate and deep understanding of what something is like
24. The moon Europa is believed to have an ocean beneath its icy surface.
adj. relating to Jupiter or its characteristics
ANSWERS: 18. combine, 19. antenna, 20. environment, 21. ion, 22. background, 23. insights, 24. Jovian

105. This shirt will in the wash.ν. to become smaller, or to make something smaller in size or amount
106. Aboriginal people killed the who entered the sacred land for them.n. a person who travels to places where no one or few people have been before to find out what is there
ANSWERS: 105. shrink, 106. explorer