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Vocabulary Builder Reference from...

James Tanton: Can you survive the creation of the universe by solving this riddle? | TED Talk

https://www.ted.com/talks/james_tanton_can_you_survive_the_creation_of_the_universe_by_solving_this_riddle

All Words

IMPORTANT

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Session 1: Word List

bang

v. to hit or cause to hit something in a way that makes a loud noise

synonym: crash, hit, smash

(1) **bang** his fist on a desk, (2) **bang** a phone down

My father tried to **bang** mathematics into my head since childhood.

reel

n. a cylinder on which film, wire, or other flexible materials that can be wound

synonym: spool, bobbin, winder

(1) cable **reel**, (2) a six- **reel** film

He put the fishing line on the **reel** and cast his line into the water.

particle

n. a small piece of something; a word or piece of a term with grammatical function but little or no significance

synonym: atom, grain, bit

(1) charged **particle**, (2) **particle** energy

We can calculate the position of the **particles** statistically.

chaotic

adj. without any order or organization; extremely disorganized, unpredictable, and confusing

synonym : disorderly, cluttered, topsy-turvy

(1) the **chaotic** economic situation, (2) **chaotic** theory

Change is also occurring in Turkey as a result of **chaotic** reform.

stew

n. a dish consisting of meat and vegetables simmered in liquid typically served hot as a main course or soup; a state of mental or emotional agitation or confusion

synonym : casserole, hotpot

(1) **stew** meat, (2) vegetable **stew**

I made a delicious beef **stew** for dinner tonight.

fusion

n. the process of combining two or more things to form a single entity

synonym : merger, consolidation, amalgamation

(1) heat **fusion**, (2) **fusion** cuisine

Nuclear **fusion** is a process in which atomic nuclei combine to form heavier nuclei.

annihilate

v. to destroy completely; to cause something to cease to exist

synonym : destroy, obliterate, eradicate

(1) **annihilate** the enemy, (2) **annihilate** all doubts

The virus had the potential to **annihilate** entire populations if left unchecked.

destroy

v. to ruin or damage severely or completely; to eradicate or eliminate completely

synonym : demolish, ruin, obliterate

(1) **destroy** the ecosystem, (2) **destroyed** evidence

The building was **destroyed** in the fire and had to be rebuilt.

antimatter

n. matter made up of antiparticles, which have the same mass as regular matter but opposite electrical charges

synonym : anti-substance, anti-nucleus, antiparticle

(1) **antimatter** propulsion, (2) **antimatter** production

Scientists are studying the properties of **antimatter** to gain a deeper understanding of the universe.

galaxy

n. an independent group of stars, interstellar gas, dark matter, etc., in the universe, bound together by gravity

synonym: star cluster, nebula, star system

(1) elliptic **galaxy**, (2) a **galaxy** of famous actors

The Milky Way **galaxy** has numerous water-bearing planets.

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**.

devise

v. to come up with an idea, plan, theory, etc., using your intelligence or imagination

synonym: create, concoct, invent

(1) **devise** a plan, (2) **devise** a literary plot

They had to **devise** a system that did not depend on fossil fuels.

gluon

n. a subatomic particle that binds quarks together in the nucleus of an atom, thus mediating the strong nuclear force

synonym: subatomic particle, nuclear force mediator

(1) **gluon** emission, (2) **gluon** interaction

The strong force, mediated by **gluons**, binds protons and neutrons in the atomic nucleus.

cosmic

adj. relating to the universe or cosmos; vast or limitless

synonym: astronomical, celestial, outer-space

(1) second **cosmic** velocity, (2) **cosmic** background radiation

Cosmic rays are high-energy particles that originate from outside the solar system.

whistle

v. to make a high-pitched sound by forcing breath through a small opening, usually with the lips or fingers; (noun) a piece of equipment that forces air or steam against an edge or into a cavity and so produces a loud shrill sound

synonym: sound, honk, tweet

(1) **whistle** a tune, (2) **whistle** for help

The employee decided to **whistle-blow** on the company's illegal activities.

immediate

adj. happening or done without delay or occurring shortly after something else

synonym: prompt, quick, instantaneous

(1) take **immediate** effect, (2) the **immediate** past

Both forts were subject to **immediate** attacks.

merge

v. to combine or integrate things, or to cause this to happen

synonym: combine, join, coalesce

(1) **merge** into a new party, (2) **merge** those systems into a new one

This consulting firm decided to **merge** the two companies into one.

antiparticle

n. a subatomic particle that has the same mass and opposite charge as its corresponding particle (e.g., a positron is the antiparticle of an electron)

synonym: opposite, antimatter, anti-substance

(1) **antiparticle** physics, (2) **antiparticle** collisions

When an **antiparticle** meets its corresponding particle, the two annihilate.

tight

adj. fixed, fastened, or kept together firmly or closely

synonym: closed, secured, cramped

(1) a **tight** game, (2) student on a **tight** budget

The national election was held amid **tight** security.

process

n. a series of actions or operations performed to achieve a particular outcome or goal; a systematic procedure or approach used to accomplish a specific task or objective; a method of treating milk to make it suitable for consumption or use in other dairy products

synonym : procedure, method, system

(1) **process** improvement, (2) decision-making **process**

The **process** for applying for a visa can be lengthy and complicated.

balanced

adj. taking all sides or opinions into account equally; being in a state of proper equilibrium

synonym : equitable, congruous, flat

(1) a **balanced** diet, (2) a well- **balanced** mind

We conducted a **balanced** assessment of intellectual and cultural history.

setup

n. the arrangement or organization of something, often with a specific purpose or intention; a scheme or plan that is intended to deceive or trick someone

synonym : arrangement, installation, organization

(1) office **setup**, (2) network **setup**

The **setup** for the conference was impressive and professional.

honor

n. high regard or great respect for someone; the quality of having and doing based on a keen sense of morality; (verb) to show respect towards someone

synonym : integrity, virtue, acclaim

(1) womanly **honor**, (2) **honor** our ancestors

I claim on my **honor** that it is true.

insert

v. to put something inside something else

synonym : introduce, add, embed

(1) **insert** coin, (2) **insert** a graphic

She **inserted** a new chapter into her manuscript.

spot

n. a particular location or place; a small round or roundish area, differing in color or feels from the surface around it

synonym : dot, mark, place

(1) beauty **spot**, (2) a **spot** on his honor

This remote **spot** is rarely visited.

pause

v. to take a short break from talking or doing something before continuing

synonym : halt, break, intermit

(1) **pause** a moment, (2) **pause** for a reaction

The man **paused** before opening the door.

explanation

n. the information or arguments that someone provides to make something understandable or clear

synonym : description, elucidation, account

(1) the **explanation** for the failure, (2) detailed **explanation**

The following **explanation** is currently being used to explain the phenomenon in question.

strategy

n. a detailed plan of action designed to achieve a long-term or overall goal.

synonym : approach, procedure, scenario

(1) military **strategy**, (2) develop a **strategy**

Our plan includes a comprehensive marketing **strategy**.

rely

v. to require a specific thing or the assistance and support of someone or something to continue, run properly, or succeed.

synonym : depend, count, lean

(1) **rely** on convenience stores, (2) **rely** entirely on him

Babies heavily **rely** on others for food.

backward

adv. at, to, or toward the direction or place that is behind or rear

synonym : back, rearward, in reverse

(1) walk **backward**, (2) **backward** angle

She falls over **backward** when she sees her mother-in-law.

sake

n. purpose; reason for wanting something done

synonym: purpose, reason, interest

(1) for your own **sake**, (2) for the **sake** of argument

He got a new job for the **sake** of his family.

simulate

v. to make a pretense of someone's behavior or looks; to reproduce something that exists in real life using computers, models, etc., usually for study or training purposes

synonym: pretend, imitate, mimic

(1) **simulate** climate change, (2) **simulate** a future scenario

He had painted the wood to **simulate** stone.

adjacent

adj. next to, close to, or adjoining something

synonym: next, adjoining, neighboring

(1) **adjacent** to his house, (2) **adjacent** houses

Our country has military alliances with **adjacent** countries.

endgame

n. the final stage or outcome of a long and complex process or sequence of events, especially one that involves a struggle or competition

synonym: outcome, finale, conclusion

(1) **endgame** strategies, (2) chess **endgame**

The athlete's **endgame** was to win an Olympic gold medal before retiring from the sport

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.

bittersweet

adj. having a mixture of both positive and negative emotions or experiences; simultaneously pleasant and painful

synonym: semisweet, ambivalent, mixed

(1) **bittersweet** ending, (2) a **bittersweet** memory

The graduation ceremony was **bittersweet** as the students said goodbye to their classmates and teachers.

radiance

n. a shining, brilliant light or glow; a bright or effulgent quality; an aura or distinct energy that emanates from a person or object

synonym: glow, brilliance, shine

(1) **radiance** of the sun, (2) facial **radiance**

The painting was full of vibrance and **radiance**, capturing the essence of the artist's talent.

purity

n. the state of being undiluted or unmixed with anything else; the state of being free from immorality, especially of a sexual nature

synonym: sinlessness, innocence, cleanliness

(1) the degree of **purity**, (2) high **purity**

Higher **purity** requires additional equipment and energy.

intelligent

adj. having the capacity for thought and reason, especially to a high degree

synonym: brilliant, clever, competent

(1) an **intelligent** person, (2) **intelligent** assisting system

Intelligent robots that can cooperate with humans have limited motor output for safety.

creature

n. a living being, especially an animal

synonym: being, animal, organism

(1) **creature** of habit, (2) artificial **creature**

The deep sea **creature** was unlike anything the scientists had ever seen before.

alien

n. a person who comes from a different country, race, or group; a form of life assumed to exist outside the Earth or its atmosphere

synonym: foreigner, unfamiliar, unknown

(1) **alien** fungi, (2) resident **aliens**

Alien species have drastically altered the ecosystem in this area.

sentient

adj. having the ability to perceive or feel things, particularly through sense perception like touch or sight, especially at higher levels of intelligence and consciousness

synonym: conscious, aware, perceptive

(1) **sentient** beings, (2) **sentient** robots

Animals such as dolphins and elephants are highly **sentient** and intelligent creatures.

emissary

n. a person sent on a mission or as a representative of an organization or country

synonym: envoy, ambassador, representative

(1) **emissary** of peace, (2) an **emissary** from the company

The **emissary** from the neighboring country arrived with a message of peace.

core

n. the most essential or fundamental part of something

synonym: center, basis, heart

(1) the **core** of an apple, (2) **core** business activity

These gas nebulas are merely newborn galactic **cores**.

tribute

n. a payment, gift, or other forms of recognition made in honor of or submission to another person or entity

synonym: honor, accolade, recognition

(1) pay **tribute**, (2) **tribute** album

The statue was built as a **tribute** to the soldiers who died in the war.

galactic

adj. relating to or concerning the galaxy or galaxies; having characteristics or qualities that are vast, extensive, or cosmic in scope

synonym: cosmic, celestial, enormous

(1) **galactic** scale, (2) a **galactic** system

The Milky Way is a **galactic** collection of billions of stars and

planets.

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.

attend

v. to be present at an event, to go to a place

synonym: go, be present, accompany

(1) **attend** a meeting, (2) **attend** service

We must **attend** to this matter.

cube

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

synonym: block, square, cell

(1) **cube** root, (2) ice **cube**

I cut the cheese into small **cubes** for the salad.

represent

v. to speak, act, or be present on behalf of another person or group; to form or constitute

synonym: depict, express, describe

(1) **represent** by a diagram, (2) the characters that **represent** numbers

We elected him to **represent** us at the international conference.

fame

n. the condition of being well-known and discussed by a large number of people as a result of one's accomplishments, abilities, and so on

synonym: celebrity, renown, stardom

(1) leap into **fame**, (2) his undying **fame**

Good **fame** is better than a good face.

ancestor

n. a person from whom one is descended; a forefather

synonym: forebear, forefather, progenitor

(1) **ancestor** language, (2) earliest human **ancestor**
My remote **ancestor** immigrated to the United States from Ireland in the 1800s.

enact

v. to make a law; to put something into practice

synonym: legislate, pass, decree

(1) **enact** new legislation, (2) **enact** the smoking ban

The government **enacted** this law in 1925.

device

n. a piece of equipment, tool, or technology that serves a particular purpose or function, often mechanical or electronic

synonym: gadget, instrument, tool

(1) electronic **device**, (2) tracking **device**

I always carry a backup **device** in case my phone runs out of battery.

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.

sequence

n. a series of related events, actions, numbers, etc., which have a particular order

synonym: arrangement, succession, series

(1) the **sequence** of the seasons, (2) the DNA **sequence**

We do move forward with those tasks in **sequence** next week.

arithmetic

n. the branch of mathematics that deals with numbers and numerical calculations, particularly the four basic operations of addition, subtraction, multiplication, and division

synonym: computation, calculation, math

(1) decimal **arithmetic**, (2) mental **arithmetic**

The abacus is an ancient counting device that was used for **arithmetic** calculations.

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.

nestle

v. to settle comfortably or cozily into a place

synonym: snuggle, cuddle, curl up

(1) **nestle** deeper against him, (2) **nestle** in a cozy spot

The cat **nestled** in my lap and fell asleep.

doll

n. a child's toy that typically represents a human figure, especially a young girl; an attractive woman; a woman who is subservient or passive

synonym: puppet, dolly, toy

(1) plastic **doll**, (2) rag **doll**

The antique **doll** was worth thousands of dollars.

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.

survival

n. the state of continuing to exist or live, frequently in the face of difficulty or danger

synonym: endurance, continuity

(1) **survival** ability, (2) **survival** food

He evaluated his chances for **survival** rather pessimistically.

buffer

n. a device, material, or person that reduces the impact or effect of an external force or provides protection against harm or damage

synonym: cushion, shield, insulation

(1) a **buffer** between the quarreling parents, (2) use a **buffer** to reduce noise

Using a password manager can act as a **buffer** against hackers who try to steal your personal information.

mathematics

n. the science dealing with the logic of quantities, shapes, spaces, and arrangement

synonym: arithmetic, calculation, calculus

(1) a good grounding in **mathematics**, (2) **mathematics** competition

He has a flair for **mathematics**.

instance

n. a particular example or single occurrence of something

synonym: example, sample, illustration

(1) for **instance**, (2) notable **instance**

These articles cite five **instances** of climate change.

perspective

n. 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.

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.

immediately

adv. now or without delay

synonym: directly, instantly, promptly

(1) **immediately** recall a product, (2) write him an answer **immediately**

A suspension order from the court is effective **immediately**.

minus

adj. subtracting or taking away; having a value less than zero

synonym : without, lacking, negative

(1) **minus** sign, (2) **minus** temperature

The recipe calls for four cups of flour **minus** one tablespoon.

examine

v. to study or consider a person or object attentively and thoroughly to learn something about them

synonym : study, probe, analyze

(1) **examine** the data studiously, (2) **examine** the issue

Initially, we must **examine** all project-related expenses.

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.

introduction

n. a preliminary explanation or remarks given before the start of a text, performance, or event; the act of bringing something new into existence or introducing something to a wider audience or new market

synonym : initiation, preamble, prologue

(1) **introduction** education, (2) self- **introduction**

The **introduction** to the new class was informative and engaging.

delay

v. to cause something to happen at a later time than originally intended or expected

synonym : block, adjourn, detain

(1) **delay** a flight three hours, (2) **delay** the new project

We **delayed** the payment because of an incorrect invoice.

inevitable

adj. certain to happen and unavoidable

synonym : inescapable, unavoidable, sure

(1) **inevitable** changes of the seasons, (2) **inevitable** result

In times of recession, an increase in unemployment is **inevitable**.

scan

v. to examine something hastily, with the eyes or with a machine, to get information

synonym: look over, scrutinize, browse

(1) **scan** the face of the man, (2) **scan** a document into PDF
She stood on the podium and **scanned** an audience.

subtract

v. to take away or deduct a quantity or amount from a total; to remove or eliminate something from a larger whole

synonym: deduct, take away, remove

(1) **subtract** numbers, (2) **subtract** one from the total
I need to **subtract** the cost of my expenses from my income to see how much money I have left.

firework

n. a device that produces a colorful display of light and sound when it is ignited

synonym: pyrotechnic, sparkler, firecracker

(1) **firework** discharge, (2) grand **firework** display
The children were excited to see the **firework** show.

Session 2: Spelling

1. second co___c velocity *adj.* relating to the universe or cosmos; vast or limitless
2. ex_____e the issue *v.* to study or consider a person or object attentively and thoroughly to learn something about them
3. in___t a graphic *v.* to put something inside something else
4. b__g a phone down *v.* to hit or cause to hit something in a way that makes a loud noise
5. a bit_____et memory *adj.* having a mixture of both positive and negative emotions or experiences; simultaneously pleasant and painful
6. imm_____ly recall a product *adv.* now or without delay
7. military st_____gy *n.* a detailed plan of action designed to achieve a long-term or overall goal.
8. de_____y the ecosystem *v.* to ruin or damage severely or completely; to eradicate or eliminate completely
9. mi__s temperature *adj.* subtracting or taking away; having a value less than zero
10. ice c__e *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
11. the per_____ve of the battle *n.* a confident attitude toward something; a particular style of thinking about something

ANSWERS: 1. cosmic, 2. examine, 3. insert, 4. bang, 5. bittersweet, 6. immediately, 7. strategy, 8. destroy, 9. minus, 10. cube, 11. perspective

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|---|------|--|
| 12. me__e into a new party | v. | to combine or integrate things, or to cause this to happen |
| 13. the im_____te past | adj. | happening or done without delay or occurring shortly after something else |
| 14. grand fi_____rk display | n. | a device that produces a colorful display of light and sound when it is ignited |
| 15. electronic de___e | n. | a piece of equipment, tool, or technology that serves a particular purpose or function, often mechanical or electronic |
| 16. for the s__e of argument | n. | purpose; reason for wanting something done |
| 17. de_____yed evidence | v. | to ruin or damage severely or completely; to eradicate or eliminate completely |
| 18. de_____d by elevator | v. | to move downward and lower; to come from, or to be connected by a relationship of blood |
| 19. de___e a literary plot | v. | to come up with an idea, plan, theory, etc., using your intelligence or imagination |
| 20. a bu___r between the quarreling parents | n. | a device, material, or person that reduces the impact or effect of an external force or provides protection against harm or damage |
| 21. si_____te a future scenario | v. | to make a pretense of someone's behavior or looks; to reproduce something that exists in real life using computers, models, etc., usually for study or training purposes |

ANSWERS: 12. merge, 13. immediate, 14. firework, 15. device, 16. sake, 17. destroy, 18. descend, 19. devise, 20. buffer, 21. simulate

22. ant_____er production *n.* matter made up of antiparticles, which have the same mass as regular matter but opposite electrical charges
23. ad_____nt houses *adj.* next to, close to, or adjoining something
24. co_____c background radiation *adj.* relating to the universe or cosmos; vast or limitless
25. se_____nt robots *adj.* having the ability to perceive or feel things, particularly through sense perception like touch or sight, especially at higher levels of intelligence and consciousness
26. de_____d a steep hill *v.* to move downward and lower; to come from, or to be connected by a relationship of blood
27. su_____e a blizzard *v.* to live or exist despite a dangerous event or period
28. a s__t on his honor *n.* a particular location or place; a small round or roundish area, differing in color or feels from the surface around it
29. take im_____te effect *adj.* happening or done without delay or occurring shortly after something else
30. the attraction of gr_____y *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
31. s__w meat *n.* a dish consisting of meat and vegetables simmered in liquid typically served hot as a main course or soup; a state of mental or emotional agitation or confusion

ANSWERS: 22. antimatter, 23. adjacent, 24. cosmic, 25. sentient, 26. descend, 27. survive, 28. spot, 29. immediate, 30. gravity, 31. stew

32. ant_____cle collisions *n.* a subatomic particle that has the same mass and opposite charge as its corresponding particle (e.g., a positron is the antiparticle of an electron)
33. high pu____y *n.* the state of being undiluted or unmixed with anything else; the state of being free from immorality, especially of a sexual nature
34. mi__s sign *adj.* subtracting or taking away; having a value less than zero
35. wh_____e a tune *v.* to make a high-pitched sound by forcing breath through a small opening, usually with the lips or fingers; (noun) a piece of equipment that forces air or steam against an edge or into a cavity and so produces a loud shrill sound
36. su_____ct numbers *v.* to take away or deduct a quantity or amount from a total; to remove or eliminate something from a larger whole
37. ba_____rd angle *adv.* at, to, or toward the direction or place that is behind or rear
38. al__n fungi *n.* a person who comes from a different country, race, or group; a form of life assumed to exist outside the Earth or its atmosphere
39. notable in _____ce *n.* a particular example or single occurrence of something
40. c__e 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

ANSWERS: 32. antiparticle, 33. purity, 34. minus, 35. whistle, 36. subtract, 37. backward, 38. alien, 39. instance, 40. cube

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|---------------------------|---|
| 41. beauty s__t | <i>n.</i> a particular location or place; a small round or roundish area, differing in color or feels from the surface around it |
| 42. resident al__ns | <i>n.</i> a person who comes from a different country, race, or group; a form of life assumed to exist outside the Earth or its atmosphere |
| 43. at___d service | <i>v.</i> to be present at an event, to go to a place |
| 44. en_____e strategies | <i>n.</i> the final stage or outcome of a long and complex process or sequence of events, especially one that involves a struggle or competition |
| 45. the c__e of an apple | <i>n.</i> the most essential or fundamental part of something |
| 46. id_____fy handwriting | <i>v.</i> to recognize someone or something and say or prove who or what they are |
| 47. gl__n interaction | <i>n.</i> a subatomic particle that binds quarks together in the nucleus of an atom, thus mediating the strong nuclear force |
| 48. cable r__l | <i>n.</i> a cylinder on which film, wire, or other flexible materials that can be wound |
| 49. ant_____er propulsion | <i>n.</i> matter made up of antiparticles, which have the same mass as regular matter but opposite electrical charges |
| 50. pr_____s improvement | <i>n.</i> a series of actions or operations performed to achieve a particular outcome or goal; a systematic procedure or approach used to accomplish a specific task or objective; a method of treating milk to make it suitable for consumption or use in other dairy products |

ANSWERS: 41. spot, 42. alien, 43. attend, 44. endgame, 45. core, 46. identify, 47. gluon, 48. reel, 49. antimatter, 50. process

51. id____fy gene sequences *v.* to recognize someone or something and say or prove who or what they are
52. elliptic ga____y *n.* an independent group of stars, interstellar gas, dark matter, etc., in the universe, bound together by gravity
53. de__y a flight three hours *v.* to cause something to happen at a later time than originally intended or expected
54. his undying f__e *n.* the condition of being well-known and discussed by a large number of people as a result of one's accomplishments, abilities, and so on
55. decision-making pr____s *n.* a series of actions or operations performed to achieve a particular outcome or goal; a systematic procedure or approach used to accomplish a specific task or objective; a method of treating milk to make it suitable for consumption or use in other dairy products
56. mat____cs competition *n.* the science dealing with the logic of quantities, shapes, spaces, and arrangement
57. ra____ce of the sun *n.* a shining, brilliant light or glow; a bright or effulgent quality; an aura or distinct energy that emanates from a person or object
58. s__n the face of the man *v.* to examine something hastily, with the eyes or with a machine, to get information

ANSWERS: 51. identify, 52. galaxy, 53. delay, 54. fame, 55. process, 56. mathematics, 57. radiance, 58. scan

59. network se__p *n.* the arrangement or organization of something, often with a specific purpose or intention; a scheme or plan that is intended to deceive or trick someone
60. walk ba____rd *adv.* at, to, or toward the direction or place that is behind or rear
61. re_____nt by a diagram *v.* to speak, act, or be present on behalf of another person or group; to form or constitute
62. int_____ory biology text *adj.* intended as an introduction or preliminary; serving as a base or starting point
63. ine_____le changes of the seasons *adj.* certain to happen and unavoidable
64. the degree of pu____y *n.* the state of being undiluted or unmixed with anything else; the state of being free from immorality, especially of a sexual nature
65. ga____ic scale *adj.* relating to or concerning the galaxy or galaxies; having characteristics or qualities that are vast, extensive, or cosmic in scope
66. an____or language *n.* a person from whom one is descended; a forefather
67. a well-ba____ed mind *adj.* taking all sides or opinions into account equally; being in a state of proper equilibrium
68. en__t the smoking ban *v.* to make a law; to put something into practice
69. detailed exp_____on *n.* the information or arguments that someone provides to make something understandable or clear

ANSWERS: 59. setup, 60. backward, 61. represent, 62. introductory, 63. inevitable, 64. purity, 65. galactic, 66. ancestor, 67. balanced, 68. enact, 69. explanation

70. pa__e for a reaction *v.* to take a short break from talking or doing something before continuing
71. an em____ry from the company *n.* a person sent on a mission or as a representative of an organization or country
72. a per____ve view *n.* a confident attitude toward something; a particular style of thinking about something
73. at__d a meeting *v.* to be present at an event, to go to a place
74. tr____e album *n.* a payment, gift, or other forms of recognition made in honor of or submission to another person or entity
75. artificial cr____re *n.* a living being, especially an animal
76. su____al ability *n.* the state of continuing to exist or live, frequently in the face of difficulty or danger
77. vegetable s__w *n.* a dish consisting of meat and vegetables simmered in liquid typically served hot as a main course or soup; a state of mental or emotional agitation or confusion
78. si____te climate change *v.* to make a pretense of someone's behavior or looks; to reproduce something that exists in real life using computers, models, etc., usually for study or training purposes
79. the se____ce of the seasons *n.* a series of related events, actions, numbers, etc., which have a particular order

ANSWERS: 70. pause, 71. emissary, 72. perspective, 73. attend, 74. tribute, 75. creature, 76. survival, 77. stew, 78. simulate, 79. sequence

80. product int_____ory sale *adj.* intended as an introduction or preliminary; serving as a base or starting point
81. chess en_____e *n.* the final stage or outcome of a long and complex process or sequence of events, especially one that involves a struggle or competition
82. int_____nt assisting system *adj.* having the capacity for thought and reason, especially to a high degree
83. the ch_____c economic situation *adj.* without any order or organization; extremely disorganized, unpredictable, and confusing
84. pay tr_____e *n.* a payment, gift, or other forms of recognition made in honor of or submission to another person or entity
85. de__y the new project *v.* to cause something to happen at a later time than originally intended or expected
86. su_____al food *n.* the state of continuing to exist or live, frequently in the face of difficulty or danger
87. eve_____ly become obsolete *adv.* finally, particularly after a long time or a lot of struggle, complications, and so on
88. cr_____re of habit *n.* a living being, especially an animal
89. en__t new legislation *v.* to make a law; to put something into practice
90. for your own s__e *n.* purpose; reason for wanting something done

ANSWERS: 80. introductory, 81. endgame, 82. intelligent, 83. chaotic, 84. tribute, 85. delay, 86. survival, 87. eventually, 88. creature, 89. enact, 90. sake

91. a ba____ed diet *adj.* taking all sides or opinions into account equally; being in a state of proper equilibrium
92. use a bu____r to reduce noise *n.* a device, material, or person that reduces the impact or effect of an external force or provides protection against harm or damage
93. pa__e a moment *v.* to take a short break from talking or doing something before continuing
94. fun____al rights *adj.* forming an essential base or core from which everything else develops or is affected
95. write him an answer imm____ly *adv.* now or without delay
96. ann____te the enemy *v.* to destroy completely; to cause something to cease to exist
97. ine____le result *adj.* certain to happen and unavoidable
98. a six-r__l film *n.* a cylinder on which film, wire, or other flexible materials that can be wound
99. em____ry of peace *n.* a person sent on a mission or as a representative of an organization or country
100. mental ari____ic *n.* the branch of mathematics that deals with numbers and numerical calculations, particularly the four basic operations of addition, subtraction, multiplication, and division
101. ex____e the data studiously *v.* to study or consider a person or object attentively and thoroughly to learn something about them

ANSWERS: 91. balanced, 92. buffer, 93. pause, 94. fundamental, 95. immediately, 96. annihilate, 97. inevitable, 98. reel, 99. emissary, 100. arithmetic, 101. examine

102. earliest human an____or *n.* a person from whom one is descended; a forefather
103. preserve my gr____y *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
104. the DNA se____ce *n.* a series of related events, actions, numbers, etc., which have a particular order
105. the exp____on for the failure *n.* the information or arguments that someone provides to make something understandable or clear
106. in____t coin *v.* to put something inside something else
107. eve____ly succeed *adv.* finally, particularly after a long time or a lot of struggle, complications, and so on
108. rag d__l *n.* a child's toy that typically represents a human figure, especially a young girl; an attractive woman; a woman who is subservient or passive
109. fun____al education *adj.* forming an essential base or core from which everything else develops or is affected
110. ann____te all doubts *v.* to destroy completely; to cause something to cease to exist
111. leap into f__e *n.* the condition of being well-known and discussed by a large number of people as a result of one's accomplishments, abilities, and so on
112. se____nt beings *adj.* having the ability to perceive or feel things, particularly through sense perception like touch or sight, especially at higher levels of intelligence and consciousness

ANSWERS: 102. ancestor, 103. gravity, 104. sequence, 105. explanation, 106. insert, 107. eventually, 108. doll, 109. fundamental, 110. annihilate, 111. fame, 112. sentient

113. bit_____et ending *adj.* having a mixture of both positive and negative emotions or experiences; simultaneously pleasant and painful
114. r__y on convenience stores *v.* to require a specific thing or the assistance and support of someone or something to continue, run properly, or succeed.
115. an int_____nt person *adj.* having the capacity for thought and reason, especially to a high degree
116. fu___n cuisine *n.* the process of combining two or more things to form a single entity
117. facial ra_____ce *n.* a shining, brilliant light or glow; a bright or effulgent quality; an aura or distinct energy that emanates from a person or object
118. office se__p *n.* the arrangement or organization of something, often with a specific purpose or intention; a scheme or plan that is intended to deceive or trick someone
119. gl__n emission *n.* a subatomic particle that binds quarks together in the nucleus of an atom, thus mediating the strong nuclear force
120. s__n a document into PDF *v.* to examine something hastily, with the eyes or with a machine, to get information
121. de___e a plan *v.* to come up with an idea, plan, theory, etc., using your intelligence or imagination
122. su_____e a plane crash *v.* to live or exist despite a dangerous event or period

ANSWERS: 113. bittersweet, 114. rely, 115. intelligent, 116. fusion, 117. radiance, 118. setup, 119. gluon, 120. scan, 121. devise, 122. survive

123. ne___e deeper against him *v.* to settle comfortably or cozily into a place
124. ant_____cle physics *n.* a subatomic particle that has the same mass and opposite charge as its corresponding particle (e.g., a positron is the antiparticle of an electron)
125. wh_____e for help *v.* to make a high-pitched sound by forcing breath through a small opening, usually with the lips or fingers; (noun) a piece of equipment that forces air or steam against an edge or into a cavity and so produces a loud shrill sound
126. self-int_____ion *n.* a preliminary explanation or remarks given before the start of a text, performance, or event; the act of bringing something new into existence or introducing something to a wider audience or new market
127. fi_____rk discharge *n.* a device that produces a colorful display of light and sound when it is ignited
128. a ga___y of famous actors *n.* an independent group of stars, interstellar gas, dark matter, etc., in the universe, bound together by gravity
129. su_____ct one from the total *v.* to take away or deduct a quantity or amount from a total; to remove or eliminate something from a larger whole
130. plastic d__l *n.* a child's toy that typically represents a human figure, especially a young girl; an attractive woman; a woman who is subservient or passive

ANSWERS: 123. nestle, 124. antiparticle, 125. whistle, 126. introduction, 127. firework, 128. galaxy, 129. subtract, 130. doll

131. b__g his fist on a desk *v.* to hit or cause to hit something in a way that makes a loud noise
132. r__y entirely on him *v.* to require a specific thing or the assistance and support of someone or something to continue, run properly, or succeed.
133. heat fu___n *n.* the process of combining two or more things to form a single entity
134. ch_____c theory *adj.* without any order or organization; extremely disorganized, unpredictable, and confusing
135. tracking de___e *n.* a piece of equipment, tool, or technology that serves a particular purpose or function, often mechanical or electronic
136. ne___e in a cozy spot *v.* to settle comfortably or cozily into a place
137. a ti__t game *adj.* fixed, fastened, or kept together firmly or closely
138. charged pa_____le *n.* a small piece of something; a word or piece of a term with grammatical function but little or no significance
139. womanly ho__r *n.* high regard or great respect for someone; the quality of having and doing based on a keen sense of morality; (verb) to show respect towards someone
140. int_____ion education *n.* a preliminary explanation or remarks given before the start of a text, performance, or event; the act of bringing something new into existence or introducing something to a wider audience or new market

ANSWERS: 131. bang, 132. rely, 133. fusion, 134. chaotic, 135. device, 136. nestle, 137. tight, 138. particle, 139. honor, 140. introduction

141. ho__r our ancestors *n.* high regard or great respect for someone; the quality of having and doing based on a keen sense of morality; (verb) to show respect towards someone
142. decimal ari_____ic *n.* the branch of mathematics that deals with numbers and numerical calculations, particularly the four basic operations of addition, subtraction, multiplication, and division
143. student on a ti__t budget *adj.* fixed, fastened, or kept together firmly or closely
144. pa_____le energy *n.* a small piece of something; a word or piece of a term with grammatical function but little or no significance
145. develop a st_____gy *n.* a detailed plan of action designed to achieve a long-term or overall goal.
146. a good grounding in mat_____cs *n.* the science dealing with the logic of quantities, shapes, spaces, and arrangement
147. c__e business activity *n.* the most essential or fundamental part of something
148. me__e those systems into a new one *v.* to combine or integrate things, or to cause this to happen
149. de___t smuggling across borders *v.* to find or recognize something, especially something difficult to see, hear, etc.
150. for in_____ce *n.* a particular example or single occurrence of something

ANSWERS: 141. honor, 142. arithmetic, 143. tight, 144. particle, 145. strategy, 146. mathematics, 147. core, 148. merge, 149. detect, 150. instance

151. de___t a bad event

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

152. a ga_____ic system

adj. relating to or concerning the galaxy or galaxies; having characteristics or qualities that are vast, extensive, or cosmic in scope

153. ad_____nt to his house

adj. next to, close to, or adjoining something

154. the characters that re_____nt
numbers

v. to speak, act, or be present on behalf of another person or group; to form or constitute

ANSWERS: 151. detect, 152. galactic, 153. adjacent, 154. represent

Session 3: Fill in the Blanks

1. We do move forward with those tasks in _____ next week.
n. a series of related events, actions, numbers, etc., which have a particular order
2. _____ robots that can cooperate with humans have limited motor output for safety.
adj. having the capacity for thought and reason, especially to a high degree
3. My father tried to _____ mathematics into my head since childhood.
v. to hit or cause to hit something in a way that makes a loud noise
4. The athlete's _____ was to win an Olympic gold medal before retiring from the sport
n. the final stage or outcome of a long and complex process or sequence of events, especially one that involves a struggle or competition
5. They had to _____ a system that did not depend on fossil fuels.
v. to come up with an idea, plan, theory, etc., using your intelligence or imagination
6. Babies heavily _____ on others for food.
v. to require a specific thing or the assistance and support of someone or something to continue, run properly, or succeed.
7. Animals such as dolphins and elephants are highly _____ and intelligent creatures.
adj. having the ability to perceive or feel things, particularly through sense perception like touch or sight, especially at higher levels of intelligence and consciousness

ANSWERS: 1. sequence, 2. Intelligent, 3. bang, 4. endgame, 5. devise, 6. rely, 7. sentient

8. Higher _____ requires additional equipment and energy.
- n.* the state of being undiluted or unmixed with anything else; the state of being free from immorality, especially of a sexual nature
9. The employee decided to _____ on the company's illegal activities.
- v.* to make a high-pitched sound by forcing breath through a small opening, usually with the lips or fingers; (noun) a piece of equipment that forces air or steam against an edge or into a cavity and so produces a loud shrill sound
10. The _____ class was designed to give students a basic understanding of the subject.
- adj.* intended as an introduction or preliminary; serving as a base or starting point
11. The _____ for the conference was impressive and professional.
- n.* the arrangement or organization of something, often with a specific purpose or intention; a scheme or plan that is intended to deceive or trick someone
12. Nuclear _____ is a process in which atomic nuclei combine to form heavier nuclei.
- n.* the process of combining two or more things to form a single entity
13. Human behavior has _____ characteristics.
- adj.* forming an essential base or core from which everything else develops or is affected
14. I claim on my _____ that it is true.
- n.* high regard or great respect for someone; the quality of having and doing based on a keen sense of morality; (verb) to show respect towards someone
15. She falls over _____ when she sees her mother-in-law.
- adv.* at, to, or toward the direction or place that is behind or rear

ANSWERS: 8. purity, 9. whistle-blow, 10. introductory, 11. setup, 12. fusion, 13. fundamental, 14. honor, 15. backward

16. The building was _____ in the fire and had to be rebuilt.
v. to ruin or damage severely or completely; to eradicate or eliminate completely
17. Good _____ is better than a good face.
n. the condition of being well-known and discussed by a large number of people as a result of one's accomplishments, abilities, and so on
18. The security camera has _____ four intruders.
v. to find or recognize something, especially something difficult to see, hear, etc.
19. I will introduce you to how to _____ the leading causes of the malfunction.
v. to recognize someone or something and say or prove who or what they are
20. I always carry a backup _____ in case my phone runs out of battery.
n. a piece of equipment, tool, or technology that serves a particular purpose or function, often mechanical or electronic
21. The children were excited to see the _____ show.
n. a device that produces a colorful display of light and sound when it is ignited
22. The _____ from the neighboring country arrived with a message of peace.
n. a person sent on a mission or as a representative of an organization or country
23. The strong force, mediated by _____ binds protons and neutrons in the atomic nucleus.
n. a subatomic particle that binds quarks together in the nucleus of an atom, thus mediating the strong nuclear force
24. The _____ for applying for a visa can be lengthy and complicated.
n. a series of actions or operations performed to achieve a particular outcome or goal; a systematic procedure or approach used to accomplish a specific task or objective; a method of treating milk to make it suitable for consumption or use in other dairy products

ANSWERS: 16. destroyed, 17. fame, 18. detected, 19. identify, 20. device, 21. firework, 22. emissary, 23. gluons, 24. process

25. The statue was built as a _____ to the soldiers who died in the war.
- n.* a payment, gift, or other forms of recognition made in honor of or submission to another person or entity
26. Scientists are studying the properties of _____ to gain a deeper understanding of the universe.
- n.* matter made up of antiparticles, which have the same mass as regular matter but opposite electrical charges
27. She was _____ from an old Italian noble family.
- v.* to move downward and lower; to come from, or to be connected by a relationship of blood
28. The national election was held amid _____ security.
- adj.* fixed, fastened, or kept together firmly or closely
29. She _____ a new chapter into her manuscript.
- v.* to put something inside something else
30. I need to _____ the cost of my expenses from my income to see how much money I have left.
- v.* to take away or deduct a quantity or amount from a total; to remove or eliminate something from a larger whole
31. Using a password manager can act as a _____ against hackers who try to steal your personal information.
- n.* a device, material, or person that reduces the impact or effect of an external force or provides protection against harm or damage
32. She stood on the podium and _____ an audience.
- v.* to examine something hastily, with the eyes or with a machine, to get information

ANSWERS: 25. tribute, 26. antimatter, 27. descended, 28. tight, 29. inserted, 30. subtract, 31. buffer, 32. scanned

33. In times of recession, an increase in unemployment is _____.

adj. certain to happen and unavoidable

34. He had painted the wood to _____ stone.

v. to make a pretense of someone's behavior or looks; to reproduce something that exists in real life using computers, models, etc., usually for study or training purposes

35. These birds can only _____ in temperate climates.

v. to live or exist despite a dangerous event or period

36. The recipe calls for four cups of flour _____ one tablespoon.

adj. subtracting or taking away; having a value less than zero

37. A suspension order from the court is effective _____.

adv. now or without delay

38. My remote _____ immigrated to the United States from Ireland in the 1800s.

n. a person from whom one is descended; a forefather

39. The abacus is an ancient counting device that was used for _____ calculations.

n. the branch of mathematics that deals with numbers and numerical calculations, particularly the four basic operations of addition, subtraction, multiplication, and division

40. We must _____ to this matter.

v. to be present at an event, to go to a place

ANSWERS: 33. inevitable, 34. simulate, 35. survive, 36. minus, 37. immediately, 38. ancestor, 39. arithmetic, 40. attend

41. These articles cite five _____ of climate change.

n. a particular example or single occurrence of something

42. The cat _____ in my lap and fell asleep.

v. to settle comfortably or cozily into a place

43. The antique _____ was worth thousands of dollars.

n. a child's toy that typically represents a human figure, especially a young girl; an attractive woman; a woman who is subservient or passive

44. We elected him to _____ us at the international conference.

v. to speak, act, or be present on behalf of another person or group; to form or constitute

45. These gas nebulas are merely newborn galactic _____.

n. the most essential or fundamental part of something

46. The graduation ceremony was _____ as the students said goodbye to their classmates and teachers.

adj. having a mixture of both positive and negative emotions or experiences; simultaneously pleasant and painful

47. _____ species have drastically altered the ecosystem in this area.

n. a person who comes from a different country, race, or group; a form of life assumed to exist outside the Earth or its atmosphere

48. The painting was full of vibrance and _____ capturing the essence of the artist's talent.

n. a shining, brilliant light or glow; a bright or effulgent quality; an aura or distinct energy that emanates from a person or object

ANSWERS: 41. instances, 42. nestled, 43. doll, 44. represent, 45. cores, 46. bittersweet, 47. Alien, 48. radiance,

49. The following _____ is currently being used to explain the phenomenon in question.
- n.* the information or arguments that someone provides to make something understandable or clear
50. The _____ to the new class was informative and engaging.
- n.* a preliminary explanation or remarks given before the start of a text, performance, or event; the act of bringing something new into existence or introducing something to a wider audience or new market
51. When an _____ meets its corresponding particle, the two annihilate.
- n.* a subatomic particle that has the same mass and opposite charge as its corresponding particle (e.g., a positron is the antiparticle of an electron)
52. This consulting firm decided to _____ the two companies into one.
- v.* to combine or integrate things, or to cause this to happen
53. The astronaut felt weightless in space due to the absence of _____.
- 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
54. He put the fishing line on the _____ and cast his line into the water.
- n.* a cylinder on which film, wire, or other flexible materials that can be wound
55. Our plan includes a comprehensive marketing _____.
- n.* a detailed plan of action designed to achieve a long-term or overall goal.
56. The man _____ before opening the door.
- v.* to take a short break from talking or doing something before continuing

ANSWERS: 49. explanation, 50. introduction, 51. antiparticle, 52. merge, 53. gravity, 54. reel, 55. strategy, 56. paused

57. The deep sea _____ was unlike anything the scientists had ever seen before.

n. a living being, especially an animal

58. _____ rays are high-energy particles that originate from outside the solar system.

adj. relating to the universe or cosmos; vast or limitless

59. The corporation _____ dominated the entire tobacco business.

adv. finally, particularly after a long time or a lot of struggle, complications, and so on

60. Change is also occurring in Turkey as a result of _____ reform.

adj. without any order or organization; extremely disorganized, unpredictable, and confusing

61. Our country has military alliances with _____ countries.

adj. next to, close to, or adjoining something

62. The Milky Way is a _____ collection of billions of stars and planets.

adj. relating to or concerning the galaxy or galaxies; having characteristics or qualities that are vast, extensive, or cosmic in scope

63. We conducted a _____ assessment of intellectual and cultural history.

adj. taking all sides or opinions into account equally; being in a state of proper equilibrium

64. His father's death changed his whole _____ on life.

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

ANSWERS: 57. creature, 58. Cosmic, 59. eventually, 60. chaotic, 61. adjacent, 62. galactic, 63. balanced, 64. perspective

65. The Milky Way _____ has numerous water-bearing planets.

- n.* an independent group of stars, interstellar gas, dark matter, etc., in the universe, bound together by gravity

66. He evaluated his chances for _____ rather pessimistically.

- n.* the state of continuing to exist or live, frequently in the face of difficulty or danger

67. The government _____ this law in 1925.

- v.* to make a law; to put something into practice

68. Both forts were subject to _____ attacks.

- adj.* happening or done without delay or occurring shortly after something else

69. This remote _____ is rarely visited.

- n.* a particular location or place; a small round or roundish area, differing in color or feels from the surface around it

70. He has a flair for _____.

- n.* the science dealing with the logic of quantities, shapes, spaces, and arrangement

71. Initially, we must _____ all project-related expenses.

- v.* to study or consider a person or object attentively and thoroughly to learn something about them

72. The virus had the potential to _____ entire populations if left unchecked.

- v.* to destroy completely; to cause something to cease to exist

ANSWERS: 65. galaxy, 66. survival, 67. enacted, 68. immediate, 69. spot, 70. mathematics, 71. examine, 72. annihilate

73. I cut the cheese into small _____ for the salad.

- 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

74. I made a delicious beef _____ for dinner tonight.

- n.* a dish consisting of meat and vegetables simmered in liquid typically served hot as a main course or soup; a state of mental or emotional agitation or confusion

75. We can calculate the position of the _____ statistically.

- n.* a small piece of something; a word or piece of a term with grammatical function but little or no significance

76. He got a new job for the _____ of his family.

- n.* purpose; reason for wanting something done

77. We _____ the payment because of an incorrect invoice.

- v.* to cause something to happen at a later time than originally intended or expected

ANSWERS: 73. cubes, 74. stew, 75. particles, 76. sake, 77. delayed