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Vocabulary Builder Reference from...

Roger Antonsen: Math is the hidden secret to understanding the world | TED Talk

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

All Words

IMPORTANT

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Session 1: Word List

essence

n. the basic or most important part or quality of something that makes it what it is

synonym : core, nature, disposition

(1) vanilla **essence**, (2) universal **essence**

University teaches the art of understanding the **essence** of the matter.

aim

v. to try or plan to get or achieve something

synonym : aspire, direct, target

(1) **aim** at a specific target, (2) **aim** to be a nurse

We **aim** for an overseas expansion.

claim

v. to assert that something is true; to demand or request something as one's own; to lay legal or moral right to something; (noun) a demand or assertion of a right or something that one believes to be true

synonym : assert, declare, maintain

(1) **claim** responsibility, (2) false **claim**

He wants to **claim** ownership of the abandoned property.

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.

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**.

addition

n. the act or process of adding something to something else; the process of adding numbers

synonym: accumulation, expansion, addendum

(1) chemical **addition**, (2) **addition** of vectors

In **addition**, private corporations provide healthcare services.

subtraction

n. the process or action of removing one number from another; the mathematical operation of finding the difference between two numbers or quantities

synonym: deduction, minus, withdrawal

(1) **subtraction** equation, (2) double-digit **subtraction**

The **subtraction** of expenses from revenue resulted in a net profit for the company.

multiply

v. to add a number to itself a specified number of times; to increase or cause to increase very much in number or quantity

synonym: boost, amplify, reproduce

(1) **multiply** 5 and 6, (2) **multiply** about hundredfold

Multiply a number by itself twice.

division

n. the act or outcome of splitting into separate parts; a critical organizational unit or sector

synonym: branch, separator, section

(1) cellular **division**, (2) **division** chief

Which **division** of the company do you work in?

fraction

n. 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.

geometry

n. the area of pure mathematics that deals with the points, lines, curves, and surfaces

(1) Euclidean **geometry**, (2) spherical **geometry**

The mathematician pioneered fractal **geometry**.

algebra

n. a type of mathematics in which signs and letters represent numbers

synonym : calculus

(1) **algebra** calculation, (2) strong in **algebra**

His classmates were laboring with advanced **algebra**.

emerge

v. to move out of or away from something and become visible

synonym : arise, occur, appear

(1) **emerge** as a butterfly, (2) **emerge** from poverty

During colonial eras, new migratory patterns **emerged**.

definition

n. a concise explanation of the meaning of a word, phrase, or symbol

synonym : description, connotation, meaning

(1) a precise **definition**, (2) the **definition** of a word

Parallel lines are, by **definition**, lines on the same plane that never cross.

structure

n. the way of construction of something and the arrangement of its parts, or a complex thing constructed of many parts

synonym : construction, architecture, establishment

(1) the **structure** of a machine, (2) **structure** and function of the brain

The organizational **structure** of start-ups is often flat and straightforward.

govern

v. to legally control and direct a country, city, group of people, etc. and be responsible for introducing new laws, organizing and maintaining public services

synonym: control, rule, preside

(1) a nation's right to **govern**, (2) **govern** a public enterprise

The regulations **governing** medical malpractice claims are rigorous.

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.

essential

adj. indispensable; fundamental

synonym: critical, crucial, basic

(1) **essential** amino acid, (2) **essential** commodities of life

Trial and error is an **essential** part of education.

assume

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

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.

knot

n. a tight interlacing of something such as rope or thread

synonym: tangle, entanglement, snarl

(1) a hard **knot**, (2) a **knot** of people

The boy scout showed us how to tie a **knot** that wouldn't come undone.

outright

adj. completely; completely and without reservation; without any attempt at concealment

synonym: absolute, complete, unconditional

(1) impose an **outright** ban, (2) **outright** lie

He made an **outright** donation of \$1,000 to the charity.

analyze

v. to think about in-depth and evaluate to discover essential features or meaning

synonym: explore, examine, investigate

(1) **analyze** a chemical compound, (2) **analyze** your real motives

The teacher attempted to **analyze** the root cause of our mistake.

representation

n. the act of speaking, acting, or being present on behalf of someone officially; a statement of facts and reasons made in appealing or protesting

synonym: delegacy, manifestation, expression

(1) sales **representation**, (2) binary **representation**

A person who has been declared incompetent should have legal **representation**.

invention

n. the creation of a new device or process resulting from study and experimentation; the act of inventing

synonym: creation, design, innovation

(1) the **invention** of new techniques, (2) common **invention**

Necessity is the mother of **invention**.

tap

v. to hit someone or something quickly, gently, and often repeatedly; to use existing resources, such as energy, knowledge, etc.

synonym: knock, exploit, use

(1) **tap** a new market, (2) **tap** keyboard with an index finger

To expand the company, we must **tap** new human resources.

choreograph

v. to compose a sequence of dance steps, often to music

(1) **choreograph** a stage performance, (2) exquisitely **choreographed**

He had **choreographed** the dance in this play himself.

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.

dot

n. a very small circular mark, especially one that is printed

synonym: drop, dab, fleck

(1) connecting the **dots**, (2) **dot** blot method

The wallpaper had a pattern of pink **dots** on a white surface.

symbol

n. something visible that is used to represent something else

synonym: mark, character, insignia

(1) **symbol** color, (2) **symbol** for happiness

The dragon is considered a **symbol** of bravery.

concept

n. an idea or principle associated with something abstract

synonym: idea, notion, vision

(1) learn new **concepts**, (2) **concept** car

One such rapidly growing **concept** is quantum cryptography.

magic

n. beliefs and actions employed to influence supernatural beings and forces; any art or performance that invokes supernatural powers

synonym: fascination, illusion, wizardry

(1) a **magic** spell, (2) she is **magic**

He performed **magic** tricks with sophisticated moves.

recommend

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

synonym: advise, suggest, instruct

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

experiment

n. the scientific test conducted to observe what happens and gain new knowledge

synonym : experimentation, investigation

(1) **experiment** design, (2) series of **experiments**

His **experiments** showed highly positive results.

straight

adj. extending or moving in one direction without bending or curving; having no deviations

synonym : linear, honest, consecutive

(1) a **straight** line, (2) **straight** for two months

He was sick for five **straight** days.

curve

n. a bend or angle in a line or surface that deviates from a straight or flat path; a gradual or smooth change in direction or shape

synonym : bend, arc, turn

(1) learning **curve**, (2) yield **curve**

The **curve** in the road was so sharp that I had to slow down to navigate it safely.

rotate

v. to turn around a central point or axis; to move in a circular path around something

synonym : turn, revolve, spin

(1) **rotate** crops, (2) **rotate** about the origin

The Earth **rotates** on its axis once every 24 hours.

investigation

n. the act or process of thoroughly examining a crime, problem, statement, etc., to uncover the truth

synonym : examination, analysis, inspection

(1) a preliminary **investigation**, (2) the scope of an **investigation**

We have never before conducted a legitimate **investigation**.

extend

v. to broaden in scope, range, or area

synonym: prolong, lengthen, advance

(1) **extend** the warranty, (2) **extend** a line

Her visit will **extend** from Monday to Friday.

zoom

v. to move along very quickly; (noun) the act of rising upward into the air

synonym: move quickly, dive, buzz

(1) **zoom** in on a photo, (2) **zoom** lens

He **zoomed** back in time to the soccer game.

parabola

n. a symmetrical curve formed by the intersection of a cone with a plane parallel to its side; (of mathematics) a curve described by a quadratic equation (a type of polynomial equation of the second degree denoted as $ax^2 + bx + c = 0$)

synonym: curve, arch

(1) **parabola** shape, (2) **parabola** equation

The trajectory of the cannonball followed a **parabola** in the air.

equation

n. the act of regarding as equal; (mathematics) a statement that expresses the equality of two expressions by connecting them with the equals sign

(1) the **equation** of poverty with ignorance, (2) a chemical **equation**

In this class, you will learn how to solve quadratic **equations**.

metaphor

n. a figure of speech in which an expression is used to refer to something that it does not denote to suggest a similarity

synonym: conceit, analogy, symbol

(1) **metaphor** for death, (2) visual **metaphor**

She expressed her thought in an artful choice of **metaphors**.

analogy

n. a comparison between similar things that have similar aspects, often used to help explain a principle or

concept

synonym : metaphor, comparison, parallel

(1) draw **analogy**, (2) historical **analogy**

Some kinds of machine learning models show an **analogy** to how people learn.

digit

n. one of the elements that collectively form a system of numeration; a finger, thumb, or toe

synonym : number, integer, numeral

(1) **digit** identifier, (2) the **digit** in the hundreds place

We must enter a six- **digit** number to unlock the safe.

binary

n. a system of numbers that uses only two digits, 0 and 1

synonym : twofold, double

(1) a **binary** number, (2) trading in **binary** options

A **binary** star is a system in which two stars revolve around each other.

simplify

v. to make something more straightforward, more understandable, or easier to do

synonym : streamline, clarify, elucidate

(1) **simplify** my life, (2) **simplify** the process

Please **simplify** your explanation for the children.

divide

v. to separate or cause to separate into parts or groups

synonym : separate, disconnect, split

(1) **divide** the cake into two pieces, (2) **divide** money equally

Can you **divide** 123321 by eleven?

relation

n. the way two persons or groups of people feel and act toward one another

synonym : association, linkage, connection

(1) **relation** between cause and effect, (2) **relation** of inclusion

The industrial **relations** laws were passed with little to no

alteration.

visualize

v. to form a mental image or concept of something; to make something visible

synonym: imagine, picture, envision

(1) **visualize** data, (2) **visualize** flying through space

She tried to **visualize** the layout of the new house in her mind.

deliberately

adv. done in an intentional or slow and careful manner

synonym: intentionally, knowingly, willfully

(1) **deliberately** amateurish, (2) commit a crime

deliberately

He **deliberately** misleads others.

grid

n. a pattern of regularly spaced horizontal and vertical lines; a system of high tension cables by which electrical power is distributed throughout a region

synonym: gridiron, battery grid, power system

(1) a **grid** design, (2) a wire **grid**

Grid pattern roads often appear in urban areas.

rectangle

n. a four-sided geometric shape with four right angles, where opposite sides are parallel and of equal length

synonym: oblong, square, quadrangle

(1) orthogonal **rectangle**, (2) **rectangle** box

The living room had a **rectangle-shaped** coffee table in the center of it.

observe

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

synonym: watch, monitor, scrutinize

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

It is important to **observe** safety procedures in the workplace to prevent accidents.

trace

v. to find or discover someone or something that was lost
synonym: seek, follow, depict

(1) **trace** a telephone call, (2) **trace** back to medieval times
Let's **trace** the origins of some familiar foreign words.

beep

v. to make a short, high-pitched sound, typically as a signal or warning

synonym: bleep, honk, buzz

(1) **beep** out a warning, (2) **beep** the horn

The timer **beeped**, reminding me that the cake was ready to come out of the oven.

octave

n. a musical interval encompassing eight diatonic scale degrees, such as the interval from C to the next C in a C major scale

synonym: eighth, interval, range

(1) **octave** key, (2) **octave** range

The singer's range was impressive, covering three **octaves** with ease.

rhythm

n. a strong regular repeated pattern of sounds, words, or musical notes that are used in music, poetry, and dancing

synonym: beat, cadence, tempo

(1) in samba **rhythm**, (2) irregular heart **rhythm**

He beat out a jazz **rhythm** on the cajones.

drumbeat

n. a regular, steady beat or rhythm, often used to accompany music or to mark the passage of time

synonym: rhythm, cadence, pulse

(1) steady **drumbeat**, (2) thundering **drumbeat**

The ceremonial **drumbeat** echoed through the temple during the ritual.

clank

v. to produce a loud, echoing, metallic sound, often caused by the collision of metal objects or machinery; to move or operate with a heavy, clanging sound; (noun) a sharp,

metallic sound that is typically produced when two hard objects strike or collide with each other

synonym : clang, clatter, jangle

(1) **clank** my spoon against the glass, (2) **clank** of metal
He dropped the empty can, and it **clanked** loudly as it hit the garage's concrete floor.

hi-hat

n. a percussion instrument consisting of a pair of small cymbals mounted on a stand, which is played by striking the cymbals together using a foot pedal, commonly used in various forms of music, particularly in drum set configurations

synonym : cymbal, percussion, beat

(1) **hi-hat** pedal, (2) rhythmic **hi-hat**

The drummer showcased his skills on the **hi-hat** during the jazz performance.

cymbal

n. a musical instrument consisting of a concave round metal plate that produces a ringing or clashing sound when struck, typically by a drumstick or another cymbal

synonym : drum, percussion, gong

(1) loud **cymbal**, (2) hi-hat **cymbal**

The drummer played a loud crash on the **cymbal** to end the song.

cow

n. a domesticated mammal with characteristic features such as a hump, large udders, and curved horns that is raised for its milk or meat

synonym : bovine, cattle, kine

(1) **cow** herd, (2) dairy **cow**

The farmer milked the **cows** every morning before breakfast.

undervalue

v. to assign too low a value to something

synonym : underrate, underestimate, devalue

(1) **undervalue** his contribution, (2) **undervalue** the potential

He **undervalued** the importance of teamwork and struggled to succeed.

sphere

n. a round object or geometric shape that is three-dimensional and symmetrical around a central point; a particular aspect or scope of life or activity

synonym : ball, globe, scope

(1) **sphere** of influence, (2) business **sphere**

The **sphere** of the earth is divided into several layers including the crust, mantle, and core.

volume

n. the amount of space occupied by an object or substance; the magnitude of sound

synonym : capacity, amount, intensity

(1) **volume** of work, (2) high **volume**

This container has a **volume** of 10 cubic meters.

cylinder

n. a solid or hollow geometric figure with two round ends and long straight sides, or an object shaped like this

(1) a six- **cylinder** engine, (2) a ventilation **cylinder**

The gas was trapped inside the **cylinders** under high pressure.

bunch

n. a grouping of several similar things which are growing or fastened together

synonym : group, assemblage, bundle

(1) a **bunch** of trees, (2) a **bunch** of schoolgirls

One bad apple spoils the whole **bunch**.

abstract

adj. based on general ideas, feelings, or qualities and not on any a physical or concrete existence

synonym : conceptual, theoretical, ideational

(1) an **abstract** noun, (2) **abstract** science

The invention of the camera triggered the development of **abstract** painting.

triangle

n. a three-sided polygon with three angles; something that has three sides or parts

synonym: trilateral, delta, triad

(1) **triangle** shape, (2) love **triangle**

The Pythagorean theorem is used to calculate the length of the sides of a right **triangle**.

dimension

n. a measurable extent of a particular kind, such as width, height, or length

synonym: extent, measurement, size

(1) new **dimension**, (2) the crosswise **dimension**

Overall **dimensions** are approximately 400x200mm.

pyramid

n. a polyhedron having a polygonal base and triangular sides with a common vertex; a massive monument with a square base and four triangular sides, begun by Cheops around 2700 BC as royal tombs in ancient Egypt

synonym: monument, edifice, tomb

(1) **pyramid** architecture, (2) a truncated **pyramid**

The Egyptian **pyramids** consist of a vast number of blocks.

octahedron

n. a geometrical solid or three-dimensional shape with eight equally sized and shaped sides, each forming an equilateral triangle

synonym: eight-sided figure, polyhedron

(1) **octahedron** crystal, (2) interconnected **octahedrons**

The building's design featured an **octahedron-shaped** atrium.

platonic

adj. (of relationship or emotion) friendly or affectionate but not sexual

synonym: nonphysical, nonsexual, spiritual

(1) **platonic** relationship, (2) **platonic** love

His relationship with her was completely **platonic**.

solid

adj. hard or firm; characterized by good substantial quality

synonym : stable, reliable, hard

(1) **solid** ally, (2) **solid** employment measures

The **solid-state** of water is called ice.

ax

n. a tool with a metal blade that is usually attached to a wooden handle and is used for chopping wood or other materials

synonym : hatchet, chopper, tomahawk

(1) chop wood with an **ax**, (2) an **ax** in the toolbox

He used an **ax** to chop the firewood for the campfire.

axis

n. a real or imaginary straight line through a body or figure around which the object turns; a group of countries in special alliance

synonym : central, core, pole

(1) vertical **axis**, (2) a coordinate **axis**

The earth's **axis** of rotation is tilted 66.5 degrees to the ecliptic plane.

spin

v. to cause something to rotate rapidly; to cause someone to feel dizzy or disoriented

synonym : rotate, twirl, swirl

(1) **spin** a top, (2) **spin** thread out of cotton

The tornado is **spinning** across the countryside, destroying everything in its path.

graph

n. a picture consisting of a line, lines, points, etc., that shows how two or more sets of certain quantities are related to each other

synonym : chart, diagram, figure

(1) **graph** theory, (2) a **graph** sample

This bar **graph** shows sales over the past five years.

relate

v. to establish a connection or association between two or more things; to narrate or tell about an event, experience, or relationship; to empathize or feel

sympathy with someone or something

synonym: connect, link, associate

(1) **relate** a story, (2) **relate** a message

He tried to **relate** his experience to the group, but they couldn't understand.

pump

v. to cause water, air, gas, etc. to move from one place to another by using mechanical equipment; to get or supply something such as money, information, etc. in significant quantities

synonym: drain, inject, send

(1) **pump** a secret out of success, (2) **pump** blood throughout the body

He was alert and could not **pump** any critical information out of him.

narrative

n. a story or a description of a series of events or process of telling a story

synonym: the tale, chronology, annals

(1) **narrative** poetry, (2) personal **narrative**

The **narrative** handles multiple plot lines and has unpredictable ends.

absolutely

adv. without restriction or limitation; completely or utterly

synonym: completely, utterly, definitely

(1) **absolutely** against, (2) **absolutely** obsessed with the girl

I am **absolutely** opposed to his idea because of morality.

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.

shore

n. the land along the edge of a sea, lake, broad river, or other large body of water; (verb) to support by placing against something solid or rigid

synonym : coast, seaside, beach

(1) a sandy **shore**, (2) **shore** up demand

The waves are beating against the **shore**.

tongue

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

synonym : lingo, language, vocabulary

(1) native **tongue**, (2) **tongue** cancer

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

imaginary

adj. existing only in someone's mind

synonym : fictional, ideal, fantastical

(1) **imaginary** number, (2) **imaginary** pregnancy

Little children tend to have **imaginary** friends.

requirement

n. something that is needed or wanted

synonym : prerequisite, provision, condition

(1) meet **requirement**, (2) school **requirement**

What is the entry **requirement** for this course?

imaginative

adj. having or showing new and creative ideas

synonym : creative, innovative, inventive

(1) capable of **imaginative** creation, (2) **imaginative** as a child

She is a hard worker but not very **imaginative**.

empathy

n. the ability to share another person's feelings or experiences by imagining that person's situation

synonym : compassion, sympathy, tenderness

(1) full of **empathy**, (2) **empathy** for patients

Empathy is also necessary to understand history.

obtain

v. to get something, especially by making a great effort

synonym :

accept, acquire, receive

(1) **obtain** a license, (2) **obtain** a bid

Where can I **obtain** the application form?

conclude

v. to come to an end or close; to reach a judgment or opinion by reasoning

synonym : complete, finish, decide

(1) **conclude** a meeting, (2) **conclude** that he is healthy

We **concluded** a cease-fire.

brain

n. the organ inside the head that is responsible for one's movement, thought, memory, and feeling

synonym : intellect, mind, encephalon

(1) basic **brain** function, (2) permanent **brain** damage

X-rays revealed a small tumor in his **brain**.

flexible

adj. able to change or be changed to suit new conditions or situations; able to bend easily

synonym : adaptable, elastic, pliable

(1) **flexible** schedules, (2) a **flexible** wire

You can be more **flexible** and creative in your approach.

Session 2: Spelling

- | | |
|-----------------------------------|---|
| 1. na_____ve poetry | <i>n.</i> a story or a description of a series of events or process of telling a story |
| 2. chemical ad_____on | <i>n.</i> the act or process of adding something to something else; the process of adding numbers |
| 3. am_____g advances | <i>adj.</i> extremely surprising, especially in a way that you like or admire |
| 4. irregular heart rh_____m | <i>n.</i> a strong regular repeated pattern of sounds, words, or musical notes that are used in music, poetry, and dancing |
| 5. sy____l color | <i>n.</i> something visible that is used to represent something else |
| 6. s__n a top | <i>v.</i> to cause something to rotate rapidly; to cause someone to feel dizzy or disoriented |
| 7. a g__d design | <i>n.</i> a pattern of regularly spaced horizontal and vertical lines; a system of high tension cables by which electrical power is distributed throughout a region |
| 8. ex____d a line | <i>v.</i> to broaden in scope, range, or area |
| 9. a good grounding in mat_____cs | <i>n.</i> the science dealing with the logic of quantities, shapes, spaces, and arrangement |
| 10. a precise def_____on | <i>n.</i> a concise explanation of the meaning of a word, phrase, or symbol |
| 11. t_p a new market | <i>v.</i> to hit someone or something quickly, gently, and often repeatedly; to use existing resources, such as energy, knowledge, etc. |

ANSWERS: 1. narrative, 2. addition, 3. amazing, 4. rhythm, 5. symbol, 6. spin, 7. grid, 8. extend, 9. mathematics, 10. definition, 11. tap

- | | | |
|--|-----------|--|
| 12. chop wood with an ax | <i>n.</i> | a tool with a metal blade that is usually attached to a wooden handle and is used for chopping wood or other materials |
| 13. a numerator in a fr_____on | <i>n.</i> | a small part or item forming a piece of a whole; the quotient of two rational numbers |
| 14. co_____t car | <i>n.</i> | an idea or principle associated with something abstract |
| 15. vo_____e of work | <i>n.</i> | the amount of space occupied by an object or substance; the magnitude of sound |
| 16. the scope of an inv_____ion | <i>n.</i> | the act or process of thoroughly examining a crime, problem, statement, etc., to uncover the truth |
| 17. a hard k__t | <i>n.</i> | a tight interlacing of something such as rope or thread |
| 18. exquisitely cho_____phed | <i>v.</i> | to compose a sequence of dance steps, often to music |
| 19. sy___l for happiness | <i>n.</i> | something visible that is used to represent something else |
| 20. a bu__h of schoolgirls | <i>n.</i> | a grouping of several similar things which are growing or fastened together |
| 21. meet req_____nt | <i>n.</i> | something that is needed or wanted |
| 22. re_____le box | <i>n.</i> | a four-sided geometric shape with four right angles, where opposite sides are parallel and of equal length |
| 23. re_____on between cause and effect | <i>n.</i> | the way two persons or groups of people feel and act toward one another |

ANSWERS: 12. ax, 13. fraction, 14. concept, 15. volume, 16. investigation, 17. knot, 18. choreograph, 19. symbol, 20. bunch, 21. requirement, 22. rectangle, 23. relation

33. common in _____ on *n.* the creation of a new device or process resulting from study and experimentation; the act of inventing
34. sub _____ on equation *n.* the process or action of removing one number from another; the mathematical operation of finding the difference between two numbers or quantities
35. si _____ fy my life *v.* to make something more straightforward, more understandable, or easier to do
36. an _____ e a chemical compound *v.* to think about in-depth and evaluate to discover essential features or meaning
37. native to _____ e *n.* a moveable mass of muscle tissue covered with mucous membrane that is in the mouth; a language
38. oc _____ e range *n.* a musical interval encompassing eight diatonic scale degrees, such as the interval from C to the next C in a C major scale
39. ad _____ on of vectors *n.* the act or process of adding something to something else; the process of adding numbers
40. a ma _____ c spell *n.* beliefs and actions employed to influence supernatural beings and forces; any art or performance that invokes supernatural powers
41. re _____ e a message *v.* to establish a connection or association between two or more things; to narrate or tell about an event, experience, or relationship; to empathize or feel sympathy with someone or something

ANSWERS: 33. invention, 34. subtraction, 35. simplify, 36. analyze, 37. tongue, 38. octave, 39. addition, 40. magic, 41. relate

42. a gr__h sample *n.* a picture consisting of a line, lines, points, etc., that shows how two or more sets of certain quantities are related to each other
43. z__m in on a photo *v.* to move along very quickly; (noun) the act of rising upward into the air
44. sales rep_____ion *n.* the act of speaking, acting, or being present on behalf of someone officially; a statement of facts and reasons made in appealing or protesting
45. pa_____la shape *n.* a symmetrical curve formed by the intersection of a cone with a plane parallel to its side; (of mathematics) a curve described by a quadratic equation (a type of polynomial equation of the second degree denoted as $ax^2 + bx + c = 0$)
46. re_____nd a hospitalization *v.* to suggest that someone or something would be a suitable fit for a particular purpose or role
47. und_____ue his contribution *v.* to assign too low a value to something
48. the in_____on of new techniques *n.* the creation of a new device or process resulting from study and experimentation; the act of inventing
49. go___n a public enterprise *v.* to legally control and direct a country, city, group of people, etc. and be responsible for introducing new laws, organizing and maintaining public services

ANSWERS: 42. graph, 43. zoom, 44. representation, 45. parabola, 46. recommend, 47. undervalue, 48. invention, 49. govern

50. re____on of inclusion *n.* the way two persons or groups of people feel and act toward one another
51. a nation's right to go____n *v.* to legally control and direct a country, city, group of people, etc. and be responsible for introducing new laws, organizing and maintaining public services
52. pl____ic love *adj.* (of relationship or emotion) friendly or affectionate but not sexual
53. steady dr____at *n.* a regular, steady beat or rhythm, often used to accompany music or to mark the passage of time
54. connecting the d_ts *n.* a very small circular mark, especially one that is printed
55. basic br__n function *n.* the organ inside the head that is responsible for one's movement, thought, memory, and feeling
56. false cl__m *v.* to assert that something is true; to demand or request something as one's own; to lay legal or moral right to something; (noun) a demand or assertion of a right or something that one believes to be true
57. loud cy___l *n.* a musical instrument consisting of a concave round metal plate that produces a ringing or clashing sound when struck, typically by a drumstick or another cymbal
58. an____e your real motives *v.* to think about in-depth and evaluate to discover essential features or meaning

ANSWERS: 50. relation, 51. govern, 52. platonic, 53. drumbeat, 54. dot, 55. brain, 56. claim, 57. cymbal, 58. analyze

59. hi___t pedal *n.* a percussion instrument consisting of a pair of small cymbals mounted on a stand, which is played by striking the cymbals together using a foot pedal, commonly used in various forms of music, particularly in drum set configurations
60. universal es_____e *n.* the basic or most important part or quality of something that makes it what it is
61. im_____ry pregnancy *adj.* existing only in someone's mind
62. abs_____ly obsessed with the girl *adv.* without restriction or limitation; completely or utterly
63. the characters that re_____nt numbers *v.* to speak, act, or be present on behalf of another person or group; to form or constitute
64. oc___e key *n.* a musical interval encompassing eight diatonic scale degrees, such as the interval from C to the next C in a C major scale
65. a sandy sh__e *n.* the land along the edge of a sea, lake, broad river, or other large body of water; (verb) to support by placing against something solid or rigid
66. vanilla es_____e *n.* the basic or most important part or quality of something that makes it what it is
67. a chemical eq_____on *n.* the act of regarding as equal; (mathematics) a statement that expresses the equality of two expressions by connecting them with the equals sign

ANSWERS: 59. hi-hat, 60. essence, 61. imaginary, 62. absolutely, 63. represent, 64. octave, 65. shore, 66. essence, 67. equation

68. cellular di____on *n.* the act or outcome of splitting into separate parts; a critical organizational unit or sector
69. di____on chief *n.* the act or outcome of splitting into separate parts; a critical organizational unit or sector
70. cl__m responsibility *v.* to assert that something is true; to demand or request something as one's own; to lay legal or moral right to something; (noun) a demand or assertion of a right or something that one believes to be true
71. im____ry number *adj.* existing only in someone's mind
72. thundering dr____at *n.* a regular, steady beat or rhythm, often used to accompany music or to mark the passage of time
73. co____de a meeting *v.* to come to an end or close; to reach a judgment or opinion by reasoning
74. in samba rh____m *n.* a strong regular repeated pattern of sounds, words, or musical notes that are used in music, poetry, and dancing
75. em____e as a butterfly *v.* to move out of or away from something and become visible
76. mat____cs competition *n.* the science dealing with the logic of quantities, shapes, spaces, and arrangement
77. strong in al____a *n.* a type of mathematics in which signs and letters represent numbers
78. so__d ally *adj.* hard or firm; characterized by good substantial quality

ANSWERS: 68. division, 69. division, 70. claim, 71. imaginary, 72. drumbeat, 73. conclude, 74. rhythm, 75. emerge, 76. mathematics, 77. algebra, 78. solid

79. ob____e a tradition *v.* to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion
80. ob____n a license *v.* to get something, especially by making a great effort
81. mu____ly 5 and 6 *v.* to add a number to itself a specified number of times; to increase or cause to increase very much in number or quantity
82. p__p a secret out of success *v.* to cause water, air, gas, etc. to move from one place to another by using mechanical equipment; to get or supply something such as money, information, etc. in significant quantities
83. draw an____y *n.* a comparison between similar things that have similar aspects, often used to help explain a principle or concept
84. und____ue the potential *v.* to assign too low a value to something
85. p__p blood throughout the body *v.* to cause water, air, gas, etc. to move from one place to another by using mechanical equipment; to get or supply something such as money, information, etc. in significant quantities
86. the crosswise di____on *n.* a measurable extent of a particular kind, such as width, height, or length
87. c_w herd *n.* a domesticated mammal with characteristic features such as a hump, large udders, and curved horns that is raised for its milk or meat

ANSWERS: 79. observe, 80. obtain, 81. multiply, 82. pump, 83. analogy, 84. undervalue, 85. pump, 86. dimension, 87. cow

88. business sp___e *n.* a round object or geometric shape that is three-dimensional and symmetrical around a central point; a particular aspect or scope of life or activity
89. sp___e of influence *n.* a round object or geometric shape that is three-dimensional and symmetrical around a central point; a particular aspect or scope of life or activity
90. rhythmic hi___t *n.* a percussion instrument consisting of a pair of small cymbals mounted on a stand, which is played by striking the cymbals together using a foot pedal, commonly used in various forms of music, particularly in drum set configurations
91. dairy c_w *n.* a domesticated mammal with characteristic features such as a hump, large udders, and curved horns that is raised for its milk or meat
92. si_____fy the process *v.* to make something more straightforward, more understandable, or easier to do
93. mu_____ly about hundredfold *v.* to add a number to itself a specified number of times; to increase or cause to increase very much in number or quantity
94. z__m lens *v.* to move along very quickly; (noun) the act of rising upward into the air
95. st_____re and function of the brain *n.* the way of construction of something and the arrangement of its parts, or a complex thing constructed of many parts

ANSWERS: 88. sphere, 89. sphere, 90. hi-hat, 91. cow, 92. simplify, 93. multiply, 94. zoom, 95. structure

96. visual me____or *n.* a figure of speech in which an expression is used to refer to something that it does not denote to suggest a similarity
97. ab____ct science *adj.* based on general ideas, feelings, or qualities and not on any a physical or concrete existence
98. an ax in the toolbox *n.* a tool with a metal blade that is usually attached to a wooden handle and is used for chopping wood or other materials
99. learning cu__e *n.* a bend or angle in a line or surface that deviates from a straight or flat path; a gradual or smooth change in direction or shape
100. fun____al education *adj.* forming an essential base or core from which everything else develops or is affected
101. tr__e back to medieval times *v.* to find or discover someone or something that was lost
102. yield cu__e *n.* a bend or angle in a line or surface that deviates from a straight or flat path; a gradual or smooth change in direction or shape
103. co____de that he is healthy *v.* to come to an end or close; to reach a judgment or opinion by reasoning
104. s__n thread out of cotton *v.* to cause something to rotate rapidly; to cause someone to feel dizzy or disoriented

ANSWERS: 96. metaphor, 97. abstract, 98. ax, 99. curve, 100. fundamental, 101. trace, 102. curve, 103. conclude, 104. spin

105. cl__k my spoon against the glass *v.* to produce a loud, echoing, metallic sound, often caused by the collision of metal objects or machinery; to move or operate with a heavy, clanging sound; (noun) a sharp, metallic sound that is typically produced when two hard objects strike or collide with each other
106. ob____e wildlife *v.* to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion
107. historical an____y *n.* a comparison between similar things that have similar aspects, often used to help explain a principle or concept
108. pl____ic relationship *adj.* (of relationship or emotion) friendly or affectionate but not sexual
109. Euclidean ge____ry *n.* the area of pure mathematics that deals with the points, lines, curves, and surfaces
110. the def_____on of a word *n.* a concise explanation of the meaning of a word, phrase, or symbol
111. abs_____ly against *adv.* without restriction or limitation; completely or utterly
112. ob___n a bid *v.* to get something, especially by making a great effort
113. di__t identifier *n.* one of the elements that collectively form a system of numeration; a finger, thumb, or toe

ANSWERS: 105. clank, 106. observe, 107. analogy, 108. platonic, 109. geometry, 110. definition, 111. absolutely, 112. obtain, 113. digit

114. commit a crime del_____ely *adv.* done in an intentional or slow and careful manner
115. high vo___e *n.* the amount of space occupied by an object or substance; the magnitude of sound
116. ou_____ht lie *adj.* completely; completely and without reservation; without any attempt at concealment
117. ima_____ve as a child *adj.* having or showing new and creative ideas
118. a wire g__d *n.* a pattern of regularly spaced horizontal and vertical lines; a system of high tension cables by which electrical power is distributed throughout a region
119. fun_____al rights *adj.* forming an essential base or core from which everything else develops or is affected
120. ro___e crops *v.* to turn around a central point or axis; to move in a circular path around something
121. a coordinate a__s *n.* a real or imaginary straight line through a body or figure around which the object turns; a group of countries in special alliance
122. gr__h theory *n.* a picture consisting of a line, lines, points, etc., that shows how two or more sets of certain quantities are related to each other
123. di___e money equally *v.* to separate or cause to separate into parts or groups

ANSWERS: 114. deliberately, 115. volume, 116. outright, 117. imaginative, 118. grid, 119. fundamental, 120. rotate, 121. axis, 122. graph, 123. divide

124. a ventilation cy____er *n.* a solid or hollow geometric figure with two round ends and long straight sides, or an object shaped like this
125. di___e the cake into two pieces *v.* to separate or cause to separate into parts or groups
126. a k__t of people *n.* a tight interlacing of something such as rope or thread
127. a per____ve view *n.* a confident attitude toward something; a particular style of thinking about something
128. the st____re of a machine *n.* the way of construction of something and the arrangement of its parts, or a complex thing constructed of many parts
129. a fl____le wire *adj.* able to change or be changed to suit new conditions or situations; able to bend easily
130. love tr____le *n.* a three-sided polygon with three angles; something that has three sides or parts
131. a bi___y number *n.* a system of numbers that uses only two digits, 0 and 1
132. ex___d the warranty *v.* to broaden in scope, range, or area
133. d_t blot method *n.* a very small circular mark, especially one that is printed
134. an ab____ct noun *adj.* based on general ideas, feelings, or qualities and not on any a physical or concrete existence
135. a preliminary inv____ion *n.* the act or process of thoroughly examining a crime, problem, statement, etc., to uncover the truth

ANSWERS: 124. cylinder, 125. divide, 126. knot, 127. perspective, 128. structure, 129. flexible, 130. triangle, 131. binary, 132. extend, 133. dot, 134. abstract, 135. investigation

136. b__p out a warning *v.* to make a short, high-pitched sound, typically as a signal or warning
137. trading in bi___y options *n.* a system of numbers that uses only two digits, 0 and 1
138. em____y for patients *n.* the ability to share another person's feelings or experiences by imagining that person's situation
139. impose an ou____ht ban *adj.* completely; completely and without reservation; without any attempt at concealment
140. a truncated py____d *n.* a polyhedron having a polygonal base and triangular sides with a common vertex; a massive monument with a square base and four triangular sides, begun by Cheops around 2700 BC as royal tombs in ancient Egypt
141. school req_____nt *n.* something that is needed or wanted
142. ro___e about the origin *v.* to turn around a central point or axis; to move in a circular path around something
143. series of exp_____nts *n.* the scientific test conducted to observe what happens and gain new knowledge
144. the most am____g feeling *adj.* extremely surprising, especially in a way that you like or admire
145. sh__e up demand *n.* the land along the edge of a sea, lake, broad river, or other large body of water; (verb) to support by placing against something solid or rigid
146. pa____la equation *n.* a symmetrical curve formed by the intersection of a cone with a plane parallel to its side; (of mathematics) a curve described by a quadratic equation (a type of polynomial equation of the second degree denoted as $ax^2 + bx + c = 0$)

ANSWERS: 136. beep, 137. binary, 138. empathy, 139. outright, 140. pyramid, 141.

requirement, 142. rotate, 143. experiment, 144. amazing, 145. shore, 146. parabola

147. interconnected oct_____ons *n.* a geometrical solid or three-dimensional shape with eight equally sized and shaped sides, each forming an equilateral triangle
148. the per_____ve of the battle *n.* a confident attitude toward something; a particular style of thinking about something
149. a six-cy_____er engine *n.* a solid or hollow geometric figure with two round ends and long straight sides, or an object shaped like this
150. re_____nd reading *v.* to suggest that someone or something would be a suitable fit for a particular purpose or role
151. to____e cancer *n.* a moveable mass of muscle tissue covered with mucous membrane that is in the mouth; a language
152. orthogonal re_____le *n.* a four-sided geometric shape with four right angles, where opposite sides are parallel and of equal length
153. re_____nt by a diagram *v.* to speak, act, or be present on behalf of another person or group; to form or constitute
154. she is ma__c *n.* beliefs and actions employed to influence supernatural beings and forces; any art or performance that invokes supernatural powers
155. as____e 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

ANSWERS: 147. octahedron, 148. perspective, 149. cylinder, 150. recommend, 151. tongue, 152. rectangle, 153. represent, 154. magic, 155. assume

156. al____a calculation *n.* a type of mathematics in which signs and letters represent numbers
157. binary rep_____ion *n.* the act of speaking, acting, or being present on behalf of someone officially; a statement of facts and reasons made in appealing or protesting
158. personal na_____ve *n.* a story or a description of a series of events or process of telling a story
159. me_____or for death *n.* a figure of speech in which an expression is used to refer to something that it does not denote to suggest a similarity
160. learn new co_____ts *n.* an idea or principle associated with something abstract
161. permanent br__n damage *n.* the organ inside the head that is responsible for one's movement, thought, memory, and feeling
162. hi-hat cy____l *n.* a musical instrument consisting of a concave round metal plate that produces a ringing or clashing sound when struck, typically by a drumstick or another cymbal
163. full of em____y *n.* the ability to share another person's feelings or experiences by imagining that person's situation
164. b__p the horn *v.* to make a short, high-pitched sound, typically as a signal or warning
165. the eq_____on of poverty with ignorance *n.* the act of regarding as equal; (mathematics) a statement that expresses the equality of two expressions by connecting them with the equals sign

ANSWERS: 156. algebra, 157. representation, 158. narrative, 159. metaphor, 160. concept, 161. brain, 162. cymbal, 163. empathy, 164. beep, 165. equation

166. double-digit sub_____on *n.* the process or action of removing one number from another; the mathematical operation of finding the difference between two numbers or quantities
167. es_____al commodities of life *adj.* indispensable; fundamental
168. oct_____on crystal *n.* a geometrical solid or three-dimensional shape with eight equally sized and shaped sides, each forming an equilateral triangle
169. a fr_____onal share of the vote *n.* a small part or item forming a piece of a whole; the quotient of two rational numbers
170. capable of ima_____ve creation *adj.* having or showing new and creative ideas
171. as___e a lousy attitude to his boss *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
172. st_____ht for two months *adj.* extending or moving in one direction without bending or curving; having no deviations
173. t_p keyboard with an index finger *v.* to hit someone or something quickly, gently, and often repeatedly; to use existing resources, such as energy, knowledge, etc.
174. a bu__h of trees *n.* a grouping of several similar things which are growing or fastened together
175. cho_____ph a stage performance *v.* to compose a sequence of dance steps, often to music

ANSWERS: 166. subtraction, 167. essential, 168. octahedron, 169. fraction, 170. imaginative, 171. assume, 172. straight, 173. tap, 174. bunch, 175. choreograph

176. re___e a story *v.* to establish a connection or association between two or more things; to narrate or tell about an event, experience, or relationship; to empathize or feel sympathy with someone or something
177. em___e from poverty *v.* to move out of or away from something and become visible
178. exp_____nt design *n.* the scientific test conducted to observe what happens and gain new knowledge
179. the di__t in the hundreds place *n.* one of the elements that collectively form a system of numeration; a finger, thumb, or toe
180. fl_____le schedules *adj.* able to change or be changed to suit new conditions or situations; able to bend easily
181. a st_____ht line *adj.* extending or moving in one direction without bending or curving; having no deviations
182. spherical ge_____ry *n.* the area of pure mathematics that deals with the points, lines, curves, and surfaces
183. new di_____on *n.* a measurable extent of a particular kind, such as width, height, or length
184. es_____al amino acid *adj.* indispensable; fundamental
185. tr_____le shape *n.* a three-sided polygon with three angles; something that has three sides or parts
186. vi_____ze data *v.* to form a mental image or concept of something; to make something visible

ANSWERS: 176. relate, 177. emerge, 178. experiment, 179. digit, 180. flexible, 181. straight, 182. geometry, 183. dimension, 184. essential, 185. triangle, 186. visualize

ANSWERS:

Session 3: Fill in the Blanks

1. The timer _____ reminding me that the cake was ready to come out of the oven.
 - v. to make a short, high-pitched sound, typically as a signal or warning

2. He _____ misleads others.
 - adv. done in an intentional or slow and careful manner

3. It is important to _____ safety procedures in the workplace to prevent accidents.
 - v. to watch or notice something carefully, often to gather information or insights; to take note of something or someone; to celebrate or commemorate a special event or occasion

4. The farmer milked the _____ every morning before breakfast.
 - n. a domesticated mammal with characteristic features such as a hump, large udders, and curved horns that is raised for its milk or meat

5. He dropped the empty can, and it _____ loudly as it hit the garage's concrete floor.
 - v. to produce a loud, echoing, metallic sound, often caused by the collision of metal objects or machinery; to move or operate with a heavy, clanging sound; (noun) a sharp, metallic sound that is typically produced when two hard objects strike or collide with each other

6. Where can I _____ the application form?
 - v. to get something, especially by making a great effort

7. The living room had a _____ coffee table in the center of it.
 - n. a four-sided geometric shape with four right angles, where opposite sides are parallel and of equal length

ANSWERS: 1. beeped, 2. deliberately, 3. observe, 4. cows, 5. clanked, 6. obtain, 7. rectangle-shaped

8. I am _____ opposed to his idea because of morality.
adv. without restriction or limitation; completely or utterly
9. He spent only a _____ of his earnings.
n. a small part or item forming a piece of a whole; the quotient of two rational numbers
10. The Earth _____ on its axis once every 24 hours.
v. to turn around a central point or axis; to move in a circular path around something
11. The organizational _____ of start-ups is often flat and straightforward.
n. the way of construction of something and the arrangement of its parts, or a complex thing constructed of many parts
12. University teaches the art of understanding the _____ of the matter.
n. the basic or most important part or quality of something that makes it what it is
13. 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
14. _____ pattern roads often appear in urban areas.
n. a pattern of regularly spaced horizontal and vertical lines; a system of high tension cables by which electrical power is distributed throughout a region
15. Please _____ your explanation for the children.
v. to make something more straightforward, more understandable, or easier to do

ANSWERS: 8. absolutely, 9. fraction, 10. rotates, 11. structure, 12. essence, 13. represent, 14. Grid, 15. simplify

16. Human behavior has _____ characteristics.

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

17. The trajectory of the cannonball followed a _____ in the air.

n. a symmetrical curve formed by the intersection of a cone with a plane parallel to its side; (of mathematics) a curve described by a quadratic equation (a type of polynomial equation of the second degree denoted as $ax^2 + bx + c = 0$)

18. The waves are beating against the _____.

n. the land along the edge of a sea, lake, broad river, or other large body of water; (verb) to support by placing against something solid or rigid

19. We must enter a six-_____ number to unlock the safe.

n. one of the elements that collectively form a system of numeration; a finger, thumb, or toe

20. Overall _____ are approximately 400x200mm.

n. a measurable extent of a particular kind, such as width, height, or length

21. His relationship with her was completely _____.

adj. (of relationship or emotion) friendly or affectionate but not sexual

22. He performed _____ tricks with sophisticated moves.

n. beliefs and actions employed to influence supernatural beings and forces; any art or performance that invokes supernatural powers

23. What is the entry _____ for this course?

n. something that is needed or wanted

ANSWERS: 16. fundamental, 17. parabola, 18. shore, 19. digit, 20. dimensions, 21. platonic, 22. magic, 23. requirement

24. In _____ private corporations provide healthcare services.
n. the act or process of adding something to something else; the process of adding numbers
25. The drummer played a loud crash on the _____ to end the song.
n. a musical instrument consisting of a concave round metal plate that produces a ringing or clashing sound when struck, typically by a drumstick or another cymbal
26. The _____ of water is called ice.
adj. hard or firm; characterized by good substantial quality
27. The drummer showcased his skills on the _____ during the jazz performance.
n. a percussion instrument consisting of a pair of small cymbals mounted on a stand, which is played by striking the cymbals together using a foot pedal, commonly used in various forms of music, particularly in drum set configurations
28. The _____ is boneless, but it is as strong as bones.
n. a moveable mass of muscle tissue covered with mucous membrane that is in the mouth; a language
29. Trial and error is an _____ part of education.
adj. indispensable; fundamental
30. The industrial _____ laws were passed with little to no alteration.
n. the way two persons or groups of people feel and act toward one another
31. The invention of the camera triggered the development of _____ painting.
adj. based on general ideas, feelings, or qualities and not on any a physical or concrete existence

ANSWERS: 24. addition, 25. cymbal, 26. solid-state, 27. hi-hat, 28. tongue, 29. essential, 30. relations, 31. abstract

32. The Pythagorean theorem is used to calculate the length of the sides of a right _____.
- n.* a three-sided polygon with three angles; something that has three sides or parts
33. The Egyptian _____ consist of a vast number of blocks.
- n.* a polyhedron having a polygonal base and triangular sides with a common vertex; a massive monument with a square base and four triangular sides, begun by Cheops around 2700 BC as royal tombs in ancient Egypt
34. X-rays revealed a small tumor in his _____.
- n.* the organ inside the head that is responsible for one's movement, thought, memory, and feeling
35. The tornado is _____ across the countryside, destroying everything in its path.
- v.* to cause something to rotate rapidly; to cause someone to feel dizzy or disoriented
36. We have never before conducted a legitimate _____.
- n.* the act or process of thoroughly examining a crime, problem, statement, etc., to uncover the truth
37. This bar _____ shows sales over the past five years.
- n.* a picture consisting of a line, lines, points, etc., that shows how two or more sets of certain quantities are related to each other
38. One such rapidly growing _____ is quantum cryptography.
- n.* an idea or principle associated with something abstract

ANSWERS: 32. triangle, 33. pyramids, 34. brain, 35. spinning, 36. investigation, 37. graph, 38. concept

39. The _____ of expenses from revenue resulted in a net profit for the company.
- n.* the process or action of removing one number from another; the mathematical operation of finding the difference between two numbers or quantities
40. She is a hard worker but not very _____.
- adj.* having or showing new and creative ideas
41. We ____ for an overseas expansion.
- v.* to try or plan to get or achieve something
42. A person who has been declared incompetent should have legal _____.
- n.* the act of speaking, acting, or being present on behalf of someone officially; a statement of facts and reasons made in appealing or protesting
43. He wants to _____ ownership of the abandoned property.
- v.* to assert that something is true; to demand or request something as one's own; to lay legal or moral right to something; (noun) a demand or assertion of a right or something that one believes to be true
44. The golfer recorded an _____ distance.
- adj.* extremely surprising, especially in a way that you like or admire
45. _____ is also necessary to understand history.
- n.* the ability to share another person's feelings or experiences by imagining that person's situation
46. The mathematician pioneered fractal _____.
- n.* the area of pure mathematics that deals with the points, lines, curves, and surfaces

ANSWERS: 39. subtraction, 40. imaginative, 41. aim, 42. representation, 43. claim, 44. amazing, 45. Empathy, 46. geometry

47. You can be more _____ and creative in your approach.

adj. able to change or be changed to suit new conditions or situations; able to bend easily

48. One bad apple spoils the whole _____.

n. a grouping of several similar things which are growing or fastened together

49. We _____ taking media training every six months.

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

50. He made an _____ donation of \$1,000 to the charity.

adj. completely; completely and without reservation; without any attempt at concealment

51. Some kinds of machine learning models show an _____ to how people learn.

n. a comparison between similar things that have similar aspects, often used to help explain a principle or concept

52. The _____ in the road was so sharp that I had to slow down to navigate it safely.

n. a bend or angle in a line or surface that deviates from a straight or flat path; a gradual or smooth change in direction or shape

53. Necessity is the mother of _____.

n. the creation of a new device or process resulting from study and experimentation; the act of inventing

54. He tried to _____ his experience to the group, but they couldn't understand.

v. to establish a connection or association between two or more things; to narrate or tell about an event, experience, or relationship; to empathize or feel sympathy with someone or something

ANSWERS: 47. flexible, 48. bunch, 49. recommend, 50. outright, 51. analogy, 52. curve, 53. invention, 54. relate

55. The _____ of the earth is divided into several layers including the crust, mantle, and core.
- n.* a round object or geometric shape that is three-dimensional and symmetrical around a central point; a particular aspect or scope of life or activity
56. The singer's range was impressive, covering three _____ with ease.
- n.* a musical interval encompassing eight diatonic scale degrees, such as the interval from C to the next C in a C major scale
57. Can you _____ 123321 by eleven?
- v.* to separate or cause to separate into parts or groups
58. His classmates were laboring with advanced _____.
- n.* a type of mathematics in which signs and letters represent numbers
59. The wallpaper had a pattern of pink _____ on a white surface.
- n.* a very small circular mark, especially one that is printed
60. Little children tend to have _____ friends.
- adj.* existing only in someone's mind
61. The _____ handles multiple plot lines and has unpredictable ends.
- n.* a story or a description of a series of events or process of telling a story
62. He beat out a jazz _____ on the cajones.
- n.* a strong regular repeated pattern of sounds, words, or musical notes that are used in music, poetry, and dancing
63. He was alert and could not _____ any critical information out of him.
- v.* to cause water, air, gas, etc. to move from one place to another by using mechanical equipment; to get or supply something such as money, information, etc. in significant quantities

ANSWERS: 55. sphere, 56. octaves, 57. divide, 58. algebra, 59. dots, 60. imaginary, 61. narrative, 62. rhythm, 63. pump

64. This container has a _____ of 10 cubic meters.
- n.* the amount of space occupied by an object or substance; the magnitude of sound
65. She expressed her thought in an artful choice of _____.
- n.* a figure of speech in which an expression is used to refer to something that it does not denote to suggest a similarity
66. We _____ a cease-fire.
- v.* to come to an end or close; to reach a judgment or opinion by reasoning
67. To expand the company, we must ____ new human resources.
- v.* to hit someone or something quickly, gently, and often repeatedly; to use existing resources, such as energy, knowledge, etc.
68. The earth's _____ of rotation is tilted 66.5 degrees to the ecliptic plane.
- n.* a real or imaginary straight line through a body or figure around which the object turns; a group of countries in special alliance
69. He had _____ the dance in this play himself.
- v.* to compose a sequence of dance steps, often to music
70. He _____ the importance of teamwork and struggled to succeed.
- v.* to assign too low a value to something
71. A _____ star is a system in which two stars revolve around each other.
- n.* a system of numbers that uses only two digits, 0 and 1
72. He has a flair for _____.
- n.* the science dealing with the logic of quantities, shapes, spaces, and arrangement

ANSWERS: 64. volume, 65. metaphors, 66. concluded, 67. tap, 68. axis, 69. choreographed, 70. undervalued, 71. binary, 72. mathematics

73. His _____ showed highly positive results.
n. the scientific test conducted to observe what happens and gain new knowledge
74. Her visit will _____ from Monday to Friday.
v. to broaden in scope, range, or area
75. In this class, you will learn how to solve quadratic _____.
n. the act of regarding as equal; (mathematics) a statement that expresses the equality of two expressions by connecting them with the equals sign
76. The gas was trapped inside the _____ under high pressure.
n. a solid or hollow geometric figure with two round ends and long straight sides, or an object shaped like this
77. The regulations _____ medical malpractice claims are rigorous.
v. to legally control and direct a country, city, group of people, etc. and be responsible for introducing new laws, organizing and maintaining public services
78. The dragon is considered a _____ of bravery.
n. something visible that is used to represent something else
79. Let's _____ the origins of some familiar foreign words.
v. to find or discover someone or something that was lost
80. She tried to _____ the layout of the new house in her mind.
v. to form a mental image or concept of something; to make something visible
81. The following example _____ that the capacity of each battery is the same.
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

ANSWERS: 73. experiments, 74. extend, 75. equations, 76. cylinders, 77. governing, 78. symbol, 79. trace, 80. visualize, 81. assumes

82. The building's design featured an _____ atrium.
- n.* a geometrical solid or three-dimensional shape with eight equally sized and shaped sides, each forming an equilateral triangle
83. During colonial eras, new migratory patterns _____.
- v.* to move out of or away from something and become visible
84. He used an ___ to chop the firewood for the campfire.
- n.* a tool with a metal blade that is usually attached to a wooden handle and is used for chopping wood or other materials
85. Parallel lines are, by _____ lines on the same plane that never cross.
- n.* a concise explanation of the meaning of a word, phrase, or symbol
86. His father's death changed his whole _____ on life.
- n.* a confident attitude toward something; a particular style of thinking about something
87. He _____ back in time to the soccer game.
- v.* to move along very quickly; (noun) the act of rising upward into the air
88. The teacher attempted to _____ the root cause of our mistake.
- v.* to think about in-depth and evaluate to discover essential features or meaning
89. _____ a number by itself twice.
- v.* to add a number to itself a specified number of times; to increase or cause to increase very much in number or quantity
90. Which _____ of the company do you work in?
- n.* the act or outcome of splitting into separate parts; a critical organizational unit or sector

ANSWERS: 82. octahedron-shaped, 83. emerged, 84. ax, 85. definition, 86. perspective, 87. zoomed, 88. analyze, 89. Multiply, 90. division

91. He was sick for five _____ days.

adj. extending or moving in one direction without bending or curving; having no deviations

92. The boy scout showed us how to tie a _____ that wouldn't come undone.

n. a tight interlacing of something such as rope or thread

93. The ceremonial _____ echoed through the temple during the ritual.

n. a regular, steady beat or rhythm, often used to accompany music or to mark the passage of time

ANSWERS: 91. straight, 92. knot, 93. drumbeat