

# Englist.me



## Vocabulary Builder Reference from...

*Wilton L. Virgo: How does your smartphone know your location? | TED Talk*

[https://www.ted.com/talks/wilton\\_l\\_virgo\\_how\\_does\\_your\\_smartphone\\_know\\_your\\_location](https://www.ted.com/talks/wilton_l_virgo_how_does_your_smartphone_know_your_location)

### All Words

#### IMPORTANT

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## Session 1: Word List

### smartphone

*n.* a mobile phone that functions as a computer and connects to the Internet

(1) **smartphone** app developer, (2) **smartphone** addict  
Internet traffic volumes have increased significantly with the advent of **smartphones**.

### orbit

*n.* the path of an object around a celestial body, especially a planet, star, or moon, under the influence of gravity; (of medicine) the bony cavity in the skull that houses the eyeball and its associated structures, like muscles, nerves, and blood vessels

*synonym* : path, course, trajectory

(1) the **orbit** of the moon, (2) a planetary **orbit**  
The rocket engine is used to put the satellite into **orbit**.

### satellite

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

*synonym* : orbiter, asteroid, moon

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

## atomic

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

*synonym*: tiny, microscopic, nuclear

(1) **atomic** nucleus, (2) **atomic** bomb

Carbon has an **atomic** mass of 12.

## quantum

*n.* the smallest amount or unit of something, especially (electromagnetic) energy

(1) probabilistic **quantum** theory, (2) laws of **quantum** mechanics

Big techs are now eager to develop **quantum** computers.

## mechanics

*n.* the branch of physics that deals with the study of motion, forces, and energy; (mechanic) someone whose occupation is repairing and maintaining automobiles

*synonym*: kinematics, dynamics

(1) **mechanics** equation, (2) **mechanics** of the game

He studied **mechanics** in college and now works as an engineer.

## locate

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

*synonym*: discover, find, place

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

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

## determinant

*n.* a factor, circumstance, or condition that contributes to the shaping, influencing, or determining of a particular outcome or result

*synonym*: cause, factor, element

(1) environmental **determinant**, (2) a **determinant** of crop yields

One **determinant** of success is having a positive attitude and a strong work ethic.

## constantly

*adv.* all the time

*synonym*: continuously, always, frequently

(1) a **constantly** innovative enterprise, (2) a **constantly** varying mind

The mobile application industry is **constantly** changing.

## **broadcast**

*v.* to send out a program or some information on radio or television

*synonym*: air, announce, advertise

(1) **broadcast** a concert, (2) **broadcast** a radio ad

Most of the programs are **broadcast** in this area.

## **calculate**

*v.* to judge or find out the amount or number of something by using mathematics

*synonym*: compute, figure, estimate

(1) **calculate** the distance, (2) **calculate** his credit score

He couldn't **calculate** the actual value of the artwork.

## **distance**

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

*synonym*: space, gap, span

(1) driving **distance**, (2) social **distance**

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

## **formula**

*n.* a group of symbols, letters, or numbers that represent a rule, law, or mathematical statement

*synonym*: expression, recipe, procedure

(1) structural **formula**, (2) a binomial **formula**

The teacher told the students to memorize the math **formula**.

## **incredibly**

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

*synonym*: enormously, exceptionally, extraordinarily

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

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

## 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**.

## precise

*adj.* sharply exact or accurate or delimited

*synonym*: accurate, exact, distinct

(1) **precise** analyses, (2) estimate **precise** costs  
The content is **precise** and informative for me.

## physics

*n.* the science of matter and energy and their interactions

(1) nuclear **physics**, (2) laws of **physics**  
He studied the **physics** of radiation.

## constant

*adj.* happening repeatedly or all the time

*synonym*: ceaseless, stable, unchanging

(1) a **constant** wind, (2) a **constant** temperature  
**Constant** dropping wears away the stone.

## frequency

*n.* an ordered array of colors into which a light beam can be split

*synonym*: recurrence, repetition, regularity

(1) **frequency** band, (2) high **frequency**  
The oscillator hunts for the correct **frequency**.

## repetition

*n.* the act of doing or saying something many times

*synonym*: duplication, iteration, recurrence

(1) **repetition** of the word, (2) habitual **repetition**  
**Repetition** is the mother of all learning.

## equivalent

*n.* having the same value, quality, meaning, purpose, etc.

*synonym*: equal, counterpart, match

(1) **equivalent** amounts, (2) **equivalent** in meaning  
The European Central Bank is Europe's **equivalent** of the Federal Reserve.

## increment

*n.* a regular increase in the amount of something, such as money; a process of becoming larger, longer, or more important

*synonym*: increase, expansion, addendum

(1) steady **incremental** growth, (2) small **increments**  
The bid **increment** for this auction is \$100.

## 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.

## pendulum

*n.* a weight hung from a fixed point used to regulate the movement of a clock or other mechanism

*synonym*: oscillator, balance, clock

(1) **pendulum** swings, (2) political **pendulum**  
The **pendulum** clock was a familiar sight in the old house.

## 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**.

## tick

*n.* a light, sharp, repetitive sound or action; a mark indicating that something is correct or has been done; any of two families of small parasitic arachnids with barbed proboscis

*synonym*: sound, noise, beat

(1) **tick** of the clock, (2) **tick** fever

I always put a **tick** mark next to the items on my grocery list after buying them.

## **maintain**

*v.* to continue to uphold or sustain; to keep in a particular state or condition; to assert or declare something to be true

*synonym*: preserve, uphold, sustain

(1) **maintain** order, (2) **maintain** good health

I need to **maintain** my car regularly to prevent any major mechanical issues.

## **transition**

*n.* the process or period of changing from one state or circumstance to another

*synonym*: change, growth, shift

(1) **transition** phase, (2) ensure a smooth **transition**

The nation's healthcare system is in **transition** at the moment.

## **atom**

*n.* the smallest unit of ordinary matter that forms a chemical element, composed of a nucleus and one or more electrons bound to the nucleus

*synonym*: particle, element, fraction

(1) oxygen **atom**, (2) neutral hydrogen **atoms**

The outermost electron shell of an **atom** determines its chemical characteristics.

## **arbitrary**

*adj.* based on chance, or individual whim rather than any reason

*synonym*: autocratic, dictatorial, whimsical

(1) **arbitrary** size and shape, (2) the **arbitrary** rule of a dictator

He collected data to avoid **arbitrary** decisions.

## **constrain**

*v.* to restrict or limit someone or something's freedom or ability to do something

*synonym*: restrict, limit, confine

(1) **constrain** his freedom, (2) **constrain** information flow  
The political situation **constrained** the country's economic growth and foreign relations.

## 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.

## freeway

*n.* a major highway designed for high-speed traffic, with no stoplights or grade crossings and having interchanges or access roads to other highways

*synonym*: highway, expressway, motorway

(1) **freeway** exit, (2) expanded **freeway**

We got stuck in a traffic jam on the **freeway** for over an hour.

## normally

*adv.* usually; under normal conditions

*synonym*: commonly, generally, naturally

(1) complete **normally**, (2) not **normally** drink much

I don't **normally** take a vacation in the middle of summer.

## continuously

*adv.* without being interrupted or paused; repeatedly

*synonym*: constantly, frequently, always

(1) use one thing **continuously**, (2) **continuously** removed

The country's domestic coal consumption has been **continuously** declining for decades.

## accelerate

*v.* to make something faster or earlier; to cause to develop or progress more quickly

*synonym*: speed up, quicken, rev

(1) **accelerate** a chemical reaction, (2) **accelerate** the car

The government tried to **accelerate** the commercialization of this development.

## linear

*adj.* of, relating to, or consisting of lines or length; able to be expressed as a straight line, especially on a graph

*synonym* : straight, direct, right

(1) **linear** trend, (2) a **linear** equation

People tend to make **linear** predictions.

## fashion

*n.* a style that is popular at a particular time or place; the state of being popular

*synonym* : style, manner, fad

(1) go out of **fashion**, (2) new **fashion** trends

That style is no longer in **fashion**.

## instantaneous

*adj.* occurring or happening immediately or without delay; taking place in an instant or moment

*synonym* : immediate, prompt, rapid

(1) **instantaneous** reaction, (2) **instantaneous** message

The new software provides **instantaneous** results, making it much more efficient than the previous version.

## characteristic

*n.* a typical feature or quality that can identify, tell apart, or describe something or somebody

*synonym* : feature, quality, attribute

(1) stripes **characteristic** of the zebra, (2) my friend's **characteristic** laugh

Bananas have their **characteristic** taste and odor.

## 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.

## Planck

*n.* a unit of measurement used in physics to quantify the smallest possible amounts of energy, typically associated with subatomic particles and other quantum phenomena



(1) **Planck** mass, (2) **Planck** length

**Planck's** constant is a fundamental constant of nature used in quantum mechanics.

## cesium

*n.* a chemical element with the symbol Cs and atomic number 55, a silver-white metal that is highly reactive with water and used in various applications, including in atomic clocks

(1) **cesium** clock, (2) **cesium** radiation

Astronomers use the properties of **cesium** atoms to define the standard unit of time.

## rubidium

*n.* a chemical element belonging to the alkali metal group, with the atomic number 37 and symbol Rb, that is a soft, silvery-white metal that is highly reactive and is used in various scientific and industrial applications

*synonym* : Rb

(1) **rubidium** isotope, (2) **rubidium** atom

**Rubidium-87** is commonly used for radiometric dating of rocks and minerals.

## wind-up

*n.* a mechanism or device, often in the form of a toy or clockwork mechanism, that is powered by winding a spring or turning a key; completion or conclusion of something, especially in a final or definitive manner

*synonym* : finale, conclusion, end

(1) **wind-up** speech, (2) **wind-up** clock

He used a **wind-up** key to start the vintage music box.

## mechanism

*n.* a part of a machine, or a set of parts that performs a task; a natural or established process that occurs during a specific situation or reaction

*synonym* : means, method, system

(1) the **mechanism** for DNA replication, (2) defense **mechanism**

He discovered unique **mechanisms** for photochemical reactions.

## quartz

*n.* a hard, mineral compound consisting of silicon dioxide, often occurring as colorless or white crystals but also found in various colors, and commonly used in jewelry and watches, as well as in the production of glass and other industrial applications

*synonym* : crystal, mineral, rock

(1) **quartz** rock, (2) rose **quartz**

The crystal pendant was made of clear **quartz**.

## crystal

*n.* a solid material with many even sides that is formed naturally when the substance becomes solid and has a highly regular atomic structure; clear and colorless glass made of almost pure silica

*synonym* : quartz

(1) liquid **crystal**, (2) **crystal** analyses

A vast **crystal** chandelier glittered brightly above us.

## resonate

*v.* to be filled with a deep echoing sound

*synonym* : echo, reverberate, resound

(1) deeply **resonate** with the consumers, (2) **resonate** in the same frequency

The sound **resonates** well in this theater.

## slightly

*adv.* in a small degree or extent; a little

*synonym* : barely, narrowly, scarcely

(1) increase **slightly**, (2) **slightly** alkaline soils

He moved his body **slightly** to the left.

## universe

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

*synonym* : cosmos, macrocosm

(1) theory of the **universe**, (2) expansion of the **universe**

The **universe** is about 13.8 billion years old.

## oscillate

*v.* to swing or move back and forth like a pendulum or a wave; to fluctuate or alternate between two points or

states; to hesitate or be indecisive

*synonym* : fluctuate, swing, vibrate

(1) **oscillate** back and forth, (2) **oscillate** between joy and anger

The fan in the room **oscillates**, making the airflow more evenly.

## accurate

*adj.* correct and exact in all details

*synonym* : exact, precise, proper

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

The official transcript contains **accurate** academic records.

## ignore

*v.* to intentionally not listen or pay attention to

*synonym* : neglect, disregard, shun

(1) **ignore** her advice, (2) **ignore** a ban

Since independence, the area has been completely **ignored**.

## definitely

*adv.* without any question and beyond doubt; clearly

*synonym* : absolutely, certainly, indeed

(1) **definitely** become a problem, (2) say **definitely**

The paper is **definitely** worth reading thoroughly.

## 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.

## overlap

*v.* to partially cover something by going beyond its edge

*synonym* : overlay, cover, bespread

(1) **overlap** one another, (2) **overlap** in many areas

There was no **overlap** between their proposals.

## relative

*adj.* considered and evaluated through comparison with something else

*synonym*: comparative, proximate, congeneric

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

Most countries prohibit sexual activity between certain close **relatives**.

## pinpoint

*v.* to locate or identify the exact position in space or time of something

*synonym*: name, direct, identify

(1) **pinpoint** the problem, (2) **pinpoint** signs of manipulation

This radar quickly **pinpoints** the position of the enemy.

## Session 2: Spelling

1. inc\_\_\_\_\_ly cheerful character *adv.* in a way that is very difficult to believe; exceedingly or extremely
2. common in\_\_\_\_\_on *n.* the creation of a new device or process resulting from study and experimentation; the act of inventing
3. ru\_\_\_\_\_um atom *n.* a chemical element belonging to the alkali metal group, with the atomic number 37 and symbol Rb, that is a soft, silvery-white metal that is highly reactive and is used in various scientific and industrial applications
4. habitual rep\_\_\_\_\_on *n.* the act of doing or saying something many times
5. complete no\_\_\_\_\_ly *adv.* usually; under normal conditions
6. ov\_\_\_\_\_p in many areas *v.* to partially cover something by going beyond its edge
7. use one thing con\_\_\_\_\_sly *adv.* without being interrupted or paused; repeatedly
8. social di\_\_\_\_\_ce *n.* the amount of space between two points, measured in units such as miles, meters, or kilometers; the extent, scope, or range between two things, such as distance or emotional distance
9. fr\_\_\_\_\_cy band *n.* an ordered array of colors into which a light beam can be split
10. os\_\_\_\_\_te between joy and anger *v.* to swing or move back and forth like a pendulum or a wave; to fluctuate or alternate between two points or states; to hesitate or be indecisive

ANSWERS: 1. incredibly, 2. invention, 3. rubidium, 4. repetition, 5. normally, 6. overlap, 7. continuously, 8. distance, 9. frequency, 10. oscillate

11. ac\_\_\_\_te measurements *adj.* correct and exact in all details
12. pe\_\_\_\_um swings *n.* a weight hung from a fixed point used to regulate the movement of a clock or other mechanism
13. provide ac\_\_\_\_te information *adj.* correct and exact in all details
14. t\_\_k of the clock *n.* a light, sharp, repetitive sound or action; a mark indicating that something is correct or has been done; any of two families of small parasitic arachnids with barbed proboscis
15. ma\_\_\_\_in order *v.* to continue to uphold or sustain; to keep in a particular state or condition; to assert or declare something to be true
16. laws of ph\_\_\_\_s *n.* the science of matter and energy and their interactions
17. con\_\_\_\_sly removed *adv.* without being interrupted or paused; repeatedly
18. at\_\_\_\_c bomb *adj.* of or relating to atom (= the smallest component of an element)
19. lo\_\_\_\_e a missing pet *v.* to specify or determine the exact position of someone or something
20. me\_\_\_\_cs of the game *n.* the branch of physics that deals with the study of motion, forces, and energy; (mechanic) someone whose occupation is repairing and maintaining automobiles
21. a co\_\_\_\_nt temperature *adj.* happening repeatedly or all the time
22. a co\_\_\_\_nt wind *adj.* happening repeatedly or all the time

ANSWERS: 11. accurate, 12. pendulum, 13. accurate, 14. tick, 15. maintain, 16. physics, 17. continuously, 18. atomic, 19. locate, 20. mechanics, 21. constant, 22. constant

23. a planetary or\_\_t *n.* the path of an object around a celestial body, especially a planet, star, or moon, under the influence of gravity; (of medicine) the bony cavity in the skull that houses the eyeball and its associated structures, like muscles, nerves, and blood vessels
24. re\_\_\_\_te in the same frequency *v.* to be filled with a deep echoing sound
25. br\_\_\_\_st a concert *v.* to send out a program or some information on radio or television
26. ig\_\_\_\_e a ban *v.* to intentionally not listen or pay attention to
27. steady in\_\_\_\_ntal growth *n.* a regular increase in the amount of something, such as money; a process of becoming larger, longer, or more important
28. re\_\_\_\_ve factors *adj.* considered and evaluated through comparison with something else
29. estimate pr\_\_\_\_e costs *adj.* sharply exact or accurate or delimited
30. 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
31. 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
32. a remote re\_\_\_\_ve *adj.* considered and evaluated through comparison with something else

ANSWERS: 23. orbit, 24. resonate, 25. broadcast, 26. ignore, 27. increment, 28. relative, 29. precise, 30. multiply, 31. multiply, 32. relative

33. my friend's cha\_\_\_\_\_tic laugh      *n.* a typical feature or quality that can identify, tell apart, or describe something or somebody
34. at\_\_\_c nucleus      *adj.* of or relating to atom (= the smallest component of an element)
35. 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
36. 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.
37. ru\_\_\_\_\_um isotope      *n.* a chemical element belonging to the alkali metal group, with the atomic number 37 and symbol Rb, that is a soft, silvery-white metal that is highly reactive and is used in various scientific and industrial applications
38. the ar\_\_\_\_\_ry rule of a dictator      *adj.* based on chance, or individual whim rather than any reason
39. equ\_\_\_\_\_nt amounts      *n.* having the same value, quality, meaning, purpose, etc.
40. neutral hydrogen a\_\_ms      *n.* the smallest unit of ordinary matter that forms a chemical element, composed of a nucleus and one or more electrons bound to the nucleus
41. tra\_\_\_\_\_on phase      *n.* the process or period of changing from one state or circumstance to another

ANSWERS: 33. characteristic, 34. atomic, 35. sphere, 36. rely, 37. rubidium, 38. arbitrary, 39. equivalent, 40. atom, 41. transition



42. ma\_\_\_\_\_in good health      *v.* to continue to uphold or sustain; to keep in a particular state or condition; to assert or declare something to be true
43. wi\_\_\_\_\_p speech      *n.* a mechanism or device, often in the form of a toy or clockwork mechanism, that is powered by winding a spring or turning a key; completion or conclusion of something, especially in a final or definitive manner
44. historical an\_\_\_\_\_y      *n.* a comparison between similar things that have similar aspects, often used to help explain a principle or concept
45. draw an\_\_\_\_\_y      *n.* a comparison between similar things that have similar aspects, often used to help explain a principle or concept
46. 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
47. sma\_\_\_\_\_ne app developer      *n.* a mobile phone that functions as a computer and connects to the Internet
48. oxygen a\_\_m      *n.* the smallest unit of ordinary matter that forms a chemical element, composed of a nucleus and one or more electrons bound to the nucleus
49. a li\_\_\_r equation      *adj.* of, relating to, or consisting of lines or length; able to be expressed as a straight line, especially on a graph
50. pi\_\_\_\_\_nt the problem      *v.* to locate or identify the exact position in space or time of something

ANSWERS: 42. maintain, 43. wind-up, 44. analogy, 45. analogy, 46. gravity, 47. smartphone, 48. atom, 49. linear, 50. pinpoint

51. wi\_\_\_\_p clock *n.* a mechanism or device, often in the form of a toy or clockwork mechanism, that is powered by winding a spring or turning a key; completion or conclusion of something, especially in a final or definitive manner
52. li\_\_\_\_r trend *adj.* of, relating to, or consisting of lines or length; able to be expressed as a straight line, especially on a graph
53. structural fo\_\_\_\_a *n.* a group of symbols, letters, or numbers that represent a rule, law, or mathematical statement
54. ov\_\_\_\_p one another *v.* to partially cover something by going beyond its edge
55. the me\_\_\_\_sm for DNA replication *n.* a part of a machine, or a set of parts that performs a task; a natural or established process that occurs during a specific situation or reaction
56. ig\_\_\_\_e her advice *v.* to intentionally not listen or pay attention to
57. ce\_\_\_\_m clock *n.* a chemical element with the symbol Cs and atomic number 55, a silver-white metal that is highly reactive with water and used in various applications, including in atomic clocks
58. me\_\_\_\_cs equation *n.* the branch of physics that deals with the study of motion, forces, and energy; (mechanic) someone whose occupation is repairing and maintaining automobiles

ANSWERS: 51. wind-up, 52. linear, 53. formula, 54. overlap, 55. mechanism, 56. ignore, 57. cesium, 58. mechanics

59. sma\_\_\_\_\_ne addict *n.* a mobile phone that functions as a computer and connects to the Internet
60. laws of qu\_\_\_\_\_m mechanics *n.* the smallest amount or unit of something, especially (electromagnetic) energy
61. a det\_\_\_\_\_nt of crop yields *n.* a factor, circumstance, or condition that contributes to the shaping, influencing, or determining of a particular outcome or result
62. environmental det\_\_\_\_\_nt *n.* a factor, circumstance, or condition that contributes to the shaping, influencing, or determining of a particular outcome or result
63. br\_\_\_\_\_st a radio ad *v.* to send out a program or some information on radio or television
64. pi\_\_\_\_\_nt signs of manipulation *v.* to locate or identify the exact position in space or time of something
65. stripes cha\_\_\_\_\_tic of the zebra *n.* a typical feature or quality that can identify, tell apart, or describe something or somebody
66. defense me\_\_\_\_\_sm *n.* a part of a machine, or a set of parts that performs a task; a natural or established process that occurs during a specific situation or reaction
67. equ\_\_\_\_\_nt in meaning *n.* having the same value, quality, meaning, purpose, etc.
68. a binomial fo\_\_\_\_\_a *n.* a group of symbols, letters, or numbers that represent a rule, law, or mathematical statement

ANSWERS: 59. smartphone, 60. quantum, 61. determinant, 62. determinant, 63. broadcast, 64. pinpoint, 65. characteristic, 66. mechanism, 67. equivalent, 68. formula

69. Pl\_\_\_k mass *n.* a unit of measurement used in physics to quantify the smallest possible amounts of energy, typically associated with subatomic particles and other quantum phenomena
70. the in\_\_\_\_\_on of new techniques *n.* the creation of a new device or process resulting from study and experimentation; the act of inventing
71. high fr\_\_\_\_\_cy *n.* an ordered array of colors into which a light beam can be split
72. deeply re\_\_\_\_\_te with the consumers *v.* to be filled with a deep echoing sound
73. Pl\_\_\_k length *n.* a unit of measurement used in physics to quantify the smallest possible amounts of energy, typically associated with subatomic particles and other quantum phenomena
74. liquid cr\_\_\_\_\_l *n.* a solid material with many even sides that is formed naturally when the substance becomes solid and has a highly regular atomic structure; clear and colorless glass made of almost pure silica
75. 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
76. increase sl\_\_\_\_\_ly *adv.* in a small degree or extent; a little
77. ar\_\_\_\_\_ry size and shape *adj.* based on chance, or individual whim rather than any reason

ANSWERS: 69. Planck, 70. invention, 71. frequency, 72. resonate, 73. Planck, 74. crystal, 75. sphere, 76. slightly, 77. arbitrary

78. not no\_\_\_\_\_ly drink much *adv.* usually; under normal conditions
79. the or\_\_t of the moon *n.* the path of an object around a celestial body, especially a planet, star, or moon, under the influence of gravity; (of medicine) the bony cavity in the skull that houses the eyeball and its associated structures, like muscles, nerves, and blood vessels
80. qu\_\_\_z rock *n.* a hard, mineral compound consisting of silicon dioxide, often occurring as colorless or white crystals but also found in various colors, and commonly used in jewelry and watches, as well as in the production of glass and other industrial applications
81. go out of fa\_\_\_\_\_n *n.* a style that is popular at a particular time or place; the state of being popular
82. political pe\_\_\_\_\_um *n.* a weight hung from a fixed point used to regulate the movement of a clock or other mechanism
83. t\_\_k fever *n.* a light, sharp, repetitive sound or action; a mark indicating that something is correct or has been done; any of two families of small parasitic arachnids with barbed proboscis
84. fr\_\_\_\_\_y exit *n.* a major highway designed for high-speed traffic, with no stoplights or grade crossings and having interchanges or access roads to other highways

ANSWERS: 78. normally, 79. orbit, 80. quartz, 81. fashion, 82. pendulum, 83. tick, 84. freeway

85. lo\_\_\_e a tumor *v.* to specify or determine the exact position of someone or something
86. probabilistic qu\_\_\_\_\_m theory *n.* the smallest amount or unit of something, especially (electromagnetic) energy
87. a GPS sa\_\_\_\_\_te *n.* an electronic device that is sent up into space and moves around the Earth or another planet, used for gathering information or communicating by radio, television, etc.
88. theory of the un\_\_\_\_\_se *n.* everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy
89. get inc\_\_\_\_\_ly insecure *adv.* in a way that is very difficult to believe; exceedingly or extremely
90. a con\_\_\_\_\_ly innovative enterprise *adv.* all the time
91. ce\_\_\_m radiation *n.* a chemical element with the symbol Cs and atomic number 55, a silver-white metal that is highly reactive with water and used in various applications, including in atomic clocks
92. ensure a smooth tra\_\_\_\_\_on *n.* the process or period of changing from one state or circumstance to another
93. os\_\_\_\_\_te back and forth *v.* to swing or move back and forth like a pendulum or a wave; to fluctuate or alternate between two points or states; to hesitate or be indecisive
94. acc\_\_\_\_\_te a chemical reaction *v.* to make something faster or earlier; to cause to develop or progress more quickly

ANSWERS: 85. locate, 86. quantum, 87. satellite, 88. universe, 89. incredibly, 90. constantly, 91. cesium, 92. transition, 93. oscillate, 94. accelerate

95. acc\_\_\_\_\_te the car      *v.* to make something faster or earlier; to cause to develop or progress more quickly
96. a meteorological sa\_\_\_\_\_te      *n.* an electronic device that is sent up into space and moves around the Earth or another planet, used for gathering information or communicating by radio, television, etc.
97. expansion of the un\_\_\_\_\_se      *n.* everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy
98. sl\_\_\_\_\_ly alkaline soils      *adv.* in a small degree or extent; a little
99. ins\_\_\_\_\_ous reaction      *adj.* occurring or happening immediately or without delay; taking place in an instant or moment
100. rep\_\_\_\_\_on of the word      *n.* the act of doing or saying something many times
101. rose qu\_\_\_\_z      *n.* a hard, mineral compound consisting of silicon dioxide, often occurring as colorless or white crystals but also found in various colors, and commonly used in jewelry and watches, as well as in the production of glass and other industrial applications
102. cr\_\_\_\_\_l analyses      *n.* a solid material with many even sides that is formed naturally when the substance becomes solid and has a highly regular atomic structure; clear and colorless glass made of almost pure silica

ANSWERS: 95. accelerate, 96. satellite, 97. universe, 98. slightly, 99. instantaneous, 100. repetition, 101. quartz, 102. crystal

103. co\_\_\_\_\_in information flow      *v.* to restrict or limit someone or something's freedom or ability to do something
104. new fa\_\_\_\_\_n trends      *n.* a style that is popular at a particular time or place; the state of being popular
105. nuclear ph\_\_\_\_\_s      *n.* the science of matter and energy and their interactions
106. ca\_\_\_\_\_te his credit score      *v.* to judge or find out the amount or number of something by using mathematics
107. co\_\_\_\_\_in his freedom      *v.* to restrict or limit someone or something's freedom or ability to do something
108. small in\_\_\_\_\_nts      *n.* a regular increase in the amount of something, such as money; a process of becoming larger, longer, or more important
109. pr\_\_\_\_\_e analyses      *adj.* sharply exact or accurate or delimited
110. expanded fr\_\_\_\_\_y      *n.* a major highway designed for high-speed traffic, with no stoplights or grade crossings and having interchanges or access roads to other highways
111. def\_\_\_\_\_ly become a problem      *adv.* without any question and beyond doubt; clearly
112. ca\_\_\_\_\_te the distance      *v.* to judge or find out the amount or number of something by using mathematics
113. driving di\_\_\_\_\_ce      *n.* the amount of space between two points, measured in units such as miles, meters, or kilometers; the extent, scope, or range between two things, such as distance or emotional distance

ANSWERS: 103. constrain, 104. fashion, 105. physics, 106. calculate, 107. constrain, 108. increment, 109. precise, 110. freeway, 111. definitely, 112. calculate, 113. distance



114. 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
115. a con\_\_\_\_\_ly varying mind                      *adv.* all the time
116. ins\_\_\_\_\_ous message                      *adj.* occurring or happening immediately or without delay; taking place in an instant or moment
117. 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.
118. say def\_\_\_\_\_ly                      *adv.* without any question and beyond doubt; clearly

ANSWERS: 114. gravity, 115. constantly, 116. instantaneous, 117. rely, 118. definitely

## Session 3: Fill in the Blanks

1. \_\_\_\_\_ dropping wears away the stone.  
*adj.* happening repeatedly or all the time
  
2. I always put a \_\_\_\_\_ mark next to the items on my grocery list after buying them.  
*n.* a light, sharp, repetitive sound or action; a mark indicating that something is correct or has been done; any of two families of small parasitic arachnids with barbed proboscis
  
3. \_\_\_\_\_ 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
  
4. He studied \_\_\_\_\_ in college and now works as an engineer.  
*n.* the branch of physics that deals with the study of motion, forces, and energy; (mechanic) someone whose occupation is repairing and maintaining automobiles
  
5. The paper is \_\_\_\_\_ worth reading thoroughly.  
*adv.* without any question and beyond doubt; clearly
  
6. Internet traffic volumes have increased significantly with the advent of \_\_\_\_\_.  
*n.* a mobile phone that functions as a computer and connects to the Internet
  
7. \_\_\_\_\_ is the mother of all learning.  
*n.* the act of doing or saying something many times

ANSWERS: 1. Constant, 2. tick, 3. Multiply, 4. mechanics, 5. definitely, 6. smartphones, 7. Repetition

8. The oscillator hunts for the correct \_\_\_\_\_.
- n.* an ordered array of colors into which a light beam can be split
9. 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
10. The marathon runner covered a long \_\_\_\_\_ in a short amount of time.
- n.* the amount of space between two points, measured in units such as miles, meters, or kilometers; the extent, scope, or range between two things, such as distance or emotional distance
11. The \_\_\_\_\_ is about 13.8 billion years old.
- n.* everything that exists, especially all physical matter, including planets, stars, galaxies, and all other forms of matter and energy
12. There was no \_\_\_\_\_ between their proposals.
- v.* to partially cover something by going beyond its edge
13. Carbon has an \_\_\_\_\_ mass of 12.
- adj.* of or relating to atom (= the smallest component of an element)
14. I don't \_\_\_\_\_ take a vacation in the middle of summer.
- adv.* usually; under normal conditions
15. The official transcript contains \_\_\_\_\_ academic records.
- adj.* correct and exact in all details

ANSWERS: 8. frequency, 9. sphere, 10. distance, 11. universe, 12. overlap, 13. atomic, 14. normally, 15. accurate

16. The nation's healthcare system is in \_\_\_\_\_ at the moment.  
*n.* the process or period of changing from one state or circumstance to another
17. Several cities are experiencing \_\_\_\_\_ high unemployment rates.  
*adv.* in a way that is very difficult to believe; exceedingly or extremely
18. The political situation \_\_\_\_\_ the country's economic growth and foreign relations.  
*v.* to restrict or limit someone or something's freedom or ability to do something
19. The mobile application industry is \_\_\_\_\_ changing.  
*adv.* all the time
20. The fan in the room \_\_\_\_\_ making the airflow more evenly.  
*v.* to swing or move back and forth like a pendulum or a wave; to fluctuate or alternate between two points or states; to hesitate or be indecisive
21. The country's domestic coal consumption has been \_\_\_\_\_ declining for decades.  
*adv.* without being interrupted or paused; repeatedly
22. The sound \_\_\_\_\_ well in this theater.  
*v.* to be filled with a deep echoing sound
23. Big techs are now eager to develop \_\_\_\_\_ computers.  
*n.* the smallest amount or unit of something, especially (electromagnetic) energy
24. The European Central Bank is Europe's \_\_\_\_\_ of the Federal Reserve.  
*n.* having the same value, quality, meaning, purpose, etc.

ANSWERS: 16. transition, 17. incredibly, 18. constrained, 19. constantly, 20. oscillates, 21. continuously, 22. resonates, 23. quantum, 24. equivalent

25. That style is no longer in \_\_\_\_\_.
- n.* a style that is popular at a particular time or place; the state of being popular
26. One \_\_\_\_\_ of success is having a positive attitude and a strong work ethic.
- n.* a factor, circumstance, or condition that contributes to the shaping, influencing, or determining of a particular outcome or result
27. The bid \_\_\_\_\_ for this auction is \$100.
- n.* a regular increase in the amount of something, such as money; a process of becoming larger, longer, or more important
28. A vast \_\_\_\_\_ chandelier glittered brightly above us.
- n.* a solid material with many even sides that is formed naturally when the substance becomes solid and has a highly regular atomic structure; clear and colorless glass made of almost pure silica
29. Necessity is the mother of \_\_\_\_\_.
- n.* the creation of a new device or process resulting from study and experimentation; the act of inventing
30. Astronomers use the properties of \_\_\_\_\_ atoms to define the standard unit of time.
- n.* a chemical element with the symbol Cs and atomic number 55, a silver-white metal that is highly reactive with water and used in various applications, including in atomic clocks
31. The crystal pendant was made of clear \_\_\_\_\_.
- n.* a hard, mineral compound consisting of silicon dioxide, often occurring as colorless or white crystals but also found in various colors, and commonly used in jewelry and watches, as well as in the production of glass and other industrial applications

ANSWERS: 25. fashion, 26. determinant, 27. increment, 28. crystal, 29. invention, 30. cesium, 31. quartz

32. Most countries prohibit sexual activity between certain close \_\_\_\_\_.  
*adj.* considered and evaluated through comparison with something else
33. The robot can accurately \_\_\_\_\_ construction material.  
*v.* to specify or determine the exact position of someone or something
34. This radar quickly \_\_\_\_\_ the position of the enemy.  
*v.* to locate or identify the exact position in space or time of something
35. The teacher told the students to memorize the math \_\_\_\_\_.  
*n.* a group of symbols, letters, or numbers that represent a rule, law, or mathematical statement
36. He discovered unique \_\_\_\_\_ for photochemical reactions.  
*n.* a part of a machine, or a set of parts that performs a task; a natural or established process that occurs during a specific situation or reaction
37. The government tried to \_\_\_\_\_ the commercialization of this development.  
*v.* to make something faster or earlier; to cause to develop or progress more quickly
38. 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.
39. 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

ANSWERS: 32. relatives, 33. locate, 34. pinpoints, 35. formula, 36. mechanisms, 37. accelerate, 38. rely, 39. analogy

40. He collected data to avoid \_\_\_\_\_ decisions.  
*adj.* based on chance, or individual whim rather than any reason
41. The outermost electron shell of an \_\_\_\_\_ determines its chemical characteristics.  
*n.* the smallest unit of ordinary matter that forms a chemical element, composed of a nucleus and one or more electrons bound to the nucleus
42. The rocket engine is used to put the satellite into \_\_\_\_\_.  
*n.* the path of an object around a celestial body, especially a planet, star, or moon, under the influence of gravity; (of medicine) the bony cavity in the skull that houses the eyeball and its associated structures, like muscles, nerves, and blood vessels
43. Since independence, the area has been completely \_\_\_\_\_.  
*v.* to intentionally not listen or pay attention to
44. He used a \_\_\_\_\_ key to start the vintage music box.  
*n.* a mechanism or device, often in the form of a toy or clockwork mechanism, that is powered by winding a spring or turning a key; completion or conclusion of something, especially in a final or definitive manner
45. Launching an artificial \_\_\_\_\_ contributed to the technological development of our country.  
*n.* an electronic device that is sent up into space and moves around the Earth or another planet, used for gathering information or communicating by radio, television, etc.
46. He couldn't \_\_\_\_\_ the actual value of the artwork.  
*v.* to judge or find out the amount or number of something by using mathematics

ANSWERS: 40. arbitrary, 41. atom, 42. orbit, 43. ignored, 44. wind-up, 45. satellite, 46. calculate

47. The new software provides \_\_\_\_\_ results, making it much more efficient than the previous version.

*adj.* occurring or happening immediately or without delay; taking place in an instant or moment

48. We got stuck in a traffic jam on the \_\_\_\_\_ for over an hour.

*n.* a major highway designed for high-speed traffic, with no stoplights or grade crossings and having interchanges or access roads to other highways

49. The \_\_\_\_\_ clock was a familiar sight in the old house.

*n.* a weight hung from a fixed point used to regulate the movement of a clock or other mechanism

50. 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

51. People tend to make \_\_\_\_\_ predictions.

*adj.* of, relating to, or consisting of lines or length; able to be expressed as a straight line, especially on a graph

52. He moved his body \_\_\_\_\_ to the left.

*adv.* in a small degree or extent; a little

53. Bananas have their \_\_\_\_\_ taste and odor.

*n.* a typical feature or quality that can identify, tell apart, or describe something or somebody

54. Most of the programs are \_\_\_\_\_ in this area.

*v.* to send out a program or some information on radio or television

ANSWERS: 47. instantaneous, 48. freeway, 49. pendulum, 50. gravity, 51. linear, 52. slightly, 53. characteristic, 54. broadcast



55. The content is \_\_\_\_\_ and informative for me.

*adj.* sharply exact or accurate or delimited

56. \_\_\_\_\_ constant is a fundamental constant of nature used in quantum mechanics.

*n.* a unit of measurement used in physics to quantify the smallest possible amounts of energy, typically associated with subatomic particles and other quantum phenomena

57. I need to \_\_\_\_\_ my car regularly to prevent any major mechanical issues.

*v.* to continue to uphold or sustain; to keep in a particular state or condition; to assert or declare something to be true

58. \_\_\_\_\_ is commonly used for radiometric dating of rocks and minerals.

*n.* a chemical element belonging to the alkali metal group, with the atomic number 37 and symbol Rb, that is a soft, silvery-white metal that is highly reactive and is used in various scientific and industrial applications

59. He studied the \_\_\_\_\_ of radiation.

*n.* the science of matter and energy and their interactions

ANSWERS: 55. precise, 56. Planck's, 57. maintain, 58. Rubidium-87, 59. physics