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Vocabulary Builder Reference from...

Matt Langione: The promise of quantum computers |

TED Talk

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

e_of_quantum_computers



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Session 1: Word List

supercomputer

 a computer with a high level of computing power and speed, typically used for scientific or engineering computations that require immense amounts of data processing

synonym: high-performance computer, mainframe, giant computer

(1) **supercomputer** performance, (2) **supercomputer** technology

China has developed one of the world's fastest **supercomputers** for its space program.

standstill

 a complete halt in movement or activity, especially due to an obstruction or lack of resources

synonym: halt, deadlock, impasse

(1) transportation **standstill**, (2) economic **standstill**The traffic accident caused a **standstill** on the highway for several hours.

startling

adj. extremely surprising, astonishing, and sometimes worrying

synonym: alarming, astonishing, shocking

(1) **startling** earthquake shocks, (2) **startling** discovery He describes the story with **startling** reality.



conceive

v. to have or develop an idea, a plan, etc. in mind; to become pregnant

synonym: imagine, envision, concoct

(1) **conceive** of an idea, (2) **conceive** a child I can't **conceive** he'd want to harm us.

paralysis

 a condition in which you are unable to move or lose control of part or most of the body because of illness or injury

synonym: immobility, stiffness, palsy

(1) moral **paralysis**, (2) **paralysis** in the leg Massive demonstrations lead to total **paralysis** of transportation.

coronavirus

n. a large family of viruses that can cause illness in humans and animals, which name comes from the crown-like spikes on the surface of the virus, which can be seen under a microscope, and COVID-19 is caused by a specific type of coronavirus known as SARS-CoV-2

synonym: covid

(1) **coronavirus** antibody test kit, (2) **coronavirus** bankruptcy

Considering the situation of **coronavirus**, organized stopped this year's beer festival.

beset

v. to annoy someone or something continually or chronically; to surround or attack from all sides

synonym: harass, plague, torment

(1) **beset** with difficulties, (2) **beset** the community Raiders from the neighboring kingdom **beset** the small village.

minuscule

adj. extremely small; tiny

synonym: tiny, insignificant, microscopic

(1) **minuscule** amount, (2) **minuscule** letters
This ore emits **minuscule** quantities of radiation

deterministic

 adj. characterized by an assumption of cause and effect and the absence of chance or randomness, often used to describe scientific or engineering calculations

synonym: predictable, predetermined, certain

(1) **deterministic** approach, (2) **deterministic** system The **deterministic** algorithm always produces the same result for a given input.

probabilistic

adj. characterized by the influence of chance or probability; involving the use of statistical models or methods to estimate likelihoods or risks

synonym: probable, statistical, likely

(1) **probabilistic** model, (2) **probabilistic** approach In a **probabilistic** system, the outcome is uncertain and can vary based on chance.

superposition

n. a principle in physics that describes the combination or overlaying of two or more waves or states of matter; (of geology) the process by which layers of rock or sediment are deposited on top of one another over time

synonym: overlay, overlap

quantum superposition, (2) superposition theorem
 The superposition of waves can result in either constructive or destructive interference.

entanglement

 involvement in a complicated or difficult situation; a tangled mass

synonym: snarl, tangle, knot

(1) entanglement in conflict, (2) romantic entanglement The entanglement of the fishing net was making it difficult for the whales to swim.

maze

 a complex network of winding passages or pathways designed as a puzzle or challenge for people to navigate through

synonym: labyrinth, puzzle, network

(1) puzzle maze, (2) labyrinth maze

We got lost in the **maze** of streets while exploring the city.

roadblock

 a physical barrier or obstacle that prevents progress or movement; a situation that impedes progress or creates difficulty in achieving a goal or objective

synonym: obstacle, barrier, blockade

(1) biological **roadblock**, (2) bypass **roadblock**The accident caused a **roadblock** on the highway, causing traffic to come to a standstill.

revert

- v. to return to a previous state or condition; to reply synonym: return, go back, restore
- (1) **revert** to a heavy smoker, (2) **revert** to the original subject

After trying the new software, I **reverted** to the old version.

hallmark

 a distinctive characteristic or attribute of a person or thing

synonym: symbol, authentication, indication

(1) the **hallmark** of a good scientist, (2) the **hallmark** of modern life

A clear and simple expression is the **hallmark** of good writing.

fuse

 a small part in an electrical device or machinery that can interrupt the flow of electrical current when it is overloaded; (verb) to become plastic or fluid or liquefied from heat

synonym: (verb) melt, (verb) blend

(1) **fuse** blows, (2) **fuse** with one another He has a short **fuse**.

ammonia

- a compound of nitrogen and hydrogen that forms a gas with a strong smell, used as cleaning substances, fertilizers, and explosives
- (1) **ammonia** water, (2) inhale **ammonia** fumes

 The advent of **ammonia** fertilizers markedly increased

agricultural productivity.

expend

- v. to use or spend time, money, energy, etc.
- synonym: disburse, spend, pay
- (1) **expend** a great deal of energy, (2) **expend** time and resources

Billionaires tend to **expend** private funds on a public undertaking.

electrostatic

- adj. relating to the static electric charge produced by friction or other means; describing the behavior of insulators and conductors in electrical systems
- (1) **electrostatic** repulsion, (2) **electrostatic** discharge The experiment showed a strong **electrostatic** charge between the two objects.

nitrogenase

 an enzyme found in certain bacteria that is responsible for the biological fixation of atmospheric nitrogen into forms that can be used by plants and other organisms

synonym: nitrogen-fixing enzyme

(1) **nitrogenase** activity, (2) **nitrogenase** gene

The **nitrogenase** enzyme requires a lot of energy to function properly.

pandemic

 an outbreak of a disease that affects many people over a very wide area

synonym: outbreak

(1) flu pandemic, (2) global pandemic

They fear a **pandemic** of a new type of virus.

industrious

- adj. hardworking, diligent, and persistent in effortsynonym: diligent, hardworking, assiduous
- (1) **industrious** worker, (2) **industrious** student He was known to be very **industrious** and would often work late into the night.

discreet

adj. characterized by the ability to keep secrets or maintain confidentiality; showing prudence, tact, or reserve in behavior or speech; not likely to draw attention or cause offense

synonym: cautious, careful, circumspect

(1) discreet manner, (2) discreet conversation

He was **discreet** with the sensitive information he had been entrusted with.

intractable

adj. difficult to manage or control; stubborn or obstinatesynonym: obstinate, stubborn, unyielding

(1) **intractable** pain, (2) **intractable** situation

The intractable problem defied a solution.

holdup

 a delay or interruption, often caused by a problem or obstacle; a robbery or theft, often involving the use of weapons

synonym: delay, obstacle, interruption

(1) traffic holdup, (2) armed holdup

The construction project experienced a **holdup** due to a shortage of building materials.

constrain

 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.

swan

a large waterbird with a long neck, bill, and webbed feet;
 known for their elegant and graceful appearance

synonym: cygnet, waterfowl, bird

(1) swan song, (2) black swan

The swan's feathers glistened in the sunlight.

hurdle

n. a barrier or obstacle that must be overcomesynonym: obstacle, barrier, challenge

(1) overcome hurdles, (2) hurdle race

The company faced several **hurdles** in the development of its new product.

postpone

- v. to delay or reschedule something to a later time or date synonym: delay, defer, reschedule
- (1) postpone meeting, (2) postpone event

Due to inclement weather, the game has been **postponed** until next week.

causation

 n. the action or relationship between an event or action and its effect or consequence; the explanation for why something happens

synonym: cause, reason, origin

(1) causation analysis, (2) direct causation

The **causation** of the disease is still under investigation by medical researchers.

precipitous

 adj. extremely steep or rapid; hasty or impulsive, often with negative consequences; (of science) relating to or characterized by rapid, abrupt changes

synonym: steep, sudden, sheer

(1) **precipitous** behavior, (2) **precipitous** mountain The sudden, **precipitous** drop in temperature caught everyone off guard.

defy

v. to challenge or dare someone to do something; to resist or disobey a rule, decision, etc.

synonym: challenge, resist, disobey

(1) **defy** gravity, (2) **defy** authority

She tried to **defy** her parents by moving to the city against their wishes.

qubit

 a unit of information used in quantum computing, equivalent to a single binary digit (or "bit") of classical computing, which can exist in multiple possible states simultaneously, offering greater information processing

potential than classical bits

synonym: quantum bit

(1) quantum qubit, (2) qubit storage

Technology development for controlling **qubits** is a major research goal in quantum computing.

physicist

- n. a scientist who specializes in the field of physics
- (1) talented **physicist**, (2) theoretical **physicist**Einstein was an outstanding and famous **physicist** of the 20th century.

abacus

 a counting device consisting of a frame with rods or wires on which beads or stones are moved to perform arithmetic calculations

synonym: bead frame, counting frame

(1) **abacus** calculations, (2) wooden **abacus** beads The child was learning how to use an **abacus** in her math class.

onboard

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

synonym: embark, aboard, on-load

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

Session 2: Spelling

1.	ab	s calculat	ions

2. qu t storage

- 3. the ha___rk of a good scientist
- 4. pro_____tic approach
- 5. di et manner
- 6. on____d the new employees

- a counting device consisting of a frame with rods or wires on which beads or stones are moved to perform arithmetic calculations
- n. a unit of information used in quantum computing, equivalent to a single binary digit (or "bit") of classical computing, which can exist in multiple possible states simultaneously, offering greater information processing potential than classical bits
- a distinctive characteristic or attribute of a person or thing
- adj. characterized by the influence of chance or probability; involving the use of statistical models or methods to estimate likelihoods or risks
- adj. characterized by the ability to keep secrets or maintain confidentiality; showing prudence, tact, or reserve in behavior or speech; not likely to draw attention or cause offense
- v. to become or make part of a team, group, or system; to install, activate, or begin using a piece of equipment or software; (adjective) included or integrated into a particular system, machine, or device

ANSWERS: 1. abacus, 2. qubit, 3. hallmark, 4. probabilistic, 5. discreet, 6. onboard

7.	coin his freedom	<i>v</i> .	to restrict or limit someone or something's freedom or ability to do something
8.	mile letters	adj.	extremely small; tiny
9.	ret to the original subject	<i>v</i> .	to return to a previous state or condition; to reply
10.	ond computer	<i>v</i> .	to become or make part of a team, group, or system; to install, activate, or begin using a piece of equipment or software; (adjective) included or integrated into a particular system, machine, or device
11.	dy authority	ν.	to challenge or dare someone to do something; to resist or disobey a rule, decision, etc.
12.	coin information flow	ν.	to restrict or limit someone or something's freedom or ability to do something
13.	caon analysis	n.	the action or relationship between an event or action and its effect or consequence; the explanation for why something happens
14.	nitse gene	n.	an enzyme found in certain bacteria that is responsible for the biological fixation of atmospheric nitrogen into forms that can be used by plants and other organisms
15.	pais in the leg	n.	a condition in which you are unable to move or lose control of part or most of the body because of illness or injury

ANSWERS: 7. constrain, 8. minuscule, 9. revert, 10. onboard, 11. defy, 12. constrain, 13. causation, 14. nitrogenase, 15. paralysis

16.	diet conversation	adj.	characterized by the ability to keep secrets or maintain confidentiality; showing prudence, tact, or reserve in behavior or speech; not likely to draw attention or cause offense
17.	pone event	ν.	to delay or reschedule something to a later time or date
18.	supter performance	n.	a computer with a high level of computing power and speed, typically used for scientific or engineering computations that require immense amounts of data processing
19.	biological rock	n.	a physical barrier or obstacle that prevents progress or movement; a situation that impedes progress or creates difficulty in achieving a goal or objective
20.	dettic approach	adj.	characterized by an assumption of cause and effect and the absence of chance or randomness, often used to describe scientific or engineering calculations
21.	intle pain	adj.	difficult to manage or control; stubborn or obstinate
22.	preus mountain	adj.	extremely steep or rapid; hasty or impulsive, often with negative consequences; (of science) relating to or characterized by rapid, abrupt changes
23.	bet with difficulties	v.	to annoy someone or something continually or chronically; to surround or attack from all sides

ANSWERS: 16. discreet, 17. postpone, 18. supercomputer, 19. roadblock, 20. deterministic, 21. intractable, 22. precipitous, 23. beset

24. re t to a heavy smoker to return to a previous state or ν. condition; to reply a large waterbird with a long neck, bill, 25. black s_n n. and webbed feet; known for their elegant and graceful appearance 26. f e blows a small part in an electrical device or n. machinery that can interrupt the flow of electrical current when it is overloaded; (verb) to become plastic or fluid or liquefied from heat 27. cor____us antibody test kit a large family of viruses that can cause illness in humans and animals, which name comes from the crown-like spikes on the surface of the virus, which can be seen under a microscope, and COVID-19 is caused by a specific type of coronavirus known as SARS-CoV-2 an outbreak of a disease that affects 28. flu pa ic n. many people over a very wide area 29. ex d time and resources to use or spend time, money, energy, ν. etc. 30. ex___d a great deal of energy to use or spend time, money, energy, ν. etc. 31. quantum sup____ion a principle in physics that describes the n. combination or overlaying of two or more waves or states of matter; (of geology) the process by which layers of rock or sediment are deposited on top of one another over time a scientist who specializes in the field of 32. talented ph st n. physics

ANSWERS: 24. revert, 25. swan, 26. fuse, 27. coronavirus, 28. pandemic, 29. expend, 30. expend, 31. superposition, 32. physicist

33.	overcome hues	n.	a barrier or obstacle that must be overcome
34.	labyrinth me	n.	a complex network of winding passages or pathways designed as a puzzle or challenge for people to navigate through
35.	cove a child	ν.	to have or develop an idea, a plan, etc. in mind; to become pregnant
36.	the hark of modern life	n.	a distinctive characteristic or attribute of a person or thing
37.	indus worker	adj.	hardworking, diligent, and persistent in effort
38.	supter technology	n.	a computer with a high level of computing power and speed, typically used for scientific or engineering computations that require immense amounts of data processing
39.	inhale ama fumes	n.	a compound of nitrogen and hydrogen that forms a gas with a strong smell, used as cleaning substances, fertilizers, and explosives
40.	preus behavior	adj.	extremely steep or rapid; hasty or impulsive, often with negative consequences; (of science) relating to or characterized by rapid, abrupt changes
41.	direct caon	n.	the action or relationship between an event or action and its effect or consequence; the explanation for why something happens

ANSWERS: 33. hurdle, 34. maze, 35. conceive, 36. hallmark, 37. industrious, 38. supercomputer, 39. ammonia, 40. precipitous, 41. causation

electrical current when it is overloaded (verb) to become plastic or fluid or liquefied from heat 46. stng earthquake shocks adj. extremely surprising, astonishing, and sometimes worrying 47. bypass rock n. a physical barrier or obstacle that prevents progress or movement; a situation that impedes progress or creates difficulty in achieving a goal or objective 48. corus bankruptcy n. a large family of viruses that can cause illness in humans and animals, which name comes from the crown-like spike on the surface of the virus, which can be seen under a microscope, and	42.	quantum qut	n.	a unit of information used in quantum computing, equivalent to a single binary digit (or "bit") of classical computing, which can exist in multiple possible states simultaneously, offering greater information processing potential than classical bits
produced by friction or other means; describing the behavior of insulators and conductors in electrical systems 45. f_e with one another n. a small part in an electrical device or machinery that can interrupt the flow of electrical current when it is overloaded (verb) to become plastic or fluid or liquefied from heat 46. stng earthquake shocks adj. extremely surprising, astonishing, and sometimes worrying 47. bypass rock n. a physical barrier or obstacle that prevents progress or movement; a situation that impedes progress or creates difficulty in achieving a goal or objective 48. corus bankruptcy n. a large family of viruses that can cause illness in humans and animals, which name comes from the crown-like spike on the surface of the virus, which can be seen under a microscope, and COVID-19 is caused by a specific type	43.	intle situation	adj.	•
machinery that can interrupt the flow of electrical current when it is overloaded (verb) to become plastic or fluid or liquefied from heat 46. stng earthquake shocks adj. extremely surprising, astonishing, and sometimes worrying 47. bypass rock n. a physical barrier or obstacle that prevents progress or movement; a situation that impedes progress or creates difficulty in achieving a goal or objective 48. corus bankruptcy n. a large family of viruses that can cause illness in humans and animals, which name comes from the crown-like spike on the surface of the virus, which can be seen under a microscope, and COVID-19 is caused by a specific type	44.	eletic repulsion	adj.	produced by friction or other means; describing the behavior of insulators
sometimes worrying 47. bypass rock n. a physical barrier or obstacle that prevents progress or movement; a situation that impedes progress or creates difficulty in achieving a goal or objective 48. corus bankruptcy n. a large family of viruses that can cause illness in humans and animals, which name comes from the crown-like spike on the surface of the virus, which can be seen under a microscope, and COVID-19 is caused by a specific type	45.	fe with one another	n.	machinery that can interrupt the flow of electrical current when it is overloaded; (verb) to become plastic or fluid or
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illness in humans and animals, which name comes from the crown-like spike on the surface of the virus, which can be seen under a microscope, and COVID-19 is caused by a specific type	47.	bypass rock	n.	prevents progress or movement; a situation that impedes progress or creates difficulty in achieving a goal or
	48.	corus bankruptcy	n.	name comes from the crown-like spikes on the surface of the virus, which can be seen under a microscope, and COVID-19 is caused by a specific type

ANSWERS: 42. qubit, 43. intractable, 44. electrostatic, 45. fuse, 46. startling, 47. roadblock, 48. coronavirus

49.	eletic discharge	adj.	relating to the static electric charge produced by friction or other means; describing the behavior of insulators and conductors in electrical systems
50.	hue race	n.	a barrier or obstacle that must be overcome
51.	traffic hop	n.	a delay or interruption, often caused by a problem or obstacle; a robbery or theft, often involving the use of weapons
52.	cove of an idea	<i>v</i> .	to have or develop an idea, a plan, etc. in mind; to become pregnant
53.	stng discovery	adj.	extremely surprising, astonishing, and sometimes worrying
54.	wooden abs beads	n.	a counting device consisting of a frame with rods or wires on which beads or stones are moved to perform arithmetic calculations
55.	armed hop	n.	a delay or interruption, often caused by a problem or obstacle; a robbery or theft, often involving the use of weapons
56.	dy gravity	<i>v</i> .	to challenge or dare someone to do something; to resist or disobey a rule, decision, etc.
57.	mile amount	adj.	extremely small; tiny
58.	moral pais	n.	a condition in which you are unable to move or lose control of part or most of the body because of illness or injury

ANSWERS: 49. electrostatic, 50. hurdle, 51. holdup, 52. conceive, 53. startling, 54. abacus, 55. holdup, 56. defy, 57. minuscule, 58. paralysis

59.	nitse activity	n.	an enzyme found in certain bacteria that is responsible for the biological fixation of atmospheric nitrogen into forms that can be used by plants and other organisms
60.	indus student	adj.	hardworking, diligent, and persistent in effort
61.	sn song	n.	a large waterbird with a long neck, bill, and webbed feet; known for their elegant and graceful appearance
62.	supion theorem	n.	a principle in physics that describes the combination or overlaying of two or more waves or states of matter; (of geology) the process by which layers of rock or sediment are deposited on top of one another over time
63.	pone meeting	<i>v</i> .	to delay or reschedule something to a later time or date
64.	bet the community	v.	to annoy someone or something continually or chronically; to surround or attack from all sides
65.	romantic entent	n.	involvement in a complicated or difficult situation; a tangled mass
66.	entent in conflict	n.	involvement in a complicated or difficult situation; a tangled mass
67.	transportation staII	n.	a complete halt in movement or activity, especially due to an obstruction or lack of resources
68.	global paic	n.	an outbreak of a disease that affects many people over a very wide area

ANSWERS: 59. nitrogenase, 60. industrious, 61. swan, 62. superposition, 63. postpone, 64. beset, 65. entanglement, 66. entanglement, 67. standstill, 68. pandemic

69.	protic model	adj.	characterized by the influence of chance or probability; involving the use of statistical models or methods to estimate likelihoods or risks
70.	puzzle me	n.	a complex network of winding passages or pathways designed as a puzzle or challenge for people to navigate through
71.	dettic system	adj.	characterized by an assumption of cause and effect and the absence of chance or randomness, often used to describe scientific or engineering calculations
72.	ama water	n.	a compound of nitrogen and hydrogen that forms a gas with a strong smell, used as cleaning substances, fertilizers and explosives
73.	economic staII	n.	a complete halt in movement or activity, especially due to an obstruction or lack of resources
74.	theoretical phst	n.	a scientist who specializes in the field of physics

ANSWERS: 69. probabilistic, 70. maze, 71. deterministic, 72. ammonia, 73. standstill, 74. physicist

Session 3: Fill in the Blanks

1. n.	We got lost in the of streets while exploring the city. a complex network of winding passages or pathways designed as a puzzle or challenge for people to navigate through
2.	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
3. n.	Massive demonstrations lead to total of transportation. a condition in which you are unable to move or lose control of part or most of the body because of illness or injury
	The problem defied a solution. difficult to manage or control; stubborn or obstinate
	He was known to be very and would often work late into the night hardworking, diligent, and persistent in effort
6. n.	The feathers glistened in the sunlight. a large waterbird with a long neck, bill, and webbed feet; known for their elegant and graceful appearance
7.	The construction project experienced a due to a shortage of building materials.
n.	a delay or interruption, often caused by a problem or obstacle; a robbery or theft, often involving the use of weapons
	SWERS: 1. maze, 2. constrained, 3. paralysis, 4. intractable, 5. industrious, 6. an's, 7. holdup

ANSWERS: 15. standstill, 16. nitrogenase, 17. defy, 18. startling, 19. fuse, 20. onboard, 21. hurdles

22.	The child was learning how to use an in her math class.
n.	a counting device consisting of a frame with rods or wires on which beads or stones are moved to perform arithmetic calculations
23.	I can't he'd want to harm us.
<i>v</i> .	to have or develop an idea, a plan, etc. in mind; to become pregnant
24.	The sudden, drop in temperature caught everyone off guard.
adj	extremely steep or rapid; hasty or impulsive, often with negative consequences; (of science) relating to or characterized by rapid, abrupt changes
25.	This ore emits quantities of radiation
adj	extremely small; tiny
26.	The of the fishing net was making it difficult for the whales to swim.
n.	involvement in a complicated or difficult situation; a tangled mass
27.	They fear a of a new type of virus.
n.	an outbreak of a disease that affects many people over a very wide area
28.	Considering the situation of organized stopped this year's beer festival.
n.	a large family of viruses that can cause illness in humans and animals, which name comes from the crown-like spikes on the surface of the virus, which can be seen under a microscope, and COVID-19 is caused by a specific type of coronavirus known as SARS-CoV-2
29.	China has developed one of the world's fastest for its space program.
n.	a computer with a high level of computing power and speed, typically used for scientific or engineering computations that require immense amounts of data processing
	SWERS: 22. abacus, 23. conceive, 24. precipitous, 25. minuscule, 26. anglement, 27. pandemic, 28. coronavirus, 29. supercomputers

ANSWERS: 30. electrostatic, 31. physicist, 32. reverted, 33. discreet, 34. causation, 35. ammonia, 36. probabilistic, 37. deterministic

Vocab-Builder Ref from "Matt Langione: The promise of quantur	m computers TED Talk" (37 words)	
ANSWERS:		
ANSWERS.		