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Vocabulary Builder Reference from...

Paul Rothemund: DNA folding, in detail | TED Talk
https://www.ted.com/talks/paul_rothemund_dna_folding_in_detail

Advanced Words Only

IMPORTANT

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Session 1: Word List

vigorously

adv. in a way that is very energetic and enthusiastic

synonym: energetically, forcefully, strongly

(1) **vigorously** shake, (2) mix **vigorously** by hand

He **vigorously** scrubbed the stains on the shirt.

fabricate

v. to make something, especially by assembling parts or constructing it from raw materials; to invent and present something false as true or real to deceive someone

synonym: manufacture, assemble, falsify

(1) **fabricate** a chemical, (2) **fabricate** an excuse

The detective discovered that the witness had **fabricated** her story about the crime.

artifact

n. a person-made object, especially one of historical or cultural interest

synonym: antique, relic, heirloom

(1) paleolithic **artifacts**, (2) Peruvian **artifacts**

The museum has a vast collection of Greek **artifacts**.

ventral

adj. relating to or situated on or toward the belly or underside of an animal or organ; opposite of dorsal

synonym: abdominal, ventricose, stomachal

(1) **ventral** fin, (2) **ventral** hernia

The **ventral** side of the fish was beautifully colored.

hallmark

n. 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.

amplify

v. to enhance something, particularly sound or brightness

synonym: intensify, boost, argument

(1) **amplify** a signal, (2) **amplify** the effect

You might need to **amplify** this point.

biomolecule

n. a molecule produced by a living organism, typically composed of carbon, hydrogen, oxygen, nitrogen, and other elements, plays a vital role in various biological processes such as metabolism, energy production, and genetic information transfer

synonym: biochemical, molecule, protein

(1) **biomolecule** structure, (2) protein **biomolecule**

DNA is a complex **biomolecule** that contains the genetic information of an organism.

girder

n. a large, horizontal, and structural beam, typically made of steel or concrete, that is used to support and reinforce a bridge, building, or other construction by providing strength and stability

synonym: beam, support, brace

(1) concrete **girders**, (2) support **girder**

The construction workers carefully placed the steel **girder** onto the building frame.

zealot

n. a person who has extreme opinions about something, especially religion or politics

synonym: enthusiast, crusader, extremist

(1) religious **zealot**, (2) militant **zealot**

The recent presidential elections caused a great deal of

excitement among political **zealots**.

synthesizer

n. an electronic musical instrument that generates audio signals and is used to create a wide range of sounds, from imitations of traditional instruments to entirely new sounds

synonym: sampler, sequencer, module

(1) **synthesizer** bass, (2) music **synthesizer**

The electronic **synthesizer** created a range of unique sounds for the music.

electrochemistry

n. the branch of physical chemistry concerned with the relations between electrical and chemical phenomena

(1) **electrochemistry** device, (2) **electrochemistry** element

Many electric vehicle companies now employ **electrochemistry** capacitors for circuits.

microorganism

n. a very small living thing that may exist in its single-celled form or as a colony of cells and is too small to be seen without a microscope

synonym: germ, microbe, bacterium

(1) pathogenic **microorganism**, (2) **microorganisms** in his gut

This **microorganism** is a producer of respiratory disease.

writ

n. a written legal order or command

synonym: legal document, order, legal process

(1) a **writ** of summons, (2) issue a **writ**

He was served with a **writ** of eviction, giving him the notice to vacate the property.

helix

n. a three-dimensional spiral shape or structure, particularly like that of a spring or a DNA molecule

synonym: coil, spiral, twist

(1) **helix** structure, (2) alpha **helix**

The DNA molecule is shaped like a double **helix**.

synthesize

v. to combine a substance to make a more complex product or compound

synonym: incorporate, amalgamate

(1) **synthesize** molecules, (2) **synthesize** information

The spider can **synthesize** multiple different silk proteins.

descendant

n. children or offspring of a specific person, plant, or animal

synonym: child, offspring, heir

(1) **descendant** of a pioneer, (2) third-generation

descendant

Those warriors' **descendants** are still skilled archers.

origami

n. the Japanese art or practice of folding paper into decorative shapes and figures

synonym: paper folding, paper art

(1) **origami** paper, (2) **origami** art

I love making **origami** cranes during my free time.

intestine

n. a long, tube-like organ in the digestive system that is responsible for absorbing nutrients from food and eliminating waste products

synonym: gut, bowel, tract

(1) large **intestine**, (2) **intestine** wall

The small **intestine** is responsible for absorbing most of the nutrients from food.

infect

v. to affect a person, an animal, or a plant with a disease-causing organism

synonym: pollute, contaminate, affect

(1) **infect** other animal species, (2) **infect** a computer with a virus

Children often **infect** parents with this head cold.

staple

adj. essential, crucial, or regularly used

synonym: essential, fundamental, pivotal

(1) **staple** commodities, (2) **staple** crop

Rice and beans are a **staple** food in many cultures.

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.

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.

nanoscale

adj. on a scale that can be measured in nanometres (= one billionth of a meter); on a very small scale

(1) **nanoscale** device, (2) things at the **nanoscale**

This process improves the strength of the metal by controlling the **nanoscale** lattice structure of the metal.

rendition

n. a performance or interpretation, often of a piece of music or artwork; a version or translation of something into another language or style; the act of surrendering someone to another country for interrogation or punishment

synonym: interpretation, performance, presentation

(1) **rendition** of judgment, (2) film **rendition**

The singer gave a beautiful **rendition** of the classic song during the concert.

leash

n. a long, flexible cord or chain used to restrain or control a dog (or other animals); a figurative tool used to control or limit someone's behavior or actions

synonym: tether, lead, restraint

(1) dog **leash**, (2) walk on a **leash**

Make sure to put the **leash** on your dog before walking.

nanotube

n. a tube-shaped structure that is composed of very small particles, typically with a diameter of a few nanometers; nanotubes are used in a variety of applications, including electronics and materials science

(1) **nanotube** technology, (2) metallic **nanotube**

Carbon **nanotubes** are used in various fields of science and technology due to their unique properties.

checkerboard

n. a board having 64 squares of two alternating black and white colors used for playing draughts, also known as checker

synonym: check, plaid, patchwork

(1) **checkerboard** pattern, (2) **checkerboard** frame

This historic city is famous for its **checkerboard** streets.

numb

adj. unable to feel physical sensation and movement; not showing human feeling or sensitivity

synonym: dazed, insensitive, emotionless

(1) **numb** with cold, (2) a **numb** mind

My left arm became **numb**.

reprogram

v. to modify or recreate a program

synonym: recreate, modify, revamp

(1) **reprogram** a device, (2) **reprogram** a database

He **reprogrammed** the computer's operating system to remove the safeguard.

recapitulate

v. to summarize or repeat the main points of something

synonym: summarize, repeat, restate

(1) **recapitulate** briefly, (2) **recapitulate** a speech

He **recapitulated** the main points of the meeting for those who had not been able to attend.

affix

v. to attach or add something to something else

synonym: attach, paste, stick

(1) **affix** a label, (2) **affix** a seal to a document
She **affixed** a stamp to the letter before mailing it.

multiplex

n. a cinema complex with several screens or theaters showing different films at the same time; an electronic device that allows several signals to be transmitted or processed simultaneously through a single channel; (adjective) relating to or consisting of multiple interconnected parts or elements

synonym: multiplexer, complex, cinema

(1) **multiplex** telegraphy, (2) **multiplex** DNA analysis
The new **multiplex** cinema has 12 screens showing the latest movies.

gadget

n. a small tool or device that is useful for a particular job

synonym: appliance, gimmick, device

(1) a handy **gadget**, (2) time-saving **gadget**
I found the kitchen **gadget** that will serve as a bottle opener in the store.

Session 2: Spelling

1. things at the na_____le
adj. on a scale that can be measured in nanometres (= one billionth of a meter); on a very small scale
2. large in_____ne
n. a long, tube-like organ in the digestive system that is responsible for absorbing nutrients from food and eliminating waste products
3. mix vig_____ly by hand
adv. in a way that is very energetic and enthusiastic
4. or_____i art
n. the Japanese art or practice of folding paper into decorative shapes and figures
5. syn_____ze molecules
v. to combine a substance to make a more complex product or compound
6. ele_____try device
n. the branch of physical chemistry concerned with the relations between electrical and chemical phenomena
7. che_____ard frame
n. a board having 64 squares of two alternating black and white colors used for playing draughts, also known as checker
8. vi_____ze data
v. to form a mental image or concept of something; to make something visible
9. syn_____er bass
n. an electronic musical instrument that generates audio signals and is used to create a wide range of sounds, from imitations of traditional instruments to entirely new sounds

ANSWERS: 1. nanoscale, 2. intestine, 3. vigorously, 4. origami, 5. synthesize, 6. electrochemistry, 7. checkerboard, 8. visualize, 9. synthesizer

10. in_____ne wall *n.* a long, tube-like organ in the digestive system that is responsible for absorbing nutrients from food and eliminating waste products
11. paleolithic ar_____cts *n.* a person-made object, especially one of historical or cultural interest
12. rec_____ate a speech *v.* to summarize or repeat the main points of something
13. ve_____l fin *adj.* relating to or situated on or toward the belly or underside of an animal or organ; opposite of dorsal
14. vi_____ze flying through space *v.* to form a mental image or concept of something; to make something visible
15. am_____y a signal *v.* to enhance something, particularly sound or brightness
16. che_____ard pattern *n.* a board having 64 squares of two alternating black and white colors used for playing draughts, also known as checker
17. re_____am a database *v.* to modify or recreate a program
18. militant ze____t *n.* a person who has extreme opinions about something, especially religion or politics
19. des_____nt of a pioneer *n.* children or offspring of a specific person, plant, or animal
20. walk on a le__h *n.* a long, flexible cord or chain used to restrain or control a dog (or other animals); a figurative tool used to control or limit someone's behavior or actions

ANSWERS: 10. intestine, 11. artifact, 12. recapitulate, 13. ventral, 14. visualize, 15. amplify, 16. checkerboard, 17. reprogram, 18. zealot, 19. descendant, 20. leash

21. mu_____ex telegraphy *n.* a cinema complex with several screens or theaters showing different films at the same time; an electronic device that allows several signals to be transmitted or processed simultaneously through a single channel; (adjective) relating to or consisting of multiple interconnected parts or elements
22. in___t a computer with a virus *v.* to affect a person, an animal, or a plant with a disease-causing organism
23. Peruvian ar_____cts *n.* a person-made object, especially one of historical or cultural interest
24. alpha he__x *n.* a three-dimensional spiral shape or structure, particularly like that of a spring or a DNA molecule
25. in___t other animal species *v.* to affect a person, an animal, or a plant with a disease-causing organism
26. rec_____ate briefly *v.* to summarize or repeat the main points of something
27. re_____am a device *v.* to modify or recreate a program
28. fa_____te an excuse *v.* to make something, especially by assembling parts or constructing it from raw materials; to invent and present something false as true or real to deceive someone
29. na_____be technology *n.* a tube-shaped structure that is composed of very small particles, typically with a diameter of a few nanometers; nanotubes are used in a variety of applications, including electronics and materials science

ANSWERS: 21. multiplex, 22. infect, 23. artifact, 24. helix, 25. infect, 26. recapitulate, 27. reprogram, 28. fabricate, 29. nanotube

30. ve_____l hernia *adj.* relating to or situated on or toward the belly or underside of an animal or organ; opposite of dorsal
31. ele_____try element *n.* the branch of physical chemistry concerned with the relations between electrical and chemical phenomena
32. mic_____isms in his gut *n.* a very small living thing that may exist in its single-celled form or as a colony of cells and is too small to be seen without a microscope
33. fa_____te a chemical *v.* to make something, especially by assembling parts or constructing it from raw materials; to invent and present something false as true or real to deceive someone
34. re_____le box *n.* a four-sided geometric shape with four right angles, where opposite sides are parallel and of equal length
35. metallic na_____be *n.* a tube-shaped structure that is composed of very small particles, typically with a diameter of a few nanometers; nanotubes are used in a variety of applications, including electronics and materials science
36. the ha_____rk of modern life *n.* a distinctive characteristic or attribute of a person or thing
37. the ha_____rk of a good scientist *n.* a distinctive characteristic or attribute of a person or thing
38. pathogenic mic_____ism *n.* a very small living thing that may exist in its single-celled form or as a colony of cells and is too small to be seen without a microscope

ANSWERS: 30. ventral, 31. electrochemistry, 32. microorganism, 33. fabricate, 34. rectangle, 35. nanotube, 36. hallmark, 37. hallmark, 38. microorganism

39. third-generation des_____nt *n.* children or offspring of a specific person, plant, or animal
40. af__x a label *v.* to attach or add something to something else
41. vig_____ly shake *adv.* in a way that is very energetic and enthusiastic
42. support gi____r *n.* a large, horizontal, and structural beam, typically made of steel or concrete, that is used to support and reinforce a bridge, building, or other construction by providing strength and stability
43. st___e commodities *adj.* essential, crucial, or regularly used
44. syn_____ze information *v.* to combine a substance to make a more complex product or compound
45. religious ze____t *n.* a person who has extreme opinions about something, especially religion or politics
46. am_____y the effect *v.* to enhance something, particularly sound or brightness
47. orthogonal re_____le *n.* a four-sided geometric shape with four right angles, where opposite sides are parallel and of equal length
48. bio_____le structure *n.* a molecule produced by a living organism, typically composed of carbon, hydrogen, oxygen, nitrogen, and other elements, plays a vital role in various biological processes such as metabolism, energy production, and genetic information transfer

ANSWERS: 39. descendant, 40. affix, 41. vigorously, 42. girder, 43. staple, 44. synthesize, 45. zealot, 46. amplify, 47. rectangle, 48. biomolecule

49. dog le__h *n.* a long, flexible cord or chain used to restrain or control a dog (or other animals); a figurative tool used to control or limit someone's behavior or actions
50. af__x a seal to a document *v.* to attach or add something to something else
51. protein bio_____le *n.* a molecule produced by a living organism, typically composed of carbon, hydrogen, oxygen, nitrogen, and other elements, plays a vital role in various biological processes such as metabolism, energy production, and genetic information transfer
52. time-saving ga____t *n.* a small tool or device that is useful for a particular job
53. a w__t of summons *n.* a written legal order or command
54. he__x structure *n.* a three-dimensional spiral shape or structure, particularly like that of a spring or a DNA molecule
55. st___e crop *adj.* essential, crucial, or regularly used
56. n__b with cold *adj.* unable to feel physical sensation and movement; not showing human feeling or sensitivity
57. na_____le device *adj.* on a scale that can be measured in nanometres (= one billionth of a meter); on a very small scale
58. music syn_____er *n.* an electronic musical instrument that generates audio signals and is used to create a wide range of sounds, from imitations of traditional instruments to entirely new sounds

ANSWERS: 49. leash, 50. affix, 51. biomolecule, 52. gadget, 53. writ, 54. helix, 55. staple, 56. numb, 57. nanoscale, 58. synthesizer

59. or____i paper *n.* the Japanese art or practice of folding paper into decorative shapes and figures
60. a n__b mind *adj.* unable to feel physical sensation and movement; not showing human feeling or sensitivity
61. mu_____ex DNA analysis *n.* a cinema complex with several screens or theaters showing different films at the same time; an electronic device that allows several signals to be transmitted or processed simultaneously through a single channel; (adjective) relating to or consisting of multiple interconnected parts or elements
62. re_____on of judgment *n.* a performance or interpretation, often of a piece of music or artwork; a version or translation of something into another language or style; the act of surrendering someone to another country for interrogation or punishment
63. issue a w__t *n.* a written legal order or command
64. concrete gi___rs *n.* a large, horizontal, and structural beam, typically made of steel or concrete, that is used to support and reinforce a bridge, building, or other construction by providing strength and stability
65. film re_____on *n.* a performance or interpretation, often of a piece of music or artwork; a version or translation of something into another language or style; the act of surrendering someone to another country for interrogation or punishment

ANSWERS: 59. origami, 60. numb, 61. multiplex, 62. rendition, 63. writ, 64. girder, 65. rendition

66. a handy ga___t

n. a small tool or device that is useful for a particular job

ANSWERS: 66. gadget

Session 3: Fill in the Blanks

1. Make sure to put the _____ on your dog before walking.
n. a long, flexible cord or chain used to restrain or control a dog (or other animals); a figurative tool used to control or limit someone's behavior or actions

2. I found the kitchen _____ that will serve as a bottle opener in the store.
n. a small tool or device that is useful for a particular job

3. The _____ side of the fish was beautifully colored.
adj. relating to or situated on or toward the belly or underside of an animal or organ; opposite of dorsal

4. My left arm became _____.
adj. unable to feel physical sensation and movement; not showing human feeling or sensitivity

5. 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

6. The construction workers carefully placed the steel _____ onto the building frame.
n. a large, horizontal, and structural beam, typically made of steel or concrete, that is used to support and reinforce a bridge, building, or other construction by providing strength and stability

7. She _____ a stamp to the letter before mailing it.
v. to attach or add something to something else

ANSWERS: 1. leash, 2. gadget, 3. ventral, 4. numb, 5. visualize, 6. girder, 7. affixed

8. 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
9. This _____ is a producer of respiratory disease.
n. a very small living thing that may exist in its single-celled form or as a colony of cells and is too small to be seen without a microscope
10. The new _____ cinema has 12 screens showing the latest movies.
n. a cinema complex with several screens or theaters showing different films at the same time; an electronic device that allows several signals to be transmitted or processed simultaneously through a single channel; (adjective) relating to or consisting of multiple interconnected parts or elements
11. DNA is a complex _____ that contains the genetic information of an organism.
n. a molecule produced by a living organism, typically composed of carbon, hydrogen, oxygen, nitrogen, and other elements, plays a vital role in various biological processes such as metabolism, energy production, and genetic information transfer
12. This process improves the strength of the metal by controlling the _____ lattice structure of the metal.
adj. on a scale that can be measured in nanometres (= one billionth of a meter); on a very small scale
13. He _____ the computer's operating system to remove the safeguard.
v. to modify or recreate a program
14. The museum has a vast collection of Greek _____.
n. a person-made object, especially one of historical or cultural interest

ANSWERS: 8. rectangle-shaped, 9. microorganism, 10. multiplex, 11. biomolecule, 12. nanoscale, 13. reprogrammed, 14. artifacts

15. You might need to _____ this point.
- v.* to enhance something, particularly sound or brightness
16. The singer gave a beautiful _____ of the classic song during the concert.
- n.* a performance or interpretation, often of a piece of music or artwork; a version or translation of something into another language or style; the act of surrendering someone to another country for interrogation or punishment
17. The detective discovered that the witness had _____ her story about the crime.
- v.* to make something, especially by assembling parts or constructing it from raw materials; to invent and present something false as true or real to deceive someone
18. He was served with a _____ of eviction, giving him the notice to vacate the property.
- n.* a written legal order or command
19. The electronic _____ created a range of unique sounds for the music.
- n.* an electronic musical instrument that generates audio signals and is used to create a wide range of sounds, from imitations of traditional instruments to entirely new sounds
20. He _____ scrubbed the stains on the shirt.
- adv.* in a way that is very energetic and enthusiastic
21. The recent presidential elections caused a great deal of excitement among political _____.
- n.* a person who has extreme opinions about something, especially religion or politics

ANSWERS: 15. amplify, 16. rendition, 17. fabricated, 18. writ, 19. synthesizer, 20. vigorously, 21. zealots

22. Children often _____ parents with this head cold.
v. to affect a person, an animal, or a plant with a disease-causing organism
23. The spider can _____ multiple different silk proteins.
v. to combine a substance to make a more complex product or compound
24. A clear and simple expression is the _____ of good writing.
n. a distinctive characteristic or attribute of a person or thing
25. Carbon _____ are used in various fields of science and technology due to their unique properties.
n. a tube-shaped structure that is composed of very small particles, typically with a diameter of a few nanometers; nanotubes are used in a variety of applications, including electronics and materials science
26. Rice and beans are a _____ food in many cultures.
adj. essential, crucial, or regularly used
27. I love making _____ cranes during my free time.
n. the Japanese art or practice of folding paper into decorative shapes and figures
28. This historic city is famous for its _____ streets.
n. a board having 64 squares of two alternating black and white colors used for playing draughts, also known as checker
29. The DNA molecule is shaped like a double _____.
n. a three-dimensional spiral shape or structure, particularly like that of a spring or a DNA molecule

ANSWERS: 22. infect, 23. synthesize, 24. hallmark, 25. nanotubes, 26. staple, 27. origami, 28. checkerboard, 29. helix

30. Those warriors' _____ are still skilled archers.

n. children or offspring of a specific person, plant, or animal

31. The small _____ is responsible for absorbing most of the nutrients from food.

n. a long, tube-like organ in the digestive system that is responsible for absorbing nutrients from food and eliminating waste products

32. Many electric vehicle companies now employ _____ capacitors for circuits.

n. the branch of physical chemistry concerned with the relations between electrical and chemical phenomena

33. He _____ the main points of the meeting for those who had not been able to attend.

v. to summarize or repeat the main points of something

ANSWERS: 30. descendants, 31. intestine, 32. electrochemistry, 33. recapitulated