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Vocabulary Builder Reference from...

Karen Willcox: How "digital twins" could help us predict the future | TED Talk

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

Advanced Words Only

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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**.

marvel

n. someone something that causes feelings of wonder or surprise

synonym: wonder, phenomenon, amazement

(1) a **marvel** of beauty, (2) technical **marvel**

The space shuttle is a modern engineering **marvel**.

personalize

v. to make something or an experience specific to an individual or group, often through adding personal details or tailoring it to their preferences or needs; to add personal details or information to something

synonym: customize, individualize, tailor

(1) **personalize** social media profile, (2) **personalize** my workspace

I like to **personalize** my phone case with a picture of my dog.

machine-learning

n. the process through which computers change the way they perform jobs without following explicit instructions

by using algorithms and statistical models to analyze and draw inferences from patterns in data

(1) **machine-learning** method, (2) **machine-learning** processor

Many software engineers are developing applications to build **machine-learning** algorithms more quickly.

classify

v. to categorize or group something according to a system or set of criteria; to assign something to a particular class or category based on its characteristics or properties

synonym: categorize, sort, arrange

(1) **classify** images, (2) **classify** emails into folders

I need to **classify** these documents for the upcoming audit.

circadian

adj. relating to a physiological cycle that lasts approximately 24 hours, impacting physical and behavioral changes that occur over the course of a day, such as sleep-wake cycles or fluctuations in hormones

synonym: daily, diurnal, day-to-day

(1) **circadian** clock, (2) **circadian** disruption

Having a consistent sleep schedule is important for maintaining a healthy **circadian** rhythm.

assimilate

v. to take in and understand information or ideas; to integrate

synonym: absorb, incorporate, integrate

(1) **assimilate** into society, (2) **assimilate** a language

The immigrant struggled to **assimilate** into the new culture.

unmanned

adj. not having a human crew or operator, as in unmanned aerial vehicles (UAVs) or unmanned spacecraft

synonym: uncrewed, automated, robotized

(1) an **unmanned** stop, (2) **unmanned** drone

The **unmanned** spacecraft landed on the asteroid.

takeoff

n. a departure, especially of airplanes; the initial ascent of an airplane as it becomes airborne

synonym : leaving, departure, liftoff

(1) vertical **takeoff**, (2) **takeoff** run

Our aircraft is now ready for **takeoff**.

degrade

v. to make something worse, especially in quality; to show or treat someone in a way that makes them seem no value and do not have the respect or reasonable opinion of others

synonym : demean, disgrace, impair

(1) **degrade** his public image, (2) **degrade** environmental quality

You should not **degrade** yourself by allowing them to use you.

drone

n. a low continuous humming noise; someone who takes more time than necessary; a pilot-less aerial vehicle that is operated by remote control

synonym : hum, whirr, idler

(1) **drone** flight, (2) the speaker's **drone**

He heard a **drone** of sirens roar from the neighboring town.

malfunction

v. to fail to operate or work properly; to break down or stop functioning as expected or intended; (noun) a failure or defect in the way a machine, system, or device is supposed to operate

synonym : malfunction, break down, fail

(1) **malfunction** alarm, (2) **malfunction** and start moving unpredictably

The car's engine **malfunctioned** on the highway, so we had to call for a tow truck.

astronaut

n. a person trained by a space agency to travel outside the Earth's atmosphere

synonym : spaceman, cosmonaut

(1) **astronaut** mission, (2) **astronaut** in training

The shuttle **astronaut** trained for months before embarking on the space mission.

downtime

n. a period of time when a person or system is not active or operating, often due to technical issues or maintenance work

synonym: interruption, break, outage

(1) unexpected **downtime**, (2) system **downtime**

The factory had to schedule **downtime** for maintenance work, causing a temporary shutdown in production

microscopic

adj. tiny; exceedingly precise and detail-oriented; of or used in microscopy

synonym: infinitesimal, tiny, atomic

(1) **microscopic** inquiry, (2) **microscopic** analysis

Inspectors noticed **microscopic** cracks in the submarine's hull.

medicinal

adj. of or relating to the treatment or cure of disease

synonym: curative, therapeutic, healing

(1) **medicinal** chemistry, (2) traditional **medicinal**

The **medicinal** properties of this herb have been known to help with various ailments.

intractable

adj. difficult to manage or control; stubborn or obstinate

synonym: obstinate, stubborn, unyielding

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

The **intractable** problem defied a solution.

supercomputer

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

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.

sparse

adj. only in small quantities or numbers and often spread over a wide area

synonym : scarce, exiguous, infrequent

(1) a **sparse** population, (2) **sparse** snowfall

There is a **sparse** area between galaxies.

infer

v. to form an opinion or conclude that something is true based on existing facts

synonym : guess, deduce, assume

(1) **infer** quality from price, (2) **infer** the possibility

Animal desire and preference are always **inferred** from their behavior.

radiology

n. the branch of medicine that uses medical imaging technologies such as X-rays, CT scans, MRIs, and ultrasound to diagnose and treat diseases and injuries

synonym : medical imaging, radiography, radioscopy

(1) interventional **radiology**, (2) diagnostic **radiology**

The patient underwent a **radiology** scan to diagnose their medical condition.

provoke

v. to stimulate or give rise to a particular reaction or have a particular effect

synonym : stimulate, incite, encourage

(1) **provoke** a disease, (2) **provoke** a reaction

Her behavior **provoked** a quarrel between the couple.

excite

v. to make someone feel suddenly enthusiastic or eager

synonym : thrill, exhilarate, animate

(1) **excite** the crowd, (2) **excite** rebellion

The news of her promotion **excited** her.

gulf

n. a large ocean inlet or deep bay that is partially enclosed by land

synonym : chasm, divide, abyss

(1) **gulf** war, (2) **gulf** stream

The **Gulf** of Mexico is a body of water in the southern United States.

biomedical

adj. relating to the application of the natural sciences, especially biology, and physiology, to clinical medicine and healthcare

synonym : medical, clinical, health-related

(1) **biomedical** assay, (2) cutting-edge **biomedical**

Biomedical engineering focuses on developing new medical technologies and innovations to improve patient health outcomes.

Session 2: Spelling

1. mac_____ing method *n.* the process through which computers change the way they perform jobs without following explicit instructions by using algorithms and statistical models to analyze and draw inferences from patterns in data

2. g__f war *n.* a large ocean inlet or deep bay that is partially enclosed by land

3. ass_____te a language *v.* to take in and understand information or ideas; to integrate

4. sp___e snowfall *adj.* only in small quantities or numbers and often spread over a wide area

5. ci_____an disruption *adj.* relating to a physiological cycle that lasts approximately 24 hours, impacting physical and behavioral changes that occur over the course of a day, such as sleep-wake cycles or fluctuations in hormones

6. ex___e the crowd *v.* to make someone feel suddenly enthusiastic or eager

7. cutting-edge bio_____al *adj.* relating to the application of the natural sciences, especially biology, and physiology, to clinical medicine and healthcare

8. the speaker's dr__e *n.* a low continuous humming noise; someone who takes more time than necessary; a pilot-less aerial vehicle that is operated by remote control

ANSWERS: 1. machine-learning, 2. gulf, 3. assimilate, 4. sparse, 5. circadian, 6. excite, 7. biomedical, 8. drone

9. ex___e rebellion *v.* to make someone feel suddenly enthusiastic or eager
10. pr_____e a disease *v.* to stimulate or give rise to a particular reaction or have a particular effect
11. mic_____ic inquiry *adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy
12. mac_____ing processor *n.* the process through which computers change the way they perform jobs without following explicit instructions by using algorithms and statistical models to analyze and draw inferences from patterns in data
13. as_____ut in training *n.* a person trained by a space agency to travel outside the Earth's atmosphere
14. per_____ze my workspace *v.* to make something or an experience specific to an individual or group, often through adding personal details or tailoring it to their preferences or needs; to add personal details or information to something
15. ass_____te into society *v.* to take in and understand information or ideas; to integrate
16. me_____al chemistry *adj.* of or relating to the treatment or cure of disease
17. sup_____ter 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

ANSWERS: 9. excite, 10. provoke, 11. microscopic, 12. machine-learning, 13. astronaut, 14. personalize, 15. assimilate, 16. medicinal, 17. supercomputer

18. sup_____ter 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
19. technical ma____l *n.* someone something that causes feelings of wonder or surprise
20. in__r the possibility *v.* to form an opinion or conclude that something is true based on existing facts
21. vertical ta_____f *n.* a departure, especially of airplanes; the initial ascent of an airplane as it becomes airborne
22. cl_____fy emails into folders *v.* to categorize or group something according to a system or set of criteria; to assign something to a particular class or category based on its characteristics or properties
23. a ma____l of beauty *n.* someone something that causes feelings of wonder or surprise
24. bio_____al assay *adj.* relating to the application of the natural sciences, especially biology, and physiology, to clinical medicine and healthcare
25. a sp____e population *adj.* only in small quantities or numbers and often spread over a wide area
26. an un_____ed stop *adj.* not having a human crew or operator, as in unmanned aerial vehicles (UAVs) or unmanned spacecraft

ANSWERS: 18. supercomputer, 19. marvel, 20. infer, 21. takeoff, 22. classify, 23. marvel, 24. biomedical, 25. sparse, 26. unmanned

27. per_____ze social media profile *v.* to make something or an experience specific to an individual or group, often through adding personal details or tailoring it to their preferences or needs; to add personal details or information to something
28. dr__e flight *n.* a low continuous humming noise; someone who takes more time than necessary; a pilot-less aerial vehicle that is operated by remote control
29. as_____ut mission *n.* a person trained by a space agency to travel outside the Earth's atmosphere
30. g__f stream *n.* a large ocean inlet or deep bay that is partially enclosed by land
31. sma_____ne addict *n.* a mobile phone that functions as a computer and connects to the Internet
32. cl_____fy images *v.* to categorize or group something according to a system or set of criteria; to assign something to a particular class or category based on its characteristics or properties
33. mal_____on alarm *v.* to fail to operate or work properly; to break down or stop functioning as expected or intended; (noun) a failure or defect in the way a machine, system, or device is supposed to operate
34. in__r quality from price *v.* to form an opinion or conclude that something is true based on existing facts
35. unexpected do_____me *n.* a period of time when a person or system is not active or operating, often due to technical issues or maintenance work

ANSWERS: 27. personalize, 28. drone, 29. astronaut, 30. gulf, 31. smartphone, 32. classify, 33. malfunction, 34. infer, 35. downtime

36. system do_____me *n.* a period of time when a person or system is not active or operating, often due to technical issues or maintenance work
37. ci_____an clock *adj.* relating to a physiological cycle that lasts approximately 24 hours, impacting physical and behavioral changes that occur over the course of a day, such as sleep-wake cycles or fluctuations in hormones
38. diagnostic ra_____gy *n.* the branch of medicine that uses medical imaging technologies such as X-rays, CT scans, MRIs, and ultrasound to diagnose and treat diseases and injuries
39. int_____le situation *adj.* difficult to manage or control; stubborn or obstinate
40. interventional ra_____gy *n.* the branch of medicine that uses medical imaging technologies such as X-rays, CT scans, MRIs, and ultrasound to diagnose and treat diseases and injuries
41. int_____le pain *adj.* difficult to manage or control; stubborn or obstinate
42. un_____ed drone *adj.* not having a human crew or operator, as in unmanned aerial vehicles (UAVs) or unmanned spacecraft
43. mic_____ic analysis *adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy
44. sma_____ne app developer *n.* a mobile phone that functions as a computer and connects to the Internet

ANSWERS: 36. downtime, 37. circadian, 38. radiology, 39. intractable, 40. radiology, 41. intractable, 42. unmanned, 43. microscopic, 44. smartphone

45. de_____e environmental quality *v.* to make something worse, especially in quality; to show or treat someone in a way that makes them seem no value and do not have the respect or reasonable opinion of others
46. traditional me_____al *adj.* of or relating to the treatment or cure of disease
47. pr_____e a reaction *v.* to stimulate or give rise to a particular reaction or have a particular effect
48. ta_____f run *n.* a departure, especially of airplanes; the initial ascent of an airplane as it becomes airborne
49. de_____e his public image *v.* to make something worse, especially in quality; to show or treat someone in a way that makes them seem no value and do not have the respect or reasonable opinion of others
50. mal_____on and start moving unpredictably *v.* to fail to operate or work properly; to break down or stop functioning as expected or intended; (noun) a failure or defect in the way a machine, system, or device is supposed to operate

ANSWERS: 45. degrade, 46. medicinal, 47. provoke, 48. takeoff, 49. degrade, 50. malfunction

Session 3: Fill in the Blanks

1. Her behavior _____ a quarrel between the couple.
v. to stimulate or give rise to a particular reaction or have a particular effect
2. You should not _____ yourself by allowing them to use you.
v. to make something worse, especially in quality; to show or treat someone in a way that makes them seem no value and do not have the respect or reasonable opinion of others
3. I like to _____ my phone case with a picture of my dog.
v. to make something or an experience specific to an individual or group, often through adding personal details or tailoring it to their preferences or needs; to add personal details or information to something
4. He heard a _____ of sirens roar from the neighboring town.
n. a low continuous humming noise; someone who takes more time than necessary; a pilot-less aerial vehicle that is operated by remote control
5. Internet traffic volumes have increased significantly with the advent of _____.
n. a mobile phone that functions as a computer and connects to the Internet
6. The _____ spacecraft landed on the asteroid.
adj. not having a human crew or operator, as in unmanned aerial vehicles (UAVs) or unmanned spacecraft
7. The _____ properties of this herb have been known to help with various ailments.
adj. of or relating to the treatment or cure of disease

ANSWERS: 1. provoked, 2. degrade, 3. personalize, 4. drone, 5. smartphones, 6. unmanned, 7. medicinal

8. There is a _____ area between galaxies.
adj. only in small quantities or numbers and often spread over a wide area
9. The patient underwent a _____ scan to diagnose their medical condition.
n. the branch of medicine that uses medical imaging technologies such as X-rays, CT scans, MRIs, and ultrasound to diagnose and treat diseases and injuries
10. 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
11. I need to _____ these documents for the upcoming audit.
v. to categorize or group something according to a system or set of criteria; to assign something to a particular class or category based on its characteristics or properties
12. Having a consistent sleep schedule is important for maintaining a healthy _____ rhythm.
adj. relating to a physiological cycle that lasts approximately 24 hours, impacting physical and behavioral changes that occur over the course of a day, such as sleep-wake cycles or fluctuations in hormones
13. The immigrant struggled to _____ into the new culture.
v. to take in and understand information or ideas; to integrate
14. The space shuttle is a modern engineering _____.
n. someone something that causes feelings of wonder or surprise

ANSWERS: 8. sparse, 9. radiology, 10. supercomputers, 11. classify, 12. circadian, 13. assimilate, 14. marvel

15. The factory had to schedule _____ for maintenance work, causing a temporary shutdown in production
- n.* a period of time when a person or system is not active or operating, often due to technical issues or maintenance work
16. Animal desire and preference are always _____ from their behavior.
- v.* to form an opinion or conclude that something is true based on existing facts
17. The _____ of Mexico is a body of water in the southern United States.
- n.* a large ocean inlet or deep bay that is partially enclosed by land
18. Many software engineers are developing applications to build _____ algorithms more quickly.
- n.* the process through which computers change the way they perform jobs without following explicit instructions by using algorithms and statistical models to analyze and draw inferences from patterns in data
19. Our aircraft is now ready for _____.
- n.* a departure, especially of airplanes; the initial ascent of an airplane as it becomes airborne
20. Inspectors noticed _____ cracks in the submarine's hull.
- adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy
21. The news of her promotion _____ her.
- v.* to make someone feel suddenly enthusiastic or eager
22. The _____ problem defied a solution.
- adj.* difficult to manage or control; stubborn or obstinate

ANSWERS: 15. downtime, 16. inferred, 17. Gulf, 18. machine-learning, 19. takeoff, 20. microscopic, 21. excited, 22. intractable

23. The shuttle _____ trained for months before embarking on the space mission.

n. a person trained by a space agency to travel outside the Earth's atmosphere

24. The car's engine _____ on the highway, so we had to call for a tow truck.

v. to fail to operate or work properly; to break down or stop functioning as expected or intended; (noun) a failure or defect in the way a machine, system, or device is supposed to operate

25. _____ engineering focuses on developing new medical technologies and innovations to improve patient health outcomes.

adj. relating to the application of the natural sciences, especially biology, and physiology, to clinical medicine and healthcare

ANSWERS: 23. astronaut, 24. malfunctioned, 25. Biomedical