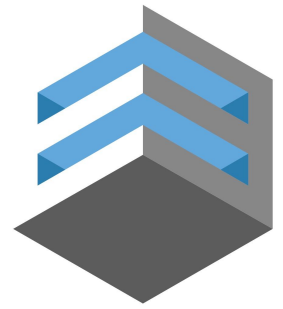


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Vocabulary Builder Reference from...

Jill Seubert: How a miniaturized atomic clock could revolutionize space exploration | TED Talk

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

Advanced Words Only

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Session 1: Word List

bate

v. to lessen the intensity or force of something; to moderate or restrain one's feelings or emotions

synonym: lower, diminish, decrease

(1) **bate** breath, (2) **bate** expectations

I tried to **bate** my fear of heights by gradually climbing higher daily.

descend

v. to move downward and lower; to come from, or to be connected by a relationship of blood

synonym: dip, drop, come down

(1) **descend** a steep hill, (2) **descend** by elevator

She was **descended** from an old Italian noble family.

touchdown

n. (of American football) a scoring play that occurs when the ball is carried, kicked, or fumbled into the opposing team's end zone; the act of touching down or landing, particularly in aviation or spaceflight

synonym: landing, score, goal

(1) **touchdown** pass, (2) **touchdown** celebration

The quarterback scored a **touchdown** in the game's final seconds to win it.

ecstatic

adj. feeling or characterized by intense joy, delight, or enthusiasm

synonym : joyful, thrilled, exultant

(1) **ecstatic** joy, (2) **ecstatic** dance

She was **ecstatic** to receive the news that she had won the lottery.

livestream

n. a real-time video or audio broadcast of an event, performance, or activity that is encoded and distributed over the Internet, usually through dedicated apps or websites, allowing distributed viewers to watch it remotely

synonym : webcast, stream, broadcast

(1) **livestream** tutorial, (2) **livestream** concert

We watched the concert **livestream** since we couldn't attend in person.

telemetry

n. the process of collecting and transmitting data from remote or inaccessible sources using wireless or other communication means, usually for monitoring or control purposes

synonym : data transmission, remote measurement

(1) **telemetry** technology, (2) **telemetry** system

The satellite sends **telemetry** data back to Earth to help scientists study the atmosphere.

intrepid

adj. courageous and not afraid of danger or difficulties

synonym : unfearing, courageous, dauntless

(1) **intrepid** personality, (2) **intrepid** travelers

There were still **intrepid** pioneers who planned to start their businesses

interstellar

adj. relating to or located in the space between stars

synonym : galactic, cosmic, intergalactic

(1) **interstellar** communication, (2) **interstellar** space

The **interstellar** medium comprises gas, dust, and cosmic rays that fill the space between stars.

revolutionize

v. to bring about a complete or radical change in something, often through the introduction of new methods or ideas

synonym: transform, innovate, modernize

(1) **revolutionize** the industry, (2) **revolutionize** the technology

The invention of the smartphone **revolutionized** the way we communicate with each other.

steer

v. to control the direction or movement of a vehicle; to direct a course of action; to guide or motivate someone

synonym: guide, direct, control

(1) **steer** a steady course, (2) **steer** a conversation

The captain told him to **steer** the ship north.

Jovian

adj. relating to Jupiter or its characteristics

synonym: Jupiter, giant planet

(1) **Jovian** satellites, (2) **Jovian** planet

The **Jovian** moon Europa is believed to have an ocean beneath its icy surface.

opportune

adj. suitable or happening at a time that is suitable or convenient for a particular purpose

synonym: suitable, timely, practical

(1) **opportune** occasion, (2) an **opportune** remark

The phone rang at the most **opportune** time.

trajectory

n. the curved path followed by an object moving through space

synonym: course, curve, orbit

(1) career **trajectory**, (2) a **trajectory** missile

The company has shown an excellent growth **trajectory** over the years.

crater

n. a huge bowl-shaped cavity in the earth or an object in space, usually created by an explosion or the impact of a meteorite

synonym : cavity, hole, pit

(1) **crater** lake, (2) lunar **crater**

An enormous **crater** marks the area where the vast volcanic explosion occurred.

imbalance

n. a situation in which two or more things are not equal or equally treated

synonym : inequality, asymmetry, instability

(1) trade **imbalance**, (2) symptoms of hormonal **imbalance**

An **imbalance** in certain substances causes problems with brain function.

revisit

v. to go to a place again, especially after a long period

synonym : reexplore, review, reexamine

(1) **revisit** a place, (2) **revisit** an old friend

We need to **revisit** this proposal as soon as the budget is more apparent than before.

uncharted

adj. not mapped or surveyed; unknown or unexplored; without a clear or definite course of action

synonym : unknown, unexplored, undiscovered

(1) **uncharted** wilderness, (2) **uncharted** waters

The explorer ventured into **uncharted** territory, not knowing what to expect.

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.

robotic

adj. of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots

synonym : automated, mechanical, laborsaving

(1) **robotic** arm, (2) **robotic** guide operation

The surgeon removed the tumor using **robotic** video assistance.

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.

constellation

n. a group of stars that form a recognizable pattern and have a name; a group of related or similar ideas, things, or people

synonym : asterism, array, pattern

(1) the stars of the Scorpion **constellation**, (2) northern **constellation**

Navigators still use the Little Bear **constellation** at sea.

scatter

v. to cause to separate and go in different directions

synonym : disperse, spread, bestrew

(1) **scatter** seeds, (2) **scatter** around the internet

The hunter's approach **scattered** the geese.

subsurface

adj. situated or located beneath the surface of something; existing or occurring within the deeper layers of a material or object, often referring to areas below the Earth's surface

synonym : beneath the surface, underground, subterranean

(1) **subsurface** mining, (2) **subsurface** oil reserves

The **subsurface** layers of the ocean are still largely unexplored.

icy

adj. covered with ice or frost; very cold; lacking warmth or friendliness

synonym : frosty, cold, glacial

(1) **icy** clouds, (2) cast **icy** eyes

The **icy** surface of the pond was not safe for skating.

ripple

n. a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind

synonym: wave, undulation, fluctuation

(1) a **ripple** of laughter, (2) **ripple** in the water

Many businesses felt the **ripple** effect of the economy's decline.

relativism

n. the belief that truth, knowledge, or morality are not absolute or objective but instead relative to the context in which they are perceived or determined

synonym: subjectivism, skepticism

(1) linguistic **relativism**, (2) cultural **relativism**

Moral **relativism** suggests that there is no objective right or wrong.

exoplanet

n. a planet that orbits a star outside of the solar system

(1) the closest **exoplanet** to Earth, (2) **exoplanet** mission

The **exoplanet** Kepler-186f is located 500 light-years from Earth and is believed to be habitable.

Session 2: Spelling

1. as_____ut in training *n.* a person trained by a space agency to travel outside the Earth's atmosphere
2. st__r a conversation *v.* to control the direction or movement of a vehicle; to direct a course of action; to guide or motivate someone
3. linguistic rel_____sm *n.* the belief that truth, knowledge, or morality are not absolute or objective but instead relative to the context in which they are perceived or determined
4. cultural rel_____sm *n.* the belief that truth, knowledge, or morality are not absolute or objective but instead relative to the context in which they are perceived or determined
5. liv_____am concert *n.* a real-time video or audio broadcast of an event, performance, or activity that is encoded and distributed over the Internet, usually through dedicated apps or websites, allowing distributed viewers to watch it remotely
6. un_____ed waters *adj.* not mapped or surveyed; unknown or unexplored; without a clear or definite course of action
7. northern con_____ion *n.* a group of stars that form a recognizable pattern and have a name; a group of related or similar ideas, things, or people
8. an op_____ne remark *adj.* suitable or happening at a time that is suitable or convenient for a particular purpose

ANSWERS: 1. astronaut, 2. steer, 3. relativism, 4. relativism, 5. livestream, 6. uncharted, 7. constellation, 8. opportune

9. cr___r lake *n.* a huge bowl-shaped cavity in the earth or an object in space, usually created by an explosion or the impact of a meteorite
10. sub_____ce mining *adj.* situated or located beneath the surface of something; existing or occurring within the deeper layers of a material or object, often referring to areas below the Earth's surface
11. ri___e in the water *n.* a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind
12. a tra_____ry missile *n.* the curved path followed by an object moving through space
13. career tra_____ry *n.* the curved path followed by an object moving through space
14. ec_____ic dance *adj.* feeling or characterized by intense joy, delight, or enthusiasm
15. on_____d the new employees *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
16. rev_____ize the technology *v.* to bring about a complete or radical change in something, often through the introduction of new methods or ideas
17. de_____d a steep hill *v.* to move downward and lower; to come from, or to be connected by a relationship of blood

ANSWERS: 9. crater, 10. subsurface, 11. ripple, 12. trajectory, 13. trajectory, 14. ecstatic, 15. onboard, 16. revolutionize, 17. descend

18. Jo___n satellites *adj.* relating to Jupiter or its characteristics
19. st__r a steady course *v.* to control the direction or movement of a vehicle; to direct a course of action; to guide or motivate someone
20. sc_____r seeds *v.* to cause to separate and go in different directions
21. int_____lar space *adj.* relating to or located in the space between stars
22. b__e expectations *v.* to lessen the intensity or force of something; to moderate or restrain one's feelings or emotions
23. liv_____am tutorial *n.* a real-time video or audio broadcast of an event, performance, or activity that is encoded and distributed over the Internet, usually through dedicated apps or websites, allowing distributed viewers to watch it remotely
24. un_____ed wilderness *adj.* not mapped or surveyed; unknown or unexplored; without a clear or definite course of action
25. lunar cr___r *n.* a huge bowl-shaped cavity in the earth or an object in space, usually created by an explosion or the impact of a meteorite
26. ro_____c arm *adj.* of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots
27. rev_____ize the industry *v.* to bring about a complete or radical change in something, often through the introduction of new methods or ideas

ANSWERS: 18. Jovian, 19. steer, 20. scatter, 21. interstellar, 22. bate, 23. livestream, 24. uncharted, 25. crater, 26. robotic, 27. revolutionize

28. int_____lar communication *adj.* relating to or located in the space between stars
29. re_____t an old friend *v.* to go to a place again, especially after a long period
30. a ri___e of laughter *n.* a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind
31. b__e breath *v.* to lessen the intensity or force of something; to moderate or restrain one's feelings or emotions
32. on_____d computer *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
33. te_____ry system *n.* the process of collecting and transmitting data from remote or inaccessible sources using wireless or other communication means, usually for monitoring or control purposes
34. de_____d by elevator *v.* to move downward and lower; to come from, or to be connected by a relationship of blood
35. trade im_____ce *n.* a situation in which two or more things are not equal or equally treated
36. op_____ne occasion *adj.* suitable or happening at a time that is suitable or convenient for a particular purpose

ANSWERS: 28. interstellar, 29. revisit, 30. ripple, 31. bate, 32. onboard, 33. telemetry, 34. descend, 35. imbalance, 36. opportune

37. symptoms of hormonal im_____ce *n.* a situation in which two or more things are not equal or equally treated
38. to_____wn pass *n.* (of American football) a scoring play that occurs when the ball is carried, kicked, or fumbled into the opposing team's end zone; the act of touching down or landing, particularly in aviation or spaceflight
39. sub_____ce oil reserves *adj.* situated or located beneath the surface of something; existing or occurring within the deeper layers of a material or object, often referring to areas below the Earth's surface
40. cast i_y eyes *adj.* covered with ice or frost; very cold; lacking warmth or friendliness
41. the closest ex_____et to Earth *n.* a planet that orbits a star outside of the solar system
42. Jo____n planet *adj.* relating to Jupiter or its characteristics
43. re_____t a place *v.* to go to a place again, especially after a long period
44. in_____id travelers *adj.* courageous and not afraid of danger or difficulties
45. to_____wn celebration *n.* (of American football) a scoring play that occurs when the ball is carried, kicked, or fumbled into the opposing team's end zone; the act of touching down or landing, particularly in aviation or spaceflight
46. ex_____et mission *n.* a planet that orbits a star outside of the solar system

ANSWERS: 37. imbalance, 38. touchdown, 39. subsurface, 40. icy, 41. exoplanet, 42. Jovian, 43. revisit, 44. intrepid, 45. touchdown, 46. exoplanet

47. ro____c guide operation *adj.* of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots
48. the stars of the Scorpion
con_____ion *n.* a group of stars that form a recognizable pattern and have a name; a group of related or similar ideas, things, or people
49. as_____ut mission *n.* a person trained by a space agency to travel outside the Earth's atmosphere
50. ec_____ic joy *adj.* feeling or characterized by intense joy, delight, or enthusiasm
51. i_y clouds *adj.* covered with ice or frost; very cold; lacking warmth or friendliness
52. te_____ry technology *n.* the process of collecting and transmitting data from remote or inaccessible sources using wireless or other communication means, usually for monitoring or control purposes
53. in_____id personality *adj.* courageous and not afraid of danger or difficulties
54. sc_____r around the internet *v.* to cause to separate and go in different directions

ANSWERS: 47. robotic, 48. constellation, 49. astronaut, 50. ecstatic, 51. icy, 52. telemetry, 53. intrepid, 54. scatter

Session 3: Fill in the Blanks

1. Moral _____ suggests that there is no objective right or wrong.
n. the belief that truth, knowledge, or morality are not absolute or objective but instead relative to the context in which they are perceived or determined
2. The passengers were instructed to _____ the aircraft as quickly as possible so that the flight could depart on time.
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
3. The _____ moon Europa is believed to have an ocean beneath its icy surface.
adj. relating to Jupiter or its characteristics
4. The _____ layers of the ocean are still largely unexplored.
adj. situated or located beneath the surface of something; existing or occurring within the deeper layers of a material or object, often referring to areas below the Earth's surface
5. 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
6. The surgeon removed the tumor using _____ video assistance.
adj. of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots
7. I tried to _____ my fear of heights by gradually climbing higher daily.
v. to lessen the intensity or force of something; to moderate or restrain one's feelings or emotions

ANSWERS: 1. relativism, 2. onboard, 3. Jovian, 4. subsurface, 5. astronaut, 6. robotic, 7. bate

8. Many businesses felt the _____ effect of the economy's decline.
- n.* a small wave on the surface of a liquid, typically caused by an object falling into it or a slight wind
9. The _____ medium comprises gas, dust, and cosmic rays that fill the space between stars.
- adj.* relating to or located in the space between stars
10. The company has shown an excellent growth _____ over the years.
- n.* the curved path followed by an object moving through space
11. We watched the concert _____ since we couldn't attend in person.
- n.* a real-time video or audio broadcast of an event, performance, or activity that is encoded and distributed over the Internet, usually through dedicated apps or websites, allowing distributed viewers to watch it remotely
12. The captain told him to _____ the ship north.
- v.* to control the direction or movement of a vehicle; to direct a course of action; to guide or motivate someone
13. The quarterback scored a _____ in the game's final seconds to win it.
- n.* (of American football) a scoring play that occurs when the ball is carried, kicked, or fumbled into the opposing team's end zone; the act of touching down or landing, particularly in aviation or spaceflight
14. The satellite sends _____ data back to Earth to help scientists study the atmosphere.
- n.* the process of collecting and transmitting data from remote or inaccessible sources using wireless or other communication means, usually for monitoring or control purposes

ANSWERS: 8. ripple, 9. interstellar, 10. trajectory, 11. livestream, 12. steer, 13. touchdown, 14. telemetry

15. There were still _____ pioneers who planned to start their businesses
adj. courageous and not afraid of danger or difficulties
16. We need to _____ this proposal as soon as the budget is more apparent than before.
v. to go to a place again, especially after a long period
17. The ____ surface of the pond was not safe for skating.
adj. covered with ice or frost; very cold; lacking warmth or friendliness
18. The explorer ventured into _____ territory, not knowing what to expect.
adj. not mapped or surveyed; unknown or unexplored; without a clear or definite course of action
19. Navigators still use the Little Bear _____ at sea.
n. a group of stars that form a recognizable pattern and have a name; a group of related or similar ideas, things, or people
20. The invention of the smartphone _____ the way we communicate with each other.
v. to bring about a complete or radical change in something, often through the introduction of new methods or ideas
21. An enormous _____ marks the area where the vast volcanic explosion occurred.
n. a huge bowl-shaped cavity in the earth or an object in space, usually created by an explosion or the impact of a meteorite
22. The phone rang at the most _____ time.
adj. suitable or happening at a time that is suitable or convenient for a particular purpose

ANSWERS: 15. intrepid, 16. revisit, 17. icy, 18. uncharted, 19. constellation, 20. revolutionized, 21. crater, 22. opportune

23. An _____ in certain substances causes problems with brain function.

n. a situation in which two or more things are not equal or equally treated

24. She was _____ to receive the news that she had won the lottery.

adj. feeling or characterized by intense joy, delight, or enthusiasm

25. The _____ Kepler-186f is located 500 light-years from Earth and is believed to be habitable.

n. a planet that orbits a star outside of the solar system

26. The hunter's approach _____ the geese.

v. to cause to separate and go in different directions

27. She was _____ from an old Italian noble family.

v. to move downward and lower; to come from, or to be connected by a relationship of blood

ANSWERS: 23. imbalance, 24. ecstatic, 25. exoplanet, 26. scattered, 27. descended