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## Vocabulary Builder Reference from...

*Jeff Dekofsky: Is math discovered or invented? | TED Talk*

[https://www.ted.com/talks/jeff\\_dekofsky\\_is\\_math\\_discovered\\_or\\_invented](https://www.ted.com/talks/jeff_dekofsky_is_math_discovered_or_invented)

### Advanced Words Only

#### IMPORTANT

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## Session 1: Word List

### polygon

*n.* a closed plane figure bounded by three or more straight sides that meet at the same number of angles (vertices)

*synonym* : shape, figure, form

(1) regular **polygon**, (2) closed **polygon**

The garden had a complex **polygon** shape with many angles and corners.

### ethereal

*adj.* delicate, light, and airy; extremely refined or subtle; heavenly or spiritual

*synonym* : airy, delicate, celestial

(1) **ethereal** beauty, (2) **ethereal** light

The **ethereal** music created a dreamlike atmosphere in the concert hall.

### monad

*n.* a philosophical concept originating from ancient Greek philosophy, representing an ultimate indivisible unit or element, which can signify a fundamental building block of reality, an elementary particle, or a basic entity that possesses inherent qualities

*synonym* : unit, entity, atom

(1) chemical **monad**, (2) **monad** instances

In biology, a **monad** cell is a single-celled organism.

## 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**.

## platonic

*adj.* (of relationship or emotion) friendly or affectionate but not sexual

*synonym* : nonphysical, nonsexual, spiritual

(1) **platonic** relationship, (2) **platonic** love

His relationship with her was completely **platonic**.

## Euclidean

*adj.* relating to or based on the geometry set forth by the ancient Greek mathematician Euclid, characterized by straight lines, flat planes, and the absence of curvature

*synonym* : geometric

(1) **Euclidean** geometry, (2) **Euclidean** space

**Euclidean** distance measures the straight-line distance between two points in space.

## manifestation

*n.* a visible or tangible form of something, especially a particular sign of a disease or condition

*synonym* : expression, embodiment, presentation

(1) **manifestation** of a deeper problem, (2) **manifestation** of psychological stress

The **manifestation** of his anxiety was evident in his shaking hands.

## discern

*v.* to see, perceive, or understand something that is not obvious

*synonym* : determine, distinguish, sense

(1) **discern** the big picture, (2) **discern** friend from foe

Parents need to help their children **discern** right and wrong.

## proponent

*n.* a person who supports an idea or pleads for a cause

*synonym* : advocate, devotee, follower

(1) enthusiastic **proponent**, (2) **proponent** of world peace

Einstein was a **proponent** of the theory of relativity.

## axiom

*n.* a statement or principle that is regarded as being self-evidently true and does not require proof or justification; a fundamental truth upon which other truths or theories are based

*synonym*: principle, maxim, postulate

(1) self-evident **axiom**, (2) fundamental **axiom**

It is an **axiom** in mathematics that two parallel lines never intersect.

## hyperbole

*n.* exaggerated statements or claims not meant to be taken used to create emphasis or to make a point

*synonym*: exaggeration, overstatement, embellishment

(1) escalate the **hyperbole**, (2) avoid **hyperbole** in writing

The marketing campaign relied heavily on **hyperbole** to sell the product.

## elliptical

*adj.* having the shape of an oval (= a closed plane curve); using a word or expression that is ambiguous or vague, especially to mislead or avoid committing oneself

*synonym*: oval, egg-shaped, oblong

(1) an **elliptical** motion, (2) an **elliptical** galaxies

The satellite's **elliptical** orbit made it appear to change its distance from earth.

## curvature

*n.* the degree to which a line or surface deviates from being straight or flat; a measure of the amount of bending of a curve

*synonym*: bend, arch, bow

(1) the degree of **curvature**, (2) spinal **curvature**

The **curvature** of the earth can be seen from space.

## laureate

*n.* a person who has been awarded an honor or a prize for achievement in a particular field, especially in literature or academia; a poet who is honored for achieving the highest level of excellence in a competition or for

producing a lifetime body of work

(1) Oscar **laureate**, (2) poet **laureate**

The Nobel **laureate** delivered an inspiring speech to the graduating class.

## hardy

*adj.* able to withstand harsh conditions or difficult circumstances; robust, sturdy, or resilient

*synonym*: tough, sturdy, resilient

(1) **hardy** plants, (2) **hardy** breed

The **hardy** construction workers worked tirelessly in the scorching heat to complete the project.

## boast

*v.* to talk about someone's accomplishments, wealth, or abilities excessively with undue pride and self-satisfaction

*synonym*: show off, brag, bluster

(1) **boast** of his success, (2) **boast** a long history

This town **boasts** a national park.

## cryptography

*n.* the study of the techniques and methods used for secure communication and information processing, particularly using codes and ciphers

*synonym*: coding, steganography, encryption

(1) asymmetric **cryptography**, (2) digital **cryptography**

The software engineers developed a new **cryptography** algorithm to protect users' data.

## stumble

*v.* to miss a step and fall or nearly fall; to walk unsteadily

*synonym*: bumble, struggle, misstep

(1) **stumble** financially, (2) **stumble** through life

She **stumbled** over the tree root.

## sunflower

*n.* a plant with large, round flower heads that have bright yellow petals and a dark center, grown for its edible seeds and oil, as well as for decorative purposes

*synonym*: helianthus

(1) **sunflower** oil, (2) **sunflower** field

The **sunflower** seeds can be roasted and eaten as a snack.

## petal

*n.* one of the separate, usually colored, segments of a flower that produce its shape and are often found arranged in a circle around the reproductive parts

*synonym* : blossom, flower, bloom

(1) **petal** shape, (2) rose **petal**

The botany field is concerned with studying the structure of plant **petals**.

## pineapple

*n.* tropical fruit with a rough, spiky exterior and sweet, juicy flesh inside, often used in cooking, baking, or as a snack

*synonym* : ananas, tropical fruit, bromeliad

(1) ripe **pineapple**, (2) canned **pineapple**

I love to eat fresh **pineapple** in my fruit salad.

## bronchus

*n.* (in the plural, "bronchi") either of the two main branches of the trachea that lead to the lungs and distribute air to the bronchioles and alveoli

*synonym* : bronchi, airway, tube

(1) left **bronchus**, (2) **bronchus** wall

Smoking damages the **bronchus** and increases the risk of lung cancer.

## unravel

*v.* undo twisted, knitted, or woven threads by separating it

*synonym* : separate, unknot, ravel

(1) **unravel** a knit, (2) **unravel** a plot

Detectives are still attempting to **unravel** the mystery of his death.

## chime

*v.* to make a ringing sound, usually by striking an object like a bell or wind chime; to harmonize or agree with something else; (noun) a set of musical bells or metal tubes that produce a musical sound when struck or played

*synonym* : ring, toll, peal

(1) glass wind **chime**, (2) **chime** with the music  
The grandfather clock **chimed** solemnly, signaling the hour.

## humming

*adj.* producing a continuous, low, vibrating sound like that of the bee

*synonym*: buzzing, droning, vibrating

(1) **humming** sound, (2) **humming** bird

The **humming** of the bees filled the air as she walked through the garden.

## distort

*v.* to change something's shape, appearance, or sound so that it appears weird or unclear

*synonym*: fudge, deform, contort

(1) **distort** the facts, (2) **distort** the economy

Economists contend that taxes **distort** consumer behavior in general.

## zen

*n.* a school of Mahayana Buddhism that originated in China and was later developed in Japan, emphasizing the practice of meditation as the way to achieve enlightenment or awakening; (adjective) characterized by a sense of peace and tranquility, often through the practice of meditation or the use of natural elements

*synonym*: meditative, peaceful, tranquil

(1) **zen** garden, (2) **zen** meditation

Daily yoga helped her achieve a **zen** state of mind and calmness.

## Session 2: Spelling

- |                          |      |  |
|--------------------------|------|--|
| 1. st____e through life  | v.   | to miss a step and fall or nearly fall; to walk unsteadily   |
| 2. pl____ic relationship | adj. | (of relationship or emotion) friendly or affectionate but not sexual   |
| 3. et____al beauty       | adj. | delicate, light, and airy; extremely refined or subtle; heavenly or spiritual  |
| 4. et____al light        | adj. | delicate, light, and airy; extremely refined or subtle; heavenly or spiritual  |
| 5. ch__e with the music  | v.   | to make a ringing sound, usually by striking an object like a bell or wind chime; to harmonize or agree with something else; (noun) a set of musical bells or metal tubes that produce a musical sound when struck or played |
| 6. un____l a knit        | v.   | undo twisted, knitted, or woven threads by separating it   |
| 7. st____e financially   | v.   | to miss a step and fall or nearly fall; to walk unsteadily   |
| 8. regular po____n       | n.   | a closed plane figure bounded by three or more straight sides that meet at the same number of angles (vertices)  |
| 9. fundamental ax__m     | n.   | a statement or principle that is regarded as being self-evidently true and does not require proof or justification; a fundamental truth upon which other truths or theories are based  |

ANSWERS: 1. stumble, 2. platonic, 3. ethereal, 4. ethereal, 5. chime, 6. unravel, 7. stumble, 8. polygon, 9. axiom

10. avoid hy\_\_\_\_\_le in writing      *n.* exaggerated statements or claims not meant to be taken used to create emphasis or to make a point
11. ha\_\_y breed      *adj.* able to withstand harsh conditions or difficult circumstances; robust, sturdy, or resilient
12. z\_n garden      *n.* a school of Mahayana Buddhism that originated in China and was later developed in Japan, emphasizing the practice of meditation as the way to achieve enlightenment or awakening; (adjective) characterized by a sense of peace and tranquility, often through the practice of meditation or the use of natural elements
13. an ell\_\_\_\_\_al motion      *adj.* having the shape of an oval (= a closed plane curve); using a word or expression that is ambiguous or vague, especially to mislead or avoid committing oneself
14. enthusiastic pr\_\_\_\_\_nt      *n.* a person who supports an idea or pleads for a cause
15. the degree of cu\_\_\_\_\_re      *n.* the degree to which a line or surface deviates from being straight or flat; a measure of the amount of bending of a curve
16. pe\_\_l shape      *n.* one of the separate, usually colored, segments of a flower that produce its shape and are often found arranged in a circle around the reproductive parts

ANSWERS: 10. hyperbole, 11. hardy, 12. zen, 13. elliptical, 14. proponent, 15. curvature, 16. petal



17. un\_\_\_\_\_l a plot *v.* undo twisted, knitted, or woven threads by separating it
18. pl\_\_\_\_\_ic love *adj.* (of relationship or emotion) friendly or affectionate but not sexual
19. spinal cu\_\_\_\_\_re *n.* the degree to which a line or surface deviates from being straight or flat; a measure of the amount of bending of a curve
20. hu\_\_\_\_\_g bird *adj.* producing a continuous, low, vibrating sound like that of the bee
21. man\_\_\_\_\_ion of psychological stress *n.* a visible or tangible form of something, especially a particular sign of a disease or condition
22. di\_\_\_\_\_t the economy *v.* to change something's shape, appearance, or sound so that it appears weird or unclear
23. ha\_\_y plants *adj.* able to withstand harsh conditions or difficult circumstances; robust, sturdy, or resilient
24. su\_\_\_\_\_er field *n.* a plant with large, round flower heads that have bright yellow petals and a dark center, grown for its edible seeds and oil, as well as for decorative purposes
25. bo\_\_t of his success *v.* to talk about someone's accomplishments, wealth, or abilities excessively with undue pride and self-satisfaction
26. hu\_\_\_\_\_g sound *adj.* producing a continuous, low, vibrating sound like that of the bee

ANSWERS: 17. unravel, 18. platonic, 19. curvature, 20. humming, 21. manifestation, 22. distort, 23. hardy, 24. sunflower, 25. boast, 26. humming

27. z\_n meditation
- n.* a school of Mahayana Buddhism that originated in China and was later developed in Japan, emphasizing the practice of meditation as the way to achieve enlightenment or awakening; (adjective) characterized by a sense of peace and tranquility, often through the practice of meditation or the use of natural elements
28. Oscar la\_\_\_\_te
- n.* a person who has been awarded an honor or a prize for achievement in a particular field, especially in literature or academia; a poet who is honored for achieving the highest level of excellence in a competition or for producing a lifetime body of work
29. Eu\_\_\_\_\_an geometry
- adj.* relating to or based on the geometry set forth by the ancient Greek mathematician Euclid, characterized by straight lines, flat planes, and the absence of curvature
30. escalate the hy\_\_\_\_\_le
- n.* exaggerated statements or claims not meant to be taken used to create emphasis or to make a point
31. chemical mo\_\_d
- n.* a philosophical concept originating from ancient Greek philosophy, representing an ultimate indivisible unit or element, which can signify a fundamental building block of reality, an elementary particle, or a basic entity that possesses inherent qualities

ANSWERS: 27. zen, 28. laureate, 29. Euclidean, 30. hyperbole, 31. monad

32. canned pi\_\_\_\_\_le *n.* tropical fruit with a rough, spiky exterior and sweet, juicy flesh inside, often used in cooking, baking, or as a snack
33. asymmetric cry\_\_\_\_\_phy *n.* the study of the techniques and methods used for secure communication and information processing, particularly using codes and ciphers
34. self-evident ax\_\_m *n.* a statement or principle that is regarded as being self-evidently true and does not require proof or justification; a fundamental truth upon which other truths or theories are based
35. ripe pi\_\_\_\_\_le *n.* tropical fruit with a rough, spiky exterior and sweet, juicy flesh inside, often used in cooking, baking, or as a snack
36. Eu\_\_\_\_\_an space *adj.* relating to or based on the geometry set forth by the ancient Greek mathematician Euclid, characterized by straight lines, flat planes, and the absence of curvature
37. di\_\_\_\_\_n friend from foe *v.* to see, perceive, or understand something that is not obvious
38. bo\_\_t a long history *v.* to talk about someone's accomplishments, wealth, or abilities excessively with undue pride and self-satisfaction
39. n\_\_b with cold *adj.* unable to feel physical sensation and movement; not showing human feeling or sensitivity

ANSWERS: 32. pineapple, 33. cryptography, 34. axiom, 35. pineapple, 36. Euclidean, 37. discern, 38. boast, 39. numb

40. pr\_\_\_\_\_nt of world peace  
*n.* a person who supports an idea or pleads for a cause
41. rose pe\_\_l  
*n.* one of the separate, usually colored, segments of a flower that produce its shape and are often found arranged in a circle around the reproductive parts
42. di\_\_\_\_\_n the big picture  
*v.* to see, perceive, or understand something that is not obvious
43. br\_\_\_\_\_us wall  
*n.* (in the plural, "bronchi") either of the two main branches of the trachea that lead to the lungs and distribute air to the bronchioles and alveoli
44. man\_\_\_\_\_ion of a deeper problem  
*n.* a visible or tangible form of something, especially a particular sign of a disease or condition
45. closed po\_\_\_\_\_n  
*n.* a closed plane figure bounded by three or more straight sides that meet at the same number of angles (vertices)
46. glass wind ch\_\_e  
*v.* to make a ringing sound, usually by striking an object like a bell or wind chime; to harmonize or agree with something else; (noun) a set of musical bells or metal tubes that produce a musical sound when struck or played
47. digital cry\_\_\_\_\_phy  
*n.* the study of the techniques and methods used for secure communication and information processing, particularly using codes and ciphers
48. a n\_\_b mind  
*adj.* unable to feel physical sensation and movement; not showing human feeling or sensitivity

ANSWERS: 40. proponent, 41. petal, 42. discern, 43. bronchus, 44. manifestation, 45. polygon, 46. chime, 47. cryptography, 48. numb

49. mo\_\_d instances *n.* a philosophical concept originating from ancient Greek philosophy, representing an ultimate indivisible unit or element, which can signify a fundamental building block of reality, an elementary particle, or a basic entity that possesses inherent qualities
50. an ell\_\_\_\_\_al galaxies *adj.* having the shape of an oval (= a closed plane curve); using a word or expression that is ambiguous or vague, especially to mislead or avoid committing oneself
51. poet la\_\_\_\_\_te *n.* a person who has been awarded an honor or a prize for achievement in a particular field, especially in literature or academia; a poet who is honored for achieving the highest level of excellence in a competition or for producing a lifetime body of work
52. di\_\_\_\_\_t the facts *v.* to change something's shape, appearance, or sound so that it appears weird or unclear
53. left br\_\_\_\_\_us *n.* (in the plural, "bronchi") either of the two main branches of the trachea that lead to the lungs and distribute air to the bronchioles and alveoli
54. su\_\_\_\_\_er oil *n.* a plant with large, round flower heads that have bright yellow petals and a dark center, grown for its edible seeds and oil, as well as for decorative purposes

ANSWERS: 49. monad, 50. elliptical, 51. laureate, 52. distort, 53. bronchus, 54. sunflower

ANSWERS:

## Session 3: Fill in the Blanks

1. Smoking damages the \_\_\_\_\_ and increases the risk of lung cancer.
  - n.* (in the plural, "bronchi") either of the two main branches of the trachea that lead to the lungs and distribute air to the bronchioles and alveoli
2. My left arm became \_\_\_\_\_.
  - adj.* unable to feel physical sensation and movement; not showing human feeling or sensitivity
3. \_\_\_\_\_ distance measures the straight-line distance between two points in space.
  - adj.* relating to or based on the geometry set forth by the ancient Greek mathematician Euclid, characterized by straight lines, flat planes, and the absence of curvature
4. The \_\_\_\_\_ construction workers worked tirelessly in the scorching heat to complete the project.
  - adj.* able to withstand harsh conditions or difficult circumstances; robust, sturdy, or resilient
5. The software engineers developed a new \_\_\_\_\_ algorithm to protect users' data.
  - n.* the study of the techniques and methods used for secure communication and information processing, particularly using codes and ciphers
6. Detectives are still attempting to \_\_\_\_\_ the mystery of his death.
  - v.* undo twisted, knitted, or woven threads by separating it
7. The \_\_\_\_\_ of the bees filled the air as she walked through the garden.
  - adj.* producing a continuous, low, vibrating sound like that of the bee

ANSWERS: 1. bronchus, 2. numb, 3. Euclidean, 4. hardy, 5. cryptography, 6. unravel, 7. humming

8. The marketing campaign relied heavily on \_\_\_\_\_ to sell the product.  
*n.* exaggerated statements or claims not meant to be taken used to create emphasis or to make a point
9. His relationship with her was completely \_\_\_\_\_.  
*adj.* (of relationship or emotion) friendly or affectionate but not sexual
10. Economists contend that taxes \_\_\_\_\_ consumer behavior in general.  
*v.* to change something's shape, appearance, or sound so that it appears weird or unclear
11. The botany field is concerned with studying the structure of plant \_\_\_\_\_.  
*n.* one of the separate, usually colored, segments of a flower that produce its shape and are often found arranged in a circle around the reproductive parts
12. The \_\_\_\_\_ seeds can be roasted and eaten as a snack.  
*n.* a plant with large, round flower heads that have bright yellow petals and a dark center, grown for its edible seeds and oil, as well as for decorative purposes
13. The \_\_\_\_\_ of the earth can be seen from space.  
*n.* the degree to which a line or surface deviates from being straight or flat; a measure of the amount of bending of a curve
14. I love to eat fresh \_\_\_\_\_ in my fruit salad.  
*n.* tropical fruit with a rough, spiky exterior and sweet, juicy flesh inside, often used in cooking, baking, or as a snack
15. The satellite's \_\_\_\_\_ orbit made it appear to change its distance from earth.  
*adj.* having the shape of an oval (= a closed plane curve); using a word or expression that is ambiguous or vague, especially to mislead or avoid committing oneself

ANSWERS: 8. hyperbole, 9. platonic, 10. distort, 11. petals, 12. sunflower, 13. curvature, 14. pineapple, 15. elliptical



16. The grandfather clock \_\_\_\_\_ solemnly, signaling the hour.
- v. to make a ringing sound, usually by striking an object like a bell or wind chime; to harmonize or agree with something else; (noun) a set of musical bells or metal tubes that produce a musical sound when struck or played
17. Parents need to help their children \_\_\_\_\_ right and wrong.
- v. to see, perceive, or understand something that is not obvious
18. This town \_\_\_\_\_ a national park.
- v. to talk about someone's accomplishments, wealth, or abilities excessively with undue pride and self-satisfaction
19. The garden had a complex \_\_\_\_\_ shape with many angles and corners.
- n. a closed plane figure bounded by three or more straight sides that meet at the same number of angles (vertices)
20. Einstein was a \_\_\_\_\_ of the theory of relativity.
- n. a person who supports an idea or pleads for a cause
21. The \_\_\_\_\_ music created a dreamlike atmosphere in the concert hall.
- adj. delicate, light, and airy; extremely refined or subtle; heavenly or spiritual
22. In biology, a \_\_\_\_\_ cell is a single-celled organism.
- n. a philosophical concept originating from ancient Greek philosophy, representing an ultimate indivisible unit or element, which can signify a fundamental building block of reality, an elementary particle, or a basic entity that possesses inherent qualities
23. Daily yoga helped her achieve a \_\_\_\_\_ state of mind and calmness.
- n. a school of Mahayana Buddhism that originated in China and was later developed in Japan, emphasizing the practice of meditation as the way to achieve enlightenment or awakening; (adjective) characterized by a sense of peace and tranquility, often through the practice of meditation or the use of natural elements

ANSWERS: 16. chimed, 17. discern, 18. boasts, 19. polygon, 20. proponent, 21.

ethereal, 22. monad, 23. zen

24. The Nobel \_\_\_\_\_ delivered an inspiring speech to the graduating class.
- n.* a person who has been awarded an honor or a prize for achievement in a particular field, especially in literature or academia; a poet who is honored for achieving the highest level of excellence in a competition or for producing a lifetime body of work
25. It is an \_\_\_\_\_ in mathematics that two parallel lines never intersect.
- n.* a statement or principle that is regarded as being self-evidently true and does not require proof or justification; a fundamental truth upon which other truths or theories are based
26. She \_\_\_\_\_ over the tree root.
- v.* to miss a step and fall or nearly fall; to walk unsteadily
27. The \_\_\_\_\_ of his anxiety was evident in his shaking hands.
- n.* a visible or tangible form of something, especially a particular sign of a disease or condition

ANSWERS: 24. laureate, 25. axiom, 26. stumbled, 27. manifestation