

# Englist.me



## Vocabulary Builder Reference from...

*Dan Reinstein: How does laser eye surgery work? | TED Talk*

[https://www.ted.com/talks/dan\\_reinstein\\_how\\_does\\_laser\\_eye\\_surgery\\_work](https://www.ted.com/talks/dan_reinstein_how_does_laser_eye_surgery_work)

### Advanced Words Only

#### IMPORTANT

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## Session 1: Word List

### ophthalmology

*n.* the branch of medicine that deals with the anatomy, physiology, and diseases of the eye

*synonym*: eye care, optometry, eye medicine

(1) **ophthalmology** practice, (2) **ophthalmology** clinic

My grandfather had a problem with his eyes and went to an **ophthalmology** specialist.

### blur

*n.* a faint or indistinct image or sound; something that is not clear or distinct; (verb) to become unclear; to lose clear vision

*synonym*: smudge, smear, fuzz

(1) **blur** image, (2) motion **blur**

The camera's focus was off, and the image was a **blur** of colors and shapes.

### devise

*v.* to come up with an idea, plan, theory, etc., using your intelligence or imagination

*synonym*: create, concoct, invent

(1) **devise** a plan, (2) **devise** a literary plot

They had to **devise** a system that did not depend on fossil fuels.

## cornea

*n.* the transparent layer at the front of the eye that covers the iris and pupil and helps to focus light onto the retina

*synonym* : eye membrane, eye lens

(1) **cornea** transplant, (2) **cornea** damage

A scratched **cornea** can be very painful and may cause blurry vision.

## dunk

*v.* to immerse or submerge briefly in a liquid, often repeatedly to coat or moisten; to slam or force something down into a container of liquid

*synonym* : dip, plunge, soak

(1) **dunk** in water, (2) **dunk** a basketball

I like to **dunk** my cookies in milk before eating them.

## lathe

*n.* a machine tool that rotates a workpiece on its axis to perform various operations, such as cutting, drilling, or sanding

*synonym* : turning machine, spinner, rotary tool

(1) **lathe** operator, (2) engine **lathe**

The metal **lathe** was an essential piece of machinery in the fabrication workshop.

## thaw

*v.* to become less rigid or hostile; to melt, soften, or become more friendly

*synonym* : melt, defrost, unfreeze

(1) **thaw** out a glacier, (2) **thaw** relations between countries

The sun was beginning to **thaw** the frozen ground.

## sew

*v.* to join, fasten, or repair two pieces of something by putting the thread through them with a needle

*synonym* : stitch, darn, tailor

(1) **sew** with thread, (2) **sew** a button

My mother taught me how to **sew**.

## keratomileusis

*n.* a type of eye surgery used to correct errors of refraction in the eye, such as myopia, hyperopia, and astigmatism, which involves reshaping the cornea (= the clear front

part of the eye) to improve how light is focused onto the retina

*synonym* : corneal reshaping

(1) laser-assisted **keratomileusis**, (2) **keratomileusis** recovery

The optometrist recommended in situ **keratomileusis** as the best option for her.

## carving

*n.* the act or process of cutting or shaping a hard material, such as wood or stone, into a specific form or design

*synonym* : sculpture, engraving, sculpture

(1) a wood **carving**, (2) **carving** instrument

The intricate **carving** on the wooden box was the work of a master craftsman.

## grisly

*adj.* causing horror or disgust because of being connected with death or injury or having a raw or savage quality

*synonym* : gruesome, horrific, ghastly

(1) **grisly** death, (2) **grisly** details

The **grisly** scene of the crime horrified the witnesses.

## refract

*v.* to bend or alter the direction of light, sound, or particles as they pass through different substances or mediums; to cause something to appear distorted or altered

*synonym* : bend, deflect, distort

(1) **refract** light, (2) **refract** sound

The morning sun **refracted** off the dew on the grass, creating a beautiful rainbow.

## imperfectly

*adv.* in a faulty or incomplete way

*synonym* : amiss, insufficiently, clumsily

(1) **imperfectly** developed, (2) **imperfectly** known disease

He created an **imperfectly** shaped torso.

## retina

*n.* the innermost light-sensitive membrane covering the back wall of the eyeball

(1) **retinal** cells, (2) **retina** scanner

Damage to the **retina** may play a role in the development of glaucoma.

## impair

*v.* to damage something or make it weaker or worse  
*synonym*: degrade, mar, deface

(1) **impair** my health, (2) **impair** insulin sensitivity

The accident made his vision **impaired**.

## myopic

*adj.* near-sighted; lacking foresight or ability to plan; narrow-minded or lacking in perspective

*synonym*: nearsighted, short-sighted, unforesightful

(1) **myopic** vision, (2) **myopic** thinking

His **myopic** view of the situation prevented him from seeing the bigger picture.

## hyperopia

*n.* (also known as "farsightedness") a vision condition in which distant objects appear clearer than nearby objects

*synonym*: farsightedness, hypermetropia

(1) **hyperopia** correction, (2) **hyperopia** surgery

Severe **hyperopia** may require laser surgery to correct the vision.

## astigmatism

*n.* a condition in which the lens of the eye or the cornea is not perfectly curved, causing blurred or distorted vision

*synonym*: blur, distortion, visual impairment

(1) the patient with moderate **astigmatism**, (2) **astigmatism** glasses

**Astigmatism** correction was performed as part of the refractive surgery.

## 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.

## presbyopia

*n.* a visual impairment that occurs with age, in which the lens of the eye loses elasticity and the ability to focus on close objects; farsightedness caused by reduced accommodation power of the eye due to the aging process

*synonym* : farsightedness, hyperopia, aging eye

(1) **presbyopia** glasses, (2) **presbyopia** surgery

After the age of 40, most people begin to experience **presbyopia**.

## sculpt

*v.* to create a work of art by carving, casting, or other shaping techniques

*synonym* : carve, mold, shape

(1) **sculpt** an image, (2) **sculpt** prototype

He spent hours every day **sculpting** figures out of clay.

## excimer

*n.* a type of molecule that is formed through the combination of an excited atom or molecule with a ground-state atom or molecule, often used in medical and scientific applications, such as lasers and fluorescent dyes

(1) **excimer** molecule, (2) **excimer** formation

Doctors use **excimer** lasers to treat certain eye conditions.

## etch

*v.* to carve, cut, or engrave (a design or text) into a hard surface; to corrode, erode or eat away at a metal surface using acid or another chemical substance to create a design or pattern

*synonym* : engrave, inscribe, carve

(1) **etch** a metal plate, (2) **etch** a design into wood

He used a sharp tool to **etch** his initials onto the metal.

## incision

*n.* a sharp cut made in something with a sharp tool, especially during a medical procedure

*synonym* : cut, slit, laceration

(1) **incision** tool, (2) small **incision**

Patients undergoing **incisional** surgery are often put to sleep by anesthesia.

## evaporate

v. to turn a liquid into a gas; to become less intense and disappear gradually

*synonym*: vaporize, disappear, vanish

(1) **evaporate** the water, (2) **evaporate** almost overnight

The sun will **evaporate** the mist.

## overheat

v. to become too hot, or to cause something to become too hot

*synonym*: become too hot, heat up too much

(1) **overheat** while charging, (2) starts to **overheat**

The car engine **overheated** and had to be repaired.

## femtosecond

n. a unit of time that is equal to one quadrillionth of a second ( $10^{-15}$  seconds), and femtosecond lasers are used in surgery and other medical applications

*synonym*: ten-to-the-minus-fifteenth, quadrillionth of a second

(1) **femtosecond** time scale, (2) **femtosecond** technology

**Femtosecond** lasers are used in various medical procedures, including eye surgeries.

## eyeball

n. the round part of the eye of a vertebrate that is usually inside the head and, therefore, cannot be seen

(1) **eyeball** motion, (2) redness of the **eyeball**

Increased **eyeball** pressure leads to the development of glaucoma.

## situ

adj. short for "situated," meaning located or placed in a particular position or circumstance

*synonym*: situational, contextual, circumstantial

(1) ex- **situ** conservation, (2) in- **situ** control

Melanoma in **situ** is considered the earliest stage of melanoma and has a high cure rate with appropriate

treatment.

## **carve**

v. to create something by cutting wood or stone; to turn sharply

*synonym*: sculpt, engrave, cut

(1) **carve** a statue, (2) **carve** my name on the plate

This statue is **carved** from a single tree trunk.

## Session 2: Spelling

- |                        |   |
|------------------------|---|
| 1. re___al cells       | <i>n.</i> the innermost light-sensitive membrane covering the back wall of the eyeball  |
| 2. oph_____ogy clinic  | <i>n.</i> the branch of medicine that deals with the anatomy, physiology, and diseases of the eye   |
| 3. s_w a button        | <i>v.</i> to join, fasten, or repair two pieces of something by putting the thread through them with a needle   |
| 4. ca_____g instrument | <i>n.</i> the act or process of cutting or shaping a hard material, such as wood or stone, into a specific form or design   |
| 5. sc___t prototype    | <i>v.</i> to create a work of art by carving, casting, or other shaping techniques  |
| 6. e__h a metal plate  | <i>v.</i> to carve, cut, or engrave (a design or text) into a hard surface; to corrode, erode or eat away at a metal surface using acid or another chemical substance to create a design or pattern |
| 7. a wood ca_____g     | <i>n.</i> the act or process of cutting or shaping a hard material, such as wood or stone, into a specific form or design   |
| 8. la__e operator      | <i>n.</i> a machine tool that rotates a workpiece on its axis to perform various operations, such as cutting, drilling, or sanding  |
| 9. ast_____sm glasses  | <i>n.</i> a condition in which the lens of the eye or the cornea is not perfectly curved, causing blurred or distorted vision   |

ANSWERS: 1. retina, 2. ophthalmology, 3. sew, 4. carving, 5. sculpt, 6. etch, 7. carving, 8. lathe, 9. astigmatism



10. oph\_\_\_\_\_ogy practice      *n.* the branch of medicine that deals with the anatomy, physiology, and diseases of the eye
11. ey\_\_\_\_\_l motion      *n.* the round part of the eye of a vertebrate that is usually inside the head and, therefore, cannot be seen
12. engine la\_\_e      *n.* a machine tool that rotates a workpiece on its axis to perform various operations, such as cutting, drilling, or sanding
13. laser-assisted ker\_\_\_\_\_sis      *n.* a type of eye surgery used to correct errors of refraction in the eye, such as myopia, hyperopia, and astigmatism, which involves reshaping the cornea (= the clear front part of the eye) to improve how light is focused onto the retina
14. ca\_\_e a statue      *v.* to create something by cutting wood or stone; to turn sharply
15. in\_\_\_\_\_on tool      *n.* a sharp cut made in something with a sharp tool, especially during a medical procedure
16. pre\_\_\_\_\_ia surgery      *n.* a visual impairment that occurs with age, in which the lens of the eye loses elasticity and the ability to focus on close objects; farsightedness caused by reduced accommodation power of the eye due to the aging process
17. ev\_\_\_\_\_te almost overnight      *v.* to turn a liquid into a gas; to become less intense and disappear gradually

ANSWERS: 10. ophthalmology, 11. eyeball, 12. lathe, 13. keratomileusis, 14. carve, 15. incision, 16. presbyopia, 17. evaporate

18. e\_\_h a design into wood      *v.* to carve, cut, or engrave (a design or text) into a hard surface; to corrode, erode or eat away at a metal surface using acid or another chemical substance to create a design or pattern
19. sc\_\_\_t an image      *v.* to create a work of art by carving, casting, or other shaping techniques
20. de\_\_\_e a literary plot      *v.* to come up with an idea, plan, theory, etc., using your intelligence or imagination
21. imp\_\_\_\_\_ly known disease      *adv.* in a faulty or incomplete way
22. co\_\_\_a transplant      *n.* the transparent layer at the front of the eye that covers the iris and pupil and helps to focus light onto the retina
23. imp\_\_\_\_\_ly developed      *adv.* in a faulty or incomplete way
24. de\_\_\_e a plan      *v.* to come up with an idea, plan, theory, etc., using your intelligence or imagination
25. t\_\_w relations between countries      *v.* to become less rigid or hostile; to melt, soften, or become more friendly
26. re\_\_\_\_\_t light      *v.* to bend or alter the direction of light, sound, or particles as they pass through different substances or mediums; to cause something to appear distorted or altered
27. starts to ov\_\_\_\_\_at      *v.* to become too hot, or to cause something to become too hot
28. fem\_\_\_\_\_nd time scale      *n.* a unit of time that is equal to one quadrillionth of a second ( $10^{-15}$  seconds), and femtosecond lasers are used in surgery and other medical applications

ANSWERS: 18. etch, 19. sculpt, 20. devise, 21. imperfectly, 22. cornea, 23. imperfectly, 24. devise, 25. thaw, 26. refract, 27. overheat, 28. femtosecond

29. gr\_\_\_y death *adj.* causing horror or disgust because of being connected with death or injury or having a raw or savage quality
30. small in\_\_\_\_\_on *n.* a sharp cut made in something with a sharp tool, especially during a medical procedure
31. ker\_\_\_\_\_sis recovery *n.* a type of eye surgery used to correct errors of refraction in the eye, such as myopia, hyperopia, and astigmatism, which involves reshaping the cornea (= the clear front part of the eye) to improve how light is focused onto the retina
32. ex\_\_\_\_\_r formation *n.* a type of molecule that is formed through the combination of an excited atom or molecule with a ground-state atom or molecule, often used in medical and scientific applications, such as lasers and fluorescent dyes
33. b\_\_r image *n.* a faint or indistinct image or sound; something that is not clear or distinct; (verb) to become unclear; to lose clear vision
34. ev\_\_\_\_\_te the water *v.* to turn a liquid into a gas; to become less intense and disappear gradually
35. d\_\_k a basketball *v.* to immerse or submerge briefly in a liquid, often repeatedly to coat or moisten; to slam or force something down into a container of liquid
36. in-s\_\_u control *adj.* short for "situated," meaning located or placed in a particular position or circumstance

ANSWERS: 29. grisly, 30. incision, 31. keratomileusis, 32. excimer, 33. blur, 34. evaporate, 35. dunk, 36. situ

37. ca\_\_e my name on the plate      *v.* to create something by cutting wood or stone; to turn sharply
38. d\_\_k in water      *v.* to immerse or submerge briefly in a liquid, often repeatedly to coat or moisten; to slam or force something down into a container of liquid
39. gr\_\_\_y details      *adj.* causing horror or disgust because of being connected with death or injury or having a raw or savage quality
40. pre\_\_\_\_\_ia glasses      *n.* a visual impairment that occurs with age, in which the lens of the eye loses elasticity and the ability to focus on close objects; farsightedness caused by reduced accommodation power of the eye due to the aging process
41. 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
42. s\_w with thread      *v.* to join, fasten, or repair two pieces of something by putting the thread through them with a needle
43. hy\_\_\_\_\_ia correction      *n.* (also known as "farsightedness") a vision condition in which distant objects appear clearer than nearby objects
44. my\_\_\_c vision      *adj.* near-sighted; lacking foresight or ability to plan; narrow-minded or lacking in perspective
45. motion b\_\_r      *n.* a faint or indistinct image or sound; something that is not clear or distinct; (verb) to become unclear; to lose clear vision

ANSWERS: 37. carve, 38. dunk, 39. grisly, 40. presbyopia, 41. curvature, 42. sew, 43. hyperopia, 44. myopic, 45. blur

46. hy\_\_\_\_\_ia surgery      *n.* (also known as "farsightedness") a vision condition in which distant objects appear clearer than nearby objects
47. im\_\_\_r my health      *v.* to damage something or make it weaker or worse
48. my\_\_\_c thinking      *adj.* near-sighted; lacking foresight or ability to plan; narrow-minded or lacking in perspective
49. 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
50. redness of the ey\_\_\_\_\_l      *n.* the round part of the eye of a vertebrate that is usually inside the head and, therefore, cannot be seen
51. co\_\_\_a damage      *n.* the transparent layer at the front of the eye that covers the iris and pupil and helps to focus light onto the retina
52. t\_\_w out a glacier      *v.* to become less rigid or hostile; to melt, soften, or become more friendly
53. ex\_\_\_\_\_r molecule      *n.* a type of molecule that is formed through the combination of an excited atom or molecule with a ground-state atom or molecule, often used in medical and scientific applications, such as lasers and fluorescent dyes
54. re\_\_\_\_\_t sound      *v.* to bend or alter the direction of light, sound, or particles as they pass through different substances or mediums; to cause something to appear distorted or altered

ANSWERS: 46. hyperopia, 47. impair, 48. myopic, 49. curvature, 50. eyeball, 51. cornea, 52. thaw, 53. excimer, 54. refract

55. ov\_\_\_\_at while charging      *v.* to become too hot, or to cause something to become too hot
56. re\_\_\_a scanner      *n.* the innermost light-sensitive membrane covering the back wall of the eyeball
57. the patient with moderate ast\_\_\_\_\_sm      *n.* a condition in which the lens of the eye or the cornea is not perfectly curved, causing blurred or distorted vision
58. im\_\_\_r insulin sensitivity      *v.* to damage something or make it weaker or worse
59. fem\_\_\_\_\_nd technology      *n.* a unit of time that is equal to one quadrillionth of a second ( $10^{-15}$  seconds), and femtosecond lasers are used in surgery and other medical applications
60. ex-s\_\_u conservation      *adj.* short for "situated," meaning located or placed in a particular position or circumstance

ANSWERS: 55. overheat, 56. retina, 57. astigmatism, 58. impair, 59. femtosecond, 60. situ

## Session 3: Fill in the Blanks

1. The sun will \_\_\_\_\_ the mist.  
*v.* to turn a liquid into a gas; to become less intense and disappear gradually
2. The car engine \_\_\_\_\_ and had to be repaired.  
*v.* to become too hot, or to cause something to become too hot
3. Damage to the \_\_\_\_\_ may play a role in the development of glaucoma.  
*n.* the innermost light-sensitive membrane covering the back wall of the eyeball
4. The morning sun \_\_\_\_\_ off the dew on the grass, creating a beautiful rainbow.  
*v.* to bend or alter the direction of light, sound, or particles as they pass through different substances or mediums; to cause something to appear distorted or altered
5. After the age of 40, most people begin to experience \_\_\_\_\_.  
*n.* a visual impairment that occurs with age, in which the lens of the eye loses elasticity and the ability to focus on close objects; farsightedness caused by reduced accommodation power of the eye due to the aging process
6. He used a sharp tool to \_\_\_\_\_ his initials onto the metal.  
*v.* to carve, cut, or engrave (a design or text) into a hard surface; to corrode, erode or eat away at a metal surface using acid or another chemical substance to create a design or pattern
7. My grandfather had a problem with his eyes and went to an \_\_\_\_\_ specialist.  
*n.* the branch of medicine that deals with the anatomy, physiology, and diseases of the eye

ANSWERS: 1. evaporate, 2. overheated, 3. retina, 4. refracted, 5. presbyopia, 6. etch, 7. ophthalmology

8. The \_\_\_\_\_ scene of the crime horrified the witnesses.

*adj.* causing horror or disgust because of being connected with death or injury or having a raw or savage quality

9. My mother taught me how to \_\_\_\_\_.

*v.* to join, fasten, or repair two pieces of something by putting the thread through them with a needle

10. They had to \_\_\_\_\_ a system that did not depend on fossil fuels.

*v.* to come up with an idea, plan, theory, etc., using your intelligence or imagination

11. He created an \_\_\_\_\_ shaped torso.

*adv.* in a faulty or incomplete way

12. The camera's focus was off, and the image was a \_\_\_\_\_ of colors and shapes.

*n.* a faint or indistinct image or sound; something that is not clear or distinct; (verb) to become unclear; to lose clear vision

13. The sun was beginning to \_\_\_\_\_ the frozen ground.

*v.* to become less rigid or hostile; to melt, soften, or become more friendly

14. \_\_\_\_\_ lasers are used in various medical procedures, including eye surgeries.

*n.* a unit of time that is equal to one quadrillionth of a second ( $10^{-15}$  seconds), and femtosecond lasers are used in surgery and other medical applications

15. Melanoma in \_\_\_\_\_ is considered the earliest stage of melanoma and has a high cure rate with appropriate treatment.

*adj.* short for "situated," meaning located or placed in a particular position or circumstance

ANSWERS: 8. grisly, 9. sew, 10. devise, 11. imperfectly, 12. blur, 13. thaw, 14. Femtosecond, 15. situ



16. This statue is \_\_\_\_\_ from a single tree trunk.

*v.* to create something by cutting wood or stone; to turn sharply

17. He spent hours every day \_\_\_\_\_ figures out of clay.

*v.* to create a work of art by carving, casting, or other shaping techniques

18. The optometrist recommended in situ \_\_\_\_\_ as the best option for her.

*n.* a type of eye surgery used to correct errors of refraction in the eye, such as myopia, hyperopia, and astigmatism, which involves reshaping the cornea (= the clear front part of the eye) to improve how light is focused onto the retina

19. The accident made his vision \_\_\_\_\_.

*v.* to damage something or make it weaker or worse

20. A scratched \_\_\_\_\_ can be very painful and may cause blurry vision.

*n.* the transparent layer at the front of the eye that covers the iris and pupil and helps to focus light onto the retina

21. Increased \_\_\_\_\_ pressure leads to the development of glaucoma.

*n.* the round part of the eye of a vertebrate that is usually inside the head and, therefore, cannot be seen

22. Doctors use \_\_\_\_\_ lasers to treat certain eye conditions.

*n.* a type of molecule that is formed through the combination of an excited atom or molecule with a ground-state atom or molecule, often used in medical and scientific applications, such as lasers and fluorescent dyes

23. Patients undergoing \_\_\_\_\_ surgery are often put to sleep by anesthesia.

*n.* a sharp cut made in something with a sharp tool, especially during a medical procedure

ANSWERS: 16. carved, 17. sculpting, 18. keratomileusis, 19. impaired, 20. cornea, 21. eyeball, 22. excimer, 23. incisional

24. I like to \_\_\_\_\_ my cookies in milk before eating them.

- v.* to immerse or submerge briefly in a liquid, often repeatedly to coat or moisten; to slam or force something down into a container of liquid

25. The intricate \_\_\_\_\_ on the wooden box was the work of a master craftsman.

- n.* the act or process of cutting or shaping a hard material, such as wood or stone, into a specific form or design

26. His \_\_\_\_\_ view of the situation prevented him from seeing the bigger picture.

- adj.* near-sighted; lacking foresight or ability to plan; narrow-minded or lacking in perspective

27. The metal \_\_\_\_\_ was an essential piece of machinery in the fabrication workshop.

- n.* a machine tool that rotates a workpiece on its axis to perform various operations, such as cutting, drilling, or sanding

28. 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

29. \_\_\_\_\_ correction was performed as part of the refractive surgery.

- n.* a condition in which the lens of the eye or the cornea is not perfectly curved, causing blurred or distorted vision

30. Severe \_\_\_\_\_ may require laser surgery to correct the vision.

- n.* (also known as "farsightedness") a vision condition in which distant objects appear clearer than nearby objects

ANSWERS: 24. dunk, 25. carving, 26. myopic, 27. lathe, 28. curvature, 29. Astigmatism, 30. hyperopia