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## Vocabulary Builder Reference from...

*Sarthak Sinha: How a wound heals itself | TED Talk*  
[https://www.ted.com/talks/sarthak\\_sinha\\_how\\_a\\_wound\\_heals\\_itself](https://www.ted.com/talks/sarthak_sinha_how_a_wound_heals_itself)

### Advanced Words Only

#### IMPORTANT

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## Session 1: Word List

### epidermis

*n.* the outermost layer of skin, composed of flat, scale-like cells that provide a protective barrier against external substances and help regulate body temperature

*synonym*: skin, cuticle, derma

(1) **epidermis** layer, (2) **epidermis** cells

Excessive exposure to UV radiation harms the **epidermis** and increases the risk of skin cancer.

### keratin

*n.* a fibrous protein that is the main structural component of hair, nails, and the outer layer of skin in mammals and birds; also found in horns, hooves, and feathers

*synonym*: ceratin

(1) **keratin** treatment, (2) **keratin** protein

Keratosis is a skin condition characterized by the formation of excess **keratin** on the skin's surface

### penetrate

*v.* to pass into or through something, often by overcoming resistance

*synonym*: pierce, stab, go through

(1) **penetrate** a cell, (2) **penetrate** quickly into the skin

Western ideology slowly **penetrates** through the eastern countries.

## dermis

*n.* the layer of skin beneath the epidermis that contains blood vessels, nerves, and connective tissue

*synonym*: skin layer, corium, cutis

(1) hair follicle **dermis**, (2) skin **dermis**

The **dermis** layer contains nerve endings, which enable us to feel sensations such as pressure and pain.

## hemostasis

*n.* the natural process or medical technique of stopping or controlling bleeding, usually achieved through various mechanisms such as blood vessel constriction, blood clotting, or surgical procedures

*synonym*: bleeding stoppage, blood clotting

(1) **hemostasis** technique, (2) **hemostasis** valve

The nurse applied pressure to the wound to ensure **hemostasis** before stitching it up.

## vasoconstriction

*n.* the narrowing or constriction of blood vessels, particularly the contraction of smooth muscles in the vessel walls, which can result in reduced blood flow

*synonym*: narrowing, constriction, tightness

(1) induced **vasoconstriction**, (2) peripheral **vasoconstriction**

The body responds to cold temperatures through **vasoconstriction** to preserve heat.

## avert

*v.* to prevent something dangerous or undesirable from happening

*synonym*: discourage, prevent, deter

(1) **avert** disaster, (2) **avert** a strike

The dam systematically releases large amounts of water to **avert** flooding during the rainy season

## clot

*n.* a thick mass or lump of coagulated liquid, especially blood; a group of people or things that form an obstructive, unsympathetic, or resistant force

*synonym*: clump, coagulation, thrombus

(1) blood **clot**, (2) **clot** prevention

The **clot** in the blood vessel required immediate medical attention.

## fibrin

*n.* a fibrous protein involved in the clotting of blood, forming a mesh-like network of fibers to create a blood clot and stop bleeding, and also plays a role in wound healing and other biological processes

*synonym*: clot, coagulation, thrombus

(1) **fibrin** clot, (2) **fibrin** formation

The doctor applied **fibrin** sealant to help the wound heal and prevent infection.

## crosslink

*v.* to chemically or molecularly link two or more substances or molecules together; to connect or fuse different parts or components into a unified whole; (noun) a bond or connection between two or more molecules or parts of a molecule that results in the formation of a three-dimensional network or structure

*synonym*: link, connect, bond

(1) **crosslink** with the surface of the material, (2) the **crosslink** between the two polymers

The new polymer material is designed to **crosslink** more efficiently, improving its strength and durability.

## pathogen

*n.* a bacterium, virus, or other microorganism that causes disease

*synonym*: germ, microbe, bacterium

(1) plant **pathogen**, (2) the **pathogen** in the air

mRNA vaccines are approved faster because they do not contain inactivated **pathogens**.

## macrophage

*n.* a large white blood cell that helps to engulf and destroy foreign objects or materials in the body, such as bacteria or cancer cells

*synonym*: white blood cell, scavenger cell, phagocyte

(1) **macrophage** activity, (2) **macrophage** dysfunction

Cancer cells can evade the immune system's detection by

avoiding interactions with **macrophages**.

## devour

*v.* to eat or consume something eagerly or ravenously; or to destroy something rapidly

*synonym*: consume, swallow, destroy

(1) **devour** a meal, (2) **devour** my way

She **devoured** the mystery novel in one sitting.

## phagocyte

*n.* a type of cell in the immune system that is capable of engulfing or absorbing foreign, harmful particles or microorganisms to protect the body from infection or disease

*synonym*: cell-eater, macrophage, scavenger cell

(1) **phagocyte** cells, (2) mononuclear **phagocyte** system

The **phagocyte** activity in the human body plays a crucial role in the immune response by engulfing harmful pathogens.

## spur

*n.* a thing that encourages someone to do something; any sharply pointed projection; (verb) to incite or stimulate someone or something

*synonym*: encouragement, motivation, stimulus

(1) **spur** of the moment, (2) **spur** a momentum of economic growth

The threat of losing his job was the **spur** he needed to work harder.

## constrict

*v.* to make something narrow or tight, often restricting movement or flow; to become narrow or tighter

*synonym*: squeeze, compress, tighten

(1) **constrict** blood vessels, (2) **constrict** freedom

The snake's muscles began to **constrict** around its prey.

## vasodilation

*n.* the widening or expansion of blood vessels, particularly the arteries, which leads to an increase in blood flow and a decrease in blood pressure

*synonym*: widening of blood vessels, vascular expansion

(1) **vasodilation** of blood vessels, (2) **vasodilation** therapy

Warm temperatures can cause **vasodilation**, resulting in a feeling of warmth in the body.

## proliferate

v. to grow or increase rapidly in number; to reproduce or spread rapidly, especially in an uncontrolled manner  
*synonym*: multiply, spread, propagate

(1) **proliferate** cells, (2) **proliferate** weeds

The number of COVID cases continued to **proliferate** in many countries worldwide.

## fibroblast

n. a type of cell in connective tissue that produces and maintains the extracellular matrix, which provides support and structure to tissues and organs

(1) **fibroblast** growth factor, (2) **fibroblast** migration

**Fibroblast** cells play an important role in tissue repair and regeneration.

## collagen

n. a fibrous protein that forms the connective tissues in animals, including skin, tendons, and bone; often used in cosmetic and medical treatments for its ability to add firmness and elasticity to skin or other tissues

*synonym*: gelatin, protein, tissue

(1) **collagen** supplement, (2) **collagen** production

Our natural **collagen** production decreases as we age, leading to wrinkles, sagging skin, and joint pain.

## remodel

v. to change the structure or form of something

*synonym*: refurbish, remake, revamp

(1) **remodel** the car, (2) **remodel** portfolio

We are **remodeling** these rooms now.

## rearrange

v. to change the order or position of things already made; to change the time, date, or place of an event already planned

*synonym*: readjust, reorganize, reconstruct

(1) **rearrange** the furniture, (2) **rearrange** his schedule

Please **rearrange** these files as we start a new project

tomorrow.

## tensile

*adj.* relating to the ability of a material or structure to stretch or bend without breaking or losing its shape; having great strength or flexibility under tension

*synonym* : flexible, pliable, ductile

(1) **tensile** deformation, (2) **tensile** properties

The engineer tested the **tensile** strength of the metal to determine its durability.

## improvisation

*n.* the act of making something up on the spot or creating or performing something without preparation

*synonym* : spontaneity, ad-lib, extemporization

(1) **improvisation** on stage, (2) jazz **improvisation**

He created a beautiful piece of music using only **improvisation**.

## scar

*n.* a mark that remains on the skin after a wound has healed

*synonym* : blemish, imperfection, blotch

(1) burn **scar**, (2) carry a **scar**

Even after the wound has healed, a **scar** remains.

## stride

*v.* to walk with long steps in a particular direction; (noun) an important and positive progress

*synonym* : step, walk, march

(1) **stride** across a room, (2) **stride** down a slope

She **strides** confidently across the stage to accept her award.

## Session 2: Spelling

1. fib\_\_\_\_\_st migration *n.* a type of cell in connective tissue that produces and maintains the extracellular matrix, which provides support and structure to tissues and organs
2. co\_\_\_\_\_ct freedom *v.* to make something narrow or tight, often restricting movement or flow; to become narrow or tighter
3. st\_\_\_e down a slope *v.* to walk with long steps in a particular direction; (noun) an important and positive progress
4. st\_\_\_e across a room *v.* to walk with long steps in a particular direction; (noun) an important and positive progress
5. re\_\_\_\_\_ge his schedule *v.* to change the order or position of things already made; to change the time, date, or place of an event already planned
6. jazz imp\_\_\_\_\_ion *n.* the act of making something up on the spot or creating or performing something without preparation
7. ke\_\_\_\_\_n treatment *n.* a fibrous protein that is the main structural component of hair, nails, and the outer layer of skin in mammals and birds; also found in horns, hooves, and feathers
8. peripheral vas\_\_\_\_\_ion *n.* the narrowing or constriction of blood vessels, particularly the contraction of smooth muscles in the vessel walls, which can result in reduced blood flow

ANSWERS: 1. fibroblast, 2. constrict, 3. stride, 4. stride, 5. rearrange, 6. improvisation, 7. keratin, 8. vasoconstriction

9. ep\_\_\_\_\_is cells *n.* the outermost layer of skin, composed of flat, scale-like cells that provide a protective barrier against external substances and help regulate body temperature
10. re\_\_\_\_\_l the car *v.* to change the structure or form of something
11. av\_\_t a strike *v.* to prevent something dangerous or undesirable from happening
12. blood c\_\_t *n.* a thick mass or lump of coagulated liquid, especially blood; a group of people or things that form an obstructive, unsympathetic, or resistant force
13. de\_\_\_\_r my way *v.* to eat or consume something eagerly or ravenously; or to destroy something rapidly
14. burn s\_\_r *n.* a mark that remains on the skin after a wound has healed
15. vas\_\_\_\_\_ion therapy *n.* the widening or expansion of blood vessels, particularly the arteries, which leads to an increase in blood flow and a decrease in blood pressure
16. hem\_\_\_\_\_is technique *n.* the natural process or medical technique of stopping or controlling bleeding, usually achieved through various mechanisms such as blood vessel constriction, blood clotting, or surgical procedures
17. c\_\_t prevention *n.* a thick mass or lump of coagulated liquid, especially blood; a group of people or things that form an obstructive, unsympathetic, or resistant force

ANSWERS: 9. epidermis, 10. remodel, 11. avert, 12. clot, 13. devour, 14. scar, 15. vasodilation, 16. hemostasis, 17. clot



18. pro\_\_\_\_\_te weeds      *v.* to grow or increase rapidly in number; to reproduce or spread rapidly, especially in an uncontrolled manner
19. carry a s\_\_r      *n.* a mark that remains on the skin after a wound has healed
20. te\_\_\_\_\_e deformation      *adj.* relating to the ability of a material or structure to stretch or bend without breaking or losing its shape; having great strength or flexibility under tension
21. pro\_\_\_\_\_te cells      *v.* to grow or increase rapidly in number; to reproduce or spread rapidly, especially in an uncontrolled manner
22. re\_\_\_\_\_ge the furniture      *v.* to change the order or position of things already made; to change the time, date, or place of an event already planned
23. ep\_\_\_\_\_is layer      *n.* the outermost layer of skin, composed of flat, scale-like cells that provide a protective barrier against external substances and help regulate body temperature
24. pe\_\_\_\_\_te a cell      *v.* to pass into or through something, often by overcoming resistance
25. co\_\_\_\_\_en supplement      *n.* a fibrous protein that forms the connective tissues in animals, including skin, tendons, and bone; often used in cosmetic and medical treatments for its ability to add firmness and elasticity to skin or other tissues
26. s\_\_r of the moment      *n.* a thing that encourages someone to do something; any sharply pointed projection; (verb) to incite or stimulate someone or something

ANSWERS: 18. proliferate, 19. scar, 20. tensile, 21. proliferate, 22. rearrange, 23. epidermis, 24. penetrate, 25. collagen, 26. spur

27. co\_\_\_\_\_en production *n.* a fibrous protein that forms the connective tissues in animals, including skin, tendons, and bone; often used in cosmetic and medical treatments for its ability to add firmness and elasticity to skin or other tissues
28. s\_\_r a momentum of economic growth *n.* a thing that encourages someone to do something; any sharply pointed projection; (verb) to incite or stimulate someone or something
29. mac\_\_\_\_\_ge dysfunction *n.* a large white blood cell that helps to engulf and destroy foreign objects or materials in the body, such as bacteria or cancer cells
30. induced vas\_\_\_\_\_ion *n.* the narrowing or constriction of blood vessels, particularly the contraction of smooth muscles in the vessel walls, which can result in reduced blood flow
31. the cr\_\_\_\_\_nk between the two polymers *v.* to chemically or molecularly link two or more substances or molecules together; to connect or fuse different parts or components into a unified whole; (noun) a bond or connection between two or more molecules or parts of a molecule that results in the formation of a three-dimensional network or structure
32. fib\_\_\_\_\_st growth factor *n.* a type of cell in connective tissue that produces and maintains the extracellular matrix, which provides support and structure to tissues and organs

ANSWERS: 27. collagen, 28. spur, 29. macrophage, 30. vasoconstriction, 31. crosslink, 32. fibroblast

33. av\_\_t disaster *v.* to prevent something dangerous or undesirable from happening
34. fi\_\_\_n formation *n.* a fibrous protein involved in the clotting of blood, forming a mesh-like network of fibers to create a blood clot and stop bleeding, and also plays a role in wound healing and other biological processes
35. co\_\_\_\_\_ct blood vessels *v.* to make something narrow or tight, often restricting movement or flow; to become narrow or tighter
36. imp\_\_\_\_\_ion on stage *n.* the act of making something up on the spot or creating or performing something without preparation
37. ph\_\_\_\_\_te cells *n.* a type of cell in the immune system that is capable of engulfing or absorbing foreign, harmful particles or microorganisms to protect the body from infection or disease
38. hem\_\_\_\_\_is valve *n.* the natural process or medical technique of stopping or controlling bleeding, usually achieved through various mechanisms such as blood vessel constriction, blood clotting, or surgical procedures
39. ke\_\_\_\_\_n protein *n.* a fibrous protein that is the main structural component of hair, nails, and the outer layer of skin in mammals and birds; also found in horns, hooves, and feathers
40. pe\_\_\_\_\_te quickly into the skin *v.* to pass into or through something, often by overcoming resistance

ANSWERS: 33. avert, 34. fibrin, 35. constrict, 36. improvisation, 37. phagocyte, 38. hemostasis, 39. keratin, 40. penetrate

41. mononuclear ph\_\_\_\_\_te system      *n.* a type of cell in the immune system that is capable of engulfing or absorbing foreign, harmful particles or microorganisms to protect the body from infection or disease
42. cr\_\_\_\_\_nk with the surface of the material      *v.* to chemically or molecularly link two or more substances or molecules together; to connect or fuse different parts or components into a unified whole; (noun) a bond or connection between two or more molecules or parts of a molecule that results in the formation of a three-dimensional network or structure
43. the pa\_\_\_\_\_en in the air      *n.* a bacterium, virus, or other microorganism that causes disease
44. hair follicle de\_\_\_\_s      *n.* the layer of skin beneath the epidermis that contains blood vessels, nerves, and connective tissue
45. mac\_\_\_\_\_ge activity      *n.* a large white blood cell that helps to engulf and destroy foreign objects or materials in the body, such as bacteria or cancer cells
46. skin de\_\_\_\_s      *n.* the layer of skin beneath the epidermis that contains blood vessels, nerves, and connective tissue
47. fi\_\_\_\_n clot      *n.* a fibrous protein involved in the clotting of blood, forming a mesh-like network of fibers to create a blood clot and stop bleeding, and also plays a role in wound healing and other biological processes

ANSWERS: 41. phagocyte, 42. crosslink, 43. pathogen, 44. dermis, 45. macrophage, 46. dermis, 47. fibrin

48. de\_\_\_r a meal *v.* to eat or consume something eagerly or ravenously; or to destroy something rapidly
49. plant pa\_\_\_\_\_en *n.* a bacterium, virus, or other microorganism that causes disease
50. te\_\_\_\_\_e properties *adj.* relating to the ability of a material or structure to stretch or bend without breaking or losing its shape; having great strength or flexibility under tension
51. re\_\_\_\_\_l portfolio *v.* to change the structure or form of something
52. vas\_\_\_\_\_ion of blood vessels *n.* the widening or expansion of blood vessels, particularly the arteries, which leads to an increase in blood flow and a decrease in blood pressure

ANSWERS: 48. devour, 49. pathogen, 50. tensile, 51. remodel, 52. vasodilation

## Session 3: Fill in the Blanks

1. The new polymer material is designed to \_\_\_\_\_ more efficiently, improving its strength and durability.
  - v. to chemically or molecularly link two or more substances or molecules together; to connect or fuse different parts or components into a unified whole; (noun) a bond or connection between two or more molecules or parts of a molecule that results in the formation of a three-dimensional network or structure
  
2. The number of COVID cases continued to \_\_\_\_\_ in many countries worldwide.
  - v. to grow or increase rapidly in number; to reproduce or spread rapidly, especially in an uncontrolled manner
  
3. We are \_\_\_\_\_ these rooms now.
  - v. to change the structure or form of something
  
4. Western ideology slowly \_\_\_\_\_ through the eastern countries.
  - v. to pass into or through something, often by overcoming resistance
  
5. Our natural \_\_\_\_\_ production decreases as we age, leading to wrinkles, sagging skin, and joint pain.
  - n. a fibrous protein that forms the connective tissues in animals, including skin, tendons, and bone; often used in cosmetic and medical treatments for its ability to add firmness and elasticity to skin or other tissues
  
6. The dam systematically releases large amounts of water to \_\_\_\_\_ flooding during the rainy season
  - v. to prevent something dangerous or undesirable from happening

ANSWERS: 1. crosslink, 2. proliferate, 3. remodeling, 4. penetrates, 5. collagen, 6. avert

7. The threat of losing his job was the \_\_\_\_\_ he needed to work harder.
- n.* a thing that encourages someone to do something; any sharply pointed projection; (verb) to incite or stimulate someone or something
8. The \_\_\_\_\_ in the blood vessel required immediate medical attention.
- n.* a thick mass or lump of coagulated liquid, especially blood; a group of people or things that form an obstructive, unsympathetic, or resistant force
9. Warm temperatures can cause \_\_\_\_\_ resulting in a feeling of warmth in the body.
- n.* the widening or expansion of blood vessels, particularly the arteries, which leads to an increase in blood flow and a decrease in blood pressure
10. mRNA vaccines are approved faster because they do not contain inactivated \_\_\_\_\_.
- n.* a bacterium, virus, or other microorganism that causes disease
11. Cancer cells can evade the immune system's detection by avoiding interactions with \_\_\_\_\_.
- n.* a large white blood cell that helps to engulf and destroy foreign objects or materials in the body, such as bacteria or cancer cells
12. Please \_\_\_\_\_ these files as we start a new project tomorrow.
- v.* to change the order or position of things already made; to change the time, date, or place of an event already planned
13. \_\_\_\_\_ cells play an important role in tissue repair and regeneration.
- n.* a type of cell in connective tissue that produces and maintains the extracellular matrix, which provides support and structure to tissues and organs

ANSWERS: 7. spur, 8. clot, 9. vasodilation, 10. pathogens, 11. macrophages, 12. rearrange, 13. Fibroblast

14. Even after the wound has healed, a \_\_\_\_\_ remains.  
*n.* a mark that remains on the skin after a wound has healed
15. The snake's muscles began to \_\_\_\_\_ around its prey.  
*v.* to make something narrow or tight, often restricting movement or flow; to become narrow or tighter
16. The engineer tested the \_\_\_\_\_ strength of the metal to determine its durability.  
*adj.* relating to the ability of a material or structure to stretch or bend without breaking or losing its shape; having great strength or flexibility under tension
17. The \_\_\_\_\_ activity in the human body plays a crucial role in the immune response by engulfing harmful pathogens.  
*n.* a type of cell in the immune system that is capable of engulfing or absorbing foreign, harmful particles or microorganisms to protect the body from infection or disease
18. The doctor applied \_\_\_\_\_ sealant to help the wound heal and prevent infection.  
*n.* a fibrous protein involved in the clotting of blood, forming a mesh-like network of fibers to create a blood clot and stop bleeding, and also plays a role in wound healing and other biological processes
19. Keratosis is a skin condition characterized by the formation of excess \_\_\_\_\_ on the skin's surface  
*n.* a fibrous protein that is the main structural component of hair, nails, and the outer layer of skin in mammals and birds; also found in horns, hooves, and feathers
20. She \_\_\_\_\_ confidently across the stage to accept her award.  
*v.* to walk with long steps in a particular direction; (noun) an important and positive progress

ANSWERS: 14. scar, 15. constrict, 16. tensile, 17. phagocyte, 18. fibrin, 19. keratin, 20. strides



21. The nurse applied pressure to the wound to ensure \_\_\_\_\_ before stitching it up.
- n.* the natural process or medical technique of stopping or controlling bleeding, usually achieved through various mechanisms such as blood vessel constriction, blood clotting, or surgical procedures
22. The body responds to cold temperatures through \_\_\_\_\_ to preserve heat.
- n.* the narrowing or constriction of blood vessels, particularly the contraction of smooth muscles in the vessel walls, which can result in reduced blood flow
23. He created a beautiful piece of music using only \_\_\_\_\_.
- n.* the act of making something up on the spot or creating or performing something without preparation
24. She \_\_\_\_\_ the mystery novel in one sitting.
- v.* to eat or consume something eagerly or ravenously; or to destroy something rapidly
25. The \_\_\_\_\_ layer contains nerve endings, which enable us to feel sensations such as pressure and pain.
- n.* the layer of skin beneath the epidermis that contains blood vessels, nerves, and connective tissue
26. Excessive exposure to UV radiation harms the \_\_\_\_\_ and increases the risk of skin cancer.
- n.* the outermost layer of skin, composed of flat, scale-like cells that provide a protective barrier against external substances and help regulate body temperature

ANSWERS: 21. hemostasis, 22. vasoconstriction, 23. improvisation, 24. devoured, 25. dermis, 26. epidermis

ANSWERS: