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## Vocabulary Builder Reference from...

Joshua W. Pate: *The fascinating science of phantom limbs* | TED Talk

[https://www.ted.com/talks/joshua\\_w\\_pate\\_the\\_fascinating\\_science\\_of\\_phantom\\_limbs](https://www.ted.com/talks/joshua_w_pate_the_fascinating_science_of_phantom_limbs)

### Advanced Words Only

#### IMPORTANT

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## Session 1: Word List

### lifelike

*adj.* resembling or appearing similar to something alive or real, often realistically or vividly; convincing or authentic in appearance or behavior

*synonym* : realistic, naturalistic, vivid

(1) **lifelike** painting, (2) **lifelike** animation

The artist created a **lifelike** sculpture of a famous politician for the town square.

### phantom

*n.* a ghost or a spirit of a dead person; something existing only in your imagination or perception

*synonym* : ghost, spirit, apparition

(1) a **phantom** company, (2) **phantom** limb pain

The police frantically searched for clues to the **phantom** killer.

### chafe

*v.* to rub or graze against something, causing irritation, soreness, or annoyance; to become irritated or annoyed due to frustration or impatience

*synonym* : irritate, rub, abrade

(1) **chafed** against my shoulders, (2) **chafe** under pressure

The new shoes are starting to **chafe** my feet after walking for hours.

## throb

*v.* to beat with a strong, regular rhythm, as a pulse or a heart

*synonym* : pulse, beat, pound

(1) **throb** at the thought of the accident, (2) **throb** with excitement

The wound continued to **throb** with pain, despite the medication.

## ingrown

*adj.* referring to a hair or nail that has grown into the skin surrounding it, causing irritation or infection

*synonym* : embedded, imbedded, encased

(1) **ingrown** pimple, (2) **ingrown** hair

An **ingrown** toenail can be very painful and requires medical attention.

## toenail

*n.* the hard, flat covering on the end of a toe, made of layers of dead skin cells; often requires regular grooming and trimming to maintain proper hygiene and appearance

*synonym* : nail, claw, hoof

(1) **toenail** fungus, (2) ingrown **toenail**

I accidentally stubbed my toe and broke my **toenail**.

## astonishing

*adj.* surprising or shocking; difficult to believe

*synonym* : surprising, shocking, astounding

(1) **astonishing** achievement, (2) make **astonishing** gains

The news of her sudden death was **astonishing** to everyone who knew her.

## apparition

*n.* the appearance of a ghost or ghost-like image; a sudden and unexpected appearance of something or someone

*synonym* : ghost, phantom, specter

(1) **apparition** ghost, (2) mysterious **apparition**

Walking through the graveyard at night, I saw an eerie **apparition** of a ghostly figure.

## amputation

*n.* the act of cutting off a part of the body surgically

(1) **amputation** of leg, (2) hand **amputation**

**Amputation** of the limb is a last resort for the patient.

## neuron

*n.* a cell that is specialized to carry information within the brain and between the brain and other parts of the body

*synonym*: nerve cell

(1) excite the **neurons**, (2) **neuron** cell body

Our body transfers information along each **neuron** using an electrical impulse.

## fingertip

*n.* the end or tip of a finger

(1) apply **fingertip** pressure, (2) burn my **fingertip**

The archaeologist ran his **fingertips** along the pattern of the tombstones.

## sever

*v.* to break or separate something by cutting, especially suddenly and forcibly

*synonym*: cut apart, separate, detach

(1) **sever** a rope, (2) **sever** a positive relationship

He **severed** a branch from a tree quickly.

## curtail

*v.* to reduce or restrict something; to shorten or truncate; to cut short or bring to an abrupt end

*synonym*: restrict, limit, cut back

(1) **curtail** spending, (2) **curtail** freedom

Due to budget constraints, the company had to **curtail** its marketing campaign for the new product.

## dorsal

*adj.* located on the back, particularly the upper surface of an animal's body; related to or pertaining to the back

*synonym*: abaxial, spinal, back

(1) **dorsal** surface, (2) **dorsal** root

The shark's **dorsal** fin is a distinguishing feature.

## intensify

*v.* to increase or make something increase in extent or strength

*synonym*: amplify, boost, strengthen

(1) **intensify** diplomatic efforts, (2) **intensify** a good relationship

Rebels have pledged to **intensify** the armed struggle against the dictatorship.

## somatosensor

*n.* a type of sensory receptor in the skin, muscles, tendons, and joints that respond to touch, pressure, temperature, or pain stimuli and sends signals to the brain for processing in the somatosensory cortex

*synonym*: mechanoreceptor, touch receptor, sensory receptor

(1) **somatosensor** neuron, (2) **somatosensor** cortex

The **somatosensor** in your skin detects touch, pressure, and temperature changes.

## cortical

*adj.* relating to or located in the outer layer of an organ or body structure, particularly the cortex of the brain

(1) **cortical** neurons, (2) **cortical** activity

The MRI showed activity in the **cortical** region of the patient's brain.

## homunculus

*n.* a representation or model of a tiny human being, often used to illustrate or represent the senses or motor functions of the human body

*synonym*: little man, dwarf, midget

(1) **homunculus** diagram, (2) virtual **homunculus**

The **homunculus** theory suggests that the human brain contains a small, "human-like" figure that controls our voluntary movements and sensations.

## devote

*v.* to commit or dedicate oneself or one's time, effort, or energy to a particular task or purpose

*synonym*: commit, dedicate, apply

(1) **devote** all of my energies, (2) **devote** my own life

He **devoted** himself to studying the history of ancient

civilizations.

**prosthetic**

*adj.* of or relating to an artificial part of the body, such as a limb, a heart, or a breast implant

(1) have **prosthetic** arms, (2) **prosthetic** limbs

New **prosthetic** joints are less prone to metal poisoning.

**amputee**

*n.* a person who has had an arm or a leg cut off

(1) quadruple **amputee**, (2) **amputee** runner

**Amputees** often experience an illusion of a phantom limb.

## Session 2: Spelling

1. ph\_\_\_\_m limb pain *n.* a ghost or a spirit of a dead person; something existing only in your imagination or perception
2. cu\_\_\_\_l spending *v.* to reduce or restrict something; to shorten or truncate; to cut short or bring to an abrupt end
3. do\_\_\_\_l surface *adj.* located on the back, particularly the upper surface of an animal's body; related to or pertaining to the back
4. co\_\_\_\_al activity *adj.* relating to or located in the outer layer of an organ or body structure, particularly the cortex of the brain
5. am\_\_\_\_e runner *n.* a person who has had an arm or a leg cut off
6. se\_\_r a rope *v.* to break or separate something by cutting, especially suddenly and forcibly
7. ingrown to\_\_\_\_l *n.* the hard, flat covering on the end of a toe, made of layers of dead skin cells; often requires regular grooming and trimming to maintain proper hygiene and appearance
8. in\_\_\_\_n hair *adj.* referring to a hair or nail that has grown into the skin surrounding it, causing irritation or infection
9. make ast\_\_\_\_\_ng gains *adj.* surprising or shocking; difficult to believe

ANSWERS: 1. phantom, 2. curtail, 3. dorsal, 4. cortical, 5. amputee, 6. sever, 7. toenail, 8. ingrown, 9. astonishing

10. th\_\_b at the thought of the accident      *v.* to beat with a strong, regular rhythm, as a pulse or a heart
11. li\_\_\_\_\_ke painting      *adj.* resembling or appearing similar to something alive or real, often realistically or vividly; convincing or authentic in appearance or behavior
12. som\_\_\_\_\_sor neuron      *n.* a type of sensory receptor in the skin, muscles, tendons, and joints that respond to touch, pressure, temperature, or pain stimuli and sends signals to the brain for processing in the somatosensory cortex
13. a ph\_\_\_\_\_m company      *n.* a ghost or a spirit of a dead person; something existing only in your imagination or perception
14. cu\_\_\_\_\_l freedom      *v.* to reduce or restrict something; to shorten or truncate; to cut short or bring to an abrupt end
15. th\_\_b with excitement      *v.* to beat with a strong, regular rhythm, as a pulse or a heart
16. ne\_\_\_n cell body      *n.* a cell that is specialized to carry information within the brain and between the brain and other parts of the body
17. ch\_\_ed against my shoulders      *v.* to rub or graze against something, causing irritation, soreness, or annoyance; to become irritated or annoyed due to frustration or impatience
18. som\_\_\_\_\_sor cortex      *n.* a type of sensory receptor in the skin, muscles, tendons, and joints that respond to touch, pressure, temperature, or pain stimuli and sends signals to the brain for processing in the somatosensory cortex

ANSWERS: 10. throb, 11. lifelike, 12. somatosensor, 13. phantom, 14. curtail, 15. throb, 16. neuron, 17. chafe, 18. somatosensor

19. ch\_\_e under pressure      *v.* to rub or graze against something, causing irritation, soreness, or annoyance; to become irritated or annoyed due to frustration or impatience
20. co\_\_\_\_al neurons      *adj.* relating to or located in the outer layer of an organ or body structure, particularly the cortex of the brain
21. quadruple am\_\_\_\_e      *n.* a person who has had an arm or a leg cut off
22. ast\_\_\_\_\_ng achievement      *adj.* surprising or shocking; difficult to believe
23. in\_\_\_\_\_fy diplomatic efforts      *v.* to increase or make something increase in extent or strength
24. in\_\_\_\_\_n pimple      *adj.* referring to a hair or nail that has grown into the skin surrounding it, causing irritation or infection
25. mysterious app\_\_\_\_\_on      *n.* the appearance of a ghost or ghost-like image; a sudden and unexpected appearance of something or someone
26. do\_\_\_l root      *adj.* located on the back, particularly the upper surface of an animal's body; related to or pertaining to the back
27. amp\_\_\_\_\_on of leg      *n.* the act of cutting off a part of the body surgically
28. pro\_\_\_\_\_ic limbs      *adj.* of or relating to an artificial part of the body, such as a limb, a heart, or a breast implant
29. app\_\_\_\_\_on ghost      *n.* the appearance of a ghost or ghost-like image; a sudden and unexpected appearance of something or someone

ANSWERS: 19. chafe, 20. cortical, 21. amputee, 22. astonishing, 23. intensify, 24. ingrown, 25. apparition, 26. dorsal, 27. amputation, 28. prosthetic, 29. apparition



30. de\_\_\_e all of my energies      *v.* to commit or dedicate oneself or one's time, effort, or energy to a particular task or purpose
31. hand amp\_\_\_\_\_on      *n.* the act of cutting off a part of the body surgically
32. li\_\_\_\_\_ke animation      *adj.* resembling or appearing similar to something alive or real, often realistically or vividly; convincing or authentic in appearance or behavior
33. in\_\_\_\_\_fy a good relationship      *v.* to increase or make something increase in extent or strength
34. de\_\_\_e my own life      *v.* to commit or dedicate oneself or one's time, effort, or energy to a particular task or purpose
35. virtual hom\_\_\_\_\_us      *n.* a representation or model of a tiny human being, often used to illustrate or represent the senses or motor functions of the human body
36. hom\_\_\_\_\_us diagram      *n.* a representation or model of a tiny human being, often used to illustrate or represent the senses or motor functions of the human body
37. apply fi\_\_\_\_\_ip pressure      *n.* the end or tip of a finger
38. to\_\_\_\_\_l fungus      *n.* the hard, flat covering on the end of a toe, made of layers of dead skin cells; often requires regular grooming and trimming to maintain proper hygiene and appearance
39. excite the ne\_\_\_ns      *n.* a cell that is specialized to carry information within the brain and between the brain and other parts of the body

ANSWERS: 30. devote, 31. amputation, 32. lifelike, 33. intensify, 34. devote, 35. homunculus, 36. homunculus, 37. fingertip, 38. toenail, 39. neuron

40. burn my fi\_\_\_\_\_ip                      *n.*    the end or tip of a finger
41. se\_\_r a positive relationship            *v.*    to break or separate something by cutting, especially suddenly and forcibly
42. have pro\_\_\_\_\_ic arms                *adj.* of or relating to an artificial part of the body, such as a limb, a heart, or a breast implant

ANSWERS: 40. fingertip, 41. sever, 42. prosthetic

## Session 3: Fill in the Blanks

1. \_\_\_\_\_ often experience an illusion of a phantom limb.  
*n.* a person who has had an arm or a leg cut off
2. The artist created a \_\_\_\_\_ sculpture of a famous politician for the town square.  
*adj.* resembling or appearing similar to something alive or real, often realistically or vividly; convincing or authentic in appearance or behavior
3. Due to budget constraints, the company had to \_\_\_\_\_ its marketing campaign for the new product.  
*v.* to reduce or restrict something; to shorten or truncate; to cut short or bring to an abrupt end
4. I accidentally stubbed my toe and broke my \_\_\_\_\_.  
*n.* the hard, flat covering on the end of a toe, made of layers of dead skin cells; often requires regular grooming and trimming to maintain proper hygiene and appearance
5. Rebels have pledged to \_\_\_\_\_ the armed struggle against the dictatorship.  
*v.* to increase or make something increase in extent or strength
6. The police frantically searched for clues to the \_\_\_\_\_ killer.  
*n.* a ghost or a spirit of a dead person; something existing only in your imagination or perception
7. The new shoes are starting to \_\_\_\_\_ my feet after walking for hours.  
*v.* to rub or graze against something, causing irritation, soreness, or annoyance; to become irritated or annoyed due to frustration or impatience

ANSWERS: 1. Amputees, 2. lifelike, 3. curtail, 4. toenail, 5. intensify, 6. phantom, 7. chafe

8. An \_\_\_\_\_ toenail can be very painful and requires medical attention.  
*adj.* referring to a hair or nail that has grown into the skin surrounding it, causing irritation or infection
9. He \_\_\_\_\_ a branch from a tree quickly.  
*v.* to break or separate something by cutting, especially suddenly and forcibly
10. The news of her sudden death was \_\_\_\_\_ to everyone who knew her.  
*adj.* surprising or shocking; difficult to believe
11. The MRI showed activity in the \_\_\_\_\_ region of the patient's brain.  
*adj.* relating to or located in the outer layer of an organ or body structure, particularly the cortex of the brain
12. The shark's \_\_\_\_\_ fin is a distinguishing feature.  
*adj.* located on the back, particularly the upper surface of an animal's body; related to or pertaining to the back
13. The \_\_\_\_\_ in your skin detects touch, pressure, and temperature changes.  
*n.* a type of sensory receptor in the skin, muscles, tendons, and joints that respond to touch, pressure, temperature, or pain stimuli and sends signals to the brain for processing in the somatosensory cortex
14. The \_\_\_\_\_ theory suggests that the human brain contains a small, "human-like" figure that controls our voluntary movements and sensations.  
*n.* a representation or model of a tiny human being, often used to illustrate or represent the senses or motor functions of the human body
15. He \_\_\_\_\_ himself to studying the history of ancient civilizations.  
*v.* to commit or dedicate oneself or one's time, effort, or energy to a particular task or purpose

ANSWERS: 8. ingrown, 9. severed, 10. astonishing, 11. cortical, 12. dorsal, 13. somatosensor, 14. homunculus, 15. devoted

16. The archaeologist ran his \_\_\_\_\_ along the pattern of the tombstones.  
*n.* the end or tip of a finger
17. Our body transfers information along each \_\_\_\_\_ using an electrical impulse.  
*n.* a cell that is specialized to carry information within the brain and between the brain and other parts of the body
18. Walking through the graveyard at night, I saw an eerie \_\_\_\_\_ of a ghostly figure.  
*n.* the appearance of a ghost or ghost-like image; a sudden and unexpected appearance of something or someone
19. The wound continued to \_\_\_\_\_ with pain, despite the medication.  
*v.* to beat with a strong, regular rhythm, as a pulse or a heart
20. \_\_\_\_\_ of the limb is a last resort for the patient.  
*n.* the act of cutting off a part of the body surgically
21. New \_\_\_\_\_ joints are less prone to metal poisoning.  
*adj.* of or relating to an artificial part of the body, such as a limb, a heart, or a breast implant

ANSWERS: 16. fingertips, 17. neuron, 18. apparition, 19. throb, 20. Amputation, 21. prosthetic