



## Vocabulary Builder Reference from...

*Ed Boyden: A light switch for neurons | TED Talk*

[https://www.ted.com/talks/ed\\_boyden\\_a\\_light\\_switch\\_for\\_neurons](https://www.ted.com/talks/ed_boyden_a_light_switch_for_neurons)

### Advanced Words Only

#### IMPORTANT

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## Session 1: Word List

### mediate

*v.* to try to bring about an agreement or understanding between people who are in conflict

*synonym* : arbitrate, reconcile, intervene

(1) **mediate** allergic reaction, (2) **mediate** a negotiation

The teacher had to **mediate** a disagreement between two students over a stolen pencil.

### amorphous

*adj.* without a definite or clear shape or form; lacking a specific structure or organization; shapeless or formless

*synonym* : formless, shapeless, structureless

(1) **amorphous** amoeba, (2) **amorphous** mass

The clouded jellyfish has an **amorphous** shape, making it difficult to identify.

### neuroscience

*n.* the scientific study of the function, structure, and disorder of the brain and the nervous system

(1) the branch of **neuroscience**, (2) a theoretical concept in **neuroscience**

Our university is famous for its professors, who are well-versed in behavioral **neuroscience**.

### intricacy

*n.* the quality of being complex, detailed, or highly involved; the existence of many interrelated parts or elements

*synonym* : complexity, intricateness, elaboration

(1) the **intricacy** of the design, (2) legal **intricacy**

The clockwork mechanism of the antique watch showed incredible **intricacy**.

## 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.

## atrophy

*n.* a decrease in size of a muscle, organ, etc., caused by disease or disuse

*synonym*: disintegration, degeneration, wasting away

(1) weakness with **atrophy**, (2) **atrophy** of the muscles

Daily exercise and adequate sleep are necessary to prevent the progression of **atrophy**.

## schizophrenia

*n.* a severe mental disorder in which a person has a distorted view of reality and may experience hallucinations, delusions, and disordered thinking and behavior

*synonym*: psychosis, disorder, mental illness

(1) **schizophrenia** spectrum disorder, (2) **schizophrenia** treatment

The **schizophrenia** patient was experiencing severe auditory hallucinations.

## excite

*v.* to make someone feel suddenly enthusiastic or eager

*synonym*: thrill, exhilarate, animate

(1) **excite** the crowd, (2) **excite** rebellion

The news of her promotion **excited** her.

## overactive

*adj.* excessively active; showing an excess of activity or energy

*synonym*: hyperactive, frantic, restless

(1) **overactive** imagination, (2) **overactive** thyroid

The medication caused an **overactive** immune system, resulting in adverse side effects.

## epilepsy

*n.* a neurological disorder characterized by recurrent seizures or convulsions, which can manifest in a variety of ways and be caused by various factors

*synonym*: seizures, convulsions, fits

(1) **epilepsy** seizure, (2) **epilepsy** medication

The flashing lights at the concert triggered her **epilepsy** and caused a seizure.

## unleash

*v.* to suddenly release a strong force, emotion, etc. that cannot be controlled

*synonym*: discharge, free, release

(1) **unleash** a hound, (2) **unleash** her anger

The general was still reluctant to **unleash** his troops in pursuit of an enemy.

## incapacitate

*v.* to disable or render someone or something unable to function or operate normally, either temporarily or permanently, often as a result of injury, illness, or damage

*synonym*: disable, paralyze, immobilize

(1) **incapacitate** opponent, (2) **incapacitate** the enemy

The injury sustained during the game could **incapacitate** the player for the rest of the season.

## Alzheimer

*n.* a neurodegenerative disease that causes memory loss, cognitive decline, and behavioral issues; is the most common cause of dementia in older adults

*synonym*: dementia, memory loss, cognitive decline

(1) **Alzheimer's** brain, (2) **Alzheimer's** risk factors

My grandmother has **Alzheimer's** disease requires special care and attention from her caregivers.

## solace

*n.* comfort or consolation in a time of distress, sadness, or disappointment; (verb) to comfort or console someone in a time of distress, loss, or suffering

*synonym* : comfort, condolence, peace

(1) **solace** in music, (2) offer **solace**

The grieving widow found **solace** in reading her late husband's letters.

## stimming

*n.* a behavior often exhibited by individuals on the autism spectrum characterized by repetitive bodily movements or sounds, such as hand flapping or rocking, often used as a form of self-regulation or sensory stimulation

*synonym* : self-stimulation, repetitive behaviors

(1) autistic **stimming**, (2) **stimming** therapy

Autistic children may engage in **stimming** behaviors, such as rocking or hand flapping, to self-regulate.

## cochlea

*n.* a spiral-shaped cavity in the inner ear that is responsible for hearing; it contains sensory hair cells that convert vibrations into electrical signals that are sent to the brain for interpretation

*synonym* : spiral organ, snail shell, inner ear

(1) **cochlea** spiral, (2) implanted **cochlea**

Damage to the **cochlea** can cause hearing loss or deafness.

## electrify

*v.* to make a machine or system work by using electricity; to make someone extremely enthusiastic about or interested in something

*synonym* : wire, amaze, astonish

(1) **electrify** the audience, (2) **electrify** a manufacturing process

The product developed through years of research continues to **electrify** the market.

## physicist

*n.* a scientist who specializes in the field of physics

(1) talented **physicist**, (2) theoretical **physicist**

Einstein was an outstanding and famous **physicist** of the

20th century.

## awry

*adv.* in a wrong or crooked position; out of order; amiss  
*synonym* : amiss, askew, incorrect

(1) **awry** plan, (2) **awry** hair

The plans for the surprise party went **awry** when the cake was ruined.

## preclinical

*adj.* of or relating to the early phases of a disease when an accurate diagnosis is not possible because symptoms of the disease have not yet appeared; of or relating to the first stage of a medical education

(1) **preclinical** diagnosis, (2) **preclinical** safety evaluation

The doctor suspected that the patient was in the **preclinical** stage of Alzheimer's disease.

## algae

*n.* A simple plant that grows in or near water and lacks typical leaves and roots

(1) **algae** biofuel, (2) blue **algae**

**Algae** has jammed the inlet to the water turbine.

## photosynthesis

*n.* the process through which plants and other organisms transform light energy into chemical energy, which is then released through cellular respiration to power the organism's activities.

(1) oxygenic **photosynthesis**, (2) process of **photosynthesis**

In **photosynthesis**, plants use carbon dioxide to feed themselves.

## eyespot

*n.* a rounded eyelike spot on an animal, as on the wings of some butterfly, or the tail of a peacock

(1) a purple **eyespot**, (2) **eyespot** disease

The primary role of the **eyespots** is to deflect attention from predators.

## rhodopsin

*n.* a light-sensitive protein found in the retina of the eye, responsible for vision in low-light conditions

*synonym*: visual purple, purpuroxanthin, retinene

(1) visual **rhodopsin**, (2) photosensitive **rhodopsin**

Light entering the eye causes a chemical change in the **rhodopsin**, which begins the vision process.

## fabricate

*v.* to make something, especially by assembling parts or constructing it from raw materials; to invent and present something false as true or real to deceive someone

*synonym*: manufacture, assemble, falsify

(1) **fabricate** a chemical, (2) **fabricate** an excuse

The detective discovered that the witness had **fabricated** her story about the crime.

## tweak

*v.* to pinch or squeeze something sharply; to adjust something finely

*synonym*: nip, pinch, fine-tune

(1) **tweak** his cheek, (2) **tweak** the economy

He didn't **tweak** the plan, even though he had time.

## optogenetics

*n.* a branch of biotechnology that involves the use of light to control the activity of genetically modified cells or neurons in living tissue, often used in neuroscience research

(1) **optogenetics** technique, (2) **optogenetics** manipulation

The recent advances in **optogenetics** research have paved the way for a deeper understanding of neuronal functions.

## poke

*v.* to push or prod with a sharp object or the finger

*synonym*: prod, jab, push

(1) **poke** around the desk, (2) **poke** a fire

They **poked** fun at each other's jokes, laughing and teasing.

## dopamine

*n.* a chemical substance produced by nerve cells as a neurotransmitter; as a drug, it is used to treat shock and hypotension

(1) **dopamine-inhibiting** agent, (2) antagonism of **dopamine**

The drug controls the level of **dopamine** in the brain.

## 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.

## vivo

*adj.* alive or existing in a living organism or system; relating to or involving "live" organisms or systems, particularly in scientific research or experimentation

*synonym*: alive, living, animate

(1) **vivo** imaging, (2) in **vivo** research

The **vivo** colors of the flowers made the garden come alive.

## controllable

*adj.* able to be controlled or directed

*synonym*: manageable, governable, submissive

(1) computer- **controllable**, (2) **controllable** aircraft

The new software is much more **controllable** and user-friendly.

## headlight

*n.* a bright forward-facing light on a vehicle, typically used at night to illuminate the road ahead

*synonym*: headlamp, beam, lamp

(1) **headlight** adjustment, (2) **headlight** switch

My car's **headlight** must be replaced before I drive again at night.

## prefrontal

*adj.* in or about the foremost part of the frontal lobe of the brain

(1) **prefrontal** bone, (2) **prefrontal** region

Research shows that damage to the **prefrontal** cortex leads to increased aggression.

## **cognition**

*n.* the psychological process of perception and learning and reasoning; the mental action or process by which knowledge and understanding are developed in the mind

*synonym* : awareness, understanding, comprehension

(1) social **cognition**, (2) **cognition** disorder

The professor focused on the research of infant **cognition**.

## **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

## **irreversible**

*adj.* impossible to change or return to a previous condition

*synonym* : irrevocable, unrecoverable, permanent

(1) avoid **irreversible** damage, (2) an **irreversible** change

The development of agricultural technology has had an **irreversible** impact on humanity.

## **coax**

*v.* to persuade, encourage, or gently urge someone to do something; to manipulate or persuade something to work or function properly

*synonym* : persuade, cajole, lure

(1) **coax** a confession, (2) **coax** a smile

She tried to **coax** her cat out of the tree with a can of tuna.

## **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.

## **fungus**

*n.* a type of organism that includes yeasts, molds, and mushrooms, which are heterotrophic, meaning they do not produce their food and must consume organic matter to survive



*synonym* : mold, mildew, yeast

(1) **fungus** infection, (2) symbiotic **fungus**

Certain types of **fungus** can be toxic to humans, causing severe illness if ingested.

## **overt**

*adj.* open, evident, or clear, especially in a way that is not intended to be secret

*synonym* : open, unhidden, obvious

(1) **overt** hostility, (2) **overt** symptoms

His **overt** lack of enthusiasm was noticeable to everyone in the room.

## **illumination**

*n.* light or source of light; the degree of visibility of your environment

*synonym* : light, luminosity, brightness

(1) starry **illumination**, (2) indirect **illumination**

The skylight will give adequate **illumination** from above.

## **upfront**

*adj.* frank and honest; (adverb) (of payment) in advance

*synonym* : honest, authentic, fair

(1) an **upfront** tone, (2) pay **upfront**

He was very **upfront** with him about his intentions.

## **photoreceptor**

*n.* a specialized cell in the retina of the eye that responds to light and enables vision; there are two types of photoreceptor cells - rods and cones - that are responsible for different aspects of vision

*synonym* : rod, cone, light-sensitive cell

(1) **photoreceptor** cells, (2) damaged **photoreceptor**

Cone **photoreceptors** are responsible for color vision.

## **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.

## ganglion

*n.* a group of nerve cells located outside the brain and spinal cord, often forming a swelling or knot; responsible for controlling certain bodily functions or movements

*synonym* : nerve center, nervous system

(1) **ganglion** cyst, (2) spinal **ganglion**

The patient's **ganglion** was causing severe pain in their wrist.

## retinitis

*n.* an inflammation of the retina (= the thin, light-sensitive tissue that lines the inside surface of the eye) which can cause decreased vision or possibly lead to blindness

*synonym* : retinal inflammation, retinopathy

(1) **retinitis** treatment, (2) infectious **retinitis**

**Retinitis pigmentosa** is a group of genetic disorders that affect the retina's ability to respond to light.

## pigment

*n.* a substance that gives color to a material, such as paint, ink, or biological tissue; often derived from natural sources or synthetically produced

*synonym* : dye, colorant, tint

(1) skin **pigment**, (2) **pigment** accumulation

The use of synthetic **pigments** in food production has become controversial due to health concerns.

## macula

*n.* a small, oval-shaped area near the center of the retina of the eye, responsible for providing high-resolution vision

*synonym* : center of the retina, spot, eyespot

(1) **macula** lutea, (2) damage to the **macula**

There are several treatment options available for patients with **macula-related** disorders.

## degenerate

*v.* (of a person, animal, or plant) to become worse in health or physical condition

*synonym* : deteriorate, decline, decay

(1) **degenerate** into a disagreement, (2) **degenerate** into recession

The once-thriving city has **degenerated** into a crime-ridden

slum.

## commercialize

*v.* to make something available for sale or use on a large scale

*synonym*: monetize, capitalize, marketize

(1) **commercialize** my patents, (2) **commercialize** idea

The company is trying to **commercialize** its new product.

## maze

*n.* a complex network of winding passages or pathways designed as a puzzle or challenge for people to navigate through

*synonym*: labyrinth, puzzle, network

(1) puzzle **maze**, (2) labyrinth **maze**

We got lost in the **maze** of streets while exploring the city.

## brute

*n.* a violent, wild, or feral animal; a person who is cruel, uncivilized, or lacking in intelligence or sensitivity; a physical force or power

*synonym*: beast, savage, animal

(1) **brute** beasts, (2) **brute** force

The **brute** behavior of the football players caused the game to be canceled.

## recapitulate

*v.* to summarize or repeat the main points of something

*synonym*: summarize, repeat, restate

(1) **recapitulate** briefly, (2) **recapitulate** a speech

He **recapitulated** the main points of the meeting for those who had not been able to attend.

## photosensitive

*adj.* sensitive or responsive to light, particularly in a scientific or medical context; referring to the ability to react to or be affected by light

*synonym*: photosensitive, light-sensitive, reactive

(1) **photosensitive** paper, (2) **photosensitive** reaction

The **photosensitive** material must be stored in a dark room to prevent damage.

## neurotechnology

*n.* technology or advancements in the field of neuroscience, often related to the study or manipulation of the brain or nervous system

*synonym*: brain-machine interfaces, neural implants, neuroprosthetics

(1) **neurotechnology** startup, (2) advanced **neurotechnology**

Research in **neurotechnology** is leading to groundbreaking advancements in brain-computer interfaces.

## intractable

*adj.* difficult to manage or control; stubborn or obstinate

*synonym*: obstinate, stubborn, unyielding

(1) **intractable** pain, (2) **intractable** situation

The **intractable** problem defied a solution.

## augment

*v.* to increase the size, extent, quantity, etc. of something by adding something to it

*synonym*: boost, increase, expand

(1) **augment** the reality, (2) **augment** immunity

Economic factors and monetary policy **augmented** inflation.

## doe

*n.* a mature female of mammals of which the male is called a buck, such as a deer or a rabbit

*synonym*: rabbit, bunny, hare

(1) **doe** rabbit, (2) buck and **doe**

Hunters use a whistle that makes the **doe** sound to lure stags.

## Session 2: Spelling

1. 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
2. rec\_\_\_\_\_ate briefly *v.* to summarize or repeat the main points of something
3. de\_\_\_e a literary plot *v.* to come up with an idea, plan, theory, etc., using your intelligence or imagination
4. rec\_\_\_\_\_ate a speech *v.* to summarize or repeat the main points of something
5. ove\_\_\_\_\_ve thyroid *adj.* excessively active; showing an excess of activity or energy
6. int\_\_\_\_\_le pain *adj.* difficult to manage or control; stubborn or obstinate
7. pi\_\_\_\_\_t accumulation *n.* a substance that gives color to a material, such as paint, ink, or biological tissue; often derived from natural sources or synthetically produced
8. tw\_\_k his cheek *v.* to pinch or squeeze something sharply; to adjust something finely
9. buck and d\_e *n.* a mature female of mammals of which the male is called a buck, such as a deer or a rabbit
10. a\_\_y plan *adv.* in a wrong or crooked position; out of order; amiss
11. al\_\_e biofuel *n.* A simple plant that grows in or near water and lacks typical leaves and roots

ANSWERS: 1. prosthetic, 2. recapitulate, 3. devise, 4. recapitulate, 5. overactive, 6. intractable, 7. pigment, 8. tweak, 9. doe, 10. awry, 11. algae

12. sch\_\_\_\_\_nia spectrum disorder      *n.* a severe mental disorder in which a person has a distorted view of reality and may experience hallucinations, delusions, and disordered thinking and behavior
13. v\_\_o imaging      *adj.* alive or existing in a living organism or system; relating to or involving "live" organisms or systems, particularly in scientific research or experimentation
14. c\_\_x a confession      *v.* to persuade, encourage, or gently urge someone to do something; to manipulate or persuade something to work or function properly
15. ga\_\_\_\_\_on cyst      *n.* a group of nerve cells located outside the brain and spinal cord, often forming a swelling or knot; responsible for controlling certain bodily functions or movements
16. p\_\_e a fire      *v.* to push or prod with a sharp object or the finger
17. visual rh\_\_\_\_\_in      *n.* a light-sensitive protein found in the retina of the eye, responsible for vision in low-light conditions
18. fa\_\_\_\_\_te a chemical      *v.* to make something, especially by assembling parts or constructing it from raw materials; to invent and present something false as true or real to deceive someone
19. process of pho\_\_\_\_\_sis      *n.* the process through which plants and other organisms transform light energy into chemical energy, which is then released through cellular respiration to power the organism's activities.

ANSWERS: 12. schizophrenia, 13. vivo, 14. coax, 15. ganglion, 16. poke, 17. rhodopsin, 18. fabricate, 19. photosynthesis

20. c\_\_x a smile *v.* to persuade, encourage, or gently urge someone to do something; to manipulate or persuade something to work or function properly
21. talented ph\_\_\_\_\_st *n.* a scientist who specializes in the field of physics
22. legal in\_\_\_\_\_cy *n.* the quality of being complex, detailed, or highly involved; the existence of many interrelated parts or elements
23. the in\_\_\_\_\_cy of the design *n.* the quality of being complex, detailed, or highly involved; the existence of many interrelated parts or elements
24. infectious re\_\_\_\_\_is *n.* an inflammation of the retina (= the thin, light-sensitive tissue that lines the inside surface of the eye) which can cause decreased vision or possibly lead to blindness
25. com\_\_\_\_\_ize idea *v.* to make something available for sale or use on a large scale
26. indirect ill\_\_\_\_\_ion *n.* light or source of light; the degree of visibility of your environment
27. pho\_\_\_\_\_ive paper *adj.* sensitive or responsive to light, particularly in a scientific or medical context; referring to the ability to react to or be affected by light
28. oxygenic pho\_\_\_\_\_sis *n.* the process through which plants and other organisms transform light energy into chemical energy, which is then released through cellular respiration to power the organism's activities.

ANSWERS: 20. coax, 21. physicist, 22. intricacy, 23. intricacy, 24. retinitis, 25. commercialize, 26. illumination, 27. photosensitive, 28. photosynthesis

29. de\_\_\_e a plan *v.* to come up with an idea, plan, theory, etc., using your intelligence or imagination
30. tw\_\_k the economy *v.* to pinch or squeeze something sharply; to adjust something finely
31. offer so\_\_\_e *n.* comfort or consolation in a time of distress, sadness, or disappointment; (verb) to comfort or console someone in a time of distress, loss, or suffering
32. au\_\_\_\_t immunity *v.* to increase the size, extent, quantity, etc. of something by adding something to it
33. ey\_\_\_\_t disease *n.* a rounded eyelike spot on an animal, as on the wings of some butterfly, or the tail of a peacock
34. an irr\_\_\_\_\_ble change *adj.* impossible to change or return to a previous condition
35. me\_\_\_\_e a negotiation *v.* to try to bring about an agreement or understanding between people who are in conflict
36. a theoretical concept in neu\_\_\_\_\_nce *n.* the scientific study of the function, structure, and disorder of the brain and the nervous system
37. at\_\_\_\_y of the muscles *n.* a decrease in size of a muscle, organ, etc., caused by disease or disuse
38. av\_\_t a strike *v.* to prevent something dangerous or undesirable from happening
39. spinal ga\_\_\_\_on *n.* a group of nerve cells located outside the brain and spinal cord, often forming a swelling or knot; responsible for controlling certain bodily functions or movements

ANSWERS: 29. devise, 30. tweak, 31. solace, 32. augment, 33. eyespot, 34. irreversible, 35. mediate, 36. neuroscience, 37. atrophy, 38. avert, 39. ganglion



40. pre\_\_\_\_\_al bone *adj.* in or about the foremost part of the frontal lobe of the brain
41. int\_\_\_\_\_le situation *adj.* difficult to manage or control; stubborn or obstinate
42. ex\_\_\_e rebellion *v.* to make someone feel suddenly enthusiastic or eager
43. br\_\_e beasts *n.* a violent, wild, or feral animal; a person who is cruel, uncivilized, or lacking in intelligence or sensitivity; a physical force or power
44. so\_\_\_e in music *n.* comfort or consolation in a time of distress, sadness, or disappointment; (verb) to comfort or console someone in a time of distress, loss, or suffering
45. in v\_\_o research *adj.* alive or existing in a living organism or system; relating to or involving "live" organisms or systems, particularly in scientific research or experimentation
46. un\_\_\_\_\_h a hound *v.* to suddenly release a strong force, emotion, etc. that cannot be controlled
47. do\_\_\_\_\_ne-inhibiting agent *n.* a chemical substance produced by nerve cells as a neurotransmitter; as a drug, it is used to treat shock and hypotension
48. an up\_\_\_\_\_t tone *adj.* frank and honest; (adverb) (of payment) in advance
49. theoretical ph\_\_\_\_\_st *n.* a scientist who specializes in the field of physics
50. opt\_\_\_\_\_ics manipulation *n.* a branch of biotechnology that involves the use of light to control the activity of genetically modified cells or neurons in living tissue, often used in neuroscience research

ANSWERS: 40. prefrontal, 41. intractable, 42. excite, 43. brute, 44. solace, 45. vivo, 46. unleash, 47. dopamine, 48. upfront, 49. physicist, 50. optogenetics

51. am\_\_\_\_\_us amoeba *adj.* without a definite or clear shape or form; lacking a specific structure or organization; shapeless or formless
52. au\_\_\_\_\_t the reality *v.* to increase the size, extent, quantity, etc. of something by adding something to it
53. br\_\_e force *n.* a violent, wild, or feral animal; a person who is cruel, uncivilized, or lacking in intelligence or sensitivity; a physical force or power
54. implanted co\_\_\_\_\_a *n.* a spiral-shaped cavity in the inner ear that is responsible for hearing; it contains sensory hair cells that convert vibrations into electrical signals that are sent to the brain for interpretation
55. ma\_\_\_a lutea *n.* a small, oval-shaped area near the center of the retina of the eye, responsible for providing high-resolution vision
56. Al\_\_\_\_\_er's brain *n.* a neurodegenerative disease that causes memory loss, cognitive decline, and behavioral issues; is the most common cause of dementia in older adults
57. re\_\_\_\_\_is treatment *n.* an inflammation of the retina (= the thin, light-sensitive tissue that lines the inside surface of the eye) which can cause decreased vision or possibly lead to blindness
58. opt\_\_\_\_\_ics technique *n.* a branch of biotechnology that involves the use of light to control the activity of genetically modified cells or neurons in living tissue, often used in neuroscience research

ANSWERS: 51. amorphous, 52. augment, 53. brute, 54. cochlea, 55. macula, 56. Alzheimer, 57. retinitis, 58. optogenetics

59. pre\_\_\_\_\_al diagnosis *adj.* of or relating to the early phases of a disease when an accurate diagnosis is not possible because symptoms of the disease have not yet appeared; of or relating to the first stage of a medical education
60. fa\_\_\_\_\_te an excuse *v.* to make something, especially by assembling parts or constructing it from raw materials; to invent and present something false as true or real to deceive someone
61. el\_\_\_\_\_fy the audience *v.* to make a machine or system work by using electricity; to make someone extremely enthusiastic about or interested in something
62. 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
63. labyrinth m\_\_e *n.* a complex network of winding passages or pathways designed as a puzzle or challenge for people to navigate through
64. social co\_\_\_\_\_on *n.* the psychological process of perception and learning and reasoning; the mental action or process by which knowledge and understanding are developed in the mind
65. weakness with at\_\_\_\_\_y *n.* a decrease in size of a muscle, organ, etc., caused by disease or disuse

ANSWERS: 59. preclinical, 60. fabricate, 61. electrify, 62. neuron, 63. maze, 64. cognition, 65. atrophy

66. pho\_\_\_\_\_tor cells *n.* a specialized cell in the retina of the eye that responds to light and enables vision; there are two types of photoreceptor cells - rods and cones - that are responsible for different aspects of vision
67. ep\_\_\_\_\_sy medication *n.* a neurological disorder characterized by recurrent seizures or convulsions, which can manifest in a variety of ways and be caused by various factors
68. ov\_\_t hostility *adj.* open, evident, or clear, especially in a way that is not intended to be secret
69. d\_e rabbit *n.* a mature female of mammals of which the male is called a buck, such as a deer or a rabbit
70. avoid irr\_\_\_\_\_ble damage *adj.* impossible to change or return to a previous condition
71. pay up\_\_\_\_\_t *adj.* frank and honest; (adverb) (of payment) in advance
72. pho\_\_\_\_\_ive reaction *adj.* sensitive or responsive to light, particularly in a scientific or medical context; referring to the ability to react to or be affected by light
73. symbiotic fu\_\_\_\_s *n.* a type of organism that includes yeasts, molds, and mushrooms, which are heterotrophic, meaning they do not produce their food and must consume organic matter to survive
74. 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: 66. photoreceptor, 67. epilepsy, 68. overt, 69. doe, 70. irreversible, 71. upfront, 72. photosensitive, 73. fungus, 74. neuron

75. puzzle m\_\_e *n.* a complex network of winding passages or pathways designed as a puzzle or challenge for people to navigate through
76. skin pi\_\_\_\_t *n.* a substance that gives color to a material, such as paint, ink, or biological tissue; often derived from natural sources or synthetically produced
77. co\_\_\_\_\_on disorder *n.* the psychological process of perception and learning and reasoning; the mental action or process by which knowledge and understanding are developed in the mind
78. deg\_\_\_\_\_te into a disagreement *v.* (of a person, animal, or plant) to become worse in health or physical condition
79. ep\_\_\_\_\_sy seizure *n.* a neurological disorder characterized by recurrent seizures or convulsions, which can manifest in a variety of ways and be caused by various factors
80. inc\_\_\_\_\_ate opponent *v.* to disable or render someone or something unable to function or operate normally, either temporarily or permanently, often as a result of injury, illness, or damage
81. neu\_\_\_\_\_ogy startup *n.* technology or advancements in the field of neuroscience, often related to the study or manipulation of the brain or nervous system
82. photosensitive rh\_\_\_\_\_in *n.* a light-sensitive protein found in the retina of the eye, responsible for vision in low-light conditions

ANSWERS: 75. maze, 76. pigment, 77. cognition, 78. degenerate, 79. epilepsy, 80. incapacitate, 81. neurotechnology, 82. rhodopsin

83. ov\_\_t symptoms *adj.* open, evident, or clear, especially in a way that is not intended to be secret
84. pre\_\_\_\_\_al region *adj.* in or about the foremost part of the frontal lobe of the brain
85. un\_\_\_\_\_h her anger *v.* to suddenly release a strong force, emotion, etc. that cannot be controlled
86. a purple ey\_\_\_\_\_t *n.* a rounded eyelike spot on an animal, as on the wings of some butterfly, or the tail of a peacock
87. Al\_\_\_\_\_er's risk factors *n.* a neurodegenerative disease that causes memory loss, cognitive decline, and behavioral issues; is the most common cause of dementia in older adults
88. ex\_\_\_\_\_e the crowd *v.* to make someone feel suddenly enthusiastic or eager
89. p\_\_e around the desk *v.* to push or prod with a sharp object or the finger
90. fu\_\_\_\_s infection *n.* a type of organism that includes yeasts, molds, and mushrooms, which are heterotrophic, meaning they do not produce their food and must consume organic matter to survive
91. com\_\_\_\_\_ize my patents *v.* to make something available for sale or use on a large scale
92. the branch of neu\_\_\_\_\_nce *n.* the scientific study of the function, structure, and disorder of the brain and the nervous system
93. re\_\_\_\_al cells *n.* the innermost light-sensitive membrane covering the back wall of the eyeball

ANSWERS: 83. overt, 84. prefrontal, 85. unleash, 86. eyespot, 87. Alzheimer, 88. excite, 89. poke, 90. fungus, 91. commercialize, 92. neuroscience, 93. retina

94. me\_\_\_\_\_e allergic reaction      *v.* to try to bring about an agreement or understanding between people who are in conflict
95. pro\_\_\_\_\_ic limbs      *adj.* of or relating to an artificial part of the body, such as a limb, a heart, or a breast implant
96. damage to the ma\_\_\_\_a      *n.* a small, oval-shaped area near the center of the retina of the eye, responsible for providing high-resolution vision
97. he\_\_\_\_\_ht adjustment      *n.* a bright forward-facing light on a vehicle, typically used at night to illuminate the road ahead
98. autistic st\_\_\_\_\_ng      *n.* a behavior often exhibited by individuals on the autism spectrum characterized by repetitive bodily movements or sounds, such as hand flapping or rocking, often used as a form of self-regulation or sensory stimulation
99. sch\_\_\_\_\_nia treatment      *n.* a severe mental disorder in which a person has a distorted view of reality and may experience hallucinations, delusions, and disordered thinking and behavior
100. advanced neu\_\_\_\_\_ogy      *n.* technology or advancements in the field of neuroscience, often related to the study or manipulation of the brain or nervous system
101. el\_\_\_\_\_fy a manufacturing process      *v.* to make a machine or system work by using electricity; to make someone extremely enthusiastic about or interested in something

ANSWERS: 94. mediate, 95. prosthetic, 96. macula, 97. headlight, 98. stimming, 99. schizophrenia, 100. neurotechnology, 101. electrify

102. re\_\_\_a scanner *n.* the innermost light-sensitive membrane covering the back wall of the eyeball
103. computer-con\_\_\_\_\_ble *adj.* able to be controlled or directed
104. he\_\_\_\_\_ht switch *n.* a bright forward-facing light on a vehicle, typically used at night to illuminate the road ahead
105. antagonism of do\_\_\_\_\_ne *n.* a chemical substance produced by nerve cells as a neurotransmitter; as a drug, it is used to treat shock and hypotension
106. blue al\_\_e *n.* A simple plant that grows in or near water and lacks typical leaves and roots
107. inc\_\_\_\_\_ate the enemy *v.* to disable or render someone or something unable to function or operate normally, either temporarily or permanently, often as a result of injury, illness, or damage
108. co\_\_\_\_\_a spiral *n.* a spiral-shaped cavity in the inner ear that is responsible for hearing; it contains sensory hair cells that convert vibrations into electrical signals that are sent to the brain for interpretation
109. damaged pho\_\_\_\_\_tor *n.* a specialized cell in the retina of the eye that responds to light and enables vision; there are two types of photoreceptor cells - rods and cones - that are responsible for different aspects of vision
110. con\_\_\_\_\_ble aircraft *adj.* able to be controlled or directed

ANSWERS: 102. retina, 103. controllable, 104. headlight, 105. dopamine, 106. algae, 107. incapacitate, 108. cochlea, 109. photoreceptor, 110. controllable



111. a__y hair	<i>adv.</i> in a wrong or crooked position; out of order; amiss
112. ove_____ve imagination	<i>adj.</i> excessively active; showing an excess of activity or energy
113. pre_____al safety evaluation	<i>adj.</i> of or relating to the early phases of a disease when an accurate diagnosis is not possible because symptoms of the disease have not yet appeared; of or relating to the first stage of a medical education
114. am_____us mass	<i>adj.</i> without a definite or clear shape or form; lacking a specific structure or organization; shapeless or formless
115. st_____ng therapy	<i>n.</i> a behavior often exhibited by individuals on the autism spectrum characterized by repetitive bodily movements or sounds, such as hand flapping or rocking, often used as a form of self-regulation or sensory stimulation
116. av__t disaster	<i>v.</i> to prevent something dangerous or undesirable from happening
117. deg_____te into recession	<i>v.</i> (of a person, animal, or plant) to become worse in health or physical condition
118. starry ill_____ion	<i>n.</i> light or source of light; the degree of visibility of your environment

ANSWERS: 111. awry, 112. overactive, 113. preclinical, 114. amorphous, 115. stimming, 116. avert, 117. degenerate, 118. illumination

## Session 3: Fill in the Blanks

1. Research shows that damage to the \_\_\_\_\_ cortex leads to increased aggression.  
*adj.* in or about the foremost part of the frontal lobe of the brain
2. We got lost in the \_\_\_\_\_ of streets while exploring the city.  
*n.* a complex network of winding passages or pathways designed as a puzzle or challenge for people to navigate through
3. The use of synthetic \_\_\_\_\_ in food production has become controversial due to health concerns.  
*n.* a substance that gives color to a material, such as paint, ink, or biological tissue; often derived from natural sources or synthetically produced
4. The flashing lights at the concert triggered her \_\_\_\_\_ and caused a seizure.  
*n.* a neurological disorder characterized by recurrent seizures or convulsions, which can manifest in a variety of ways and be caused by various factors
5. The \_\_\_\_\_ behavior of the football players caused the game to be canceled.  
*n.* a violent, wild, or feral animal; a person who is cruel, uncivilized, or lacking in intelligence or sensitivity; a physical force or power
6. The product developed through years of research continues to \_\_\_\_\_ the market.  
*v.* to make a machine or system work by using electricity; to make someone extremely enthusiastic about or interested in something
7. 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

ANSWERS: 1. prefrontal, 2. maze, 3. pigments, 4. epilepsy, 5. brute, 6. electrify, 7. neuron

8. The professor focused on the research of infant \_\_\_\_\_.
- n.* the psychological process of perception and learning and reasoning; the mental action or process by which knowledge and understanding are developed in the mind
9. The clockwork mechanism of the antique watch showed incredible \_\_\_\_\_.
- n.* the quality of being complex, detailed, or highly involved; the existence of many interrelated parts or elements
10. Research in \_\_\_\_\_ is leading to groundbreaking advancements in brain-computer interfaces.
- n.* technology or advancements in the field of neuroscience, often related to the study or manipulation of the brain or nervous system
11. She tried to \_\_\_\_\_ her cat out of the tree with a can of tuna.
- v.* to persuade, encourage, or gently urge someone to do something; to manipulate or persuade something to work or function properly
12. 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
13. The skylight will give adequate \_\_\_\_\_ from above.
- n.* light or source of light; the degree of visibility of your environment
14. The clouded jellyfish has an \_\_\_\_\_ shape, making it difficult to identify.
- adj.* without a definite or clear shape or form; lacking a specific structure or organization; shapeless or formless
15. The recent advances in \_\_\_\_\_ research have paved the way for a deeper understanding of neuronal functions.
- n.* a branch of biotechnology that involves the use of light to control the activity of genetically modified cells or neurons in living tissue, often used in neuroscience research

ANSWERS: 8. cognition, 9. intricacy, 10. neurotechnology, 11. coax, 12. prosthetic,

13. illumination, 14. amorphous, 15. optogenetics

16. They \_\_\_\_\_ fun at each other's jokes, laughing and teasing.  
*v.* to push or prod with a sharp object or the finger
17. 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
18. The news of her promotion \_\_\_\_\_ her.  
*v.* to make someone feel suddenly enthusiastic or eager
19. Daily exercise and adequate sleep are necessary to prevent the progression of \_\_\_\_\_.  
*n.* a decrease in size of a muscle, organ, etc., caused by disease or disuse
20. My grandmother has \_\_\_\_\_ disease requires special care and attention from her caregivers.  
*n.* a neurodegenerative disease that causes memory loss, cognitive decline, and behavioral issues; is the most common cause of dementia in older adults
21. He didn't \_\_\_\_\_ the plan, even though he had time.  
*v.* to pinch or squeeze something sharply; to adjust something finely
22. He was very \_\_\_\_\_ with him about his intentions.  
*adj.* frank and honest; (adverb) (of payment) in advance
23. The medication caused an \_\_\_\_\_ immune system, resulting in adverse side effects.  
*adj.* excessively active; showing an excess of activity or energy

ANSWERS: 16. poked, 17. devise, 18. excited, 19. atrophy, 20. Alzheimer's, 21. tweak, 22. upfront, 23. overactive

24. Einstein was an outstanding and famous \_\_\_\_\_ of the 20th century.
- n.* a scientist who specializes in the field of physics
25. The primary role of the \_\_\_\_\_ is to deflect attention from predators.
- n.* a rounded eyelike spot on an animal, as on the wings of some butterfly, or the tail of a peacock
26. There are several treatment options available for patients with \_\_\_\_\_ disorders.
- n.* a small, oval-shaped area near the center of the retina of the eye, responsible for providing high-resolution vision
27. The teacher had to \_\_\_\_\_ a disagreement between two students over a stolen pencil.
- v.* to try to bring about an agreement or understanding between people who are in conflict
28. The detective discovered that the witness had \_\_\_\_\_ her story about the crime.
- v.* to make something, especially by assembling parts or constructing it from raw materials; to invent and present something false as true or real to deceive someone
29. Autistic children may engage in \_\_\_\_\_ behaviors, such as rocking or hand flapping, to self-regulate.
- n.* a behavior often exhibited by individuals on the autism spectrum characterized by repetitive bodily movements or sounds, such as hand flapping or rocking, often used as a form of self-regulation or sensory stimulation
30. The injury sustained during the game could \_\_\_\_\_ the player for the rest of the season.
- v.* to disable or render someone or something unable to function or operate normally, either temporarily or permanently, often as a result of injury, illness, or damage

ANSWERS: 24. physicist, 25. eyespots, 26. macula-related, 27. mediate, 28. fabricated, 29. stimming, 30. incapacitate

31. The general was still reluctant to \_\_\_\_\_ his troops in pursuit of an enemy.  
*v.* to suddenly release a strong force, emotion, etc. that cannot be controlled
32. The company is trying to \_\_\_\_\_ its new product.  
*v.* to make something available for sale or use on a large scale
33. The development of agricultural technology has had an \_\_\_\_\_ impact on humanity.  
*adj.* impossible to change or return to a previous condition
34. The new software is much more \_\_\_\_\_ and user-friendly.  
*adj.* able to be controlled or directed
35. The plans for the surprise party went \_\_\_\_\_ when the cake was ruined.  
*adv.* in a wrong or crooked position; out of order; amiss
36. \_\_\_\_\_ has jammed the inlet to the water turbine.  
*n.* A simple plant that grows in or near water and lacks typical leaves and roots
37. 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
38. Hunters use a whistle that makes the \_\_\_\_\_ sound to lure stags.  
*n.* a mature female of mammals of which the male is called a buck, such as a deer or a rabbit
39. Damage to the \_\_\_\_\_ can cause hearing loss or deafness.  
*n.* a spiral-shaped cavity in the inner ear that is responsible for hearing; it contains sensory hair cells that convert vibrations into electrical signals that are sent to the brain for interpretation

ANSWERS: 31. unleash, 32. commercialize, 33. irreversible, 34. controllable, 35. awry, 36. Algae, 37. retina, 38. doe, 39. cochlea

40. Certain types of \_\_\_\_\_ can be toxic to humans, causing severe illness if ingested.
- n.* a type of organism that includes yeasts, molds, and mushrooms, which are heterotrophic, meaning they do not produce their food and must consume organic matter to survive
41. The dam systematically releases large amounts of water to \_\_\_\_\_ flooding during the rainy season
- v.* to prevent something dangerous or undesirable from happening
42. The doctor suspected that the patient was in the \_\_\_\_\_ stage of Alzheimer's disease.
- adj.* of or relating to the early phases of a disease when an accurate diagnosis is not possible because symptoms of the disease have not yet appeared; of or relating to the first stage of a medical education
43. He \_\_\_\_\_ the main points of the meeting for those who had not been able to attend.
- v.* to summarize or repeat the main points of something
44. My car's \_\_\_\_\_ must be replaced before I drive again at night.
- n.* a bright forward-facing light on a vehicle, typically used at night to illuminate the road ahead
45. The \_\_\_\_\_ colors of the flowers made the garden come alive.
- adj.* alive or existing in a living organism or system; relating to or involving "live" organisms or systems, particularly in scientific research or experimentation
46. The \_\_\_\_\_ material must be stored in a dark room to prevent damage.
- adj.* sensitive or responsive to light, particularly in a scientific or medical context; referring to the ability to react to or be affected by light

ANSWERS: 40. fungus, 41. avert, 42. preclinical, 43. recapitulated, 44. headlight, 45. vivo, 46. photosensitive



47. Cone \_\_\_\_\_ are responsible for color vision.
- n.* a specialized cell in the retina of the eye that responds to light and enables vision; there are two types of photoreceptor cells - rods and cones - that are responsible for different aspects of vision
48. The \_\_\_\_\_ patient was experiencing severe auditory hallucinations.
- n.* a severe mental disorder in which a person has a distorted view of reality and may experience hallucinations, delusions, and disordered thinking and behavior
49. In \_\_\_\_\_ plants use carbon dioxide to feed themselves.
- n.* the process through which plants and other organisms transform light energy into chemical energy, which is then released through cellular respiration to power the organism's activities.
50. The patient's \_\_\_\_\_ was causing severe pain in their wrist.
- n.* a group of nerve cells located outside the brain and spinal cord, often forming a swelling or knot; responsible for controlling certain bodily functions or movements
51. Economic factors and monetary policy \_\_\_\_\_ inflation.
- v.* to increase the size, extent, quantity, etc. of something by adding something to it
52. Light entering the eye causes a chemical change in the \_\_\_\_\_ which begins the vision process.
- n.* a light-sensitive protein found in the retina of the eye, responsible for vision in low-light conditions
53. The drug controls the level of \_\_\_\_\_ in the brain.
- n.* a chemical substance produced by nerve cells as a neurotransmitter; as a drug, it is used to treat shock and hypotension

ANSWERS: 47. photoreceptors, 48. schizophrenia, 49. photosynthesis, 50. ganglion, 51. augmented, 52. rhodopsin, 53. dopamine

54. The \_\_\_\_\_ problem defied a solution.

*adj.* difficult to manage or control; stubborn or obstinate

55. The grieving widow found \_\_\_\_\_ in reading her late husband's letters.

*n.* comfort or consolation in a time of distress, sadness, or disappointment; (verb) to comfort or console someone in a time of distress, loss, or suffering

56. The once-thriving city has \_\_\_\_\_ into a crime-ridden slum.

*v.* (of a person, animal, or plant) to become worse in health or physical condition

57. \_\_\_\_\_ pigmentosa is a group of genetic disorders that affect the retina's ability to respond to light.

*n.* an inflammation of the retina (= the thin, light-sensitive tissue that lines the inside surface of the eye) which can cause decreased vision or possibly lead to blindness

58. His \_\_\_\_\_ lack of enthusiasm was noticeable to everyone in the room.

*adj.* open, evident, or clear, especially in a way that is not intended to be secret

59. Our university is famous for its professors, who are well-versed in behavioral \_\_\_\_\_.

*n.* the scientific study of the function, structure, and disorder of the brain and the nervous system

ANSWERS: 54. intractable, 55. solace, 56. degenerated, 57. Retinitis, 58. overt, 59. neuroscience