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Gokul Upadhyayula: The life unfolding inside your cells, revealed in 3D | TED Talk

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Advanced Words Only

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Session 1: Word List

comp

v. short for "compensate," meaning to give goods or services to someone without asking for payment

synonym: waive, cover, provide

(1) **comp** their meal, (2) **comp** the employees with a bonus
The casino **comped** her room and meals for being a high-rolling gambler.

paparazzi

n. (plural of "paparazzo") a group of freelance photographers who doggedly follow, often aggressively, celebrities, public figures, or socialites to take their photographs in the hope of selling them to newspapers, magazines, or media outlets

synonym: photographer, pap, shutterbug

(1) **paparazzi** photos, (2) celebrity **paparazzi**
The actress had to hire security to fend off the relentless **paparazzi** outside her home.

windy

adj. characterized by or affected by strong winds; of or relating to the wind; describing a person who talks a lot, often in an exaggerated way or without saying much substance

synonym: airy, gusty, breezy

(1) **windy** hillside, (2) **windy** eloquence

The weather is too **windy** for us to go on a boat ride.

obsession

n. the state in which a person's mind is filled with thoughts of one single object or particular person

synonym : compulsion, fixation, enthusiasm

(1) **obsession** with character, (2) national **obsession**

Gambling became an **obsession** for him, and he eventually lost everything.

inanimate

adj. not having life or spirit; not animate

synonym : lifeless, inert, passive

(1) **inanimate** nature, (2) **inanimate** matter

The **inanimate** object was not capable of movement or feeling.

carbohydrate

n. (also carb) any of a class of organic compounds that includes sugars, starch, and cellulose and are a principal source of energy in the diet of animals

synonym : sugar, starch, cellulose

(1) complex **carbohydrate**, (2) **carbohydrate** metabolism

Foods high in **carbohydrates** include bread, pasta, and rice.

biochemical

adj. relating to the chemical processes and substances that occur within living organisms

synonym : molecular, biological

(1) **biochemical** reaction, (2) complex **biochemical**

Biochemical research is essential to understanding the complex chemical reactions in living organisms.

firefly

n. a flying nocturnal insect common in warm regions with a tail that shines in the dark

(1) the glow of a **firefly**, (2) sparkle like **firefly**

In that country, there is a culture of eating live **firefly** squid.

emit

v. to give off or send out something such as light, heat, sound, gas, etc.

synonym : give off, radiate, expel

(1) **emit** a gamma ray, (2) **emit** air pollution

During the unloading, the container box **emits** a clicking sound.

confine

v. to restrict the movement of someone or something

synonym: restrict, limit, contain

(1) **confine** themselves solely, (2) **confine** the scope of use

The animal was **confined** in a small cage.

linger

v. to stay in a place or exist longer than expected

synonym: dawdle, tarry, loiter

(1) **linger** in the mind, (2) **linger** over your work

She **lingered** for a moment before leaving the room.

infect

v. to affect a person, an animal, or a plant with a disease-causing organism

synonym: pollute, contaminate, affect

(1) **infect** other animal species, (2) **infect** a computer with a virus

Children often **infect** parents with this head cold.

rotavirus

n. a virus commonly causes gastroenteritis, an inflammation of the stomach and intestines, particularly in young children. It is spread via contaminated food, water, and surfaces

synonym: gastroenteritis, stomach flu, intestinal virus

(1) **rotavirus** infection, (2) spread of **rotavirus**

The symptoms of **rotavirus** include diarrhea, vomiting, and fever.

contagious

adj. able to be passed on to others through contact or proximity, especially by infection or disease

synonym: infectious, transmissible, communicable

(1) **contagious** enthusiasm, (2) **contagious** virus

The disease is highly **contagious** and spreads quickly.

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**.

diffuse

adj. spread out widely; not concentrated in one place

synonym : spread, scatter

(1) **diffuse** bleeding, (2) **diffuse** cloud

Direct lighting is preferable to **diffuse** lighting when reading.

outsmart

v. to defeat or best someone through cleverness, cunning, or intelligence, to prevail over someone by being smarter or more strategic

synonym : outwit, beat, surpass

(1) **outsmart** the competition, (2) **outsmart** a conspiracy

He could **outsmart** his opponents with his quick thinking and strategic planning.

petri

n. (petri dish) a small, clear, and round dish with a lid used in laboratories, especially for growing bacteria

(1) **petri** dish test, (2) bacteria on **petri** dishes

Glass **petri** dishes are used to culture microorganisms.

zebra

n. a wild, horse-like mammal native to Africa with distinctive black-and-white stripes

synonym : striped horse, wild horse

(1) **zebra** pattern, (2) **zebra** crossing

The **zebra's** distinctive black and white stripes help it blend into its surroundings in the wild.

scramble

v. to move or climb quickly and awkwardly, often using your hands to help you

synonym : jumble, disarrange

(1) **scramble** my mind, (2) **scramble** for support

Local business owners **scrambled** to find skilled workers.

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.

astronomer *n.* a physicist who studies astronomy

synonym : stargazer, cosmologist, astrophysicist

(1) amateur **astronomer**, (2) solar **astronomer**

This question has fascinated solar **astronomers** for decades.

turbulent *adj.* marked by a lot of sudden changes, confusion, or uncertainty; characterized by intense activity or agitation

synonym : chaotic, stormy, tumultuous

(1) **turbulent** waves, (2) **turbulent** age

The stock market has been **turbulent** lately, with prices fluctuating rapidly.

vertebrate *adj.* relating to animals that have a backbone or spinal column, such as mammals, birds, reptiles, amphibians, and fish

synonym : animal, chordate, backboned

(1) the muscle tissue of a **vertebrate**, (2) **vertebrate** biology

The presence of a backbone is a defining characteristic of **vertebrate** animals.

commotion *n.* a state of confused and noisy disturbance

synonym : disturbance, fuss, uproar

(1) a few minutes of **commotion**, (2) make **commotion**

The **commotion** in the classroom made it hard for the teacher to teach.

rowdy

n. a person who behaves in a loud, rough, or disorderly manner, causing a disturbance or annoyance to others

synonym : hooligan, troublemaker, ruffian

(1) **rowdy** behavior, (2) **rowdy** fans

The **rowdy** crowd at the concert caused a disturbance and had to be escorted out by security.

magenta

n. a bright, purplish-red color named after a plant that was once used to produce a dye with a similar hue

synonym : purple-red, fuchsia

(1) **magenta** flowers, (2) **magenta** ink

The artist used **magenta** paint to make her painting pop with color.

claw

n. a curved, pointed appendage found on the foot or leg of an animal, used for gripping or grasping; a human hand with long, narrow fingers that are curved like a claw; a machine or tool with a claw-like opening used for gripping or lifting objects

synonym : paw, talon, nail

(1) **claw** marks, (2) **claw** hammer

The bear used its **claw** to catch a fish in the river.

invade

v. to enter aggressively into another's territory by military force for conquest and occupation

synonym : intrude, raid, overrun

(1) **invade** other tissues, (2) **invade** his privacy

I have no intention to **invade** your privacy.

upstage

v. to distract attention from someone or something else, often intentionally; to move upstage in a theater, away from the audience, thus taking a more prominent position on the stage; (adverb) at or toward the rear of the stage

synonym : outdo, overshadow, eclipse

(1) **upstage** a co-star, (2) move **upstage**

The musician's incredible solo momentarily **upstaged** the

lead singer.

neutrophil

n. the most common type of white blood cell in the human body, which helps the immune system by attacking and destroying harmful foreign substances, such as bacteria and viruses

synonym: white blood cell, immune cell, phagocyte

(1) **neutrophil** infiltration, (2) **neutrophil** migration

High levels of **neutrophils** can indicate an infection or inflammation in the body.

smartphone

n. a mobile phone that functions as a computer and connects to the Internet

(1) **smartphone** app developer, (2) **smartphone** addict

Internet traffic volumes have increased significantly with the advent of **smartphones**.

visualize

v. to form a mental image or concept of something; to make something visible

synonym: imagine, picture, envision

(1) **visualize** data, (2) **visualize** flying through space

She tried to **visualize** the layout of the new house in her mind.

Session 2: Spelling

1. e__t air pollution *v.* to give off or send out something such as light, heat, sound, gas, etc.
2. in___t a computer with a virus *v.* to affect a person, an animal, or a plant with a disease-causing organism
3. 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
4. ver_____te biology *adj.* relating to animals that have a backbone or spinal column, such as mammals, birds, reptiles, amphibians, and fish
5. tu_____nt waves *adj.* marked by a lot of sudden changes, confusion, or uncertainty; characterized by intense activity or agitation
6. sc_____le for support *v.* to move or climb quickly and awkwardly, often using your hands to help you
7. sc_____le my mind *v.* to move or climb quickly and awkwardly, often using your hands to help you
8. ma_____a flowers *n.* a bright, purplish-red color named after a plant that was once used to produce a dye with a similar hue
9. a few minutes of co_____on *n.* a state of confused and noisy disturbance

ANSWERS: 1. emit, 2. infect, 3. blur, 4. vertebrate, 5. turbulent, 6. scramble, 7. scramble, 8. magenta, 9. commotion

10. vi_____ze data *v.* to form a mental image or concept of something; to make something visible
11. in___e his privacy *v.* to enter aggressively into another's territory by military force for conquest and occupation
12. ou_____rt a conspiracy *v.* to defeat or best someone through cleverness, cunning, or intelligence, to prevail over someone by being smarter or more strategic
13. co_____e the scope of use *v.* to restrict the movement of someone or something
14. sma_____ne app developer *n.* a mobile phone that functions as a computer and connects to the Internet
15. make co_____on *n.* a state of confused and noisy disturbance
16. car_____ate metabolism *n.* (also carb) any of a class of organic compounds that includes sugars, starch, and cellulose and are a principal source of energy in the diet of animals
17. di_____e cloud *adj.* spread out widely; not concentrated in one place
18. bio_____al reaction *adj.* relating to the chemical processes and substances that occur within living organisms
19. sma_____ne addict *n.* a mobile phone that functions as a computer and connects to the Internet
20. up_____e a co-star *v.* to distract attention from someone or something else, often intentionally; to move upstage in a theater, away from the audience, thus taking a more prominent position on the stage; (adverb) at or toward the rear of the stage

ANSWERS: 10. visualize, 11. invade, 12. outsmart, 13. confine, 14. smartphone, 15. commotion, 16. carbohydrate, 17. diffuse, 18. biochemical, 19. smartphone, 20. upstage

21. con_____us enthusiasm *adj.* able to be passed on to others through contact or proximity, especially by infection or disease
22. in___e other tissues *v.* to enter aggressively into another's territory by military force for conquest and occupation
23. the muscle tissue of a ver_____te *adj.* relating to animals that have a backbone or spinal column, such as mammals, birds, reptiles, amphibians, and fish
24. ou_____rt the competition *v.* to defeat or best someone through cleverness, cunning, or intelligence, to prevail over someone by being smarter or more strategic
25. c__w marks *n.* a curved, pointed appendage found on the foot or leg of an animal, used for gripping or grasping; a human hand with long, narrow fingers that are curved like a claw; a machine or tool with a claw-like opening used for gripping or lifting objects
26. in_____te matter *adj.* not having life or spirit; not animate
27. ro__y fans *n.* a person who behaves in a loud, rough, or disorderly manner, causing a disturbance or annoyance to others
28. li___r in the mind *v.* to stay in a place or exist longer than expected
29. e__t a gamma ray *v.* to give off or send out something such as light, heat, sound, gas, etc.

ANSWERS: 21. contagious, 22. invade, 23. vertebrate, 24. outsmart, 25. claw, 26. inanimate, 27. rowdy, 28. linger, 29. emit

30. ro_____us infection *n.* a virus commonly causes gastroenteritis, an inflammation of the stomach and intestines, particularly in young children. It is spread via contaminated food, water, and surfaces
31. di_____e bleeding *adj.* spread out widely; not concentrated in one place
32. pe__i dish test *n.* (petri dish) a small, clear, and round dish with a lid used in laboratories, especially for growing bacteria
33. solar ast_____er *n.* a physicist who studies astronomy
34. li____r over your work *v.* to stay in a place or exist longer than expected
35. amateur ast_____er *n.* a physicist who studies astronomy
36. co_____e themselves solely *v.* to restrict the movement of someone or something
37. spread of ro_____us *n.* a virus commonly causes gastroenteritis, an inflammation of the stomach and intestines, particularly in young children. It is spread via contaminated food, water, and surfaces
38. tu_____nt age *adj.* marked by a lot of sudden changes, confusion, or uncertainty; characterized by intense activity or agitation
39. celebrity pa_____zi *n.* (plural of "paparazzo") a group of freelance photographers who doggedly follow, often aggressively, celebrities, public figures, or socialites to take their photographs in the hope of selling them to newspapers, magazines, or media outlets

ANSWERS: 30. rotavirus, 31. diffuse, 32. petri, 33. astronomer, 34. linger, 35. astronomer, 36. confine, 37. rotavirus, 38. turbulent, 39. paparazzi

40. wi__y eloquence *adj.* characterized by or affected by strong winds; of or relating to the wind; describing a person who talks a lot, often in an exaggerated way or without saying much substance
41. c__p their meal *v.* short for "compensate," meaning to give goods or services to someone without asking for payment
42. ze__a pattern *n.* a wild, horse-like mammal native to Africa with distinctive black-and-white stripes
43. pa_____zi photos *n.* (plural of "paparazzo") a group of freelance photographers who doggedly follow, often aggressively, celebrities, public figures, or socialites to take their photographs in the hope of selling them to newspapers, magazines, or media outlets
44. wi__y hillside *adj.* characterized by or affected by strong winds; of or relating to the wind; describing a person who talks a lot, often in an exaggerated way or without saying much substance
45. sparkle like fi_____y *n.* a flying nocturnal insect common in warm regions with a tail that shines in the dark
46. move up_____e *v.* to distract attention from someone or something else, often intentionally; to move upstage in a theater, away from the audience, thus taking a more prominent position on the stage; (adverb) at or toward the rear of the stage

ANSWERS: 40. windy, 41. comp, 42. zebra, 43. paparazzi, 44. windy, 45. firefly, 46. upstage

47. neu_____il migration *n.* the most common type of white blood cell in the human body, which helps the immune system by attacking and destroying harmful foreign substances, such as bacteria and viruses
48. national ob_____on *n.* the state in which a person's mind is filled with thoughts of one single object or particular person
49. ro__y behavior *n.* a person who behaves in a loud, rough, or disorderly manner, causing a disturbance or annoyance to others
50. ob_____on with character *n.* the state in which a person's mind is filled with thoughts of one single object or particular person
51. vi_____ze flying through space *v.* to form a mental image or concept of something; to make something visible
52. the glow of a fi_____y *n.* a flying nocturnal insect common in warm regions with a tail that shines in the dark
53. con_____us virus *adj.* able to be passed on to others through contact or proximity, especially by infection or disease
54. neu_____il infiltration *n.* the most common type of white blood cell in the human body, which helps the immune system by attacking and destroying harmful foreign substances, such as bacteria and viruses
55. in_____te nature *adj.* not having life or spirit; not animate
56. in___t other animal species *v.* to affect a person, an animal, or a plant with a disease-causing organism

ANSWERS: 47. neutrophil, 48. obsession, 49. rowdy, 50. obsession, 51. visualize, 52. firefly, 53. contagious, 54. neutrophil, 55. inanimate, 56. infect

57. ze__a crossing *n.* a wild, horse-like mammal native to Africa with distinctive black-and-white stripes
58. the pa____en in the air *n.* a bacterium, virus, or other microorganism that causes disease
59. c__p the employees with a bonus *v.* short for "compensate," meaning to give goods or services to someone without asking for payment
60. complex car____ate *n.* (also carb) any of a class of organic compounds that includes sugars, starch, and cellulose and are a principal source of energy in the diet of animals
61. plant pa____en *n.* a bacterium, virus, or other microorganism that causes disease
62. complex bio____al *adj.* relating to the chemical processes and substances that occur within living organisms
63. ma____a ink *n.* a bright, purplish-red color named after a plant that was once used to produce a dye with a similar hue
64. c__w hammer *n.* a curved, pointed appendage found on the foot or leg of an animal, used for gripping or grasping; a human hand with long, narrow fingers that are curved like a claw; a machine or tool with a claw-like opening used for gripping or lifting objects
65. bacteria on pe__i dishes *n.* (petri dish) a small, clear, and round dish with a lid used in laboratories, especially for growing bacteria

ANSWERS: 57. zebra, 58. pathogen, 59. comp, 60. carbohydrate, 61. pathogen, 62. biochemical, 63. magenta, 64. claw, 65. petri

66. 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: 66. blur

Session 3: Fill in the Blanks

1. Children often _____ parents with this head cold.
 - v. to affect a person, an animal, or a plant with a disease-causing organism

2. The musician's incredible solo momentarily _____ the lead singer.
 - v. to distract attention from someone or something else, often intentionally; to move upstage in a theater, away from the audience, thus taking a more prominent position on the stage; (adverb) at or toward the rear of the stage

3. The _____ crowd at the concert caused a disturbance and had to be escorted out by security.
 - n. a person who behaves in a loud, rough, or disorderly manner, causing a disturbance or annoyance to others

4. She _____ for a moment before leaving the room.
 - v. to stay in a place or exist longer than expected

5. He could _____ his opponents with his quick thinking and strategic planning.
 - v. to defeat or best someone through cleverness, cunning, or intelligence, to prevail over someone by being smarter or more strategic

6. The casino _____ her room and meals for being a high-rolling gambler.
 - v. short for "compensate," meaning to give goods or services to someone without asking for payment

7. The presence of a backbone is a defining characteristic of _____ animals.
 - adj. relating to animals that have a backbone or spinal column, such as mammals, birds, reptiles, amphibians, and fish

ANSWERS: 1. infect, 2. upstaged, 3. rowdy, 4. lingered, 5. outsmart, 6. comped, 7. vertebrate

8. The _____ distinctive black and white stripes help it blend into its surroundings in the wild.
- n.* a wild, horse-like mammal native to Africa with distinctive black-and-white stripes
9. Local business owners _____ to find skilled workers.
- v.* to move or climb quickly and awkwardly, often using your hands to help you
10. The _____ in the classroom made it hard for the teacher to teach.
- n.* a state of confused and noisy disturbance
11. The symptoms of _____ include diarrhea, vomiting, and fever.
- n.* a virus commonly causes gastroenteritis, an inflammation of the stomach and intestines, particularly in young children. It is spread via contaminated food, water, and surfaces
12. Direct lighting is preferable to _____ lighting when reading.
- adj.* spread out widely; not concentrated in one place
13. _____ research is essential to understanding the complex chemical reactions in living organisms.
- adj.* relating to the chemical processes and substances that occur within living organisms
14. Glass _____ dishes are used to culture microorganisms.
- n.* (petri dish) a small, clear, and round dish with a lid used in laboratories, especially for growing bacteria
15. The weather is too _____ for us to go on a boat ride.
- adj.* characterized by or affected by strong winds; of or relating to the wind; describing a person who talks a lot, often in an exaggerated way or without saying much substance

ANSWERS: 8. zebra's, 9. scrambled, 10. commotion, 11. rotavirus, 12. diffuse, 13. Biochemical, 14. petri, 15. windy

16. 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
17. In that country, there is a culture of eating live _____ squid.
n. a flying nocturnal insect common in warm regions with a tail that shines in the dark
18. The _____ object was not capable of movement or feeling.
adj. not having life or spirit; not animate
19. Gambling became an _____ for him, and he eventually lost everything.
n. the state in which a person's mind is filled with thoughts of one single object or particular person
20. Foods high in _____ include bread, pasta, and rice.
n. (also carb) any of a class of organic compounds that includes sugars, starch, and cellulose and are a principal source of energy in the diet of animals
21. The artist used _____ paint to make her painting pop with color.
n. a bright, purplish-red color named after a plant that was once used to produce a dye with a similar hue
22. The disease is highly _____ and spreads quickly.
adj. able to be passed on to others through contact or proximity, especially by infection or disease
23. High levels of _____ can indicate an infection or inflammation in the body.
n. the most common type of white blood cell in the human body, which helps the immune system by attacking and destroying harmful foreign substances, such as bacteria and viruses

ANSWERS: 16. blur, 17. firefly, 18. inanimate, 19. obsession, 20. carbohydrates, 21. magenta, 22. contagious, 23. neutrophils

24. Internet traffic volumes have increased significantly with the advent of _____.
- n.* a mobile phone that functions as a computer and connects to the Internet
25. mRNA vaccines are approved faster because they do not contain inactivated _____.
- n.* a bacterium, virus, or other microorganism that causes disease
26. This question has fascinated solar _____ for decades.
- n.* a physicist who studies astronomy
27. I have no intention to _____ your privacy.
- v.* to enter aggressively into another's territory by military force for conquest and occupation
28. The stock market has been _____ lately, with prices fluctuating rapidly.
- adj.* marked by a lot of sudden changes, confusion, or uncertainty; characterized by intense activity or agitation
29. She tried to _____ the layout of the new house in her mind.
- v.* to form a mental image or concept of something; to make something visible
30. The bear used its _____ to catch a fish in the river.
- n.* a curved, pointed appendage found on the foot or leg of an animal, used for gripping or grasping; a human hand with long, narrow fingers that are curved like a claw; a machine or tool with a claw-like opening used for gripping or lifting objects
31. The actress had to hire security to fend off the relentless _____ outside her home.
- n.* (plural of "paparazzo") a group of freelance photographers who doggedly follow, often aggressively, celebrities, public figures, or socialites to take their photographs in the hope of selling them to newspapers, magazines, or media outlets

ANSWERS: 24. smartphones, 25. pathogens, 26. astronomers, 27. invade, 28.

turbulent, 29. visualize, 30. claw, 31. paparazzi

32. The animal was _____ in a small cage.

v. to restrict the movement of someone or something

33. During the unloading, the container box _____ a clicking sound.

v. to give off or send out something such as light, heat, sound, gas, etc.

ANSWERS: 32. confined, 33. emits