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## Vocabulary Builder Reference from...

Jason W. Chin: A virus-resistant organism -- and what it could mean for the future | TED Talk

[https://www.ted.com/talks/jason\\_w\\_chin\\_a\\_virus\\_resistant\\_organism\\_and\\_what\\_it\\_could\\_mean\\_for\\_the\\_future](https://www.ted.com/talks/jason_w_chin_a_virus_resistant_organism_and_what_it_could_mean_for_the_future)

### Advanced Words Only

#### IMPORTANT

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## Session 1: Word List

### triplet

*n.* a group of three things or people, especially three babies born at the same time from the same pregnancy

*synonym*: trio, threesome, three-piece set

(1) **triplet** siblings, (2) **triplet** acetylene

The **triplet** babies were born premature and needed extra care.

### codon

*n.* a sequence of three nitrogenous bases in a DNA or RNA molecule that specifies a particular amino acid or a start or stop signal in protein synthesis

*synonym*: genetic sequence, DNA triplet

(1) **codon** base, (2) **codon** sequence

Scientists have found that **codon** usage can vary among different species and even between different tissues within the same organism.

### rulebook

*n.* a set of rules or regulations, especially one governing a particular activity or organization

*synonym*: manual, guidebook, regulations

(1) follow a **rulebook**, (2) **rulebook** violation

The company's **rulebook** clearly outlines the expectations for employees.

## serine

*n.* a hydrophilic amino acid that acts as a neurotransmitter and is found in many proteins

*synonym* : amino acid

(1) **serine** protease, (2) receptor **serine**

The high **serine** levels in the blood were an indicator of liver disease.

## synonymous

*adj.* having the same or a similar meaning as another word or phrase

*synonym* : equivalent, interchangeable, similar

(1) **synonymous** terms, (2) non- **synonymous** mutation

The phrase "big shot" and "important person" are **synonymous**.

## trait

*n.* a particular feature of your nature

*synonym* : attribute, feature, quality

(1) chemical **trait**, (2) personality **traits**

Multiple genes may influence behavioral **traits** concurrently.

## coli

*n.* a bacterium of the genus Escherichia that is commonly found in the human gut and is used as a model organism in molecular biology and biochemistry

(1) E. **coli** bacteria strain, (2) **coli** cells

The study of Escherichia **coli** has led to important advancements in areas such as antibiotic resistance, gut microbiome, and synthetic biology.

## microbe

*n.* a tiny living thing that can only be seen with a microscope and that may cause disease

*synonym* : germ, microorganism, bacterium

(1) pathogenic **microbe**, (2) **microbes** sterilizer

**Microbes** thrive on the surface of the human skin.

## compress

*v.* to press or squeeze together to make something take up less space

*synonym* : condense, constrict, squeeze

(1) **compress** the chest, (2) **compress** gas

She **compressed** the files into a single ZIP archive to save space on her computer.

### synonym

*n.* a word or expression that has the same or nearly the same meaning as another word or expression in the same language

*synonym*: equivalent, substitute, parallel

(1) **synonym** retrieval, (2) rough **synonym**

She was searching for a **synonym** for 'happiness' in the thesaurus.

### prohibitively

*adv.* in a manner that discourages or prevents something from happening or being done, especially by making it too expensive

*synonym*: excessively

(1) **prohibitively** long time, (2) **prohibitively** difficult

The cost of the project was **prohibitively** high for the company to consider.

### streamline

*v.* to simplify or make more efficient by eliminating unnecessary parts or steps

*synonym*: simplify, optimize, make more efficient

(1) **streamline** administrative activities, (2) **streamline** workflow

The government plans to **streamline** the tax collection process to make it more efficient.

### mRNA

*n.* (an abbreviation for messenger RNA) a single-stranded molecule of RNA that corresponds to the genetic sequence of a gene, and is read by a ribosome in the process of synthesizing a protein

(1) **mRNA** translation, (2) nuclear **mRNA**

The **mRNA** vaccine can expedite many approval processes because it does not contain a virus.

### 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.

## ribosome

*n.* a cellular structure made of RNA and protein that helps in the production of proteins

(1) coli **ribosome**, (2) **ribosome** binding

**Ribosome** dysfunction can lead to diseases such as muscular dystrophy.

## synthetase

*adj.* an enzyme that catalyzes the formation of a chemical bond between two molecules

*synonym* : enzyme

(1) **synthetase** inhibition, (2) amine **synthetase**

**Synthetase** enzymes are responsible for synthesizing various biological molecules.

## macrocycle

*n.* a large molecule with a cyclic structure, typically one that contains several repeating units

(1) triazole **macrocycle** systems, (2) rectangular **macrocycle**

The **macrocycle's** stability can be tuned by modifying its size, shape, and chemical composition.

## immunosuppressive

*adj.* reducing or suppressing the immune system's ability to fight against diseases

(1) **immunosuppressive** property,

(2) **immunosuppressive** therapy

The drugs used to treat the patient were

**immunosuppressive**.

## biodegrade

*v.* to decay naturally by microorganisms, such as bacteria and fungi

(1) **biodegrade** by the microorganism, (2) bioplastic designed to **biodegrade**

The company's plastic products are easily **biodegraded** thanks to a unique manufacturing process.

## opportune

*adj.* suitable or happening at a time that is suitable or convenient for a particular purpose

*synonym*: suitable, timely, practical

(1) **opportune** occasion, (2) an **opportune** remark

The phone rang at the most **opportune** time.

## recycle

*v.* to sort and collect things to process them and produce valuable materials that can be used again

*synonym*: reclaim, reuse, reprocess

(1) **recycle** the cardboard boxes, (2) **recycle** milk packaging into new paper

We largely **recycle** the circuit board of cell phones because they contain a lot of valuable metals.

## envision

*v.* to imagine or expect what a situation will be like in the future

*synonym*: anticipate, foresee, picture

(1) **envision** the future, (2) **envision** the project's success

We cannot **envision** her as President.

## bioeconomy

*n.* the part of the economy concerned with the production of goods and services using biological resources and processes

(1) the nation's **bioeconomy**, (2) a cornerstone of the **bioeconomy**

The development of the **bioeconomy** is critical for the transition to a low-carbon, circular economy.

## bioreactor

*n.* a device or system used to cultivate living cells, tissues, or organisms for industrial or research purposes

*synonym*: fermenter

(1) **bioreactor** engineering, (2) anaerobic **bioreactor**

The scientists optimized the conditions in the **bioreactor** to

increase the yield of the desired product.

## ferment

v. to experience a chemical change or action that results in the production of alcohol or effervescence of gases;  
(noun) a state of agitated activity or change, especially in the context of social or political movements

*synonym*: ripen, simmer, (noun) agitation

(1) **ferment** sugar into ethanol, (2) political **ferment**

The dough was left to **ferment** overnight to give the bread its distinctive flavor.

## reimagine

v. to imagine or conceive of something in a new or different way

*synonym*: re-conceptualize, re-envision, re-create

(1) **reimagine** the future, (2) **reimagine** the possibilities

The company is trying to **reimagine** its business model to stay competitive.

## industrious

*adj.* hardworking, diligent, and persistent in effort

*synonym*: diligent, hardworking, assiduous

(1) **industrious** worker, (2) **industrious** student

He was known to be very **industrious** and would often work late into the night.

## Session 2: Spelling

1. E. c\_\_i bacteria strain  
*n.* a bacterium of the genus Escherichia that is commonly found in the human gut and is used as a model organism in molecular biology and biochemistry
2. amine syn\_\_\_\_\_se  
*adj.* an enzyme that catalyzes the formation of a chemical bond between two molecules
3. bioplastic designed to bio\_\_\_\_\_de  
*v.* to decay naturally by microorganisms, such as bacteria and fungi
4. ru\_\_\_\_\_ok violation  
*n.* a set of rules or regulations, especially one governing a particular activity or organization
5. op\_\_\_\_\_ne occasion  
*adj.* suitable or happening at a time that is suitable or convenient for a particular purpose
6. tr\_\_\_\_\_t acetylene  
*n.* a group of three things or people, especially three babies born at the same time from the same pregnancy
7. a cornerstone of the bio\_\_\_\_\_my  
*n.* the part of the economy concerned with the production of goods and services using biological resources and processes
8. re\_\_\_\_\_e milk packaging into new paper  
*v.* to sort and collect things to process them and produce valuable materials that can be used again
9. receptor se\_\_\_\_\_e  
*n.* a hydrophilic amino acid that acts as a neurotransmitter and is found in many proteins

ANSWERS: 1. coli, 2. synthetase, 3. biodegrade, 4. rulebook, 5. opportune, 6. triplet, 7. bioeconomy, 8. recycle, 9. serine

10. syn\_\_\_\_\_se inhibition *adj.* an enzyme that catalyzes the formation of a chemical bond between two molecules
11. tr\_\_\_\_\_t siblings *n.* a group of three things or people, especially three babies born at the same time from the same pregnancy
12. an op\_\_\_\_\_ne remark *adj.* suitable or happening at a time that is suitable or convenient for a particular purpose
13. co\_\_n base *n.* a sequence of three nitrogenous bases in a DNA or RNA molecule that specifies a particular amino acid or a start or stop signal in protein synthesis
14. coli ri\_\_\_\_\_me *n.* a cellular structure made of RNA and protein that helps in the production of proteins
15. imm\_\_\_\_\_ive property *adj.* reducing or suppressing the immune system's ability to fight against diseases
16. follow a ru\_\_\_\_\_ok *n.* a set of rules or regulations, especially one governing a particular activity or organization
17. anaerobic bio\_\_\_\_\_or *n.* a device or system used to cultivate living cells, tissues, or organisms for industrial or research purposes
18. c\_\_i cells *n.* a bacterium of the genus Escherichia that is commonly found in the human gut and is used as a model organism in molecular biology and biochemistry
19. pathogenic mi\_\_\_\_\_e *n.* a tiny living thing that can only be seen with a microscope and that may cause disease

ANSWERS: 10. synthetase, 11. triplet, 12. opportune, 13. codon, 14. ribosome, 15. immunosuppressive, 16. rulebook, 17. bioreactor, 18. coli, 19. microbe



20. personality tr\_\_ts *n.* a particular feature of your nature
21. in\_\_\_t a computer with a virus *v.* to affect a person, an animal, or a plant with a disease-causing organism
22. sy\_\_\_\_\_m retrieval *n.* a word or expression that has the same or nearly the same meaning as another word or expression in the same language
23. nuclear m\_\_A *n.* (an abbreviation for messenger RNA) a single-stranded molecule of RNA that corresponds to the genetic sequence of a gene, and is read by a ribosome in the process of synthesizing a protein
24. imm\_\_\_\_\_ive therapy *adj.* reducing or suppressing the immune system's ability to fight against diseases
25. rectangular mac\_\_\_\_\_le *n.* a large molecule with a cyclic structure, typically one that contains several repeating units
26. se\_\_\_e protease *n.* a hydrophilic amino acid that acts as a neurotransmitter and is found in many proteins
27. rough sy\_\_\_\_\_m *n.* a word or expression that has the same or nearly the same meaning as another word or expression in the same language
28. ri\_\_\_\_\_me binding *n.* a cellular structure made of RNA and protein that helps in the production of proteins
29. chemical tr\_\_t *n.* a particular feature of your nature

ANSWERS: 20. trait, 21. infect, 22. synonym, 23. mRNA, 24. immunosuppressive, 25. macrocycle, 26. serine, 27. synonym, 28. ribosome, 29. trait

30. political fe\_\_\_\_t  
*v.* to experience a chemical change or action that results in the production of alcohol or effervescence of gases; (noun) a state of agitated activity or change, especially in the context of social or political movements
31. pro\_\_\_\_\_ely long time  
*adv.* in a manner that discourages or prevents something from happening or being done, especially by making it too expensive
32. in\_\_\_\_t other animal species  
*v.* to affect a person, an animal, or a plant with a disease-causing organism
33. ind\_\_\_\_\_us student  
*adj.* hardworking, diligent, and persistent in effort
34. non-syn\_\_\_\_\_us mutation  
*adj.* having the same or a similar meaning as another word or phrase
35. str\_\_\_\_\_ne workflow  
*v.* to simplify or make more efficient by eliminating unnecessary parts or steps
36. bio\_\_\_\_\_or engineering  
*n.* a device or system used to cultivate living cells, tissues, or organisms for industrial or research purposes
37. pro\_\_\_\_\_ely difficult  
*adv.* in a manner that discourages or prevents something from happening or being done, especially by making it too expensive
38. co\_\_n sequence  
*n.* a sequence of three nitrogenous bases in a DNA or RNA molecule that specifies a particular amino acid or a start or stop signal in protein synthesis

ANSWERS: 30. ferment, 31. prohibitively, 32. infect, 33. industrious, 34. synonymous, 35. streamline, 36. bioreactor, 37. prohibitively, 38. codon

39. en\_\_\_\_\_on the future *v.* to imagine or expect what a situation will be like in the future
40. bio\_\_\_\_\_de by the microorganism *v.* to decay naturally by microorganisms, such as bacteria and fungi
41. syn\_\_\_\_\_us terms *adj.* having the same or a similar meaning as another word or phrase
42. ind\_\_\_\_\_us worker *adj.* hardworking, diligent, and persistent in effort
43. mi\_\_\_\_\_es sterilizer *n.* a tiny living thing that can only be seen with a microscope and that may cause disease
44. fe\_\_\_\_\_t sugar into ethanol *v.* to experience a chemical change or action that results in the production of alcohol or effervescence of gases; (noun) a state of agitated activity or change, especially in the context of social or political movements
45. en\_\_\_\_\_on the project's success *v.* to imagine or expect what a situation will be like in the future
46. the nation's bio\_\_\_\_\_my *n.* the part of the economy concerned with the production of goods and services using biological resources and processes
47. co\_\_\_\_\_ss the chest *v.* to press or squeeze together to make something take up less space
48. re\_\_\_\_\_ne the possibilities *v.* to imagine or conceive of something in a new or different way
49. m\_\_A translation *n.* (an abbreviation for messenger RNA) a single-stranded molecule of RNA that corresponds to the genetic sequence of a gene, and is read by a ribosome in the process of synthesizing a protein

ANSWERS: 39. envision, 40. biodegrade, 41. synonymous, 42. industrious, 43. microbe, 44. ferment, 45. envision, 46. bioeconomy, 47. compress, 48. reimagine, 49. mRNA

50. re\_\_\_\_\_e the cardboard boxes      *v.*    to sort and collect things to process them and produce valuable materials that can be used again
51. str\_\_\_\_\_ne administrative activities      *v.*    to simplify or make more efficient by eliminating unnecessary parts or steps
52. co\_\_\_\_\_ss gas      *v.*    to press or squeeze together to make something take up less space
53. triazole mac\_\_\_\_\_le systems      *n.*    a large molecule with a cyclic structure, typically one that contains several repeating units
54. re\_\_\_\_\_ne the future      *v.*    to imagine or conceive of something in a new or different way

ANSWERS: 50. recycle, 51. streamline, 52. compress, 53. macrocycle, 54. reimagine

## Session 3: Fill in the Blanks

1. Scientists have found that \_\_\_\_\_ usage can vary among different species and even between different tissues within the same organism.
  - n.* a sequence of three nitrogenous bases in a DNA or RNA molecule that specifies a particular amino acid or a start or stop signal in protein synthesis
2. He was known to be very \_\_\_\_\_ and would often work late into the night.
  - adj.* hardworking, diligent, and persistent in effort
3. The phone rang at the most \_\_\_\_\_ time.
  - adj.* suitable or happening at a time that is suitable or convenient for a particular purpose
4. The \_\_\_\_\_ vaccine can expedite many approval processes because it does not contain a virus.
  - n.* (an abbreviation for messenger RNA) a single-stranded molecule of RNA that corresponds to the genetic sequence of a gene, and is read by a ribosome in the process of synthesizing a protein
5. She \_\_\_\_\_ the files into a single ZIP archive to save space on her computer.
  - v.* to press or squeeze together to make something take up less space
6. The company's \_\_\_\_\_ clearly outlines the expectations for employees.
  - n.* a set of rules or regulations, especially one governing a particular activity or organization
7. The company is trying to \_\_\_\_\_ its business model to stay competitive.
  - v.* to imagine or conceive of something in a new or different way

ANSWERS: 1. codon, 2. industrious, 3. opportune, 4. mRNA, 5. compressed, 6. rulebook, 7. reimagine

8. We largely \_\_\_\_\_ the circuit board of cell phones because they contain a lot of valuable metals.
- v.* to sort and collect things to process them and produce valuable materials that can be used again
9. She was searching for a \_\_\_\_\_ for 'happiness' in the thesaurus.
- n.* a word or expression that has the same or nearly the same meaning as another word or expression in the same language
10. \_\_\_\_\_ enzymes are responsible for synthesizing various biological molecules.
- adj.* an enzyme that catalyzes the formation of a chemical bond between two molecules
11. The high \_\_\_\_\_ levels in the blood were an indicator of liver disease.
- n.* a hydrophilic amino acid that acts as a neurotransmitter and is found in many proteins
12. The company's plastic products are easily \_\_\_\_\_ thanks to a unique manufacturing process.
- v.* to decay naturally by microorganisms, such as bacteria and fungi
13. We cannot \_\_\_\_\_ her as President.
- v.* to imagine or expect what a situation will be like in the future
14. The study of Escherichia \_\_\_\_\_ has led to important advancements in areas such as antibiotic resistance, gut microbiome, and synthetic biology.
- n.* a bacterium of the genus Escherichia that is commonly found in the human gut and is used as a model organism in molecular biology and biochemistry

ANSWERS: 8. recycle, 9. synonym, 10. Synthetase, 11. serine, 12. biodegraded, 13. envision, 14. coli

15. The dough was left to \_\_\_\_\_ overnight to give the bread its distinctive flavor.  
*v.* to experience a chemical change or action that results in the production of alcohol or effervescence of gases; (noun) a state of agitated activity or change, especially in the context of social or political movements
16. The cost of the project was \_\_\_\_\_ high for the company to consider.  
*adv.* in a manner that discourages or prevents something from happening or being done, especially by making it too expensive
17. The government plans to \_\_\_\_\_ the tax collection process to make it more efficient.  
*v.* to simplify or make more efficient by eliminating unnecessary parts or steps
18. The \_\_\_\_\_ stability can be tuned by modifying its size, shape, and chemical composition.  
*n.* a large molecule with a cyclic structure, typically one that contains several repeating units
19. The drugs used to treat the patient were \_\_\_\_\_.  
*adj.* reducing or suppressing the immune system's ability to fight against diseases
20. \_\_\_\_\_ dysfunction can lead to diseases such as muscular dystrophy.  
*n.* a cellular structure made of RNA and protein that helps in the production of proteins
21. Multiple genes may influence behavioral \_\_\_\_\_ concurrently.  
*n.* a particular feature of your nature
22. The phrase "big shot" and "important person" are \_\_\_\_\_.  
*adj.* having the same or a similar meaning as another word or phrase

ANSWERS: 15. ferment, 16. prohibitively, 17. streamline, 18. macrocycle's, 19. immunosuppressive, 20. Ribosome, 21. traits, 22. synonymous

23. The \_\_\_\_\_ babies were born premature and needed extra care.
- n.* a group of three things or people, especially three babies born at the same time from the same pregnancy
24. Children often \_\_\_\_\_ parents with this head cold.
- v.* to affect a person, an animal, or a plant with a disease-causing organism
25. The scientists optimized the conditions in the \_\_\_\_\_ to increase the yield of the desired product.
- n.* a device or system used to cultivate living cells, tissues, or organisms for industrial or research purposes
26. The development of the \_\_\_\_\_ is critical for the transition to a low-carbon, circular economy.
- n.* the part of the economy concerned with the production of goods and services using biological resources and processes
27. \_\_\_\_\_ thrive on the surface of the human skin.
- n.* a tiny living thing that can only be seen with a microscope and that may cause disease

ANSWERS: 23. triplet, 24. infect, 25. bioreactor, 26. bioeconomy, 27. Microbes