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## Vocabulary Builder Reference from...

*Aatish Bhatia: The physics of human sperm vs. the physics of the sperm whale | TED Talk*

[https://www.ted.com/talks/aatish\\_bhatia\\_the\\_physics\\_of\\_human\\_sperm\\_vs\\_the\\_physics\\_of\\_the\\_sperm\\_w\\_hale](https://www.ted.com/talks/aatish_bhatia_the_physics_of_human_sperm_vs_the_physics_of_the_sperm_w_hale)

### Advanced Words Only

#### IMPORTANT

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## Session 1: Word List

### 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.

### 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.

### microscopic

*adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy

*synonym*: infinitesimal, tiny, atomic

(1) **microscopic** inquiry, (2) **microscopic** analysis

Inspectors noticed **microscopic** cracks in the submarine's hull.

### inhabit

*v.* to live in a specific location; to reside

*synonym*: settle, occupy, populate

(1) **inhabit** a cave, (2) **inhabit** the stomach

I have no idea what sort of folks **inhabit** the neighborhood.

## outnumber

v. to be more numerous or greater in number than another group or entity; to exceed in quantity or number

*synonym*: surpass, exceed

(1) **outnumber** our opponents, (2) **outnumber** males  
The number of tourists in the city now **outnumbers** the locals.

## swish

v. to move or cause to move with a hissing or rustling sound

*synonym*: rustle, hiss, flick

(1) **swish** a whip, (2) **swish** her hair  
He **swished** his sword back and forth, trying to intimidate his opponent.

## teeny

*adj.* extremely small; tiny

*synonym*: tiny, mini, minuscule

(1) **teeny** bit, (2) so **teeny** tiny  
The ring was so **teeny** that it almost looked like a toy.

## viscosity

n. the state or quality of being thick, sticky, and semi-fluid in consistency; resistance to flow

*synonym*: thickness, consistency, texture

(1) high **viscosity**, (2) dynamic **viscosity**  
The **viscosity** of the oil made it difficult to pour.

## molasses

n. a thick, dark syrup made from boiled sugar cane or sugar beet juice, often used as a sweetener in cooking and baking

*synonym*: treacle, syrup, honey

(1) **molasses** cookies, (2) thick **molasses**  
The recipe calls for a tablespoon of **molasses** to add sweetness.

## deform

v. to change or distort the shape or appearance of something; to become misshapen or distorted

*synonym* : distort, contort, mangle

(1) **deform** the shape, (2) **deform** his way of life

The heat from the fire **deformed** the plastic parts of the appliance.

## paddle

*n.* a flat, usually wooden implement with a handle used for stirring, mixing, or beating a liquid or substance

*synonym* : oar, oarlock, scull

(1) **paddle** strokes, (2) canoe **paddle**

The **paddle** boarders glided across the crystal-clear waters of the cove.

## paramecium

*n.* a single-celled freshwater organism characterized by a slipper-like shape and the presence of cilia, used for movement and food gathering

*synonym* : slipper animalcule, ciliate

(1) **paramecium** species, (2) **paramecium** reproduction

The **paramecium** colony flourished in the petri dish, providing a perfect sample for our experiment.

## ingenious

*adj.* showing inventiveness and ability or skill

*synonym* : creative, innovative, inventive

(1) **ingenious** device, (2) **ingenious** idea

I always look forward to reading his stories since they're so **ingenious**.

## wag

*v.* to move or swing back and forth or up and down in a lively or playful manner; to shake or quiver

*synonym* : waggle, swish, wave

(1) **wag** their laughter, (2) **wag** a forefinger

The cow lazily continued to **wag** its tail while grazing in the field.

## cork

*n.* a type of light and buoyant material that comes from the bark of the cork oak tree often used as a stopper for bottles or as a material for insulation or flooring; (verb) to close or seal something with a cork or similar stopper

*synonym* : stopper, bung, plug

(1) **cork** a bottle, (2) **cork** flooring

She used a **cork** board to display her favorite photographs.

## helix

*n.* a three-dimensional spiral shape or structure, particularly like that of a spring or a DNA molecule

*synonym* : coil, spiral, twist

(1) **helix** structure, (2) alpha **helix**

The DNA molecule is shaped like a double **helix**.

## grapple

*v.* to make a strenuous effort to solve a problem; to engage in a close fight or conflict without weapons

*synonym* : brawl, scuffle, wrestle

(1) **grapple** with problem, (2) **grapple** with each other

He needed to **grapple** with structural reforms to improve the company's revenue.

## sling

*v.* to throw or drop something somewhere carelessly; to hang loosely or freely; (noun) a length of rope, fabric, or chain used to support or lift something

*synonym* : throw, hang, (noun) harness

(1) **sling** an arrow, (2) **sling** shot

The children were playing by **slinging** stones at the monument.

## fling

*v.* to throw or push something or someone with force or recklessness, especially because you are angry

*synonym* : throw, dump, hurl

(1) **fling** a stream of abuse, (2) **fling** a door open forcefully

He was provoked to **fling** the draft on the floor.

## pylorus

*n.* the valve at the exit of the stomach that regulates food in the small intestine

(1) **pylorus** sphincter, (2) **pylorus** stenosis

The doctor ordered an endoscopy to examine the patient's **pylorus** for possible ulcers.

## slimy

*adj.* covered with or having a slippery, viscous coating; repulsively slippery or oozy; containing or resembling slime

*synonym* : slippery, mucky, mucous

(1) **slimy** substance, (2) **slimy** green algae

The **slimy** texture of the seafood dish made me feel queasy.

## acidic

*adj.* having a pH lower than 7; having characteristics of an acid, such as tasting sour or corroding metal

*synonym* : sour, tart, acrid

(1) **acidic** solution, (2) **acidic** taste

The soil in this region is too **acidic** for most crops to grow well.

## mucus

*n.* a slimy liquid produced inside the nose and other body parts for lubrication, protection, etc.

*synonym* : secretion, slime, saliva

(1) airway **mucus**, (2) nasal **mucus**

When the body temperature drops, **mucus** secretion fails.

## glide

*v.* to move smoothly and effortlessly

*synonym* : slide, skim, coast

(1) **glide** through the water, (2) **glide** down the mountain

The eagle gracefully **glided** on the thermals, soaring above the mountains.

## slime

*n.* a thick, slippery substance that is usually soft and wet

*synonym* : muck, ooze, gunk

(1) **slime** bacteria, (2) **slime** mold

The kids loved playing with the green **slime**, but it was a nightmare to clean up.

## ulcer

*n.* a sore or erosion in the skin or mucous membrane, often caused by infection or inflammation; a persistent, painful cavity in the stomach or intestinal wall that can lead to digestive problems

*synonym* : lesion, sore, wound

(1) mouth **ulcer**, (2) gastric **ulcer**

The stress of the job caused him to develop an **ulcer** in his stomach.

## Session 2: Spelling

1. sl\_\_g shot  
*v.* to throw or drop something somewhere carelessly; to hang loosely or freely;  
(noun) a length of rope, fabric, or chain used to support or lift something
2. ac\_\_\_c solution  
*adj.* having a pH lower than 7; having characteristics of an acid, such as tasting sour or corroding metal
3. mi\_\_\_\_\_es sterilizer  
*n.* a tiny living thing that can only be seen with a microscope and that may cause disease
4. high vi\_\_\_\_\_ty  
*n.* the state or quality of being thick, sticky, and semi-fluid in consistency; resistance to flow
5. fl\_\_g a stream of abuse  
*v.* to throw or push something or someone with force or recklessness, especially because you are angry
6. thick mo\_\_\_\_\_es  
*n.* a thick, dark syrup made from boiled sugar cane or sugar beet juice, often used as a sweetener in cooking and baking
7. te\_\_y bit  
*adj.* extremely small; tiny
8. mo\_\_\_\_\_es cookies  
*n.* a thick, dark syrup made from boiled sugar cane or sugar beet juice, often used as a sweetener in cooking and baking
9. nasal mu\_\_s  
*n.* a slimy liquid produced inside the nose and other body parts for lubrication, protection, etc.

ANSWERS: 1. sling, 2. acidic, 3. microbe, 4. viscosity, 5. fling, 6. molasses, 7. teeny, 8. molasses, 9. mucus

10. par\_\_\_\_\_um reproduction *n.* a single-celled freshwater organism characterized by a slipper-like shape and the presence of cilia, used for movement and food gathering
11. sl\_\_e mold *n.* a thick, slippery substance that is usually soft and wet
12. in\_\_\_\_\_us idea *adj.* showing inventiveness and ability or skill
13. talented ph\_\_\_\_\_st *n.* a scientist who specializes in the field of physics
14. ou\_\_\_\_\_er our opponents *v.* to be more numerous or greater in number than another group or entity; to exceed in quantity or number
15. in\_\_\_\_\_t a cave *v.* to live in a specific location; to reside
16. gl\_\_e through the water *v.* to move smoothly and effortlessly
17. c\_\_k a bottle *n.* a type of light and buoyant material that comes from the bark of the cork oak tree often used as a stopper for bottles or as a material for insulation or flooring; (verb) to close or seal something with a cork or similar stopper
18. mouth ul\_\_r *n.* a sore or erosion in the skin or mucous membrane, often caused by infection or inflammation; a persistent, painful cavity in the stomach or intestinal wall that can lead to digestive problems
19. de\_\_\_m his way of life *v.* to change or distort the shape or appearance of something; to become misshapen or distorted

ANSWERS: 10. paramecium, 11. slime, 12. ingenious, 13. physicist, 14. outnumber, 15. inhabit, 16. glide, 17. cork, 18. ulcer, 19. deform



20. canoe pa\_\_\_e *n.* a flat, usually wooden implement with a handle used for stirring, mixing, or beating a liquid or substance
21. w\_g a forefinger *v.* to move or swing back and forth or up and down in a lively or playful manner; to shake or quiver
22. sl\_\_y green algae *adj.* covered with or having a slippery, viscous coating; repulsively slippery or oozy; containing or resembling slime
23. sw\_\_h a whip *v.* to move or cause to move with a hissing or rustling sound
24. theoretical ph\_\_\_\_\_st *n.* a scientist who specializes in the field of physics
25. pathogenic mi\_\_\_\_\_e *n.* a tiny living thing that can only be seen with a microscope and that may cause disease
26. sw\_\_h her hair *v.* to move or cause to move with a hissing or rustling sound
27. ac\_\_\_c taste *adj.* having a pH lower than 7; having characteristics of an acid, such as tasting sour or corroding metal
28. fl\_\_g a door open forcefully *v.* to throw or push something or someone with force or recklessness, especially because you are angry
29. mic\_\_\_\_\_ic analysis *adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy
30. sl\_\_e bacteria *n.* a thick, slippery substance that is usually soft and wet
31. py\_\_\_\_\_s sphincter *n.* the valve at the exit of the stomach that regulates food in the small intestine

ANSWERS: 20. paddle, 21. wag, 22. slimy, 23. swish, 24. physicist, 25. microbe, 26. swish, 27. acidic, 28. fling, 29. microscopic, 30. slime, 31. pylorus

32. gr\_\_\_\_\_e with each other      *v.* to make a strenuous effort to solve a problem; to engage in a close fight or conflict without weapons
33. ou\_\_\_\_\_er males      *v.* to be more numerous or greater in number than another group or entity; to exceed in quantity or number
34. in\_\_\_\_\_us device      *adj.* showing inventiveness and ability or skill
35. pa\_\_\_e strokes      *n.* a flat, usually wooden implement with a handle used for stirring, mixing, or beating a liquid or substance
36. par\_\_\_\_\_um species      *n.* a single-celled freshwater organism characterized by a slipper-like shape and the presence of cilia, used for movement and food gathering
37. mic\_\_\_\_\_ic inquiry      *adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy
38. sl\_\_y substance      *adj.* covered with or having a slippery, viscous coating; repulsively slippery or oozy; containing or resembling slime
39. gl\_\_e down the mountain      *v.* to move smoothly and effortlessly
40. de\_\_\_m the shape      *v.* to change or distort the shape or appearance of something; to become misshapen or distorted
41. sl\_\_g an arrow      *v.* to throw or drop something somewhere carelessly; to hang loosely or freely; (noun) a length of rope, fabric, or chain used to support or lift something
42. w\_g their laughter      *v.* to move or swing back and forth or up and down in a lively or playful manner; to shake or quiver

ANSWERS: 32. grapple, 33. outnumber, 34. ingenious, 35. paddle, 36. paramecium, 37. microscopic, 38. slimy, 39. glide, 40. deform, 41. sling, 42. wag

43. in\_\_\_\_t the stomach      *v.* to live in a specific location; to reside
44. he\_\_x structure      *n.* a three-dimensional spiral shape or structure, particularly like that of a spring or a DNA molecule
45. c\_\_k flooring      *n.* a type of light and buoyant material that comes from the bark of the cork oak tree often used as a stopper for bottles or as a material for insulation or flooring; (verb) to close or seal something with a cork or similar stopper
46. gr\_\_\_\_\_e with problem      *v.* to make a strenuous effort to solve a problem; to engage in a close fight or conflict without weapons
47. py\_\_\_\_\_s stenosis      *n.* the valve at the exit of the stomach that regulates food in the small intestine
48. alpha he\_\_x      *n.* a three-dimensional spiral shape or structure, particularly like that of a spring or a DNA molecule
49. so te\_\_y tiny      *adj.* extremely small; tiny
50. gastric ul\_\_r      *n.* a sore or erosion in the skin or mucous membrane, often caused by infection or inflammation; a persistent, painful cavity in the stomach or intestinal wall that can lead to digestive problems
51. dynamic vi\_\_\_\_\_ty      *n.* the state or quality of being thick, sticky, and semi-fluid in consistency; resistance to flow
52. airway mu\_\_s      *n.* a slimy liquid produced inside the nose and other body parts for lubrication, protection, etc.

ANSWERS: 43. inhabit, 44. helix, 45. cork, 46. grapple, 47. pylorus, 48. helix, 49. teeny, 50. ulcer, 51. viscosity, 52. mucus

ANSWERS:

## Session 3: Fill in the Blanks

1. The DNA molecule is shaped like a double \_\_\_\_\_.
  - n.* a three-dimensional spiral shape or structure, particularly like that of a spring or a DNA molecule
  
2. The \_\_\_\_\_ boarders glided across the crystal-clear waters of the cove.
  - n.* a flat, usually wooden implement with a handle used for stirring, mixing, or beating a liquid or substance
  
3. He needed to \_\_\_\_\_ with structural reforms to improve the company's revenue.
  - v.* to make a strenuous effort to solve a problem; to engage in a close fight or conflict without weapons
  
4. The heat from the fire \_\_\_\_\_ the plastic parts of the appliance.
  - v.* to change or distort the shape or appearance of something; to become misshapen or distorted
  
5. She used a \_\_\_\_\_ board to display her favorite photographs.
  - n.* a type of light and buoyant material that comes from the bark of the cork oak tree often used as a stopper for bottles or as a material for insulation or flooring; (verb) to close or seal something with a cork or similar stopper
  
6. The cow lazily continued to \_\_\_\_\_ its tail while grazing in the field.
  - v.* to move or swing back and forth or up and down in a lively or playful manner; to shake or quiver
  
7. The eagle gracefully \_\_\_\_\_ on the thermals, soaring above the mountains.
  - v.* to move smoothly and effortlessly

ANSWERS: 1. helix, 2. paddle, 3. grapple, 4. deformed, 5. cork, 6. wag, 7. glided

8. I always look forward to reading his stories since they're so \_\_\_\_\_.

*adj.* showing inventiveness and ability or skill

9. The \_\_\_\_\_ texture of the seafood dish made me feel queasy.

*adj.* covered with or having a slippery, viscous coating; repulsively slippery or oozy; containing or resembling slime

10. I have no idea what sort of folks \_\_\_\_\_ the neighborhood.

*v.* to live in a specific location; to reside

11. The ring was so \_\_\_\_\_ that it almost looked like a toy.

*adj.* extremely small; tiny

12. The stress of the job caused him to develop an \_\_\_\_\_ in his stomach.

*n.* a sore or erosion in the skin or mucous membrane, often caused by infection or inflammation; a persistent, painful cavity in the stomach or intestinal wall that can lead to digestive problems

13. Einstein was an outstanding and famous \_\_\_\_\_ of the 20th century.

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

14. The doctor ordered an endoscopy to examine the patient's \_\_\_\_\_ for possible ulcers.

*n.* the valve at the exit of the stomach that regulates food in the small intestine

15. He \_\_\_\_\_ his sword back and forth, trying to intimidate his opponent.

*v.* to move or cause to move with a hissing or rustling sound

16. The soil in this region is too \_\_\_\_\_ for most crops to grow well.

*adj.* having a pH lower than 7; having characteristics of an acid, such as tasting sour or corroding metal

ANSWERS: 8. ingenious, 9. slimy, 10. inhabit, 11. teeny, 12. ulcer, 13. physicist, 14. pylorus, 15. swished, 16. acidic

17. When the body temperature drops, \_\_\_\_\_ secretion fails.

*n.* a slimy liquid produced inside the nose and other body parts for lubrication, protection, etc.

18. The recipe calls for a tablespoon of \_\_\_\_\_ to add sweetness.

*n.* a thick, dark syrup made from boiled sugar cane or sugar beet juice, often used as a sweetener in cooking and baking

19. The number of tourists in the city now \_\_\_\_\_ the locals.

*v.* to be more numerous or greater in number than another group or entity; to exceed in quantity or number

20. The \_\_\_\_\_ of the oil made it difficult to pour.

*n.* the state or quality of being thick, sticky, and semi-fluid in consistency; resistance to flow

21. \_\_\_\_\_ 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

22. The kids loved playing with the green \_\_\_\_\_ but it was a nightmare to clean up.

*n.* a thick, slippery substance that is usually soft and wet

23. The children were playing by \_\_\_\_\_ stones at the monument.

*v.* to throw or drop something somewhere carelessly; to hang loosely or freely;  
(noun) a length of rope, fabric, or chain used to support or lift something

24. Inspectors noticed \_\_\_\_\_ cracks in the submarine's hull.

*adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy

ANSWERS: 17. mucus, 18. molasses, 19. outnumber, 20. viscosity, 21. Microbes, 22. slime, 23. slinging, 24. microscopic

25. The \_\_\_\_\_ colony flourished in the petri dish, providing a perfect sample for our experiment.
- n.* a single-celled freshwater organism characterized by a slipper-like shape and the presence of cilia, used for movement and food gathering
26. He was provoked to \_\_\_\_\_ the draft on the floor.
- v.* to throw or push something or someone with force or recklessness, especially because you are angry

ANSWERS: 25. paramecium, 26. fling