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Vocabulary Builder Reference from...

Phil Plait: The secret to scientific discoveries? Making mistakes | TED Talk

https://www.ted.com/talks/phil_plait_the_secret_to_scientific_discoveries_making_mistakes

Advanced Words Only

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Session 1: Word List

misconception

n. a belief or an idea that is wrong because it has been based on faulty thinking, understanding, or hypothesis
synonym: fallacy, incomprehension, misunderstanding

(1) dispel the **misconception**, (2) commonly held **misconception**

There are numerous **misconceptions** about food and health.

hone

v. to sharpen or perfect something; to improve a skill or ability through practice
synonym: sharpen, refine, perfect

(1) **hone** abilities, (2) **hone** intuition

The athlete worked with a coach to **hone** her techniques and improve her performance.

contradictory

adj. containing or consisting of conflicting or incompatible elements
synonym: conflicting, opposing, inconsistent

(1) apparently **contradictory**, (2) **contradictory** evidence
His statements were **contradictory**, leaving the audience confused.

egotistical

n. having an inflated view of one's abilities or importance; thinking only about yourself

synonym : self-centered, self-absorbed, arrogant

(1) **egotistical** person, (2) **egotistical** behavior

He had an **egotistical** attitude and always wanted to be the center of attention.

stubborn

adj. refusing to change one's mind or behavior despite persuasion or evidence to the contrary; unyielding; difficult to move or change

synonym : persistent, obstinate, determined

(1) **stubborn** attitude, (2) **stubborn** stains

He was so **stubborn** about his beliefs that he refused to listen to any other points of view.

superstitious

adj. believing in or influenced by superstitions, which are usually based on irrational or supernatural beliefs; showing excessive reverence for traditional or cultural beliefs that lack a rational basis

synonym : irrational, unfounded, mystical

(1) **superstitious** fear, (2) **superstitious** behavior

Some people are **superstitious** and believe in good luck charms and omens.

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.

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.

whisper

v. to speak very quietly to somebody using the breath rather than the voice so that only those close to you can hear you

synonym : murmur, rumor, mutter

(1) answer in a **whisper**, (2) the **whisper** of the leaves

He took me aside and **whispered** in my ear.

payoff

n. the outcome or result of an action or series of actions; the return or reward gained from an investment, effort, or risk

synonym: reward, compensation, return

(1) financial **payoff**, (2) emotional **payoff**

The **payoff** for all my hard work was finally getting a promotion.

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.

thermodynamics

n. the area of physics that deals with heat, work, and temperature and their relation to energy, entropy, and the physical properties of matter and radiation

(1) applied **thermodynamics**, (2) the laws of **thermodynamics**

The second law of **thermodynamics** denies the existence of a perpetual motion engine.

pardon

v. to forgive someone for something they have said or done, such as a crime; (noun) the act of excusing a mistake or offense

synonym: forgive, excuse, absolve

(1) **pardon** me, (2) supplicate for **pardon**

The governor decided to **pardon** the prisoner after reviewing the evidence of his innocence.

pulsar

n. a highly magnetized, rotating neutron star that emits beams of electromagnetic radiation, which can be observed as regular pulses of light

synonym: neutron star, pulsating star, radio star

(1) **pulsar** magnetosphere, (2) gamma-ray **pulsar**

The astronomers detected a **pulsar** in the center of the

galaxy.

remnant

n. a small remaining quantity of something, considered separately from what has been lost or destroyed; a surviving piece or fragment of something

synonym : remainder, leftover, residue

(1) **remnant** of the past, (2) **remnants** of fabric

The only **remnant** left of the ancient civilization was the crumbling ruins of their temples.

explode

v. to burst or break open violently and noisily; to cause something to burst or break open

synonym : detonate, blast, rupture

(1) **explode** in anger, (2) **explode** in popularity

The old building **exploded** in a fiery inferno.

gravitational

adj. relating to or caused by gravity (= the force that attracts objects towards one another)

synonym : weighty, heavy, earthbound

(1) **gravitational** energy, (2) **gravitational** waves

The **gravitational** force of the black hole was so strong that nothing, not even light, could escape.

tug

v. to pull something quickly and hard, often several times

synonym : draw, jerk, pull

(1) **tug** a rope, (2) **tug** at his hand

This movie **tugs** at everyone's heartstrings.

embarrass

v. to cause someone to feel awkward, worried, or ashamed

synonym : disconcert, unsettle, agitate

(1) **embarrass** political enemy, (2) **embarrass** my project

He looked for an opportunity to **embarrass** that actor in public.

formidable

adj. causing fear, apprehension, or awe; difficult to deal with or overcome; capable of inspiring respect or admiration

synonym : daunting, intimidating, fearful

(1) **formidable** challenge, (2) **formidable** competitor
The mountain range was a **formidable** obstacle for the hikers.

astronomical

adj. relating to astronomy or the study of celestial bodies and phenomena; very large or immense in scale or magnitude

synonym: huge, vast, enormous

(1) **astronomical** observation, (2) **astronomical** numbers
The cost of the new equipment was **astronomical** and beyond the company's budget.

ovation

n. a sustained and enthusiastic show of appreciation, usually given in the form of applause, for something or someone that is admired or respected

synonym: applause, accolade, praise

(1) standing **ovation**, (2) spontaneous **ovation**

The singer received an **ovation** from the crowd after her performance.

chastise

v. to criticize or reprimand severely; to discipline or punish for wrongdoing or mistake

synonym: rebuke, reprimand, scold

(1) **chastise** behavior, (2) **chastise** a child

The coach **chastised** the players for not giving their best effort during the game.

podium

n. a raised platform or stand that is used for delivering speeches, conducting meetings, or presenting awards

synonym: lectern, stand, dais

(1) win a **podium** position, (2) **podium** finisher

The speaker stood confidently on the **podium** while delivering their speech.

exoplanet

n. a planet that orbits a star outside of the solar system

(1) the closest **exoplanet** to Earth, (2) **exoplanet** mission

The **exoplanet** Kepler-186f is located 500 light-years from Earth and is believed to be habitable.

floodgate

n. a gate used to control the flow of water in a dam or waterway; a situation or event that allows a sudden and large release of something, such as information or emotion

synonym: dam, barrier, gate

(1) closing of the **floodgate**, (2) loose **floodgates** of grief

The company's innovative product release opened the **floodgates** for competitors to follow suit.

observatory

n. a building designed and equipped to observe the planets, the stars, the weather, etc.

(1) space **observatory**, (2) a meteorological **observatory**

That astronomical **observatory** stands at the top of the mountain.

animate

v. to make something full of interest and energy

synonym: invigorate, energize, enliven

(1) **animate** the body, (2) **animate** his soul

The positive attitude of the supervisor **animated** the discussion.

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.

Session 2: Spelling

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|----------------------------|------|--|
| 1. t_g at his hand | v. | to pull something quickly and hard, often several times |
| 2. ex___e rebellion | v. | to make someone feel suddenly enthusiastic or eager |
| 3. ego_____al person | n. | having an inflated view of one's abilities or importance; thinking only about yourself |
| 4. spontaneous ov_____n | n. | a sustained and enthusiastic show of appreciation, usually given in the form of applause, for something or someone that is admired or respected |
| 5. the laws of the_____ics | n. | the area of physics that deals with heat, work, and temperature and their relation to energy, entropy, and the physical properties of matter and radiation |
| 6. answer in a wh_____r | v. | to speak very quietly to somebody using the breath rather than the voice so that only those close to you can hear you |
| 7. dispel the mis_____ion | n. | a belief or an idea that is wrong because it has been based on faulty thinking, understanding, or hypothesis |
| 8. apparently con_____ory | adj. | containing or consisting of conflicting or incompatible elements |
| 9. ex_____e in anger | v. | to burst or break open violently and noisily; to cause something to burst or break open |

ANSWERS: 1. tug, 2. excite, 3. egotistical, 4. ovation, 5. thermodynamics, 6. whisper, 7. misconception, 8. contradictory, 9. explode

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|------------------------------------|--|
| 10. con_____ory evidence | <i>adj.</i> containing or consisting of conflicting or incompatible elements |
| 11. t_g a rope | <i>v.</i> to pull something quickly and hard, often several times |
| 12. h__e abilities | <i>v.</i> to sharpen or perfect something; to improve a skill or ability through practice |
| 13. em_____ss political enemy | <i>v.</i> to cause someone to feel awkward, worried, or ashamed |
| 14. the closest ex_____et to Earth | <i>n.</i> a planet that orbits a star outside of the solar system |
| 15. ego_____al behavior | <i>n.</i> having an inflated view of one's abilities or importance; thinking only about yourself |
| 16. standing ov_____n | <i>n.</i> a sustained and enthusiastic show of appreciation, usually given in the form of applause, for something or someone that is admired or respected |
| 17. re_____t of the past | <i>n.</i> a small remaining quantity of something, considered separately from what has been lost or destroyed; a surviving piece or fragment of something |
| 18. h__e intuition | <i>v.</i> to sharpen or perfect something; to improve a skill or ability through practice |
| 19. solar ast_____er | <i>n.</i> a physicist who studies astronomy |
| 20. sup_____ous fear | <i>adj.</i> believing in or influenced by superstitions, which are usually based on irrational or supernatural beliefs; showing excessive reverence for traditional or cultural beliefs that lack a rational basis |

ANSWERS: 10. contradictory, 11. tug, 12. hone, 13. embarrass, 14. exoplanet, 15. egotistical, 16. ovation, 17. remnant, 18. hone, 19. astronomer, 20. superstitious

21. win a po___m position *n.* a raised platform or stand that is used for delivering speeches, conducting meetings, or presenting awards
22. for_____le competitor *adj.* causing fear, apprehension, or awe; difficult to deal with or overcome; capable of inspiring respect or admiration
23. sup_____ous behavior *adj.* believing in or influenced by superstitions, which are usually based on irrational or supernatural beliefs; showing excessive reverence for traditional or cultural beliefs that lack a rational basis
24. pa___n me *v.* to forgive someone for something they have said or done, such as a crime; (noun) the act of excusing a mistake or offense
25. loose fl_____tes of grief *n.* a gate used to control the flow of water in a dam or waterway; a situation or event that allows a sudden and large release of something, such as information or emotion
26. an_____e the body *v.* to make something full of interest and energy
27. an_____e his soul *v.* to make something full of interest and energy
28. ex_____et mission *n.* a planet that orbits a star outside of the solar system
29. po___m finisher *n.* a raised platform or stand that is used for delivering speeches, conducting meetings, or presenting awards

ANSWERS: 21. podium, 22. formidable, 23. superstitious, 24. pardon, 25. floodgate, 26. animate, 27. animate, 28. exoplanet, 29. podium

30. pu___r magnetosphere *n.* a highly magnetized, rotating neutron star that emits beams of electromagnetic radiation, which can be observed as regular pulses of light
31. space obs_____ry *n.* a building designed and equipped to observe the planets, the stars, the weather, etc.
32. the wh_____r of the leaves *v.* to speak very quietly to somebody using the breath rather than the voice so that only those close to you can hear you
33. ch_____se a child *v.* to criticize or reprimand severely; to discipline or punish for wrongdoing or mistake
34. st_____rn attitude *adj.* refusing to change one's mind or behavior despite persuasion or evidence to the contrary; unyielding; difficult to move or change
35. ast_____cal numbers *adj.* relating to astronomy or the study of celestial bodies and phenomena; very large or immense in scale or magnitude
36. financial pa___f *n.* the outcome or result of an action or series of actions; the return or reward gained from an investment, effort, or risk
37. em_____ss my project *v.* to cause someone to feel awkward, worried, or ashamed
38. commonly held mis_____ion *n.* a belief or an idea that is wrong because it has been based on faulty thinking, understanding, or hypothesis

ANSWERS: 30. pulsar, 31. observatory, 32. whisper, 33. chastise, 34. stubborn, 35. astronomical, 36. payoff, 37. embarrass, 38. misconception

39. gamma-ray pu___r *n.* a highly magnetized, rotating neutron star that emits beams of electromagnetic radiation, which can be observed as regular pulses of light
40. ex_____e in popularity *v.* to burst or break open violently and noisily; to cause something to burst or break open
41. amateur ast_____er *n.* a physicist who studies astronomy
42. applied the _____ics *n.* the area of physics that deals with heat, work, and temperature and their relation to energy, entropy, and the physical properties of matter and radiation
43. emotional pa___f *n.* the outcome or result of an action or series of actions; the return or reward gained from an investment, effort, or risk
44. ex___e the crowd *v.* to make someone feel suddenly enthusiastic or eager
45. ch_____se behavior *v.* to criticize or reprimand severely; to discipline or punish for wrongdoing or mistake
46. gra_____nal waves *adj.* relating to or caused by gravity (= the force that attracts objects towards one another)
47. personality tr__ts *n.* a particular feature of your nature
48. chemical tr__t *n.* a particular feature of your nature
49. closing of the fl_____te *n.* a gate used to control the flow of water in a dam or waterway; a situation or event that allows a sudden and large release of something, such as information or emotion

ANSWERS: 39. pulsar, 40. explode, 41. astronomer, 42. thermodynamics, 43. payoff, 44. excite, 45. chastise, 46. gravitational, 47. trait, 48. trait, 49. floodgate

ANSWERS:

Session 3: Fill in the Blanks

- Multiple genes may influence behavioral _____ concurrently.
n. a particular feature of your nature
- The _____ for all my hard work was finally getting a promotion.
n. the outcome or result of an action or series of actions; the return or reward gained from an investment, effort, or risk
- 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
- The cost of the new equipment was _____ and beyond the company's budget.
adj. relating to astronomy or the study of celestial bodies and phenomena; very large or immense in scale or magnitude
- The governor decided to _____ the prisoner after reviewing the evidence of his innocence.
v. to forgive someone for something they have said or done, such as a crime; (noun) the act of excusing a mistake or offense
- The news of her promotion _____ her.
v. to make someone feel suddenly enthusiastic or eager
- The singer received an _____ from the crowd after her performance.
n. a sustained and enthusiastic show of appreciation, usually given in the form of applause, for something or someone that is admired or respected

ANSWERS: 1. traits, 2. payoff, 3. outnumbered, 4. astronomical, 5. pardon, 6. excited, 7. ovation

8. He was so _____ about his beliefs that he refused to listen to any other points of view.
adj. refusing to change one's mind or behavior despite persuasion or evidence to the contrary; unyielding; difficult to move or change
9. The athlete worked with a coach to _____ her techniques and improve her performance.
v. to sharpen or perfect something; to improve a skill or ability through practice
10. This movie _____ at everyone's heartstrings.
v. to pull something quickly and hard, often several times
11. The mountain range was a _____ obstacle for the hikers.
adj. causing fear, apprehension, or awe; difficult to deal with or overcome; capable of inspiring respect or admiration
12. The _____ Kepler-186f is located 500 light-years from Earth and is believed to be habitable.
n. a planet that orbits a star outside of the solar system
13. He looked for an opportunity to _____ that actor in public.
v. to cause someone to feel awkward, worried, or ashamed
14. The company's innovative product release opened the _____ for competitors to follow suit.
n. a gate used to control the flow of water in a dam or waterway; a situation or event that allows a sudden and large release of something, such as information or emotion
15. He took me aside and _____ in my ear.
v. to speak very quietly to somebody using the breath rather than the voice so that only those close to you can hear you

ANSWERS: 8. stubborn, 9. hone, 10. tugs, 11. formidable, 12. exoplanet, 13. embarrass, 14. floodgates, 15. whispered

16. The only _____ left of the ancient civilization was the crumbling ruins of their temples.
- n.* a small remaining quantity of something, considered separately from what has been lost or destroyed; a surviving piece or fragment of something
17. The coach _____ the players for not giving their best effort during the game.
- v.* to criticize or reprimand severely; to discipline or punish for wrongdoing or mistake
18. This question has fascinated solar _____ for decades.
- n.* a physicist who studies astronomy
19. The second law of _____ denies the existence of a perpetual motion engine.
- n.* the area of physics that deals with heat, work, and temperature and their relation to energy, entropy, and the physical properties of matter and radiation
20. His statements were _____ leaving the audience confused.
- adj.* containing or consisting of conflicting or incompatible elements
21. Some people are _____ and believe in good luck charms and omens.
- adj.* believing in or influenced by superstitions, which are usually based on irrational or supernatural beliefs; showing excessive reverence for traditional or cultural beliefs that lack a rational basis
22. The speaker stood confidently on the _____ while delivering their speech.
- n.* a raised platform or stand that is used for delivering speeches, conducting meetings, or presenting awards

ANSWERS: 16. remnant, 17. chastised, 18. astronomers, 19. thermodynamics, 20. contradictory, 21. superstitious, 22. podium

23. The _____ force of the black hole was so strong that nothing, not even light, could escape.

adj. relating to or caused by gravity (= the force that attracts objects towards one another)

24. The old building _____ in a fiery inferno.

v. to burst or break open violently and noisily; to cause something to burst or break open

25. The positive attitude of the supervisor _____ the discussion.

v. to make something full of interest and energy

26. He had an _____ attitude and always wanted to be the center of attention.

n. having an inflated view of one's abilities or importance; thinking only about yourself

27. The astronomers detected a _____ in the center of the galaxy.

n. a highly magnetized, rotating neutron star that emits beams of electromagnetic radiation, which can be observed as regular pulses of light

28. There are numerous _____ about food and health.

n. a belief or an idea that is wrong because it has been based on faulty thinking, understanding, or hypothesis

29. That astronomical _____ stands at the top of the mountain.

n. a building designed and equipped to observe the planets, the stars, the weather, etc.

ANSWERS: 23. gravitational, 24. exploded, 25. animated, 26. egotistical, 27. pulsar, 28. misconceptions, 29. observatory