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Vocabulary Builder Reference from...

Anil Ananthaswamy: What it takes to do extreme astrophysics | TED Talk https://www.ted.com/talks/anil_ananthaswamy_what_it_takes_to_do_extreme_astrophysics



Advanced Words Only

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Session 1: Word List

embark

- v. to go on board a ship or plane; to set out on an enterprise or subject of study; to start something
- *synonym*: enter, undertake, commence
- (1) **embark** on a trip, (2) **embark** on a foolish adventure We **embarked** on a new project.

secondhand

- *adj.* having been previously owned or used by someone else *synonym*: used, pre-owned, recycled
- (1) **secondhand** car, (2) **secondhand** information He was excited to find a vintage suit at the **secondhand** shop for a fraction of the price of a new one.

exhilarate

- v. to make someone feel very happy, animated, or excited; to fill with energy or a sense of euphoria
- synonym: excite, stimulate, invigorate
- (1) **exhilarate** the crowd, (2) **exhilarate** the audience The sense of accomplishment from completing a challenging hike can **exhilarate** those who love the great outdoors

partake

- ν. to participate or share in something; to consume or enjoy food or drink
- synonym: consume, share, participate
- (1) partake in a celebration, (2) partake in an activity

Let's all **partake** in the potluck and share our favorite dishes.

pilgrim

 a person who journeys, especially a long distance, to a sacred place as an act of religious devotion

synonym: traveler, wayfarer, sojourner

(1) shrine for **pilgrims**, (2) **pilgrim** site

The group of **pilgrims** walked in silence, deep in thought and prayer.

cosmos

 another name for the universe, mainly used when it is thought of as an ordered system

synonym: universe, macrocosm

(1) exploration of **cosmos**, (2) origin of the **cosmos**Supercomputers enable scientists to create computational models of the **cosmos**.

intrepid

adj. courageous and not afraid of danger or difficulties synonym: unfearing, courageous, dauntless

(1) **intrepid** personality, (2) **intrepid** travelers

There were still **intrepid** pioneers who planned to start their businesses

cosmology

the scientific study of the nature and origin of the universe

synonym: cosmogony

(1) physical **cosmology**, (2) modern **cosmology Cosmology** evolved from people's philosophical questions about the natural world.

physicist

- n. a scientist who specializes in the field of physics
- talented physicist, (2) theoretical physicist
 Einstein was an outstanding and famous physicist of the 20th century.

swamp

 an area of low-lying land that is flooded or saturated with water, often having a growth of natural vegetation

synonym:

marsh, mire, bog

(1) muddy **swamp**, (2) **swamp** tour

The lowland **swamp** was full of dangerous animals and poisonous plants.

disturb

- v. to interrupt someone who is trying to work, sleep, etc.
- synonym: agitate, bother, intrude
- (1) disturb the peace, (2) disturb his sleep

Tourists frequently **disturb** the island's delicate natural balance.

cavern

- a large, natural underground space
- synonym: grotto, cave, cavity
- (1) a yawning cavern, (2) cavern tour

The explorer discovered a large **cavern** deep underground.

candlelight

- n. light provided by a candle or candles
- synonym: lamp light, oil light, firelight
- (1) candlelight dinner, (2) candlelight vigil

The room was dimly lit by soft candlelight.

smashing

adj. very successful or impressive; causing something to be broken or destroyed

synonym: great, wonderful, breaking

(1) a **smashing** blow, (2) give **smashing** results

The band's new album was a **smashing** success, reaching the top of the charts.

neutrino

- a very small and electrically neutral particle with a very small mass that rarely reacts with other matter
- (1) **neutrino** capture, (2) sterile **neutrinos**

This laboratory has a pool consisting of thousands of **neutrino** detectors.

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.

megaton

- n. a unit of energy equivalent to one million tons of TNT
- (1) **megaton** explosion, (2) **megaton** weapon

The power of a **megaton** bomb is equivalent to one million tons of TNT.

gigaton

- a unit of explosive energy equal to one billion tons of TNT (= a powerful, yellow explosive substance); one billion tons
- (1) **gigaton-class** bomb, (2) half a **gigaton** of CO2 The earthquake that hit the Pacific Ocean last night is said to have released about 30 **gigatons** of energy.

immerse

v. to become fully involved in a particular activity; to dip or submerge in a liquid, especially so that they or it are entirely covered

synonym: dip, inundate, submerge

(1) **immerse** the cloth in the dye, (2) completely **immerse** the ingredient

He **immersed** himself in his research.

greet

 to say hello to someone; to express welcome on meeting someone

synonym: welcome, salute, acknowledge

(1) greet a customer, (2) greet an idea

He **greeted** his friends with a warm smile and a hug.

submersible

adj. able to be operated or used underwater; capable of being submerged in water or other liquid

synonym: submarine, underwater, submerged

(1) **submersible** pump, (2) **submersible** cable

The **submersible** vehicle can explore the depths of the

ocean.

dedicate

v. to give all of your energy, time, etc., entirely to a specific person, activity, or cause; to set apart for a particular purpose or use

synonym: consecrate, devote, commit

(1) **dedicate** a few hours, (2) **dedicate** a chapter to the subject

He **dedicated** his life to helping others.

shack

 a small, often rundown dwelling or house, typically one that is poorly constructed or maintained

synonym: shanty, cabin, hut

(1) humble shack, (2) beach shack

The fisherman lived in a small **shack** by the lake.

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.

imaginative

adj. having or showing new and creative ideas

synonym: creative, innovative, inventive

(1) capable of **imaginative** creation, (2) **imaginative** as a child

She is a hard worker but not very **imaginative**.

monolithic

adj. characterized by massiveness, rigidity, and uniformity synonym: massive, monumental, hulking

(1) monolithic block, (2) monolithic system

Big technology companies try to integrate customers' data into **monolithic** applications.

grind

v. to reduce something to small particles or powder by crushing or rubbing it; to work hard over a long period of time

synonym: mill, crush, grate

(1) **grind** away at my work, (2) **grind** your teeth She had to **grind** the coffee beans before making a fresh cup.

stratosphere

 the second layer of the Earth's atmosphere, extending from about 7 to 50 kilometers above the Earth's surface, containing the ozone layer

synonym: upper atmosphere, ozone layer

- (1) **stratosphere** layer, (2) **stratosphere** ozone The ozone layer, which protects us from harmful UV radiation, is in the **stratosphere**.
- n. a small, simple, and often crude shelter or dwelling, typically made of natural materials such as wood or mud synonym: shack, cabin, cottage
- shepherd's hut, (2) fishing hut
 The little girl lived in a small hut in the woods with her family.

falcon

hut

 a bird of prey characterized by its sharp talons and hooked beak; typically having a long tail and wingspan and known for its swift and agile flight

synonym: hawk, eagle, kestrel

(1) falcon feathers, (2) peregrine falcon

The falcon's keen eyesight makes it an excellent hunter.

remnant

 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.

volcano

 a mountain or hill, typically conical, having a crater or vent through which lava, rock fragments, hot vapor, and gas are or have been erupted from the earth's crust.

synonym: mount, peak, crater

(1) volcano alert level, (2) active volcano

The island was formed by a **volcano** millions of years ago.

glacier

n. a slowly moving mass of ice formed from snow on mountains or near the North Pole or the South Pole synonym: iceberg, ice floe

(1) glacier retreat, (2) glaciers move tardily

The **glaciers** of the ice age have shaped Fjord.

parachute

- n. a device used to slow the motion of people or objects through an atmosphere consisting of a large piece of thin cloth that is attached to them and opens out in the air
- parachute troops, (2) golden parachute
 This training includes emergency escape drills with

parachutes.

helium

 a colorless, odorless, tasteless, non-toxic, inert, monatomic gas, the first in the noble gas series in the periodic table

synonym: He, light gas, noble gas

(1) helium atom, (2) helium gas

The **helium-filled** balloons floated into the sky.

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.

barefoot

adj. without shoes or other foot coverings; wearing nothing on the feet

synonym: bare, shoeless, unshod

(1) barefoot walk, (2) barefoot fashion

The **barefoot** hiker enjoyed feeling the earth beneath their feet.

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observatory

- 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.

monastery

 a building or complex of buildings in which members of a male religious community, called monks, live and worship

synonym: abbey, convent, friary

(1) **monastery** garden, (2) leave a **monastery**This ancient **monastery** was founded in the 13th century and had a long history of religious devotion.

juxtaposition

n. the act or an instance of placing two or more things close to one another, often to highlight a contrast or comparison between them

synonym: apposition, contrast, adjacency

(1) artistic **juxtaposition**, (2) unusual **juxtaposition** The painting's **juxtaposition** of bright colors and dark shadows created a striking effect.

Session 2: Spelling

1.	emk on a foolish adventure	v.	to go on board a ship or plane; to set out on an enterprise or subject of study; to start something
2.	ime the cloth in the dye	ν.	to become fully involved in a particular activity; to dip or submerge in a liquid, especially so that they or it are entirely covered
3.	artistic juxion	n.	the act or an instance of placing two or more things close to one another, often to highlight a contrast or comparison between them
4.	grd away at my work	v.	to reduce something to small particles or powder by crushing or rubbing it; to work hard over a long period of time
5.	humble shk	n.	a small, often rundown dwelling or house, typically one that is poorly constructed or maintained
6.	canht dinner	n.	light provided by a candle or candles
7.	coss the chest	v.	to press or squeeze together to make something take up less space
8.	capable of imave creation	adj.	having or showing new and creative ideas
9.	dib his sleep	v.	to interrupt someone who is trying to work, sleep, etc.
10.	origin of the cos	n.	another name for the universe, mainly used when it is thought of as an ordered

ANSWERS: 1. embark, 2. immerse, 3. juxtaposition, 4. grind, 5. shack, 6. candlelight, 7. compress, 8. imaginative, 9. disturb, 10. cosmos

system

11.	exhte the audience	ν.	to make someone feel very happy, animated, or excited; to fill with energy or a sense of euphoria
12.	a meteorological obsry	n.	a building designed and equipped to observe the planets, the stars, the weather, etc.
13.	strere layer	n.	the second layer of the Earth's atmosphere, extending from about 7 to 50 kilometers above the Earth's surface containing the ozone layer
14.	strere ozone	n.	the second layer of the Earth's atmosphere, extending from about 7 to 50 kilometers above the Earth's surface containing the ozone layer
15.	active voo	n.	a mountain or hill, typically conical, having a crater or vent through which lava, rock fragments, hot vapor, and gas are or have been erupted from the earth's crust.
16.	neno capture	n.	a very small and electrically neutral particle with a very small mass that rarely reacts with other matter
17.	sterile nenos	n.	a very small and electrically neutral particle with a very small mass that rarely reacts with other matter
18.	shrine for pims	n.	a person who journeys, especially a long distance, to a sacred place as an act of religious devotion
19.	half a gin of CO2	n.	a unit of explosive energy equal to one billion tons of TNT (= a powerful, yellow explosive substance); one billion tons

ANSWERS: 11. exhilarate, 12. observatory, 13. stratosphere, 14. stratosphere, 15. volcano, 16. neutrino, 17. neutrino, 18. pilgrim, 19. gigaton

20. monic block	adj.	characterized by massiveness, rigidity, and uniformity
21. grt an idea	<i>v</i> .	to say hello to someone; to express welcome on meeting someone
22. give smng results	adj.	very successful or impressive; causing something to be broken or destroyed
23. inid personality	adj.	courageous and not afraid of danger or difficulties
24. theoretical phst	n.	a scientist who specializes in the field of physics
25. leave a mory	n.	a building or complex of buildings in which members of a male religious community, called monks, live and worship
26. physical cogy	n.	the scientific study of the nature and origin of the universe
27. unusual juxion	n.	the act or an instance of placing two or more things close to one another, often to highlight a contrast or comparison between them
28. inid travelers	adj.	courageous and not afraid of danger or difficulties
29. dete a chapter to the subject	v.	to give all of your energy, time, etc., entirely to a specific person, activity, or cause; to set apart for a particular purpose or use
30. mory garden	n.	a building or complex of buildings in which members of a male religious community, called monks, live and worship

ANSWERS: 20. monolithic, 21. greet, 22. smashing, 23. intrepid, 24. physicist, 25. monastery, 26. cosmology, 27. juxtaposition, 28. intrepid, 29. dedicate, 30. monastery

31.	completely ime the ingredient	<i>v</i> .	to become fully involved in a particular activity; to dip or submerge in a liquid, especially so that they or it are entirely covered	
32.	secnd information	adj.	having been previously owned or used by someone else	
33.	suble cable	adj.	able to be operated or used underwater; capable of being submerged in water or other liquid	
34.	pate troops	n.	a device used to slow the motion of people or objects through an atmosphere consisting of a large piece of thin cloth that is attached to them and opens out in the air	
35.	emk on a trip	ν.	to go on board a ship or plane; to set out on an enterprise or subject of study; to start something	
36.	talented phst	n.	a scientist who specializes in the field of physics	
37.	suble pump	adj.	able to be operated or used underwater; capable of being submerged in water or other liquid	
38.	solar aster	n.	a physicist who studies astronomy	
39.	fan feathers	n.	a bird of prey characterized by its sharp talons and hooked beak; typically having a long tail and wingspan and known for its swift and agile flight	
40.	beach shk	n.	a small, often rundown dwelling or house, typically one that is poorly constructed or maintained	
ANSWERS: 31. immerse, 32. secondhand, 33. submersible, 34. parachute, 35.				

ANSWERS: 31. immerse, 32. secondhand, 33. submersible, 34. parachute, 35 embark, 36. physicist, 37. submersible, 38. astronomer, 39. falcon, 40. shack

41.	imave as a child	adj.	having or showing new and creative ideas
42.	ret of the past	n.	a small remaining quantity of something, considered separately from what has been lost or destroyed; a surviving piece or fragment of something
43.	exploration of cos	n.	another name for the universe, mainly used when it is thought of as an ordered system
44.	men explosion	n.	a unit of energy equivalent to one million tons of TNT
45.	hem atom	n.	a colorless, odorless, tasteless, non-toxic, inert, monatomic gas, the first in the noble gas series in the periodic table
46.	dib the peace	v.	to interrupt someone who is trying to work, sleep, etc.
47.	golden pate	n.	a device used to slow the motion of people or objects through an atmosphere consisting of a large piece of thin cloth that is attached to them and opens out in the air
48.	shepherd's h_t	n.	a small, simple, and often crude shelter or dwelling, typically made of natural materials such as wood or mud
49.	baot fashion	adj.	without shoes or other foot coverings; wearing nothing on the feet
50.	grt a customer	v.	to say hello to someone; to express welcome on meeting someone

ANSWERS: 41. imaginative, 42. remnant, 43. cosmos, 44. megaton, 45. helium, 46. disturb, 47. parachute, 48. hut, 49. barefoot, 50. greet

51.	monic system	adj.	characterized by massiveness, rigidity, and uniformity
52.	pae in a celebration	<i>v</i> .	to participate or share in something; to consume or enjoy food or drink
53.	exhte the crowd	<i>v</i> .	to make someone feel very happy, animated, or excited; to fill with energy or a sense of euphoria
54.	pae in an activity	<i>v</i> .	to participate or share in something; to consume or enjoy food or drink
55.	amateur aster	n.	a physicist who studies astronomy
56.	fishing h_t	n.	a small, simple, and often crude shelter or dwelling, typically made of natural materials such as wood or mud
57.	peregrine fan	n.	a bird of prey characterized by its sharp talons and hooked beak; typically having a long tail and wingspan and known for its swift and agile flight
58.	glr retreat	n.	a slowly moving mass of ice formed from snow on mountains or near the North Pole or the South Pole
59.	dete a few hours	ν.	to give all of your energy, time, etc., entirely to a specific person, activity, or cause; to set apart for a particular purpose or use
60.	glrs move tardily	n.	a slowly moving mass of ice formed from snow on mountains or near the North Pole or the South Pole
61.	voo alert level	n.	a mountain or hill, typically conical, having a crater or vent through which lava, rock fragments, hot vapor, and gas are or have been erupted from the earth's crust.

ANSWERS: 51. monolithic, 52. partake, 53. exhilarate, 54. partake, 55. astronomer, 56. hut, 57. falcon, 58. glacier, 59. dedicate, 60. glacier, 61. volcano

a unit of energy equivalent to one 62. me___n weapon n. million tons of TNT 63. re___ts of fabric a small remaining quantity of n. something, considered separately from what has been lost or destroyed; a surviving piece or fragment of something 64. space obs____ry a building designed and equipped to observe the planets, the stars, the weather, etc. a colorless, odorless, tasteless, 65. he___m gas n. non-toxic, inert, monatomic gas, the first in the noble gas series in the periodic table 66. gi___n-class bomb a unit of explosive energy equal to one billion tons of TNT (= a powerful, yellow explosive substance); one billion tons 67. a sm ng blow adj. very successful or impressive; causing something to be broken or destroyed adj. having been previously owned or used 68. sec____nd car by someone else to give off or send out something such 69. e t a gamma ray as light, heat, sound, gas, etc. a large, natural underground space 70. a yawning ca n 71. muddy sw p an area of low-lying land that is flooded n. or saturated with water, often having a growth of natural vegetation 72. ca___n tour a large, natural underground space n.

ANSWERS: 62. megaton, 63. remnant, 64. observatory, 65. helium, 66. gigaton, 67. smashing, 68. secondhand, 69. emit, 70. cavern, 71. swamp, 72. cavern

- 73. modern co____gy
- 74. ba____ot walk
- 75. sw p tour
- 76. gr d your teeth
- 77. e_t air pollution
- 78. co___ss gas
- 79. pi____m site
- 80. can____ht vigil

- *n.* the scientific study of the nature and origin of the universe
- adj. without shoes or other foot coverings; wearing nothing on the feet
- an area of low-lying land that is flooded or saturated with water, often having a growth of natural vegetation
- v. to reduce something to small particles or powder by crushing or rubbing it; to work hard over a long period of time
- v. to give off or send out something such as light, heat, sound, gas, etc.
- v. to press or squeeze together to make something take up less space
- a person who journeys, especially a long distance, to a sacred place as an act of religious devotion
- *n.* light provided by a candle or candles

ANSWERS: 73. cosmology, 74. barefoot, 75. swamp, 76. grind, 77. emit, 78. compress, 79. pilgrim, 80. candlelight

Session 3: Fill in the Blanks

1.	The power of a bomb is equivalent to one million tons of TNT.
n.	a unit of energy equivalent to one million tons of TNT
2.	This ancient was founded in the 13th century and had a long history of religious devotion.
n.	a building or complex of buildings in which members of a male religious community, called monks, live and worship
3.	Big technology companies try to integrate customers' data into applications.
adj	characterized by massiveness, rigidity, and uniformity
4.	The little girl lived in a small in the woods with her family.
n.	a small, simple, and often crude shelter or dwelling, typically made of natural materials such as wood or mud
5.	She is a hard worker but not very
adj	having or showing new and creative ideas
6.	There were still pioneers who planned to start their businesses
adj	courageous and not afraid of danger or difficulties
7.	The balloons floated into the sky.
n.	a colorless, odorless, tasteless, non-toxic, inert, monatomic gas, the first in the noble gas series in the periodic table
8.	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
	SWERS: 1. megaton, 2. monastery, 3. monolithic, 4. hut, 5. imaginative, 6. epid, 7. helium-filled, 8. remnant

ANSWERS: 9. swamp, 10. partake, 11. astronomers, 12. submersible, 13. falcon's, 14. smashing, 15. volcano, 16. gigatons

ANSWERS: 17. neutrino, 18. exhilarate, 19. physicist, 20. glaciers, 21. cosmos, 22. embarked, 23. secondhand, 24. emits

ANSWERS: 25. observatory, 26. parachutes, 27. greeted, 28. barefoot, 29. candlelight, 30. stratosphere, 31. juxtaposition, 32. pilgrims

ANSWERS: 33. disturb, 34. cavern, 35. shack, 36. dedicated, 37. grind, 38. immersed, 39. compressed, 40. Cosmology

Vocab-Builder Ref from	"Anil Ananthaswamy: What i	it takes to do extreme astroph	nysics TED Talk" (40 words)
ANSWERS:			